



# Odisha Pigeonpea Success Stories



## ICRISAT Pigeonpea: A seed for positive change

MG Mula, RS Gopalan, KB Saxena, SK Das, RV Kumar, CVS Kumar,  
SK Mohanty, YB Naik, Juli Das and SK Tripathy

**Citation:** Mula MG, Gopalan RS, Saxena KB, Das SK, Kumar RV, Kumar CVS, Mohanty SK, Naik YB, Das Juli and Tripathy SK. 2014. ICRISAT Pigeonpea: A seed for positive change. Patancheru, Telangana, India: International Crops Research Institute for the Semi-Arid Tropics. 160 pp.

© International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), 2014. All rights reserved.

ICRISAT holds the copyright to its publications, but these can be shared and duplicated for non-commercial purposes. Permission to make digital or hard copies of part(s) or all of any publication for non-commercial use is hereby granted as long as ICRISAT is properly cited. For any clarification, please contact the Director of Strategic Marketing and Communication at [icrisat@cgiar.org](mailto:icrisat@cgiar.org). ICRISAT's name and logo are registered trademarks and may not be used without permission. You may not alter or remove any trademark, copyright or other notice.

# ICRISAT Pigeonpea: A seed for positive change

MG Mula, RS Gopalan, KB Saxena, SK Das, RV Kumar, CVS Kumar,  
SK Mohanty, YB Naik, Juli Das and SK Tripathy

This work has  
been undertaken  
as part of the



RESEARCH  
PROGRAM ON  
Grain Legumes



**International Crops Research Institute  
for the Semi-Arid Tropics**



# Contents

**Introduction .....v**

## **Districts**

**Boudh.....1**

**Kalahandi .....21**

**Rayagada .....55**

**Nuapada.....107**

**Bolangir .....135**



## Introduction

*“Success isn’t about how much money you make, it’s about the difference you make in people’s lives”*

Michelle Obama

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that conducts agricultural research for development in the drylands of Asia and sub-Saharan Africa. There are 2 billion people in the semi-arid and dryland tropics and 644 million of these people are the poorest of the poor, having nothing to feed themselves and to maintain their livelihood\*. The goal of ICRISAT and its partners is to overcome this poverty and help these people to sustain their livelihood through agriculture. It aims to reduce poverty, hunger and malnutrition in the dryland tropics. It has come up with various projects and developmental programs to provide food security to the poorest of the poor. These programs are implemented to benefit the smallholder farmers. It enables the farmers to produce enough for themselves and also gain profits in terms of the food produced to sustain their livelihood.

The improved technologies of the pigeonpea varieties and hybrids were introduced among the farmers through a project “Introduction and expansion of improved pigeonpea (Arhar) production technology in rainfed upland ecosystems of Odisha”. Pigeonpea is one of the most important pulse crops of India. It does well in low fertility soils, making it a favorite among subsistence farmers. The farmers belonging to the different districts of the state (Kalahandi, Boudh, Bolangir, Rayagada and Nuapada) expressed their happiness after taking up the pigeonpea variety cultivation over the traditional landrace. Before the introduction of these new varieties, the farmers used local seeds on their lands. Some had big lands and some had small lands. But in both cases, there was hardly any difference between the expenditure and the profit. They also lacked knowledge about the various farming techniques. The farmers in Odisha have remained secluded from the improved form of cultivation and other management practices involved. The land did not produce good yield. This problem was solved when they took up the new varieties and the improved agricultural practices/ techniques, instead of the old ones. After which, the farmers experienced a 70% increase in yield and this in turn resulted to the increase in their income level. With the amount of yield they received, they not only sold their produce to the market but also, they were able to save for their own consumption and also distribute them to their friends and relatives.

As farmers are the ones who provide food to the nation, this program indeed created a great impact on their lives and also encouraged them to produce more and more. They made the best use of the information and knowledge provided to them by ICRISAT through the capacity building programs like trainings and meetings. As project support, the farmers were given teaching materials like leaflets, agronomy on pigeonpea, good quality seeds of ICRISAT varieties and hybrids, fertilizers, and pesticides for crop protection. They were also given proper guidance and full support throughout the process. This project improved the livelihoods of the farmers to a great extent.

Inside are some of the success stories of the farmers in the districts of Odisha, that narrate the way, how ICRISAT and its project changed their lives.

---

\*What ICRISAT Thinks. [www.cgiar.org/cgiar-consortium/research-centers/international-crops-research-institute-for-the-semi-arid-tropics-icrisat](http://www.cgiar.org/cgiar-consortium/research-centers/international-crops-research-institute-for-the-semi-arid-tropics-icrisat)







Boudh  
**Pigeonpea**  
Success Stories





## Bhubane Kheti: Delighted with the high yield from pigeonpea



Photo by Dillip Kumar Bhoi, FA, Boudh

Village: Purusottampur, Block: Kantamal, District: Boudh  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.6 ha  
Spacing: 60 cm × 45 cm  
Yield: 580 kg

**B**hubane Kheti, a 37-year-old smallholder farmer, lives in Purusottampur village of Kantamal block of district Boudh. His family consists of his wife and two sons aged five and three. Bhubane owns two ha of land, of which one ha is lowland, where he mainly grows paddy. The other one ha is upland where he mainly used to grow local pigeonpea, which was not yielding more than 300 kg. During April 2013, ICRISAT organized awareness campaigns about improved/high-yielding pigeonpea in conjunction with a local NGO named “People’s Forum”. When Bhubane attended these programs, he learned about new, improved and high-yielding pigeonpea varieties from ICRISAT that were suitable for rainfed upland areas of Odisha. In addition, he gained deep knowledge on improved/scientific pigeonpea production practices and decided to try growing the improved varieties instead of the local varieties.

Bhubane prepared 0.6 ha of upland, applying three cartloads of farmyard manure (FYM) while plowing. He had received 5 kg of ICPL 14002 seeds free of cost under the Improved Pigeonpea Production Technology (IPPT) program, which he sowed in line with a spacing of 60 cm × 45 cm during the third week of July. After two months he did the first weeding and earthing up, applying 20 kg DAP fertilizer at this time. To protect his crop from pests, he sprayed Trizophos and DDVP (Dichlorvos) during both the flowering and pod stages. He had done only one hand weeding. He had not followed all the recommendations for optimal care of his crop, but despite that, his 0.6 ha of land yielded 580 kg of pigeonpea, a huge increase over yields of the past. He kept 50 kg for his own consumption and sold the remaining 520 kg in the local market at ₹ 50 per kg, earning a gross profit of about ₹ 26,000. To sum up, he spent only ₹ 8,000 and made a net profit of about ₹ 18,000. He used this profit to make improvements to his house. Needless to say, Bhubane is extremely happy at getting such a good yield and plans to sow more land with this variety next year.

He had not followed all the recommendations for optimal care of his crop, but despite that, his 0.6 ha of land yielded 580 kg of pigeonpea, a huge increase over yields of the past.

## Dusta Kheti: First success enhanced my confidence



Photo by Dillip Kumar Bhoi, FA, Boudh

Village: Purusottampur, Block: Kantamal, District: Boudh  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.4 ha  
Spacing: 75 cm × 45 cm  
Yield: 350 kg

**D**usta Kheti, a 40-year-old marginal farmer lives in Purusottampur village of Kantamal block in Boudh district with his wife, mother and two sons. He owns 1.2 ha of land. Of this, 0.8 ha are lowlands where he mainly grows paddy and 0.4 ha is upland where he grows green gram and black gram all year round. From the upland plot, he hardly obtains a yield of about 100 kg - 150 kg, which he uses only for household consumption. During April 2013, ICRISAT organized awareness campaigns about improved/high-yielding pigeonpea in conjunction with a local NGO named "People's Forum". When Dusti attended these programs, he learned about new, improved and high-yielding pigeonpea varieties from ICRISAT that were suitable for rainfed upland areas

He learned about new, improved and high-yielding pigeonpea varieties from ICRISAT that were suitable for rainfed upland areas of Odisha.

of Odisha. In addition, he gained knowledge on improved/scientific pigeonpea production practices and decided to try growing the improved varieties instead of the local varieties. Dusti prepared his 0.4 ha of upland by plowing. He had received 4 kg of ICPL 14002 seeds free of cost under the Improved Pigeonpea Production Technology (IPPT) program, which he sowed in line with a spacing of 75 cm × 45 cm. After two months he did the first weeding and earthing up, applying 20 kg DAP fertilizer at this time. He did not experience any severe problem with pests, so he did not apply any pesticides to his crop.

His land yielded 350 kg pigeonpea despite the fact that he did not follow proper weeding and other intercultural practices or take care of the crop as advised by ICRISAT staff. He kept 50 kg for his own consumption and sold the remainder in the local market at ₹ 50 per kg, making a gross profit of about ₹ 15,000. To sum up, he spent only ₹ 4,000 and made a net profit of about ₹ 11,000. He used this profit to acquire more land on lease so that he can increase the area under pigeonpea. Dusti is extremely happy with the performance of this pigeonpea variety, which has enhanced his confidence as a farmer, and next year he plans to grow this on one ha of land.

## Madana Rajhansha: Found a satisfactory crop after a long time



Photo by Dillip Kumar Bhoi, FA, Boudh

Village: Binayakpur, Block: Kantamal, District: Boudh  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 60 cm × 45 cm  
Yield: 870 kg

**M**adana Rajhansha, a 42-year-old illiterate smallholder farmer, lives in Binayakpur village in Kantamal block of Boudh district with his wife, mother and daughter. He owns 2.2 ha of land, of which 0.8 ha are lowland where he mainly grows paddy all year round and the remaining 1.2 ha is upland where he mainly grows crops like lentils and green gram, which give him a revenue of not more than ₹ 10,000 – ₹ 12,000. During June 2013, an awareness campaign program was organized in his village by ICRISAT staff. Madana attended that meeting, where he learned about new improved and high-yielding ICRISAT pigeonpea varieties suitable for the rainfed upland areas of Odisha. He decided to try growing the new varieties in one ha of his upland. As project support, he received 8 kg seeds of ICPL 14002 under the IPPT program.

He prepared his land, applied 5 cartloads of FYM, and sowed seeds in line with a spacing of 60 cm × 45 cm. After one-and-a-half months he did the first weeding and earthing up, applying 50 kg DAP fertilizer at this time. Madana kept gathering new knowledge on crop management during occasional field visits by ICRISAT/ NGO staff. In addition, he attended the IPM/IDM training program organized by ICRISAT at Manumunda and gained knowledge about insect/pest management in pigeonpea. In his area pest infestation was very minimal, so he applied only one pesticide (Trizophos) spraying. He also did two rounds of weeding by hand. From that one ha of land, Madana obtained a yield of 870 kg. He kept 70 kg for his personal consumption and sold the remaining 800 kg in the local markets at ₹ 40 per kg, earning a gross profit of ₹ 32,000. He had spent about ₹ 8,000, so his net profit was ₹ 24,000.

Madana was very happy with the performance of this variety, as the local varieties barely yield 400-500 kg per ha, and said that after a long time he had found a satisfactory crop for his uplands. He used some of his profit for repairing his house and saved the rest. Next year he plans to grow the same variety in his one ha of upland with greater care and using proper methods.

Next year he plans to grow the same variety in his one ha of upland with greater care and using proper methods.



## Madhusudan Bastia: Better livelihood alternative in rainfed uplands



Photo by Dillip Kumar Bhoi, FA, Boudh

Village: Sundhipadara, Block: Kantamal, District: Boudh  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 75 cm × 45 cm  
Yield: 750 kg

**M**adhusudan Bastia, a farmer from Sundhipadara village of Kantamal block in Boudh district, lives with his wife, mother, a brother and two sons. He is a high school teacher, but in addition to teaching, he farms with his brother during holidays. He owns 4 ha of land, of which three ha are lowlands where he mainly grows paddy, and one ha consists of uplands where he grows local pigeonpea all year round. However, the local variety does not yield more than 350-400 kg ha<sup>-1</sup>. During May 2013, an awareness campaign on improved/high-yielding pigeonpea was organized by ICRISAT and a local NGO named "People's Forum". Madhusudan attended the program and learned about new improved and high-yielding pigeonpea varieties of ICRISAT suitable

He gained knowledge on pigeonpea production practices and decided to try growing these varieties in place of the local variety he usually grew. As project support, he received 8 kg seeds of ICPL 14002 under the IPPT program.

to rainfed upland areas of Odisha. In addition, he gained deep knowledge on improved/scientific pigeonpea production practices and decided to try growing these varieties in place of the local variety he usually grew. As project support, he received eight kg seeds of ICPL 14002 under the IPPT program.

Madhusudan prepared his one ha of land and sowed seeds in line with a spacing of 75 cm × 45 cm. After one-and-a-half months, he did the first weeding and earthing up of the crop and applied 50 kg DAP. He had gathered information from ICRISAT staff on effective control of different diseases and pests. Although in his crop, the pest infestation was relatively low, he applied one spraying of DDVP (Dichlorvos) which he obtained from the Agriculture Department at a 50% subsidy.

From his one ha of land he got a yield of 750 kg, despite not carefully following the recommendations for proper care of the crop advised by ICRISAT staff. He kept 90 kg for his personal consumption and 10 kg to plant the following year. He sold the remaining 650 kg in the local market at ₹ 50 per kg and made a gross profit of about ₹ 32,500. Having spent about ₹ 8,000, he made a net profit of ₹ 24,500 as compared to the ₹ 10,000-₹ 12,000 profit he usually made from the local variety. He decided to save the money in a bank. He is extremely happy with the performance of this variety and says that, this is a better livelihood alternative in rainfed uplands than any other crop. Next year he has planned to grow this variety again in his entire one ha of upland by using the seeds he preserved from this year's crop.



## Rama Chandra Sahu: Proper care yielded rewards



Photo by SK Mohanty, DCO, Rayagada

Village: Pathar Khandi, Block: Kantamal, District: Boudh  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT).  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 75 cm × 60 cm  
Yield: 1 ton

Rama Chandra Sahu, a 52-year-old farmer, lives in Pathar Khandi village of Kantamal block of district Boudh with his wife, parents and three sons. He owns eight ha of land, of which 6 ha are lowlands where he mainly grows paddy and two ha are upland where he mainly grows local pigeonpea. However, this local pigeonpea variety was yielding not more than 800 kg from two ha (approx. 300 kg ha<sup>-1</sup>). During May 2012, ICRISAT organized awareness campaigns about improved/high-yielding pigeonpea in conjunction with a local NGO named “People’s Forum”. Rama Chandra attended these programs and learned about new improved and high-yielding pigeonpea varieties of ICRISAT, suitable to rainfed upland areas of Odisha. In addition, he gained knowledge on improved/scientific pigeonpea production practices and decided to try growing these varieties in place of local varieties. He sowed one ha land with variety “Maruti” but his entire crop was damaged due to heavy rain.

During 2013-14, Rama Chandra registered his name once again on the beneficiary list to grow the same variety. He plowed his one ha of upland and applied 4 cartloads of FYM. He had received eight kg seeds of ICPL 14001 under IPPT program free of cost as project support. He sowed seeds in line with a spacing of 75 cm × 45 cm during the second week of July. During sowing he applied 40 kg DAP fertilizer as a basal dose. After 50 days he did the first weeding and earthing up, while also applying another 40 kg dose of DAP. He had gathered information on scientific cultivation practices and effective control of different diseases and pests in pigeonpea from ICRISAT and Agriculture Department staff, and also attended the training program on IPM/IDM in Pigeonpea organized by ICRISAT. To protect his crop from pest problems; he sprayed two times with Chloropyriphos during flowering and pod stages. He weeded the crop by hand once, and also applied one hormone (PInofix ) to check flower drop. From his one ha of land, he obtained a yield of one ton, and admits that the yield was probably lower than it could have been due to less care. Rama Chandra kept 200 kg of the yield for his personal consumption and sold the rest to local traders at a price of ₹ 50 per kg, earning a gross profit of ₹ 40,000. Having spent about ₹ 13,000 in all on the crop, he obtained a net profit of ₹ 27,000. Of this profit, he spent a certain amount on land development and some to perform his son’s marriage. Having seen that growing this new variety proved much more profitable than the local varieties, he plans to cultivate it again, this time with better care. He plans to increase the area under pigeonpea up to four ha by leasing another two ha.

He had gathered information on scientific cultivation practices and effective control of different diseases and pests in pigeonpea from ICRISAT and Agriculture Department staff, and also attended the training program on IPM/IDM in Pigeonpea organized by ICRISAT.



## Ramesh Mendili: Happy to obtain unexpected yield from pigeonpea crop



Photo by SK Mohanty, DCO, Rayagada

Village: Nuapali, Block: Boudh, District: Boudh  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.8 ha  
Spacing: 75 cm × 60 cm  
Yield: 1 ton

**R**amesh Mendili, a 32-year-old smallholder farmer, lives in Nuapali village of Boudh block in Boudh district with his wife and one daughter. He owns two ha of land, in which he cultivates paddy. Besides paddy, every year he grows local pigeonpea by taking about one ha land on lease. From the local pigeonpea variety as per his own view he gets 300-400 kg yield without any proper care and gets hardly ₹ 8000-10000 profit. In May 2013, ICRISAT organized awareness campaigns about improved/high-yielding pigeonpea in conjunction with a local NGO named “People’s Forum”. Ramesh attended these programs and learned about new improved and high-yielding pigeonpea varieties of ICRISAT, suitable to rainfed upland areas of Odisha. In addition, he

gained knowledge on improved/scientific pigeonpea production practices and decided to try growing these varieties. He had received eight kg seeds of ICPL 14001 under IPPT program free of cost as project support. Ramesh prepared his land, applied three cartloads of FYM, and sowed seeds in line with a spacing of 75 cm × 60 cm on 0.8 ha of land, also sowing local pigeonpea on the other 0.2 ha to compare the performance between new and local varieties. After one-and-a-half months, he started the first weeding and earthing up, also applying 50 kg DAP at this time. He had gathered information on scientific cultivation practices and effective control of different diseases and pests in pigeonpea from ICRISAT and Agriculture Department staff, and also attended the training program on IPM/IDM in Pigeonpea organized by ICRISAT. Pest infestation in his crop was quite low and so he applied only one pesticide (Trizophos) spraying. He weeded by hand the crop thrice. From the 0.8 ha under ICPL 14001, Ramesh obtained a yield of one t, while the remaining 0.2 ha under the local variety yielded only 120 kg. He kept 120 kg local grains and 30 kg ICPL 14001 grain for his personal consumption, and sold the remaining 970 kg in the local markets at ₹ 40 per kg, earning about ₹ 38,800. He had spent about ₹ 10,000 on his crop and so his net profit was ₹ 28,800. Of this, he used some for repairing his house and used the rest to lease more land. He was very happy with the superior performance of the improved variety, which he had not expected, and he plans to grow ICPL 14001 next year on four ha land by taking more land on lease.



He kept 120 kg local grains and 30 kg ICPL 14001 grain for his personal consumption, and sold the remaining 970 kg in the local markets at ₹ 40 per kg, earning about ₹ 38,800.



## Rusabha Koltha: New variety doubled his profit



Photo By Dillip Ku Bhoi, FA, Boudh

Village: Sundhipadara, Block: Kantamal, District: Boudh  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.6 ha  
Spacing: 75 cm × 45 cm  
Yield: 500 kg

**R**usabha Koltha, a 65-year-old smallholder farmer, lives in Sundhipadara village under Kantamal block in district Boudh with his wife, two sons and daughter-in-law. He owns 2.6 ha of land, of which 1.6 ha are lowlands where he mainly grows paddy and one ha is upland where he mainly grows local pigeonpea all year round. These local pigeonpea varieties hardly yield 250-300 kg ha<sup>-1</sup>. In May 2013, ICRISAT organized awareness campaigns about improved/high-yielding pigeonpea in conjunction with a local NGO named "People's Forum". Rusabha attended these programs and learned about new improved and high-yielding pigeonpea varieties of ICRISAT, suitable to rainfed upland areas of Odisha. In addition, he gained knowledge on improved/scientific pigeonpea production practices and decided to try growing these varieties.

He had received five kg seeds of ICPL 14002 under IPPT program free of cost as project support. He prepared 0.6 ha of land and sowed seeds in line with a spacing of 75 cm × 45 cm. After one-and-a-half months, he did the first weeding and earthing up. He did not apply any chemical fertilizers, instead he applied five cartloads of FYM during cultivation. He had gathered information from ICRISAT staff on scientific cultivation practices and effective control of different diseases and pests in pigeonpea. Though the pest infestation was low in his crop, he applied one spraying of DDVP, which he obtained from the Agriculture Department at a 50% subsidy. His 0.6 ha under ICPL 14002 yielded 500 kg, despite his not having followed all the practices like proper weeding and other intercultural practices advised by ICRISAT staff. Rusabha kept 40 kg for his own consumption and 10 kg to sow the following year. He sold the remaining 450 kg in the local market at ₹ 50 per kg, earning ₹ 22,500 as gross profit. Having spent about ₹ 6,000 on the crop, he earned a net profit of ₹ 16,500, where the local variety gave him a profit of just about ₹ 7,000 - ₹ 8,000. He used this profit for repairing his asbestos house. Rusabha is extremely happy with the performance of this variety and next year he has planned to increase the area under this crop.

He kept 40 kg for his own consumption and 10 kg to sow the following year. He sold the remaining 450 kg in the local market at ₹ 50 per kg, earning ₹ 22,500 as gross profit. Having spent about ₹ 6,000 on the crop, he earned a net profit of ₹ 16,500.



## Sanjat Kumar Bastia: ICRISAT pigeonpea variety changed my thinking towards pigeonpea cultivation



Photo by Dillip Ku Bhoi, FA, Boudh

Village: Sundhipadara, Block: Kantamal, District: Boudh  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.6 ha  
Spacing: 75 cm × 45 cm  
Yield: 650 kg

Sanjat Kumar Bastia, a 38-year-old farmer, lives in Sundhipadara village, of Kantamal block in Boudh district with his wife, 5-year-old daughter and 3-year-old son. He is a college graduate who farms his 2.4 ha of land. Of this, 1.6 ha are lowlands where he mainly grows paddy and 0.8 are upland where he was growing local pigeonpea varieties, which were not yielding more than 200-300 kg. In 2013, ICRISAT organized awareness campaigns about improved/high-yielding pigeonpea in conjunction with a local NGO named "People's Forum". Sanjat Kumar attended these programs and learned about new improved and high-yielding pigeonpea varieties of ICRISAT, suitable to rainfed upland

areas of Odisha. In addition, he gained knowledge on improved/scientific pigeonpea production practices and decided to try growing these varieties. He prepared his 0.6 ha of upland, applying two cartloads of FYM during plowing. He had received five kg seeds of ICPL 14002 under IPPT program free of cost as project support. He sowed seeds in line with a spacing of 75 cm × 45 cm. After two months, he did the first weeding and earthing up, applying 40 kg DAP fertilizer during this time. He had gathered information from ICRISAT staff on scientific cultivation practices and effective control of different diseases and pests in pigeonpea. To protect his crop, he sprayed twice with Trizophos and DDVP. His 0.6 ha of land under ICPL 14002 yielded 650 kg. Sanjat Kumar kept 40 kg for his household consumption, kept 10 kg for sowing the next year and sold the remaining 500 kg in the local market at ₹ 50 per kg, earning ₹ 25,000 as gross profit. As he had spent about ₹ 7,000 in all, he earned a net profit of ₹ 18,000. Sanjat Kumar is extremely happy with this, and admits that it has changed his views on pigeonpea cultivation. He used the profit to develop a mango orchard. He has planned to grow ICPL 14002 in about one ha land next year using his own reserved seeds.

He has planned to grow ICPL 14002 in about one ha land next year using his own reserved seeds.



## Balaram Rajhansha: Praised ICRISAT for helping poor farmers in remote areas



Photo by Dillip Ku Bhoi, FA, Boudh

Village: Hanshapall, Block: Kantamal, District: Boudh  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.80 ha  
Spacing: 75 cm × 45 cm  
Yield: 900 kg

**B**alaram Rajhansha, a 25-year-old farmer lives with his wife and 1-year-old son in Hanshapali village of block Kantamal in Boudh district. He owns 1.6 ha of land, which is his primary source of income to support his family. Of this, 0.8 ha are lowlands and 0.8 ha are uplands. In the 0.8 ha of upland he mainly grows local pigeonpea varieties all year round and had been obtaining a yield of hardly 400-500 kg. During 2013, when he heard about new improved and high-yielding pigeonpea varieties from ICRISAT staff, he decided to try growing these varieties. He attended the awareness campaigns organized by ICRISAT and a local NGO named People's Forum, and gained information about the new improved pigeonpea varieties and scientific production practices to ensure a better yield.

He received 6.5 kg seeds of ICPL 14002 free of cost as project support for his 0.8 ha of land. Balaram prepared his land and, after leveling it, he sowed seeds in line at a spacing of 75 cm × 45 cm, applying 40 kg DAP as a basal dose application at this time. After one-and-a-half months he did earthing up and made ridges. He started taking more interest in the crop when he saw plenty of yellow flowers with profuse branching. To avoid pest damage he sprayed Trizophus and DDVP twice, having bought these pesticides from the Agriculture Department at a subsidy. At harvest, he obtained a yield of 900 kg, where he was getting only 400-500 kg from local pigeonpea in previous years. He kept 50 kg for household consumption and sold the remaining 850 kg in the open market at ₹ 40 per kg, making a gross profit of ₹ 34,000. Having spent about ₹ 8,000, he earned a net profit of ₹ 26,000 of which he used some for repairs to his house and saved the rest. Balaram is extremely happy with the performance of this variety and intended to continue sowing it in future instead of the local varieties, using more precise and better cultural management practices. He is all praise for ICRISAT for its efforts to help the poor farmers of his area.

During 2013, when he heard about new improved and high-yielding pigeonpea varieties from ICRISAT staff, he decided to try growing these varieties.



## Hara Rajhansha: New improved pigeonpea variety made me more enthusiastic



Photo by Dillip Ku Bhoi, FA, Boudh

Village: Binayakpur, Block: Kantamal, District: Boudh  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 75 cm × 45 cm  
Yield: 900 kg

**H**ara Rajhansha, a 41-year-old smallholder farmer of village Binayakpur of Kantamal block in Boudh district lives with his wife and two sons. He owns 2 ha of land, of which 1 ha is lowland, where he mainly grows paddy all year round, and the other 1 ha is upland, where he grows local pigeonpea varieties and other minor millets. In April 2013, ICRISAT organized awareness campaigns about improved/high-yielding pigeonpea in conjunction with a local NGO named “People’s Forum”. When Hara attended these programs, he learned about new, improved and high-yielding pigeonpea varieties from ICRISAT that were suitable for rainfed upland areas of Odisha. In addition, he gained deep knowledge on improved/scientific pigeonpea production practices and decided to try growing the improved varieties instead of the local varieties.

Hara received 8 kg of ICPL 14002 seeds free of cost under the IPPT program as project support. He prepared his land and sowed seeds in line with a spacing of 75 cm × 45 cm, applying 50 kg DAP at this time.

Hara received 8 kg of ICPL 14002 seeds free of cost under the IPPT program as project support. He prepared his land and sowed seeds in line with a spacing of 75 cm × 45 cm, applying 50 kg DAP at this time. After one-and-a-half months, he did the first weeding and earthing up. He had attended the IPM/IDM training program organized by ICRISAT at Manumunda during November and learned how to control insect/pests properly. In his area pest infestation was very minimal, so he applied only one pesticide (Trizophos) spraying as a precautionary measure. Besides this, he had weeded the crop by hand twice. At harvest, he obtained a yield of about 900 kg. He kept 100 kg for household consumption and sold the remaining 800 kg in the open market at ₹ 40 per kg, earning ₹ 32,000 as gross profit. Having spent about ₹ 8,000 in all, he made a net profit of ₹ 24,000 of which he spent some for his household expenditure and banked the rest. He was very happy with his success and the performance of this new variety and he says that this variety made him more enthusiastic toward pigeonpea cultivation.



## Jagannatha Karna: ICRISAT staff showed me a new way to earn income



Photo by Dillip Ku Bhoi, FA, Boudh

Village: Digi, Block: Boudh, District: Boudh  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1.6 ha  
Spacing: 75 cm × 45 cm  
Yield: 1260 kg

Jagannatha Karna, a farmer of village Digi, block-Boudh, lives in a large family that consists of his wife, parents and four sons. All his children are studying. He owns 8.9 ha of land, of which 2.8 ha are lowlands and 6.1 ha are uplands. Besides cultivation he runs a grocery shop in his village and he also does seasonal local trading of different crop produces. In two ha of upland, he was growing local pigeonpea varieties all year round, which hardly yielded 400-500 kg. During April 2013, ICRISAT organized awareness campaigns about improved/high-yielding pigeonpea in conjunction with a local NGO named “People’s Forum”. When Jagannatha attended these programs, he learned about new, improved and high-yielding pigeonpea varieties from ICRISAT that were suitable for rainfed upland areas of Odisha. In addition, he gained deep knowledge on improved/scientific pigeonpea production practices and decided to try growing the improved varieties instead of the local varieties.

Jagannatha received 12 kg of ICPL 14002 seeds free of cost under the IPPT program as project support. He prepared his land and sowed seeds in the second week of July in line with a spacing of 75 cm × 45 cm, applying 60 kg DAP as a basal dose at this time. After one-and-a-half months, he did the first weeding and earthing up and applied another 40 kg DAP to the crop. He attended the IPM/IDM training program organized by ICRISAT at Manumunda and gained deep knowledge about insect/pest management in pigeonpea which helped him successfully control insect/pests. In his area pest infestation was very minimal, but he applied two pesticide sprayings as a precautionary measure. Besides this, he had weeded the crop by hand twice. At harvest, he obtained a yield of 1260 kg. He kept 60 kg seeds with him for household consumption and sold the rest in the open market at ₹ 42 per kg, earning a gross profit of ₹ 50,400. Having spent about ₹ 14,000 in all, his net profit was ₹ 36,400.

In an adjoining 0.4 ha plot, he had also grown local variety as a check to compare the performance and that land yielded only 210 kg. He admits that the new improved varieties are yielding far better than local varieties and he also admitted that if he had taken better care to follow best practices as recommended by ICRISAT staff, he would have definitely got a higher yield. He used his profit to expand his business. He was extremely happy by the large profit he earned, and grateful to ICRISAT staff for showing him a path for getting more income. Next year he plans to grow this variety on 4.8 ha of land. Besides this, he has also agreed to use 0.4 ha of land for *Farmer Participatory Varietal Selection Trials* (FPVST) to study the performance of different new varieties in that climate.

At harvest, he obtained a yield of 1,260 kg. He kept 60 kg seeds with him for household consumption and sold the rest in the open market at ₹ 42 per kg, earning a gross profit of ₹ 50,400. Having spent about ₹ 14,000 in all, his net profit was ₹ 36,400.



## Kambhu Rajhansha: More profit even with less care



Photo By Dilip Ku Bhoi, FA, Boudh

Village: Binayakpur, Block: Kantamal, District: Boudh  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.40 ha  
Spacing: 75 cm × 45 cm  
Yield: 410 kg

**K**ambhu Rajhansha, a 50-year-old farmer of Binayakpur village of Kantamal block lives with his wife and little son. He owns four acres of land, of which 1.2 ha is under paddy and, on the remaining 0.4 ha of medium land, he grows local pigeonpea all year round which yields hardly 200 kg. When ICRIASAT staff organized a meeting in his village, he attended the meeting and learned about the new improved and high-yielding pigeonpea varieties of ICRIASAT. He registered his name in the beneficiary list and decided to grow ICPL 14002 on 0.4 ha of land. He received three kg of ICPL 14002 seeds free of cost under the IPPT program as project support. He plowed his land thrice and then sowed seeds in lines with a spacing of 75 cm × 45 cm during the third week of July,



applying 30 kg DAP at this time. After 45 days, during the first weeding, he also did the earthing up and made ridges. In his area pest infestation was very minimal, so he applied only one pesticide (Trizophos) spraying as a precautionary measure and avoided pest infestation effectively. He had bought the pesticides from the Agriculture Department at a subsidy. At harvest, he obtained a yield of 410 kg, of which he kept 50 kg for household consumption and sold the remaining 360 kg in the open market at ₹ 41 per kg, earning a gross profit of ₹ 14,760. Having spent ₹ 3,500 in all, he made a net profit of ₹ 11,260 where earlier his profit from local varieties was never more than ₹ 4,000 - ₹ 5,000. He saved this profit to use for his next crop. He is very happy at this success and admits that, had he applied proper cultivation practices, he would have definitely made an even higher profit. Next year Kambhu plans to grow this variety on another 0.6 ha land that belongs to his father.

At harvest, he got 410 kg, of which he kept 50 kg for himself and sold the remaining 360 kg in the market at ₹ 41 per kg, earning a gross profit of ₹ 14,760. Having spent ₹ 3,500 in all, he made a net profit of ₹ 11,260.

## Kartikeswara Mendeli: Found the right crop for his rainfed uplands



Photo by Dillip Ku Bhoi, FA, Boudh

Village: Nuapali, Block: Boudh, District: Boudh

Pigeonpea Variety: ICPL 14001

Cropping System: Monocrop (IPPT)

Seed Rate: 8 kg ha<sup>-1</sup>

Area: 0.6 ha

Spacing: 75 cm × 45 cm

Yield: 700 kg

**K**artikeswara Mendeli, a 54-year-old smallholder farmer, lives with his wife and two married sons in a joint family in village Nuapali of Boudh block in Boudh district. He owns two ha of land, of which one ha is lowland where he mainly grows paddy all year round and the other one ha is upland, where he grows local varieties of pigeonpea, green gram, black gram, horse gram and other minor millets. During April 2013, ICRISAT organized awareness campaigns about improved/high-yielding pigeonpea in conjunction with a local NGO named “People’s Forum”. When Kartikeswara attended these programs, he learned about new, improved and high-yielding pigeonpea varieties from ICRISAT that were suitable for rainfed upland areas of Odisha. In addition, he gained deep knowledge on improved/scientific pigeonpea production practices and decided to try growing the improved varieties on 0.6 ha of upland.

Kartikeswara received five kg of ICPL 14001 seeds free of cost under the IPPT program as project support. He plowed his land four times and leveled it, applied three tractor loads FYM and then sowed seeds in line with a spacing of 75 cm × 45 cm during the second week of July. He applied 40 kg DAP at the time of sowing, and after one-and-a-half months he did the first weeding by hand and also did the earthing up. He had attended the IPM/IDM training program during November at Manumunda and gained detailed knowledge on effective control of insect/pests in pigeonpea. Although the occurrence of insects/pests is low in his area, he applied two pesticide (Trizophus, neem oil) sprayings as precautionary measures to protect his crop from damage. Besides this, he did the weeding by hand thrice. At harvest, he obtained a yield of about 700 kg of which he kept 50 kg for domestic consumption and sold the remaining 650 kg in the open market at ₹ 45 per kg, earning ₹ 29,250 as gross profit. As he had spent only about ₹ 7,000 in all, he made a net profit of ₹ 22,250. As an experimental control, in 0.4 ha of an adjoining field, he had also grown local checks to compare the performance of the local with the new improved variety. This 0.4 ha of land yielded only 250 kg yield, which clearly demonstrated to him the superior productivity of the new improved varieties over the local varieties. He was extremely happy with his success and with the performance of this new variety and he is convinced that he has found the right choice of crop for his uplands. Next year, he has planned to use his profit to acquire four more ha of land on lease to grow more of this variety.

At harvest, he obtained a yield of about 700 kg of which he kept 50 kg for domestic consumption and sold the remaining 650 kg in the open market at ₹ 45 per kg, earning ₹ 29,250 as gross profit.



## Mayadhara Sandha: Saw a ray of hope for his less profitable upland



Photo by Dillip Ku Bhoi, FA, Boudh

Village: Lunpanga, Block: Kantamal, District: Boudh  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.4 ha  
Spacing: 75 cm × 45 cm  
Yield: 450 kg

**M**ayadhara Sandha, a 65-year-old marginal farmer, lives with his wife and two sons in Lunpanga village of Kantamal block in Boudh district. His younger son is in the army and the older son helps him in farming. He owns 1.6 ha of land, of which 0.8 ha is lowland and the rest is medium-upland. In his 0.8 ha of upland he grows small vegetables and local varieties of pigeonpea all year round, but was not making much of a profit. During an awareness meeting conducted by ICRISAT staff in his village, he learned about different new, high-yielding, improved varieties/hybrids of pigeonpea. In addition, he gained more knowledge on scientific and improved production practices for pigeonpea to ensure better yield. At this meeting, he expressed his wish

He prepared his land, applied four cartloads of FYM and sowed the seeds in line in a spacing of 75 cm × 45 cm. After 45-50 days, he did a first weeding by hand and earthing up of soils.

to grow these varieties on 0.4 ha of his upland, where he had been growing local pigeonpea since five years. He received three kg seeds of ICPL 14001 free of cost as project support from ICRISAT. He prepared his land, applied four cartloads of FYM and sowed the seeds in line in a spacing of 75 cm × 45 cm. After 45-50 days, he did a first weeding by hand and earthing up of soils.

Mayadhara had attended a training program on IPM/IDM organized by ICRISAT at Manumunda, which helped him learn about pest management in pigeonpea. To check crop damage by pests, he sprayed pesticide twice. At harvest, he obtained a yield of 400 kg whereas during previous years he had only been getting about 200-250 kg from local varieties. He admitted that he had not taken proper care as per the advice from ICRISAT staff, or the yield would likely have been greater. He sold his produce to local traders at a price of ₹ 41 per kg, earning a gross profit of ₹ 18,450. Having spent about ₹ 4,000 in all, he made a net profit of ₹ 14,450. Obtaining such high profit from 0.4 ha showed him a ray of hope for his less-than-profitable upland. He was very happy with the performance of this variety, and next year he has planned to grow it in a larger area.





## Mohana Rajhansha: Good yield led to belief in the new ICRISAT pigeonpea variety



Photo by Dillip Ku Bhoi, FA, Boudh

Village: Binayakpur, Block: Kantamal, District: Boudh  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 75 cm × 60 cm  
Yield: 850 kg

**M**ohan Rajhansha, a 47-year-old smallholder farmer, lives with his wife, son and daughter in Binayakpur village of Kantamal block in Boudh district. He owns two ha of land, of which one ha is under paddy and the other one ha is upland. In his one ha of upland he has been growing local pigeonpea varieties that yielded barely about 400-500 kg. When ICRISAT staff organized a meeting in his village, he attended the meeting and learned about the new improved and high-yielding pigeonpea varieties of ICRISAT. In addition, he gained knowledge about proper scientific cultivation practices for successful pigeonpea cultivation and decided to try growing these new varieties.

He received eight kg of ICPL 14002 seeds free of cost under the IPPT program as project support. After preparing his one ha of upland, he sowed seeds at a spacing of 75 cm × 60 cm, applying 50 kg DAP at this stage. After 45 days he did the first weeding and earthing up to ensure proper growth. To avoid pest attack, he applied two pesticides (Trizophus, DDVP) sprayings during flowering and fruiting times. At harvest, he obtained a yield of 850 kg. This dispelled his initial doubts about the claims made by the ICRISAT staff about the higher productivity of improved varieties. From the 850 kg of produce, he kept 50 kg for domestic consumption, and sold the remaining 800 kg at ₹ 41 per kg, earning a gross profit of ₹ 32,800. As he had spent about ₹ 8,000 in all, his net profit was ₹ 24,800. He was extremely happy at the success of these new varieties and decided to increase his area under these in the future by taking more land on lease. Besides this, he has also agreed to do a FPVST to study the performance of hybrids in this climate.

After preparing his one ha of upland, he sowed seeds at a spacing of 75 cm × 60 cm, applying 50 kg DAP at this stage. After 45 days he did the first weeding and earthing up to ensure proper growth.



## Pabitra Kumar Pradhan: Had never got such a high profit from his land



Photo by SK Mohanty, DCO, Rayagada

Village: Nuapali, Block: Boudh, District: Boudh  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 90 cm × 45 cm  
Yield: 1700 kg

**P**abitra Kumar Pradhan, a smallholder farmer, lives with his wife and two children in village Nuapali of Boudha block. He owns two ha of upland, on which he grows green gram, black gram and local pigeonpea all year round, earning hardly ₹ 15,000-20,000 as profit. He struggles to sustain his family on this sum and was leading a hand-to-mouth existence. During April 2013, ICRISAT organized awareness campaigns about improved/high-yielding pigeonpea in conjunction with a local NGO named “People’s Forum”. When Pabitra attended these programs, he learned about new, improved and high-yielding pigeonpea varieties from ICRISAT that were suitable for rainfed upland areas of Odisha. In addition, he gained deep knowledge on improved/scientific pigeonpea

At harvest, he got 1,700 kg. He kept 100 kg for himself, and sold the remaining 1,600 kg in the open market at ₹ 41 per kg, earning a gross profit of ₹ 65,600. He had spent about ₹ 15,000 on the crop, and got a net profit of ₹ 50,600.

production practices and decided to try growing the improved varieties. Pabitra received 16 kg of ICPL 14001 seeds free of cost under the IPPT program as project support. He prepared his land and sowed seeds in line with a spacing of 90 cm × 45 cm, applying 60 kg DAP at this time. After one-and-a-half months, he did the first weeding and earthing up soil to the crop and made ridges. Pabitra had attended a training program on IPM/IDM organized by ICRISAT at Manumunda, which helped him learn about pest management in pigeonpea. To check crop damage by pests, he sprayed pesticide twice. Besides this, he did the weeding twice by hand. At harvest, he got a yield of about 1,700 kg. He kept 100 kg for domestic consumption, distributed some to his relatives, and sold the remaining 1,600 kg in the open market at ₹ 41 per kg, earning a gross profit of ₹ 65,600. He had spent about ₹ 15,000 on the crop, and got a net profit of ₹ 50,600. He was extremely happy to make so much profit, which had never happened before. Of the profit he made, he bought some gold for his wife and spent some money on his children’s education. Next year he plans to grow this variety on 4 ha of land by leasing more land.



## Ramesh Gaigoria: Feeling lucky to be an ICRISAT pigeonpea grower



Photo by Dillip Ku Bhoi, FA, Boudh

Village: Dungipadara, Block: Kantamal, District: Boudh  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 75 cm × 45 cm  
Yield: 850 kg

Ramesh Gaigoria, a farmer of Dungipadara village of Kantamal block lives in a large, 18-member joint family with his parents and three brothers. The family owns about eight ha of land, of which two ha are upland, where Ramesh grows green gram, finger millet and local pigeonpea all year round. During May 2013, ICRISAT organized awareness campaigns about improved/high-yielding pigeonpea in conjunction with a local NGO named “People’s Forum”. When Ramesh attended these programs, he learned about new, improved and high-yielding pigeonpea varieties from ICRISAT that were suitable for rainfed upland areas of Odisha. In addition, he gained deep knowledge on improved/scientific pigeonpea production practices and decided to try growing the improved varieties.

Ramesh registered his name as a beneficiary and received 6 kg of variety ICPL 14001 seeds free of cost under the IPPT program as project support. He decided to grow these new varieties on 0.6 ha of land. He covered about 1 ha of land, having sowed one seed per hill. He sowed seeds in the first week of July after plowing and applying 40 cartload of FYM, and during sowing he applied 50 kg DAP. After 45-50 days he did the first weeding and earthing up. In addition, he did two rounds of weeding by hand, and once by using a chemical. To protect the crop from pest damage, he sprayed pesticide twice. During flowering time he applied a hormone (Planofix) spraying to prevent flower drop and managed to arrest flower drop to some extent. At harvest, he obtained a yield of 850 kg. He sold his produce at a price of ₹ 45 per kg, and earned a gross profit of ₹ 38,250. He had spent about ₹ 8,000 in all and earned a net profit of ₹ 30,000 where he was earlier hardly getting a yield of 400-500 kg. He used his profit to dig a bore well. Ramesh says that he is extremely lucky to be an ICRISAT pigeonpea grower. He is extremely happy with his success and next year he has planned to grow this new variety on 2 ha of land.

Ramesh registered his name as a beneficiary and received 6 kg of ICPL 14001 seeds free of cost under the IPPT program as project support.



## Sushil Mendili: ICPL 14001 variety strengthened my will power



Photo by Dillip Ku Bhoi, FA, Boudh

Village: Digi, Block: Boudh, District: Boudh  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 75 cm × 45 cm  
Yield: 1700 kg

Sushil Mendili, a 30-year-old farmer of village Digi in Boudh block, lives with his father, mother, one brother and one sister. The family jointly owns 9.7 ha of land, of which two ha are uplands and the rest are low/medium lands. In the two ha of upland, Sushil grows green gram, black gram and local pigeonpea all year round, but these barely yield a profit of about ₹ 20,000-25,000. During May 2013, ICRISAT organized awareness campaigns about improved/high-yielding pigeonpea in conjunction with a local NGO named “People’s Forum”. When Sushil attended these programs, he learned about new, improved and high-yielding pigeonpea varieties from ICRISAT that were suitable for rainfed upland areas of Odisha. In addition, he gained deep knowledge on improved/

He received 16 kg of ICPL 14001 seeds free of cost under the IPPT program as project support.

scientific pigeonpea production practices and decided to try growing the improved varieties in his upland. He received 16 kg of ICPL 14001 seeds free of cost under the IPPT program as project support.

Sushil prepared his 2 ha of land to grow these new improved varieties. He sowed seeds in line with a spacing of 75 cm × 45 cm, applying 80 kg DAP at this time. After 45 days, he started the first weeding and earthing up and made ridges to enable proper crop growth. He had attended the IPM/IDM training program organized by ICRISAT during November and knew about effective control of insects/pests in pigeonpea. To protect his crop from pest damage, he applied two pesticide sprayings (Trizophus, DDVP). He had bought these pesticides from the Agriculture Department at a subsidy. Besides this, he also performed weeding by hand thrice to control weeds. At harvest, his two ha land yielded of 1700 kg. He kept 50 kg for household consumption and sold the remaining 1650 kg in the open market at ₹ 43 per kg, earning a gross profit of ₹ 70,950. He had spent about ₹ 15,000 in all on this crop, so he made a net profit of ₹ 55,950. He deposited ₹ 50,000 in the bank for future needs. Sushil was extremely happy to earn such a high profit and he says that, this experience has strengthened his will power to put more effort into cultivating his uplands. He plans to grow the same variety again next year on his two ha of upland.





Kalahandi  
Pigeonpea  
Success Stories





## Purna Chandra Sahu: Hard work always yields positive results



Village: Chicharla, GP: Boria, Block: Kesinga, District: Kalahandi  
Pigeonpea variety: ICPL 14002 (seed production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 90 cm × 30 cm  
Yield: 1530 kg

As the saying goes, “no pain, no gain.” It has been a wonderful journey for Purna Chandra Sahu, a farmer who believes that, in order to succeed in life, one has to work with full dedication and commitment towards achieving the ultimate goal.

Purna Chandra met ICRISAT personnel during a village meeting, where he acquired knowledge about the adoption of pigeonpea technologies and enhancing and developing the farming system. He decided to try growing a high-yielding variety of pigeonpea, ICPL 14002, during the rainy season. He received 16 kg foundation seed free of cost as project support, as well as 50% diammonium phosphate (DAP) and pesticides for crop protection. The ICRISAT personnel guided him in this process.

The seeds were sown in ridge and furrow at a specific distance after proper land preparation and leveling. The appearance of pests during pod formation was treated and controlled with the application of *Triazophos* and neem oil. *Maruca* was controlled with application of a blend of Dichlorvos + Chloropyriphus. Furthermore, the crop faced Phyllin during vegetative stage.

At harvest, Purna Chandra obtained a yield of 1,530 kg, of which he sold 1,077 kg at ₹ 60 per kg to ICRISAT, with a gross earning of ₹ 64,620. In addition, he sold another 436 kg of yield at ₹ 35 per kg in the open market, receiving ₹ 15,260 for this. Thus, his gross profit was ₹ 79,840. Having spent about ₹ 21,000 in all, he earned a net profit of ₹ 58,840. Purna Chandra was very encouraged by this experience and intends to cover more areas under pigeonpea during the rainy season program.

Purna Chandra Sahu decided to try growing a high-yielding variety of pigeonpea, ICPL 14002, during the rainy season. The ICRISAT personnel guided him in this process.



## Kusadhvaj Swain: Growing ICPL 14002 gave financial security



Village: Boria, GP: Boria, Block: Kesinga, District: Kalahandi  
Variety: ICPL 14002 (seed production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 90 cm × 30 cm  
Yield: 3,120 kg

**A** farmer is sometimes considered one of the happiest of all humans because he is the one who produces food for the nation.

Kusadhvaj Swain of Boria is a successful and happy farmer, ever since he attended an awareness program during 2013, when he heard about new improved and high-yielding pigeonpea varieties from ICRISAT staff. He decided to try growing these varieties. Kusadhvaj received 16 kg of ICPL 14002 seed as project support, which he planted using improved agronomic practices like ridge and furrow cultivation, with a spacing of 90 cm × 30 cm. Other inputs supplied were 100 kg DAP and pesticides like Tryzophus and neem oil. By 9<sup>th</sup> July, he had completed sowing.

Kusadhvaj is very thankful to ICRISAT for introducing the new and improved pigeonpea varieties and for all the support. This indeed, has changed his life and he created a positive impact on his fellow farmers.

On 28 October, 2013, he participated in a workshop on Integrated Disease and Pest Management, where he learned some best practices for pest control. He applied herbicide “Glyphoset” on the crops to control weeds. Pesticides were also applied as needed. Pod borer and Maruca incidence was noticed during the flowering and the pod formation; however, this was controlled with pesticide. He also used Planofix spray against flower drop. Prior to the use of these new cultivation practices, Kusadhvaj’s crop usually did not yield more than 750 kg ha<sup>-1</sup> but now, he was able to get 3,120 kg from 2 ha or about 1,560 kg ha<sup>-1</sup> which indeed was very satisfying.

The overall expenditure on cultivation was ₹ 23,000, which included land preparation, ridging, fertilizer application, seed sowing, weeding, earthing up, irrigation, harvesting, threshing and packing. Of the 3,120 kg of yield, he sold 1,756 kg at ₹ 60 per kg to ICRISAT, earning ₹ 105,360. Kusadhvaj sold a further 1,300 kg at ₹ 35 per kg in the open market, earning ₹ 45,500. He distributed 36 kg among the fellow farmers. His net income was ₹ 129,120, which he set aside to use for his child’s education. After witnessing his success, all the farmers in the locality have expressed their interest in trying pigeonpea cultivation.

Kusadhvaj is very thankful to ICRISAT for introducing these new and improved pigeonpea varieties and for all the support and guidance. This indeed, has changed his life and he is contented that he has been able to create a positive impact on his fellow farmers.



## Trinath Sahu: Variety ICP 7035 brought a smile to my face



Village: Chicharla, GP: Boria, Block: Kesinga, District: Kalahandi  
Variety: ICP 7035 (seed production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 90 cm × 30 cm  
Yield: 2,600 kg

**T**rinath Sahu is a progressive farmer who depends fully on agriculture to sustain his family of seven. Agriculture being the main source of their livelihood, he is always on the lookout for new and advanced technology in agriculture.

During the 2013-14 rainy season, Trinath got in touch with the ICRISAT staff and the agricultural department. He was inspired to try growing ICP 7035 pigeonpea, which suits the soil conditions on his land. He also participated in the workshop on Integrated Pest and Disease Management held at Bhawanipatna and collected information for high-yielding pigeonpea. Trinath was supported with 16 kg of foundation seed, and 50% DAP and *Triazophos* and neem based pesticide. He completed the sowing of seeds on 29 July, 2013.

In due course, he came into contact with the ICRISAT personnel on different occasions, and used these opportunities to keep learning. In September 2013, he also participated in a IPM/IDM session, where he got useful information and techniques for controlling pests. He applied *Tryzophus* to control the presence of pod borer and *Maruca* as required. In February, he harvested the crop and obtained a yield of 2,600 kg from 2 ha.

Trinath kept 29 kg for household consumption, and sold 1,056 kg to ICRISAT at ₹ 60 per kg, earning ₹ 65,160. He then sold 1,515 kg in the local market at ₹ 35 per kg, earning a further ₹ 53,025. Overall, he had spent ₹ 21,000, so his net profit amounted to ₹ 97,185. Trinath spent this money on the marriage of his younger son. He is extremely pleased with his venture.

Trinath kept 29 kg for himself, and sold 1,056 kg to ICRISAT at ₹ 60 per kg, earning ₹ 65,160. He then sold 1,515 kg in the market at ₹ 35 per kg, earning ₹ 53,025. Overall, he had spent ₹ 21,000, and got a profit of ₹ 97,185.



## Babrubahan Budhia: Pigeonpea farming yields good profits



Village: Karli (Nuamunda), GP: Rengsapali, Block: Golamunda, District: Kalahandi  
Variety: ICP 7035 (seed production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 90 cm × 30 cm  
Yield: 820 kg

**B**abrubahan Budhia, aged 45, lives in Karli with his family of five. He owns four ha cultivable land, of which 1.6 ha is rainfed upland. Every year, he cultivates cotton and groundnut on that land.

During 2012, he met ICRISAT staff during a workshop at Golamunda. Inspired by the program and information provided on new and advanced pigeonpea farming techniques, he decided to try growing ICP 7035 foundation seed on 1 ha. He was provided with 8 kg foundation seed and 50 kg DAP. He also received training on improved agronomic practices. Babrubahan took proper care during vegetation, flowering and pod development. He sprayed

neem oil with Tryzophus as a preventive against pests. During flowering and pod formation he provided optimal irrigation to ensure proper seed setting.



At harvest, he obtained a yield of 860 kg, of which he kept 302 kg for household consumption and sold 513 kg at ₹ 60 per kg to ICRISAT, earning ₹ 30,780. His hard work and dedication gave him good returns in the form of a net profit of ₹ 31,350. He was able to construct a house and put some aside for his son's education with this profit. Impressed by the performance of this variety, he aims to take seed production to 1.2 ha during 2014.

At harvest, he obtained a yield of 860 kg of which he kept 302 kg for himself and sold 513 kg at ₹ 60 per kg to ICRISAT, earning ₹ 30,780. His hard work gave him good returns as he got a net profit of ₹ 31,350.

## Jayaram Rana: Improved pigeonpea has brought good times



Village: Karlasodha, Block: Bhawanipatna, District: Kalahandi  
Variety: ICPL 14002 (seed production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.6 ha  
Spacing: 90 cm × 30 cm  
Yield: 650 kg

Jayaram Rana is a farmer from Korlasodha, who depends completely on agriculture to sustain his family of five. He owns 2.5 ha of cultivable land, of which 0.8 ha of land is upland.

He used to follow traditional methods of cultivation, which did not give him very good yields. When he learned about the new, improved and high-yielding pigeonpea varieties, he was extremely eager to learn more about these, their performance and improved cultivation practices. He showed his interest in growing these varieties in his field, and received full support from ICRISAT in capacity building, exposure, and assistance with seed, fertilizer, pesticide and agronomic practices.

He received foundation grade of ICPL 14002 seed during the 2014 rainy season, which he sowed on 0.6 ha of his upland. Having received proper training on the agronomy of pigeonpea like optimal sowing distance with ridge and furrow, control of disease, use of fertilizer and pest control, he was able to put all these into practice and obtained a harvest of 650 kg. He kept 61 kg for domestic consumption and to share with friends, and sold the rest to ICRISAT at ₹ 60 per kg, earning a profit of ₹ 31,475 as profit.

Jayaram Rana has been able to create a good impression among his neighbors and friends through this successful cultivation and harvesting of the new varieties. He has decided to take 4 ha of land on lease for pigeonpea during the 2014 rainy season.

Rana followed techniques provided by ICRISAT and got a harvest of 650 kg. He kept 61 kg for himself and to share with friends, and sold the rest to ICRISAT at ₹ 60 per kg, earning a profit of ₹ 31,475 as profit.



## Yudhisthir Meher: Eager to try something new



Village: Parmanandpur, Block: Bhawanipatna, District: Kalahandi  
Variety: ICP 7035 (seed production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 90 cm × 30 cm  
Yield: 1,500 kg

**Y**udhisthir Meher lives in Parmanandpur village with his family of seven, and agriculture is his sole means of livelihood. He owns 3.2 hectare of cultivable land, of which 2 ha is upland.

During 2013, ICRISAT organized a training program on pigeonpea farming at Bhawanipatna to disseminate knowledge about new, improved and high-yielding varieties of pigeonpea. Yudhisthir was invited to attend this training program, which inspired him to try pigeonpea cultivation in his upland. He converted his cotton field to pigeonpea, and was advised to try the Kamica variety of pigeonpea.

Yudhisthir was issued 16 kg of ICP 7035, 100 kg DAP, neem oil and Tryzophus as support. He plowed the land thrice and prepared ridge and furrow, sowing two seeds per hill. A planting distance of 90 cm × 30 cm was maintained. Weeding was done after sowing.



Yudhisthir was very excited when he saw the initial growth but was disheartened when, unfortunately, rain and cyclone Phyllin caused flower drop and drooping of plants. ICRISAT staff told him that the variety can flower 2-3 times, so he staked all the lodged plants. After 6 months, he obtained 1,500 kg of seed which was beyond his wildest expectations. He sold 405 kg at ₹ 60 per kg to ICRISAT and 1,087 kg in the local market at ₹ 35 per kg, making a profit of ₹ 44,345. He saved the entire amount in the bank for the rainy season. He is immensely grateful to ICRISAT for this opportunity, and has advised all the farmers of his village to start growing this variety.

Yudhisthir was excited when he saw the initial growth but was disheartened when rain and cyclone Phyllin caused flower drop and drooping of plants. ICRISAT staff told him that the variety can flower 2-3 times.

## Ajit Kumar Pradhan: To advance, farmers need technology



Village: Pandkul, GP: Chichia, Block: Golamunda, District: Kalahandi  
Variety: ICPL 14001 (seed production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 90 cm × 30 cm  
Yield: 1,250 Kg

**A**jit Kumar Pradhan is a progressive farmer, eager to try new methodology and technology in modern agriculture. He owns 10 ha of cultivable land, of which he used 1 ha for cultivating black gram and green gram.

On 2 May, 2014, he was invited to a workshop organized by ICRISAT on pigeonpea cultivation and new and improved varieties. Ajit Kumar was thrilled and decided to try growing pigeonpea on 1 ha of his land. He was supported by ICRISAT with teaching materials like information leaflets, knowledge about agronomy best practices for pigeonpea, and eight kg ICPL 14001 certified seed. He applied 50 kg DAP and MOP 25 kg during land preparation and completed sowing by July 2nd, 2013. Another 50 kg DAP was applied after weeding and earthing up. He also participated in IPM/IDM training at Chhatrapur, where he learned about methods for pest and disease control. He applied Triazophos and neem oil to his crop to control pod borer and other pests, and Planofix to prevent flower drop. During flowering, he irrigated the field as per the advice of the ICRISAT personnel.

At harvest, he obtained a yield of 1,250 kg, of which he sold 1,000 kg at 35 per kg in the local market. He kept the rest for household consumption and also shared some with his friends. Overall, he spent ₹ 9,800; however, he earned ₹ 33,950 as profit. He used this profit for tank renovation.

Ajit Kumar is so happy with this success that he plans to continue cultivating these new varieties as they have proved far more profitable than the other local crops.

Overall, he spent ₹ 9,800; however, he earned ₹ 33,950 as profit. He used this profit for tank renovation.



## Ram Krushna Parida: Good yield from fallow land



Village: Narla Raod, Block: Narla, District: Kalahandi  
Variety: ICP 7035 (seed production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1.2 ha  
Spacing: 90 cm × 30 cm  
Yield: 2,100 Kg

**R**am Krushna Parida, aged 65 lives in Narla with his family of five. He is a retired school teacher who owns 1.2 ha of land which is totally rainfed.

Ram Krushna lacked knowledge and awareness on various farming techniques and methods that could enable him to get the best from his land. He started to stay in close contact with agricultural department staff, and also attended meetings and workshops to learn about new agricultural technologies. In due course, he was invited to a workshop on pigeonpea cultivation. He was impressed by the information provided during the program and decided to try growing ICP 7035 Breeder seeds. He took 1.2 ha land on lease and started



preparing for cultivation. Following the advice of ICRISAT staff, he sowed the seed at a spacing of 90 cm × 30 cm. He faithfully followed the pigeonpea package of recommended practices and also took help as needed from the line department for his crop. His effort paid off at harvest, when he obtained a yield of 2,100 kg!

He supplied 392 kg of seed at ₹ 60 per kg to ICRISAT and earned ₹ 23,520. He sold a further 1,570 kg of seeds in the open market at ₹ 35 per kg and earned ₹ 54,950. His net profit was ₹ 62,020, which he spent on repairs to his house. Ram Krushna is very grateful to ICRISAT and to the full support and cooperation he received from his family members throughout the process.

He faithfully followed the pigeonpea package of recommended practices and also took help as needed from the department for his crop. His effort paid off at harvest, when he obtained a yield of 2,100 kg!

## Mitrasen Mahanand: Pigeonpea provided emergency help



Village: Karme, Block: Narla, District: Kalahandi  
Variety: ICPL 14002 (seed production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 90 cm × 30 cm  
Yield: 1850 Kg

**M**itrasen Mahanand is a young farmer keenly interested in learning new things and always eager to try new technology for cultivation which will serve him well and also be useful for other farmers. He is financially sound, and owns 9 ha of cultivable land.

During 2013-14, he took part in the Foundation Seed Production program organized by ICRISAT in his locality. Through the workshop, he received knowledge on pigeonpea cultivation. He also received some teaching materials. He planted the pigeonpea variety ICPL 14002, following the best practices learned from ICRISAT, and applying fertilizer and pesticide as needed for the crop.

Mitrasen obtained a yield of 1,850 kg from his field at harvest. He supplied 438 kg seeds at ₹ 60 per kg to ICRISAT, earning ₹ 26,280. He also sold another 1,300 kg seeds at ₹ 35 per kg in the open market, making ₹ 45,500. He distributed 103 kg among fellow farmers. In total, he spent around ₹ 21,100 in the cultivation process, and earned a net profit of ₹ 54,285.

Due to a medical emergency, he was forced to sell some of the seed. He was also able to purchase some materials like pipes for his farm with the profit that he made. He shared his ideas and experience with neighboring farmers, which inspired them to try adoption of new varieties of pigeonpea.

Mitrasen got 1,850 kg from his field at harvest. He supplied 438 kg seeds at ₹ 60 per kg to ICRISAT, earning ₹ 26,280. He also sold another 1,300 kg seeds at ₹ 35 per kg in the open market, making ₹ 45,500.

## Bhuban Harijan: Every opportunity counts



Village: Gorkel, Block: Narla, District: Kalahandi  
Variety: ICPL 14002 (seed production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 75 cm × 30 cm  
Yield: 960 Kg

**B**huban Harijan is a successful farmer who owns 2.4 ha of cultivable land which he inherited from his father. There are seven members in his family. Being a leading farmer in his village, he never loses a chance to acquire new technology that comes to their locality. Through the awareness meetings that were conducted by ICRISAT in his village, he was inspired to take up pigeonpea cultivation in his upland.

Bhuban sowed seeds at a spacing of 75 cm × 30 cm, and followed the advice of ICRISAT staff with utmost care during the cultivation. During Phyllin, the crop was affected by severe lodging of plants. At this time, he invested an additional amount of ₹ 1,200.

He was able to obtain 960 kg yield from his field, of which he sold 850 kg seeds at ₹ 35 per kg in the open market and earned ₹ 29,750.

He was able to obtain 960 kg yield from his field, of which he sold 850 kg seeds at ₹ 35 per kg in the open market and earned ₹ 29,750. He was more than happy to share some of the seeds with his fellow farmers and also gave some as gift to his friends and family.

Bhuban is very hopeful that the productivity can be further increased in future if all goes smoothly. He has saved the amount of ₹ 19,400 that he has received as profit for his farming.



## Digambar Bisi: Patience enables survival



Village: Maheswarpur, Block: Lanjigarh, District: Kalahandi  
Variety: ICP 7035 (seed production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 75 cm × 30 cm  
Yield: 630 Kg

**D**igambar Bisi is a smallholder farmer living in Maheswarpur village with his family of five. During the rainy season 2013-14; he had obtained pigeonpea ICP 7035 seed from ICRISAT along with fertilizer and pesticides. He sowed this on 1 ha of his cultivable land as he was convinced that ICP 7035 would yield better than the local breed. He had followed all the advised practices after sowing on 25 July 2013. Proper care was taken during flowering and pod formation, with Triazophos and neem oil application to prevent pests.

He spent ₹ 10,300 during the course of cultivation, which included land preparation, seed sowing, weeding, earthing up, fertilizer, pesticide, harvesting, threshing and packing. At harvest, he was able to obtain a yield of 630 kg despite phyllin. He supplied 160 kg seeds to ICRISAT at ₹ 60 per kg and received ₹ 9,600. He further sold 400 kg seeds at ₹ 35 per kg and earned ₹ 14,000. His net profit was ₹ 15,610.

He expressed his gratitude to ICRISAT for providing good quality pigeonpea seeds, and also appreciates the effort they are putting in to improve the economic status of the marginal and smallholders' farmers.

He supplied 160 kg seeds to ICRISAT at ₹ 60 per kg and received ₹ 9,600. He further sold 400 kg seeds at ₹ 35 per kg and earned ₹ 14,000. His net profit was ₹ 15,610.

## Chaitanya Bag: Pigeonpea, the key to success



Village: Panimunda, Block: Lanjigarh, District: Kalahandi  
Variety: ICPL 14001 (seed production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.5 ha  
Spacing: 75 cm × 30 cm  
Yield: 410 Kg

Chaitanya Bag is a smallholder farmer in Panimunda village, who owns 2.2 ha of cultivable land. All of this is upland where he can grow only rainfed crops like pigeonpea and paddy. He had to work hard for his livelihood, with limited yield. Fortunately, he came in contact with ICRISAT, which has been successfully working to improve pigeonpea. Learning about new, improved pigeonpea varieties from ICRISAT staff, he decided to grow ICPL 14001 on 0.5 ha of his land.

He was supported with seed, fertilizer and neem oil along with Triazophos for crop growth by ICRISAT. He prepared the land for ridges before sowing, applying FYM and DAP as basal dose before sowing.

He was supported with seed, fertilizer and neem oil along with Triazophos for crop growth by ICRISAT. He prepared the land for ridges before sowing, applying FYM and DAP as basal dose before sowing.

He subsequently followed all the best practices as per the advice of ICRISAT. Unfortunately, his crop faced Phyllin during the peak vegetative stage, resulting in delay in flowering. In spite of this setback, he managed to keep the crop standing with staking and ridging.

At harvest, he obtained a yield of 410 kg. He sold 237.5 kg at ₹ 60 per kg to ICRISAT and received ₹ 14,250. Another 100 kg was sold in the open market at ₹ 35 per kg, earning him ₹ 3,500. Having spent ₹ 6,200 in all during cultivation, he earned a net profit of ₹ 14,000, which he spent for land development. Looking at the enthusiasm showed by Chaitanya and the positive result he obtained by cultivating the new varieties, other farmers were also inspired to take up the variety as commercial crop.

## Raghu Majhi: Pigeonpea intercropped with cotton – a good combination



Village: Kanikupa, Block: Lanjigarh, District: Kalahandi  
Variety: ICPL 14001  
Cropping System: Intercrop with cotton (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Yield: 600 Kg

**R**aghu Majhi is a smallholder farmer of Kanikupa village. He owns 4.5 ha of cultivable land, of which 3.2 ha is upland where he used to grow mainly cotton as a commercial crop, and get a poor yield of about 800 kg ha<sup>-1</sup> due to irregular rainfall.

Raghu also used to grow a local variety of pigeonpea as intercrop. However, during 2013-14, he came in contact with ICRISAT staff who advised him to take up cultivation of new pigeonpea varieties in his land and so earn some additional income. He was supported with ICPL 14001 seed to sow as intercrop in his cotton field of 2 ha. He took proper care of the crops throughout. At harvest, the two ha gave Raghu a total yield of 600 kg of pigeonpea and 1,900 kg of cotton. He spent ₹ 20,400, and earned a net profit of ₹ 86,100, after selling pigeonpea at ₹ 35 per kg and cotton at ₹ 45 per kg. Raghu spent the profit on a sprayer and pump set purchased at subsidy for his farm.

At harvest, the two ha gave Raghu a total yield of 600 kg of pigeonpea and 1,900 kg of cotton. He spent ₹ 20,400, and earned a net profit of ₹ 86,100, after selling pigeonpea at ₹ 35 per kg and cotton at ₹ 45 per kg.

## Sukru Majhi: Intercropping maize with pigeonpea yielded good results



Village: Kanorla, Block: Lanjigarh, District: Kalahandi  
Variety: ICPL 14001  
Cropping System: Intercrop with maize (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.5 ha  
Yield: 95 Kg

Sukru Majhi is a small farmer who mainly depends on agriculture for his livelihood. All his family members support him in farming. He used to grow cotton and maize in his upland. He also tried pigeonpea cultivation as per his own methods, but it failed to provide him with yield sufficient for his family.

He was then advised by ICRISAT to intercrop pigeonpea in his maize field of 0.5 ha. He sowed the seed at 3:1 with spacing of 75 cm × 30 cm. During the vegetative growth, he took great care of the maize, removing the need for additional care of the pigeonpea. His entire family supported him through the entire process, from sowing to harvesting.

Overall, Sukru spent ₹ 4,800 on cultivation, which includes land preparation, seed sowing, weeding and earthing up, and fertilizers, pesticides, harvesting, threshing and packing. Of the total yield obtained, 95 kg of pigeonpea was sold at ₹ 35 per kg and 1,500 kg of maize was sold at ₹ 14 per kg, earning him ₹ 3,325 from pigeonpea and ₹ 21,000 from maize. His net profit amounted to ₹ 19,525 from 0.5 ha of land.

Sukru's fellow farmers were impressed by this pigeonpea cultivation, and were inspired to want to cultivate the new varieties as well. Sukru saved his profit for future use.

He was advised by ICRISAT to intercrop pigeonpea in his maize field of 0.5 ha. He sowed the seed at 3:1 with spacing of 75 cm × 30 cm. He took great care of the maize, removing the need for additional care of the pigeonpea.

## Chandramani Biswal: Growing food for the nation



Village: Panimunda, Block: Narla, District: Kalahandi  
Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 75 cm × 30 cm  
Yield: 1960 kg

Chandramani Biswal is a farmer who owns six ha of cultivable land which he inherited from his father. There are six members in his family; and besides the schoolgoing children, the others help him in farming. He stays closely in touch with the line department for the latest technology and good quality seed material.

He met the ICRISAT staff and was advised to attend regular meetings and group discussions on agriculture. During this, he learned about pigeonpea cultivation and improved varieties, and decided to try growing pigeonpea on two ha of land. He received 16 kg of ICPL 14002 certified seed from ICRISAT as support. As per their guidance, he sowed the seed in line with a spacing of 75 cm × 30 cm. During flowering, the crop faced heavy wind and rainfall resulting in lodging of the plants and he had to stake them. Following the advice of ICRISAT staff, he also applied neem oil with Tryzophus twice during flowering.

At harvest, Chandramani obtained a yield of 1,960 kg, of which he sold 1,800 kg in the open market and kept 160 kg for household consumption and to share with his relatives. He had spent ₹ 19,500 in all, and earned ₹ 49,100 as net profit.

Having taken keen interest in learning and applying his knowledge diligently, Chandramani obtained a sizable yield. He has saved his profit for financing his children's education.

At harvest, Chandramani obtained a yield of 1,960 kg, of which he sold 1,800 kg in the market and kept 160 kg for himself and to share with his relatives. He had spent ₹ 19,500 in all, and earned ₹ 49,100 as net profit.

## Trilochan Sathia: Good things come in small packages



Village: Kadlimunda, Block: Dharmagarh, District: Kalahandi  
Variety: ICPL 14001 (IPPT)  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.5 ha  
Yield: 420 kg

**T**rilochan Sathia is a marginal farmer with a very small area of upland, who used to grow vegetables, oilseed and pulses. Since the land pattern of the village is mostly upland, all the farmers grew vegetables in both seasons. At a meeting organized by ICRISAT and its staff, the farmers of the village were advised to take up pigeonpea cultivation in the upland considering the rainfall pattern in the area.

Trilochan decided to try growing pigeonpea in his field, and was supported with seed for IPPT. He followed all the agronomic best practices, from land preparation to harvesting, which resulted in a yield of 420 kg. He spent about ₹ 6,200 in all, but earned a net profit of ₹ 8,500.

He followed all the agronomic best practices, from land preparation to harvesting, which resulted in a yield of 420 kg. He spent about ₹ 6,200 in all, but earned a net profit of ₹ 8,500.



Although his land holding is the smallest compared to the other farmers, this did not prove a stumbling block towards his path to a better living, thanks to the improved varieties of seeds provided by ICRISAT. Trilochan expressed his deep gratitude towards ICRISAT and its staff.

## Harish Chandra Sabar: Improved pigeonpea variety is a boon to the farmer



Village: Nagupala, Block: Kesinga, District: Kalahandi  
Variety: ICPL 14002 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 100 cm × 45 cm  
Yield: 1430 kg

Harish Chandra Sabar, a farmer from Nagupala village showed interest in cultivating Asha variety of pigeonpea in his two ha land during the season 2013-14. Asha gave him hope at the right time, and he achieved that which he could not have imagined possible.

Harish learned about the ICRISAT-ODISHA Pigeonpea Project Seed Production Program by DCO, Kalahandi and Loksebak NGO, Bhawanipatna. ICRISAT provided 16 kg foundation seed of ICPL 14002 pigeonpea, along with 100 kg of DAP fertilizer to him, free of cost. He also acquired information in the local Odia language regarding cultivation of pigeonpea by attending the training program conducted by ICRISAT, and about Integrated Disease Management (IDM) and Integrated Pest Management (IPM) of pigeonpea.

Harish Chandra followed the ICRISAT guidelines and sowed the seeds maintaining a spacing of 100 cm × 45 cm, after applying DAP fertilizer during land preparation. He also sprayed a weedicide called Glyphosate in his field, as suggested by the DCO, Kalahandi. He also sprayed his crop with Chloropyriphos thrice, once during the initiation of flowering, next during pod formation and then during the pod development stage.

In January 2014, he harvested his pigeonpea manually, obtaining a yield of 1,430 kg of seed. He sold 239 kg of ICPL 14002 certified seed to ICRISAT and received an amount of ₹ 14,070. He kept 100 kg seed for household consumption and shared 100 kg with his relatives. The remainder was sent to the dal processing plant for making dal. The 920 kg of good quality dal obtained was sold in the Kesinga open market at ₹ 60 per kg, earning him ₹ 55,200. Having spent ₹ 15,600 in all on cultivation, he made a net profit of ₹ 60,660, which he has saved for his daughter's marriage, which will be held shortly.

Harish Chandra is highly obliged to ICRISAT staff and Loksebak for their valuable suggestions and timely guidance.

Harish Chandra followed the ICRISAT guidelines and sowed the seeds maintaining a spacing of 100 cm × 45 cm, after applying DAP fertilizer during land preparation. He sprayed a weedicide called Glyphosate in his field, as suggested by the DCO, Kalahandi.



## Lochan Sabar: ICP 7035 led to a better life



Village: Nagupala, Block: Kesinga, District: Kalahandi  
Variety: ICP 7035 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 75 cm × 30 cm  
Yield: 810 kg

Lochan Sabar is an active and hardworking young farmer of Nagupala village in Kalahandi District. He has 1 ha of land on which he cultivated pigeonpea. Lochan had been cultivating local pigeonpea and harvested a total of 320 kg of local pigeonpea, which he sold in the local market for at a rate of ₹ 36 per kg, but was unhappy with this meager yield.

In 2013-14, Lochan attended the seed grower's training conducted by ICRISAT, learned about ICP 7035 and showed interest in growing it, as suggested by the Department of Agriculture, Kesinga and ICRISAT. He decided to grow ICP 7035 and started land preparation, collected foundation seed and completed sowing at the end of July.

Lochan Sabar got a yield of 810 kg from 1 ha. He gave 356 kg of seed of Kamica variety to ICRISAT and earned ₹ 21,060. He kept 54 kg for himself and sold 400 kg in the market at ₹ 50 per kg, earning ₹ 20,000.

Lochan attended the village-level awareness meeting of ICRISAT in Nagupala and he also attended IPM/IDM Training Program at Block level. In the meantime he faced severe pod borer and Maruca attack in his field, which he controlled by spraying his crop thrice with *Triazophos* after consulting with ICRISAT field staff.

During February, he harvested his pigeonpea and got a yield of 810 kg from 1 ha of land. He gave 356 kg of pure certified pigeonpea seed of ICP 7035 to ICRISAT for processing the seed under the procurement program and earned ₹ 21,060. He kept 54 kg for domestic consumption and sold the remaining 400 kg in the open market at ₹ 50 per kg, earning ₹ 20,000. Overall, he made a net profit of ₹ 32,010. He was very impressed by the performance of this improved variety, and gave thanks to ICRISAT as well as to God.



His daily life had been very miserable, and this yield of pigeonpea was a turning point in his life, helping him change his lifestyle and showing a way for a better life. Lochan invested the profit he made for the purpose of his children's education.



## Chito Meher: Pigeonpea can be trusted for a better livelihood



Village: Burdipada, Block: Kesinga, District: Kalahandi  
Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.50 ha  
Spacing: 90 cm × 45 cm  
Yield: 450 kg

Chito Meher is a leading farmer in Burdipada village, dedicated to good farming practices, and well known and respected by the local farming community as a good farmer. During 2013-14, he learned about pigeonpea cultivation from a friend from Boria village. He contacted the field staff of Kesinga block and was enrolled to cultivate 0.5 ha of land under the IPPT program with ICPL 14002 variety. He prepared the land and sowed seeds in line with a spacing of 90 cm × 45 cm, completing sowing by 2nd August 2013.

Thereafter, he looked after the crop diligently, with timely application of fertilizer (DAP), regular weeding and earthing up. The soil was sandy loam type, so initially vegetative growth was not so vigorous; however after top dressing of fertilizer during the second week of October along with irrigation, the crop began forming buds. Within 15 days, maximum flowering took place.

The care Chito took paid dividends; he harvested a good yield of 450 kg despite sowing late. He earned a net profit of ₹ 13,360, which he used to buy a cow for domestic use. His patience and confidence proved once again that he is a step ahead of other farmers.

Chito Meher prepared the land and sowed seeds in line with a spacing of 90 cm × 45 cm. He looked after the crop diligently, with timely application of fertilizer (DAP), regular weeding and earthing up.



## Santosh Sabar: Pigeonpea cultivation is the way of the future



Village: Nagupala, Block: Kesinga, District: Kalahandi  
Variety: ICPL 14002 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 100 cm × 60 cm  
Yield: 2,200 kg

Santosh Sabar is an educated farmer, who takes great interest in pigeonpea cultivation. So, when he got an opportunity to attend in a meeting in his village, organized by Loksebak and ICRISAT, he attended and signed up to participate in the Seed Production program.

He took two ha of upland, completed land preparation and ridging, and sowed ICPL 14002 of pigeonpea obtained from ICRISAT, with a spacing of 100 cm × 60 cm. Following the usual practice, he applied 200 kg of DAP in the entire crop. Just before flowering; he applied Chloropyriphos as per the advice of ICRISAT staff. In the first week of February 2014, he harvested and got a yield of 2,200 kg. Keeping 100 kg for



household consumption, he sold 988 kg for ₹ 60 per kg, and 1062 kg at ₹ 45 per kg, earning a gross profit of ₹ 112,350. Santosh had spent about ₹ 21,000 in all on cultivation, and so earned a net profit of ₹ 91,350. He decided to invest this profit for his children's education. Santosh is extremely grateful to ICRISAT Loksebak staff for their valuable suggestions and timely guidance.

Santosh Sabar harvested and got a yield of 2200 kg. Keeping 100 kg for household consumption, he sold 988 kg for ₹ 60 per kg, and 1,062 kg at ₹ 45 per kg, earning a gross profit of ₹ 112,350.

## Sarbeswar Pradhani: High-yielding variety of pigeonpea brings positive result



Village: Pokharibandh, Block: Lanjigarh, District: Kalahandi  
Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 90 cm × 30 cm  
Yield: 1,650 kg

Sarbeswar Pradhani is a smallholder farmer who depends on agriculture to sustain his family of seven. He owns three ha of cultivable land, of which two ha is rainfed upland. He used to typically grow rice, cotton and maize in this upland area. During the 2013 rainy season, he came in contact with ICRISAT, which is involved in pigeonpea development for the economic growth of poor and marginal farmers and decided to try growing the high-yielding pigeonpea he learned about. He received 16 kg of certified seed of ICPL 14001, which he sowed in ridges at 90 cm × 30 cm. He followed suggestions from ICRISAT about best practices on cultivation, applying a basal dose of 50 kg DAP, giving the plants support with ridges at 45 days, regular weeding and care to prevent disease and pest. At harvest, Sarbeswar obtained a yield of 1,650 kg, which he sold in the open market at ₹ 30 per kg for ₹ 49,500. Having spent ₹ 18,000 on cultivation, he earned a net profit of ₹ 31,500, which he used for the renovation of his house and education of his children.

At harvest, Sarbeswar obtained a yield of 1,650 kg, which he sold in the market at ₹ 30 per kg for ₹ 49,500. He spent ₹ 18,000 on cultivation, and earned a net profit of ₹ 31,500, which he used for the renovation of his house and education of his children.

## Ugre Rout: Eagerness to learn never fails



Village: Pokharibandh, Block: Lanjigarh, District: Kalahandi  
Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1.5 ha  
Spacing: 90 cm × 30 cm  
Yield: 1,210 kg

Ugre Rout is a smallholder farmer who always tries to stay up to date with advanced technology that can help increase crop productivity on his farm and therefore, his income. He owns two ha of land inherited from his father, on which he used to grow paddy on 0.4 ha. In 2013-2014, he got a chance to participate in a workshop organized by ICRISAT, where he learned about high-yielding pigeonpea varieties released from ICRISAT. He decided to try growing the variety ICPL 14001 on 1.5 ha of his land, on the advice of ICRISAT staff. He completed land preparation and sowed the seed obtained from ICRISAT in ridges at a spacing of 90 cm × 30 cm. He followed the practices as advised by ICRISAT, applying the pp chemicals and plant nutrients, and hormone for pod seed setting. At harvest, he obtained a yield of 1,210 kg from his field. The sale of his crop yielded ₹ 36,300, and he earned a net return of ₹ 25,100, which he saved to use in the coming rainy season program.



At harvest, he obtained a yield of 1,210 kg from his field. The sale of his crop yielded ₹ 36,300, and he earned a net return of ₹ 25,100, which he saved to use in the coming rainy season program.

## Abhiram Sabar: Enthusiasm to learn is always profitable



Village: Kiding, Block: Lanjigarh, District: Kalahandi  
Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.5 ha  
Spacing: 90 cm × 30 cm  
Yield: 460 kg

**A**bhiram Sabar is a capable, forward-thinking farmer, with a family of two. He owns 2.4 ha land, of which 0.8 ha is upland, where he was cultivating groundnut. He learned about the IPPT program of ICRISAT and decided to try growing one of the new, improved pigeonpea varieties. He obtained four kg of ICPL 14001 seed and took keen interest in farming the crop by following the practices advised by ICRISAT staff. He prepared his land, and sowed the seeds in line. After 30 days he raised the soil for ridging. As the planting distance was 90 cm × 30 cm he was able to manage intercultural operations. At harvest, he obtained a yield of 460 kg, which he sold in the open market at ₹ 30 per kg, earning a net profit of ₹ 8,800. He used his profit in farming.

After 30 days he raised the soil for ridging. As the planting distance was 90 cm × 30 cm he was able to manage intercultural operations.



## Rabi Behera: ICRISAT, a friend of remote farmers



Village: Dumermunda, Block: Lanjigarh, District: Kalahandi  
Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 90 cm × 30 cm  
Yield: 1,520 kg

Rabi Behera is a forward thinking farmer with a good knowledge of agricultural practices. His five-member family helps him farm their three ha of cultivable land, of which 2 ha is upland. He learned about the IPPT program of ICRISAT and decided to try growing one of the new, improved pigeonpea varieties. He obtained 16 kg of ICPL 14001 certified seed and took keen interest in farming the crop by carefully following the practices advised by ICRISAT staff. He prepared the land, applied 100 kg of DAP as basal application, and sowed the seeds at a spacing of 90 cm × 30 cm. The sowing was completed by the end of July 2013. Another 100 kg fertilizer was applied at 40 days after sowing, after weeding had been done. He also applied Chloropyriphos to control different pests. At harvest, he obtained a yield of 1,520 kg, which he sold in the open market for ₹ 46,600, giving him a net profit of ₹ 28,100. Rabi saved the profit to use for farming. He is grateful to ICRISAT for its interest in helping remote farmers like himself.



He prepared the land, applied 100 kg of DAP as basal application, and sowed the seeds at a spacing of 90 cm × 30 cm. The sowing was completed by the end of July 2013.

## Ramesh Bag: New opportunities bring good returns



Village: Kuliamal, Block: Bhawanipatna, District: Kalahandi  
Variety: ICPL 14002  
Cropping System: Intercrop with cotton (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Yield: 830 kg

**R**amesh Bag lives in Kuliamal with his family of four. He owns 1.6 ha of cultivable land, of which 1 ha is rainfed upland. He learned from ICRISAT and Agriculture Department staff that pigeonpea can be intercropped with cotton. Ramesh decided to try this using the pigeonpea variety ICPL 14002. He planted two rows of pigeonpea after every four rows of cotton. The sowing was completed at the end of July 2014. Ramesh attended various meetings and workshops organized by ICRISAT, and made sure to follow all the agronomic practices advised by ICRISAT throughout the cultivation period. At harvest, he obtained 800 kg of cotton and 830 kg of pigeonpea. He sold the cotton at ₹ 45 per kg and pigeonpea at price ₹ 30 per kg, earning ₹ 60,900. His net profit was ₹ 45,900. Ramesh is happy that he grasped this new opportunity to bring good returns.

Ramesh attended various meetings and workshops organized by ICRISAT, and made sure to follow all the agronomic practices advised by ICRISAT throughout the cultivation period.



## Nakul Mangaraj: Ray of hope for livelihood



Village: Kuliamal, Block: Bhawanipatna, District: Kalahandi  
Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 90 cm × 30 cm  
Yield: 1,150 kg

**N**akul Mangaraj is a smallholder farmer whose five-member family depends fully on agriculture for its livelihood. He owns 1.4 ha of cultivable land, of which 0.4 ha is under paddy and the rest is upland where he always grows cotton and groundnut. He learned through workshops and meetings organized by ICRISAT on various new, improved pigeonpea varieties. He received certified seed of ICPL 14002, which he sowed on 1 ha. He took good care of the crop, following all recommended practices of fertilizers and pesticides. Since it was under the IPPT program, he had to invest in fertilizer and chemical pesticides for his crops, which cost him ₹ 7,000. At harvest, he obtained a yield of 1,150 kg, which he sold for ₹ 34,500, earning him a net profit of ₹ 27,500, which he reinvested in his farm. He now sees a ray of hope for the future in terms of earning a better livelihood.



At harvest, he obtained a yield of 1,150 kg, which he sold for ₹ 34,500, earning him a net profit of ₹ 27,500, which he reinvested in his farm.



## Jhasketan Rana: Improved technology brings good results



Village: Karlasodha, Block: Bhawanipatna, District: Kalahandi  
Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 90 cm × 30 cm  
Yield: 1,120 kg

Jhasketan Rana is a leading farmer of Korlasodha village. He owns 2.8 ha land, of which 1.6 ha is used for paddy cultivation. The remaining 1.2 ha is upland where he grows cotton every year. Last year he incurred a loss in cotton and decided to change the crop. Fortunately, he came in contact with ICRISAT, which is working on developing improved, high-yielding pigeonpea varieties for rainfed upland conditions. He received 8 kg of ICPL 14002 seed, which he sowed as advised, in line at 90 cm × 30 cm spacing. Ridging was done 35 days after sowing. Jhasketan was particular about never missing any of the workshops and meetings organized by ICRISAT staff, so he was able to follow all best practices such as weeding and earthing up, irrigation during flowering, and application of pesticides and fertilizer at optimal times. At harvest, his land yielded 1,120 kg, which he sold at ₹ 30 per kg, earning ₹ 39,550. His net profit after deducting the ₹ 9,200 he spent in all was ₹ 30,250. Jhasketan saved this money for further investment in pigeonpea cultivation. Jhasketan is convinced about the benefits of applying new technology.

At harvest, his land yielded 1,120 kg, which he sold at ₹ 30 per kg, earning ₹ 39,550. His net profit after deducting the ₹ 9,200 he spent in all was ₹ 30,250.



## Mandhir Jal: Pigeonpea is the best choice for a good livelihood



Village: Ghusurigudi, Block: Bhawanipatna, District: Kalahandi  
Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 90 cm × 30 cm  
Yield: 1,250 kg

**M**andhir Jal is a smallholder farmer who owns two ha cultivable land, which he farms to sustain his family of five. Of this, 0.8 ha is lowland and rest is rainfed upland. In the upland area, he always grows maize as he does not have the capacity to grow cotton. During the 2013 rainy season, he came in contact with ICRISAT field personnel. After attending a workshop and meeting, he decided to try growing pigeonpea as a pure crop under IPPT. He received 8 kg of certified seed of ICPL 14002, which he sowed in line after basal application of 50 kg DAP-. At 35 days after sowing he completed weeding and prepared ridges for support to the tender plants, with another application of fertilizer. In spite of phyllin he never lost hope, but staked the plants and

continued to follow all advised agronomic best practices. At harvest, he obtained a yield of 1,250 kg, which earned him a net profit of ₹ 27,500. Mandhir kept this profit to invest in the 2014 rainy season crop. He is convinced that pigeonpea cultivation is the way to ensure a good livelihood.

At harvest, he obtained a yield of 1,250 kg, which earned him a net profit of ₹ 27,500. Mandhir kept this profit to invest in the 2014 rainy season crop.

## Abhimanyu Sa: ICPL 14001 variety is best suited for the locality



Village: Konagaon, Block: Narla, District: Kalahandi  
Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 90 cm × 30 cm  
Yield: 1,630 kg

**A**bhimanyu Sa is a smallholder farmer of Konagaon village, with a four-member family. Of the 3.2 ha he owns, 0.8 ha is under paddy cultivation and 2 ha is being used to grow green gram, black gram and short-duration paddy. Abhimanyu learned that ICRISAT is helping smallholder farmers to grow high-yielding pigeonpea which gives good returns. Accordingly, he decided to try growing pigeonpea in his upland. He received 16 kg of ICPL 14001 seed which is suitable for the area. He sowed the seed with a basal application of 100 kg DAP and after 30 days, he applied another 100 kg after weeding. He carefully followed all the advised cultural management practices, including application of *Triazophos* with neem oil against pod borer. His care paid off at harvest, when he obtained a yield of 1,630 kg, which he was able to sell at ₹ 30 per kg and earn a net profit of ₹ 35,100. This profit came in handy for the wedding expenditures for his nephew. Abhimanyu is happy to have learned about this variety which is so well-suited for growing in his area.

He obtained a yield of 1,630 kg, which he was able to sell at ₹ 30 per kg and earn a net profit of ₹ 35,100.



## Iswar Goud: ICPL 14001 proved a turning point of my livelihood



Village: Gokhara, Block: Narla, District: Kalahandi  
Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 90 cm × 30 cm  
Yield: 1,960 kg

Iswar Goud is a leading farmer of Gokhara, who owns 2 ha of cultivable land. All members of his five-member family are involved in farming the land. Traditionally, he used to grow groundnut, but due to unavailability of good quality groundnut seed, production levels were typically very low, sometimes as low as 500 kg ha<sup>-1</sup>. During 2013-14 he came in contact with staff from ICRISAT and the NGO Loksebak and learned about the high-yielding varieties of pigeonpea that he could grow. Iswar attended the rainy season workshop and different meetings, and was convinced that he should try growing pigeonpea. Accordingly, he was given 16 kg of ICPL 14001 seed. After thorough land preparation he completed sowing at 90 cm × 30 cm spacing with basal application of



100 kg DAP. During flowering he applied neem oil with *Triazophos* twice, and also applied Planofix for flowering and seed setting. At harvest, he got a yield of 1,960 kg from his land. This earned him a net profit of ₹ 39,800, which he intends to use for his children's education and to grow more pigeonpea. He is extremely grateful to ICRISAT for helping him with this success. In the coming season, he intends to take more land on lease to grow pigeonpea. Iswar feels that this crop represents a turning point in his life, with better times ahead.

At harvest, he got a yield of 1,960 kg from his land. This earned him a net profit of ₹ 39,800, which he intends to use for his children's education and to grow more pigeonpea.

## Sesa Gouda: Lucky to be an ICRISAT beneficiary



Village: Gokhara, Block: Narla, District: Kalahandi  
Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 90 cm × 30 cm  
Yield: 1,860 kg

**S**esa Gouda is a farmer with a six-member family. He owns 2.4 ha of cultivable land, of which 0.4 ha is under paddy and the rest is upland where he grows groundnut and cotton. During the 2013 rainy season he attended one ICRISAT workshop on pigeonpea where he learned the benefit of farming pigeonpea by using high-yielding varieties of seed. He received 16 kg of certified seed of ICPL 14001 variety from ICRISAT. After proper land preparation he applied 100 kg of DAP and completed seed sowing with a spacing of 90 cm × 30 cm by the end of July. He applied another dose of DAP at 30 days after sowing, and applied neem oil and Triazophos thrice against sucking pests, Maruca and pod borer. As per the advice of ICRISAT he had applied Planofix for better pod and seed setting. At harvest, Sesa Gouda obtained a yield of 1,860 kg, which he sold for ₹ 30 per kg, earning ₹ 55,800. His net profit was ₹ 37,800, which he set aside for constructing a house and for reinvesting in his farm. He considers himself lucky to have learned about improved pigeonpea varieties from ICRISAT.

At harvest, Sesa Gouda obtained a yield of 1,860 kg, which he sold for ₹ 30 per kg, earning ₹ 55,800. His net profit was ₹ 37,800



## Gunanidhi Biswal: Technology is a real friend of the farmer



Village: Panimunda, Block: Narla, District: Kalahandi  
Variety: ICPL 14002  
Cropping System: Intercrop with cotton (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.8 ha  
Yield: 1,860 kg

**G**unanidhi Biswal, son of Dutia Biswal, is part of a small family of two members. He owns 0.8 ha of rainfed upland, where he used to grow groundnut, green gram and black gram, occasionally growing paddy as well. During the 2013 rainy season he came in contact with ICRISAT staff and learned that some new, improved high-yielding varieties of pigeonpea can be grown in rainfed upland to get better returns. He decided to try growing pigeonpea with cotton as an intercrop. Accordingly, he sowed two rows of pigeonpea after every five rows of cotton. He applied fertilizer and pesticide only for the main crop, for which he invested ₹ 10,000. At harvest, Gunanidhi obtained a yield of 300 kg pigeonpea and 800 kg cotton. He sold the pigeonpea for



₹ 10,500 and the cotton for ₹ 36,000. His net profit amounted to ₹ 35,700, of which he used some to repay a loan and reinvested the rest in his land. Gunanidhi is a now convinced about the benefits of new technology.

At harvest, Gunanidhi obtained a yield of 300 kg pigeonpea and 800 kg cotton. He sold the pigeonpea for ₹ 10,500 and the cotton for ₹ 36,000. His net profit amounted to ₹ 35,700



# Rayagada Pigeonpea Success Stories







## Debraj Panda: First yield built up my confidence



Photo by SK Mohanty, DCO, Rayagada

Village: Beheraguda, Block: Rayagada, District: Rayagada.  
Pigeonpea variety: ICPL 14002 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 90 cm × 75 cm  
Yield: 1,100 kg

**D**ebraj Panda is a 62-year old farmer of Rayagada. He has three sons, who are all well settled. He is a retired high school teacher and lives with his wife and one son at Rayagada. He owns a 16 ha farm at Beheraguda, about 8 km away from Rayagada. After retirement; he has mainly been looking after his farm, where he has been growing different crops like paddy, pigeonpea and onion. Besides these, he has also grown banana and mango. During the 2013-14 cropping season, after being motivated by ICRISAT staff, he decided to try growing pigeonpea variety ICPL 14002 on one ha and Hybrid ICPH 2740 on two ha of land. Although the hybrids did not give good yield due to some unsuitable agronomical practices, ICPL 14002 gave a good result. For his 1 ha crop, as project support he had received 8 kg foundation seeds of ICPL 14002, 50 kg DAP and pesticides for three sprayings of 1 l ha<sup>-1</sup>.

During the 2nd week of July he sowed seeds at a spacing of 90 cm × 75 cm. During sowing he had not applied any fertilizer, but after 45 days, during weeding and earthing up he applied 50 kg DAP. He weeded the crop thrice, and sprayed the supplied pesticides thrice (neem oil during flowering, Triazophos during early pod stage and DDVP during pod maturity stage) to protect his crop from pest infestation. At harvest, he obtained a yield of about 1,100 kg, which yielded about 1,000 kg of pure seeds after cleaning. From his produce, he kept about 300 kg of seeds for household consumption and sold 800 kg of seeds to ICRISAT at ₹ 60 per kg, earning about ₹ 48,000. He had spent about ₹ 12,500 on cultivating this one ha of land, so he earned ₹ 38,000 as net profit. Besides input supports, he received technical support from ICRISAT staff at regular intervals. He also attended all the district- and block-level training program on seed production and IPM/IDM conducted by ICRISAT. Since Debraj was growing this variety for the first time, he made some minor mistakes like insufficient weeding, light ridge making and no irrigation during pod initiation stage; but otherwise he had applied other technologies properly and this medium effort got him such a good yield. He was extremely happy with his first success and with the performance of this new improved variety, and proudly said that this success has increased his confidence greatly. This has been so motivating that next year he plans to grow the same variety on about four ha of land.

During the 2013-14 cropping season, after being motivated by ICRISAT staff, he decided to try growing pigeonpea variety ICPL 14002 on one ha and Hybrid ICPH 2740 on two ha of land.



## M Kishore: ICP 7035 brought hope of improved pigeonpea cultivation



Photo by SK Mohanty, DCO, Rayagada

Village: Kotapeta, Block: Rayagada, District: Rayagada.  
Pigeonpea variety: ICP 7035 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 90 cm × 75 cm.  
Yield: 2,400 kg

**M**Kishore, a 28 year-old farmer of village Kotapeta, lives with his parents and two brothers. The family owns four ha of land, of which two ha are lowland and two are medium lands. All year round, Kishore grows different crops like paddy, cotton, maize etc. During the 2013-14 cropping season he grew the pigeonpea variety ICP 7035 (foundation seeds) under the seed production program on 2 ha of the land. At first, he was not interested in growing this new variety, because he was unaware of how it would perform, but when he started to attend the awareness meetings conducted by ICRISAT staff, he slowly understood the benefits and decided to try growing one of these new improved varieties. He also collected the information from

some farmers who had been successful in previous years. He sowed the seeds in line with recommended spacing during the third week of July. Since he was growing this variety for the first time, he had not prepared ridges during sowing and made small hips around the plants during fertilizer application. As project support, he had been provided with 16 kg seeds of ICP 7035, 100 kg DAP fertilizer and pesticides enough for three sprayings. Besides this, he applied another 50 kg urea and two more sprayings to control pests effectively. To control weeds, he performed weeding by hand thrice and also applied one spraying of weedicide. At harvest, he obtained a yield of 2,400 kg certified seed. Of these, he kept some seed for home consumption, distributed some to relatives and sold 2,000 kg to ICRISAT at ₹ 6,000 per 100 kg, which earned him ₹ 120,000, with a net profit of ₹ 84,000. Before this, growing cotton earned Kishore a profit of hardly ₹ 40,000–₹ 50,000, so he was naturally very happy. At the same time, he admits that had he taken more care to apply all the appropriate technologies in time, the pigeonpea yield would have been far greater. He used the profit for his elder brother's marriage. Next year he plans to grow the same variety in 4 ha of land by reducing cotton and local pigeonpea. Viewing his success and the yield performance of ICP 7035, other nearby farmers have also shown interest in growing this variety.



During the 2013-14 cropping season he grew the pigeonpea variety ICP 7035 (foundation seeds) under the seed production program on 2 ha of the land.

## Minaketana Gomango: Successful achievement of a government employee



Photo by SK Mohanty, DCO, Rayagada

Village: Raniguda, Block: Rayagada, District: Rayagada  
Pigeonpea Variety: ICP 7035 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.8 ha  
Spacing: 90 cm × 75 cm  
Yield: 700 kg

**M**inaketana Gomango, a 47 year-old man lives in government accommodation at Rayagada with his wife and three children. He works as head clerk in the Health department of the Government of Odisha. Near his home, on a plot of government land (about 0.8 ha), he grows local pigeonpea and some vegetables throughout the year. He learned about new improved pigeonpea varieties from a relative who is a clerk in the District Agriculture office at Rayagada, who put him in contact with the Field assistant of Rayagada. Minaketana then attended the seed growers training at Rayagada organized by ICRISAT, where he learned about different new, improved and high-yielding pigeonpea varieties/hybrids developed by ICRISAT. Besides this, he also gained knowledge about scientific cultivation practices for pigeonpea.

After being trained, he planted ICP 7035 (Breeder) variety under the seed production program. As project support, he received 8 kg seed, 50 kg DAP and pesticides enough for three sprayings free of cost. Due to rain he delayed his sowing, which he finally sowed during the first week of August at a spacing of 90 cm × 75 cm without applying any fertilizer. After 45 days, during the first weeding he applied 50 kg DAP mixed with 20 kg potash. Minaketana looked after the crop with great diligence, applying all the recommended packages of practices properly and at the correct times. When he saw the red flowers and large pods forming, he became really excited and spent a lot of time tending to his crop. But unfortunately, during the pod maturity stage, about 0.2 ha of his crop was damaged due to Alternaria blight disease. Although he applied fungicides, he was not able to save his crop. Besides this, he lost about 60 kg of mature pods to theft one night. At harvest, he got about 700 kg of seed from the remaining 0.6 ha of land. He kept 317 kg for household consumption and to distribute to his relatives and sold 383 kg of seeds to ICRISAT at ₹ 60 per kg. He earned a net profit of ₹ 16,900. During previous years, cultivating local pigeonpea got him hardly 300-350 kg yield from the same area. Very excited at this success, Minaketana plans to grow two ha under this same variety in his native village Ramnaguda next year, where he owns about 8 ha of land.

After being trained, he planted ICP 7035 (Breeder) variety under the seed production program. As project support, he received 8 kg seed, 50 kg DAP and pesticides enough for three sprayings free of cost.



## Prasanta Kumar Naik: ICRISAT recreated trust towards pigeonpea cultivation



Photo by SK Mohanty, DCO, Rayagada

Village: Umarbali, Block: Rayagada, District: Rayagada  
Pigeonpea Variety: ICPL 14002 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2.8 ha (1.2 ha damaged)  
Spacing: 90 cm × 75 cm  
Yield: 1,000 kg

**P**rasanta Kumar Naik, a 30 year-old progressive farmer, lives with his wife and son in Umarbali village. He owns 6.4 ha land of his own. All his land is under paddy. During the 2012-13 cropping season, he took one ha of land on lease and grew pigeonpea ICPL 14002. Observing the success of this variety, in the 2013-14 season he leased 2.8 ha and grew ICPL 14002 again. He attended training programs on seed production and IPM/IDM and had applied most of the appropriate technologies such as line sowing, ridge making, spraying, weeding, irrigation at the required times. Through project support he received 24 kg foundation seeds of ICPL 14002, 140 kg DAP and pesticides (neem-based pesticide, Triazophos and Dichlorovos) for three sprayings, free of cost.

Through project support he received 24 kg foundation seeds of ICPL 14002, 140 kg DAP and pesticides (neem-based pesticide, Triazophos and Dichlorovos) for three sprayings, free of cost.

He sowed the seed at the recommended 90 cm × 75 cm spacing during the second week of July. During the first weeding 45 days after sowing, he also performed earthing up and applied DAP and also 50 kg urea. During the pod stage he irrigated the crop to avoid water stress. He had sprayed pesticides when required and managed to protect his crop from pest damage. He also weeded by hand three times to control weeds. But due to heavy rainfall, 1.2 ha of the crop was damaged and 1.6 ha was certified. At harvest, the 1.6 ha certified area yielded 1,000 kg pure seed, of which he kept 50 kg for household consumption, distributed 200 kg to his relatives and 130 kg to the landowner and sold the rest 620 kg to ICRISAT at ₹ 60 per kg. After deducting the ₹ 15,000 he had spent on cultivation, he earned a net profit of ₹ 22,000.



Prasanta says that the improved pigeonpea is excellent with regard to yield in uplands, giving far greater yield compared to local varieties, with less expenditure and more profit. He also says that the ICRISAT variety created trust within him towards pigeonpea cultivation. During the 2014-15 cropping season he plans to try growing 2 ha of ICP 7035 variety, because in a nearby village he had seen ICP 7035 variety and was attracted by its colour and pod size.

## Subash Chandra Patra: New variety changed the cropping pattern



Photo by SK Mohanty, DCO, Rayagada

Village: Jagaguda, Block: Rayagada, District: Rayagada  
Pigeonpea Variety: ICPL 14002 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 3 ha  
Spacing: 90 cm × 75 cm  
Yield: 2,000 kg

Subash Chandra Patra, a 53-year-old old progressive farmer lives with his wife and two sons in Jagaguda village. One of his sons works for a private company and the other is studying in college. He owns about 5.3 ha of land, of which 2 ha are upland and rest are medium land. All year round, he grows crops like paddy, cotton and maize. In the 2012-13 cropping season, through the ICRISAT-RKVY project support Subhash had grown two ha of pigeonpea and earned a profit of about ₹ 40,000. Being motivated from this first success, the following year he increased the area and, replacing cotton, grew pigeonpea on three ha of land. From three ha, one was damaged, but from the remaining two ha he obtained a yield of 2,000 kg. He attended training programs on seed production and IPM/IDM and applied all the appropriate technologies (line sowing, ridge making, spraying, weeding, irrigation) at the appropriate times. Through project support he received 24 kg foundation seeds of ICPL 14002, 150 kg DAP and pesticides (neem-based pesticide, Triazophos and Dichlorovos) enough for three spraying. He sowed seeds at the recommended 90 cm × 75 cm spacing during the second week of July.

During the first weeding, he also performed earthing up and applied 150 kg DAP and 50 kg urea. During the pod stage he irrigated the crop to avoid water stress. He sprayed pesticides when required and managed to protect his crop from pest damage. He also weeded by hand three times to control weeds. At harvest, his two ha of certified areas yielded 2,000 kg. From this he kept 200 kg for household consumption, distributed 300 kg to his relatives and sold 1,500 kg to ICRISAT at ₹ 60 per kg, earning ₹ 90,000. His net profit amounted to ₹ 65,000, a huge improvement over the ₹ 30,000 - ₹ 35,000 profit he earned in previous years when growing local pigeonpea/cotton. He is so happy with this variety that next year he plans to grow two ha of this same variety.

Through project support he received 24 kg foundation seeds of ICPL 14002, 150 kg DAP and pesticides (neem-based pesticide, Triazophos and Dichlorovos) enough for three spraying.



## Bansidhara Pradhan: Never seen this much yield in pigeonpea



Photo by Romanchal SA, FA, Ramnaguda

Village: Mahipanga, Block: Ramnaguda, District: Rayagada

Pigeonpea Variety: ICPL 14002

Cropping System: Monocrop (IPPT)

Seed Rate: 8 kg ha<sup>-1</sup>

Area: 0.8 ha

Spacing: 90 cm × 75 cm

Yield: 1,250 kg

**B**ansidhara Pradhan, a 55-year-old farmer, lives in Mohipanga village with his wife. His son works for a private company at Visakhapatnam and his daughter is married. He owns 6.9 ha of land, all are medium-uplands, of which he has leased 4 ha to other farmers. On the remaining 2.9 ha, he was growing tobacco on 1.6 ha and cotton on 1.3 ha all year round, but felt that tobacco and cotton cultivation is both expensive and risky. During an awareness program organized by staff from ICRISAT and a local NGO (CSATD) in his village in May 2013, he learned about the improved and high-yielding ICRISAT pigeonpea varieties suitable for rainfed uplands of Odisha. In addition, he learned that pigeonpea is far more drought tolerant than other crops,

is cheaper to cultivate and yields higher profits. He decided to try growing these improved varieties on 0.8 ha of land on a trial basis in place of cotton. During village meetings and from ICRISAT staff, he gained deep knowledge on scientific cultivation practices for pigeonpea to ensure better productivity, and prepared his land accordingly. He received 6 kg seed of ICPL 14002 free of cost as project support, which he sowed during the second week of July in line at a spacing of 90 cm × 75 cm. After 15 days, he did the first weeding by tractor and applied 50 kg DAP. After 50 days he applied a weedicide "Glycel," and did the earthing up of soils to his crop and again applied 50 kg DAP and 50 kg urea as a second dose. His crop growth was very good, with huge pod setting. Bansidhara attended the IPM/IDM training organized at Ramnaguda by ICRISAT and learned about pest control in pigeonpea. He successfully treated pest infestation periods by spraying his crop thrice with Monocrotophos and neem oil (Monocrotophos before flowering and during pod stage and neem oil during flowering stage), protecting his crop from insect damage. He was very happy to see the growth of his crop; however, during cyclone Phailin he lost around 0.04 ha of his crop. He did not lose heart, and performed further earthing up of soil to his crop. From this 0.8 ha land, he obtained a yield of about 1,250 kg, whereas the yield of local varieties in his areas is generally hardly 500-600 kg ha<sup>-1</sup>. He kept 150 kg for household consumption and sold the remaining 1,100 kg to local traders at a price of ₹ 40 per kg, earning about ₹ 44,000. His net profit was ₹ 32,000. Bansidhara is very happy with his success, saying that production was hampered due to rain and storm so he lost some of the crop, otherwise he should have got about 1,500-1,600 kg. He was astonished, as he had never seen pigeonpea yield this much.

He used his profit money to buy an inverter and saved the rest. In view of the first year's success, he has planned to increase his area under pigeonpea to two ha in next year. Observing his success, nearby farmers have also shown interest in growing these varieties in their lands in place of local ones.

From ICRISAT staff, he received 6 kg seed of ICPL 14002 free of cost as project support, which he sowed during the second week of July in line at a spacing of 90 cm × 75 cm.



## Basudev Sabara: Improved variety renewed his faith in pigeonpea cultivation



Photo by SK Mohanty, DCO, Rayagada

Village: Dasardang, Block: Ramnaguda, District: Rayagada  
Pigeonpea variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.8 ha  
Spacing: 90 cm × 75 cm  
Yield: 700 kg

**B**asudev Sabara, a 50-year-old farmer of Dasardang village lives with his wife, two sons, and one daughter, who all help him with farming. He owns 3.2 ha of land, of which 1.6 ha are under paddy and 1.6 ha are medium-upland where he grows cotton, local pigeonpea, and vegetables all year round. He had lost faith in pigeonpea cultivation, because the local pigeonpea he grew barely yielded 400-500 kg ha<sup>-1</sup>. During an awareness program organized by staff from ICRISAT and a local NGO (CSATD) in his village in May 2013, Basudev learned about the improved and high-yielding ICRISAT pigeonpea varieties suitable for rainfed uplands of Odisha. In addition, he learned that pigeonpea is far more drought tolerant than other crops, is cheaper to cultivate and yields higher profits. He decided to try growing these improved varieties in place of local varieties on 0.8 ha of his land. As project support, he received six kg seed of ICPL 14002 free of cost. He plowed his land three times and sowed seed in line with a spacing of 90 cm × 75 cm during the first week of July. After 25 days he did the first weeding, applied 40 kg Gromor, 40 kg urea, and 25 kg MOP to the crop and did the earthing up of soil. After two months, he did a second weeding and applied 20 kg Gromor, 20 kg urea, and 10 kg MOP. The crop growth was excellent. To control weeds he had weeded by hand thrice.

He attended the IPM/IDM training program organized by ICRISAT at Ramnaguda, where he learned about various methods of effective pest and disease control, and acquired some booklets and leaflets on cultural management practices and pest management. To avoid damage by pests, he applied two sprayings with Endosulfan and Confider during the flowering and pod stage. The crop growth was excellent, but cyclone Phailin damaged about 0.1 ha crop and some flower and pod drop ensued. From the remaining 0.7 ha land, he got a yield of 700 kg, which he sold in the local market at ₹ 50 per kg, earning a net profit of ₹ 25,000. He used this profit on repairs to his house. He was very happy at the success of this variety and next year he plans to grow it again on 0.8 ha land as monocrop and on 0.8 ha with cotton as intercrop.

As project support, he received six kg seed of ICPL 14002 free of cost. He plowed his land three times and sowed seed in line with a spacing of 90 cm × 75 cm during the first week of July.



## Damayanti Nimala: Success story of a lady farmer



Photo by SK Mohanty, DCO, Rayagada

Village: Parikiti, Block: Ramnaguda, District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.8 ha (0.2 ha damaged)  
Spacing: 75 cm × 60 cm  
Yield: 760 kg

**D**amayanti Nimala, a 55-year-old farmer, lives in Parikiti village with her husband, and one son. Her son works in the agriculture department as “Krusak Sathi”. Besides domestic work, Damayanti spends most of her time farming the four ha of land she owns. Of these, two ha are under paddy and two ha are up-medium land where she mainly grows cotton and local pigeonpea all year round. While her husband and son also help on the land, she is the one with the most interest in farming. However, she found that As per her own statement in cotton is expensive and risky to grow with comparatively lower profits, while local pigeonpea yields hardly 500-550 kg ha<sup>-1</sup>. During May 2013, ICRISAT staff organized a village meeting where local NGO partner staff

She decided to grow ICPL 14001 on 0.8 ha of land, and received six kg seed free of cost as project support. She prepared her land by making ridges, and sowed the seed during last week of June with a spacing of 75 cm × 60 cm.

and agriculture department staff were also present. Damayanti attended this meeting and learned about new, improved and high-yielding pigeonpea varieties developed by ICRISAT, which are suitable for the area. She decided to grow these varieties, registered her name on the beneficiary list for growing ICPL 14001 on 0.8 ha of land, and received six kg seed free of cost as project support. She prepared her land by making ridges, and sowed the seed during last week of June with a spacing of 75 cm × 60 cm. During sowing she had applied 20 kg DAP and 10 kg MOP and after 50 days she applied another 20 kg DAP and 15 kg potash during weeding and earthing up time. She performed weeding by hand twice to control weeds.

She also gathered proper information on insect/pest control during the IPM/IDM training program organized at Ramnaguda block office by ICRISAT. To control insects/pests in she sprayed the crop three times with suitable pesticides (twice with Triazophos and one with neem oil), which she bought from the agriculture department at a subsidy. During cyclone Phailin, almost all the flowers dropped and about 0.2 ha of the crop was damaged due to heavy rainfall and strong winds. Although this was a setback, Damayanti was not discouraged, but sprayed Planofix hormone. A second flush of flowering occurred and at harvest, she obtained a yield of 760 kg grain from the remaining 0.6 ha. She kept 60 kg for household consumption and sold 700 kg at ₹ 50 per kg, making a net profit of ₹ 25,000. She was very happy at her success and with the performance of this variety and she admitted that these new varieties are really more profitable in comparison to local ones. She used some of her profit on her son’s engagement ceremony and the rest to take more land on lease. Next year, she has planned to grow this variety on 4 ha land by leasing more land.





## Dharmarao Mandangi: More profit than local variety in intercrop also



Photo by Romanchal Sa, FA, Ramnaguda

Village: Chakrabhata, Block: Ramnaguda, District: Rayagada.  
Pigeonpea Variety: ICPL 14001 (IPPT).  
Cropping System: Intercrop (Cotton + Pigeonpea) (8:2 ratio).  
Seed Rate: 2 kg ha<sup>-1</sup>  
Total Area: 1.2 ha, Pigeonpea Area: 0.2 ha, Cotton area: 1 ha  
Spacing: 90 cm × 75 cm  
Yield: 600 kg (only Pigeonpea)

**D**harmarao Mandangi, a 33-year-old smallholder farmer, lives in Chakrabhata village with his wife, two sons, and daughter. His main occupation is agriculture. He owns 2.4 ha of land, of which 1.2 ha are upland and rest 1.2 ha are lowland. In his lowland, he grows paddy every year and in uplands he grows cotton and local pigeonpea as intercropping system in 8:2 ratio (8 rows cotton and 2 rows pigeonpea). From his 1.2 ha of upland he was earning approximately ₹ 40,000-45,000 as profit (₹ 33,000 ha<sup>-1</sup>). The local pigeonpea was hardly yielding 500-600 kg ha<sup>-1</sup> and in cotton cultivation, the expenditure was very high and profit low. He was thinking about changing his cropping pattern when he heard about new, improved, high-yielding pigeonpea varieties of ICRISAT from Agriculture dept. staff. He contacted the field assistant of Ramnaguda block and expressed his interest in growing those varieties in place of local varieties. He then attended the awareness programs conducted in his village by ICRISAT/NGO staff and learned more about improved varieties of pigeonpea. He decided to grow these varieties in his uplands in place of local varieties as inter crop with cotton.

Dharmarao received two kg seed of ICPL 14001 free of cost, prepared his land and sowed seed in line with cotton at a ratio of 8:2 (eight rows cotton and two rows pigeonpea) on 1.2 ha of land during the first week of July by making ridges. He had maintained a spacing of 90 cm × 75 cm. During sowing he applied 100 kg DAP and 20 kg MOP fertilizer as basal dose. After 50 days, when the crop attained a height of about 0.3 m, he did the first weeding by hand, applied 100 kg urea and 50 kg MOP, and performed the earthing up of soil. During November that year, ICRISAT organized a training program on IPM/IDM at Ramnaguda, which provided Dharmarao with deep knowledge on effective control of insects/pests in pigeonpea. Besides pest management, he also learned about cultural management practices.

To protect his cotton crop from insects he sprayed pesticides four times, which helped him to control insects in pigeonpea without any separate spraying. Besides this, he also weeded by hand five times to control weeds. From his 1.2 ha plot, he obtained 1,800 kg cotton and 500 kg pigeonpea grain and sold the latter in the local market at ₹ 40 per kg, earning a net profit of ₹ 20,000, as he had not spent anything on cultivating the pigeonpea. He sold the yield of 1,800 kg cotton at ₹ 50 per kg and got around ₹ 90,000 as gross profit. He had spent about ₹ 40,000 on the cotton, so earned a net profit of ₹ 50,000 with an additional profit of ₹ 20,000 from the pigeonpea. Dharmarao was very happy with the performance of the new improved pigeonpea variety and plans to grow it on a larger area next year, taking as much care of it as he does for the cotton.



Dharmarao received two kg seed of ICPL 14001 free of cost, prepared his land and sowed seed in line with cotton at a ratio of 8:2 (eight rows cotton and two rows pigeonpea) on 1.2 ha of land during the first week of July by making ridges.

## Dharmarao Mutuka: ICPL 14002 created hope towards improved pigeonpea variety



Photo by Romanchal SA, FA, Ramnaguda

Village: Dangubadi, Block: Ramnaguda, District: Rayagada  
Pigeonpea variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.8 ha  
Spacing: 90 cm × 75 cm  
Yield: 1,000 kg

**D**harmarao Mutuka, a 43-year-old farmer, lives in Dangubadi with his wife, two sons and two daughters. All his children study in the village school. He owns three ha of land, of which 1.6 ha are uplands and 1.4 ha are lowlands. In his lowlands, he grows paddy every year and in the uplands he grows cotton and local pigeonpea. From the 1.6 ha of upland, he was earning a profit of approximately ₹ 25,000 (₹ 16,000 ha<sup>-1</sup>).

During May 2013, ICRISAT staff organized a village meeting where local NGO partner (CSATD) staff and agriculture department staff were also present. Dharmarao attended this meeting and learned about new, improved, and high-yielding pigeonpea varieties developed by ICRISAT, which

are suitable for the rainfed upland areas. He was also provided with booklets and leaflets on cultivation practices and pest management in pigeonpea that helped him to gain thorough knowledge of proper production practices. He decided to try growing one of these varieties on 0.8 ha of land, and received seven kg ICPL 14002 seed free of cost as project support. Dharmarao plowed his land three times and sowed seed on the second week of July at a spacing of 90 cm × 75 cm by making ridges. During sowing, he applied 40 kg DAP. After 45 days, he did the first weeding and earthing up soils to the crop and applied another 40 kg DAP. He did hand weeding thrice to avoid weed infestation and managed to control weeds to some extent. He attended the training program on IPM/IDM in pigeonpea organized by ICRISAT at Ramnaguda that November and learned more about effective pest management in pigeonpea. To protect his crop from pest infestation he applied one spraying of Triazophos during the pod stage. The crop growth was excellent, but cyclone Phailin damaged about 25% crop. At harvest, his remaining 0.6 ha crop yielded 1,000 kg pure grains (approximately 1,660 kg ha<sup>-1</sup>). He kept 50 kg with him for household consumption and sold the remaining 950 kg in local market at ₹ 40 per kg and earned a gross profit of ₹ 38,000. Having spent around ₹ 12,000 on cultivation, he made a net profit of about ₹ 26,000 from 0.6 ha of land (₹ 43,000 ha<sup>-1</sup>). In his experience, local pigeonpea did not yield more than 500-600 kg ha<sup>-1</sup>. He also realized that his yield could have been to the tune of 1,400 kg had it not been for the cyclone. Dharmarao used some of the profit on his older daughter's college admission, some on his other children's education, and the rest on household expenditure.

He received seven kg ICPL 14002 seed free of cost as project support. Dharmarao plowed his land three times and sowed seed on the second week of July at a spacing of 90 cm × 75 cm by making ridges.



## Hari Tadingi: New variety yielded much more than local variety



Photo by SK Mohanty, DCO, Rayagada

Village: Dasardang, Block: Ramnaguda, District: Rayagada  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.8 ha  
Spacing: 75 cm × 60 cm  
Yield: 800 kg

**H**ari Tadingi, a 45-year-old farmer of Dasardang village lives with his wife, older brother, and 14 year-old son, who is studying in Class 7. He owns 6.5 ha of land, of which 2.9 ha are under paddy and 3.6 ha are medium-upland where he grows cotton and local pigeonpea all year round. Hari was in search of new, high-yielding pigeonpea varieties, because the yield of local pigeonpea was hardly 400-500 kg ha<sup>-1</sup>. He attended a village meeting organized by ICRISAT and local NGO (CSATD) staff, where there was a discussion on ICRISAT's improved, high-yielding pigeonpea varieties suitable for rainfed upland ecosystems of Odisha. He also learned about scientific methods of cultivation, and decided to try growing one of these improved varieties on 0.8 ha land in place of local varieties. He received seven kg seed of ICPL 14002 free of cost as project support. Hari plowed his land thrice, applied one cartload FYM and sowed seed in line with a spacing of 75 cm × 60 cm during the first week of July. After 50 days he did the first weeding, applied 40 kg DAP, 40 kg urea and 15 kg MOP to the crop and performed the earthing up of soil. He did three rounds of hand weeding altogether to control weeds. He also attended the IPM/IDM training program organized by ICRISAT at Ramnaguda, where he gained diversified knowledge about effective control of pest and diseases. Besides this, he also got some booklets and leaflets on cultural management practices and pest management. To avoid damage from pests, he sprayed the crop twice with Triazophos and DDVP, which he got from the Agriculture Department at a subsidy. At harvest, his 0.8 ha land yielded 800 kg (approximately 1,000 kg ha<sup>-1</sup>). He kept 100 kg household consumption and sold the remaining 700 kg in the local market at ₹ 40 per kg, earning ₹ 28,000. He had spent about ₹ 10,000 on cultivation, so his net profit amounted to ₹ 18,000. He was very happy with the success of this variety and plans to grow it again next year on 0.8 ha land as mono crop and on 0.8 ha with cotton as intercrop. He used his profit to repay the LAMPS loan he had taken.

He was very happy with the success of this variety and plans to grow it again next year on 0.8 ha land as mono crop and on 0.8 ha with cotton as intercrop. He used his profit to repay the LAMPS loan he had taken.



## Malatidevi Mutika: New variety ignited a ray of hope



Photo by Romanchal SA, FA, Ramnaguda

Village: Karada, Block: Ramnaguda, District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.4 ha  
Spacing: 75 cm × 60 cm  
Yield: 500 kg

**M**alatidevi Mutika, a 55-year-old farmer lives in Karada village. She is a widow and lives with her two sons and one daughter. The main occupation of her family is agriculture. Her elder son works as a BDC member in the village Gram Panchayat; the other son works in the Agriculture department as a village agriculture worker (VAW). Malatidevi owns 2.8 ha of land, of which 2.4 ha are under paddy and 0.4 ha is medium-upland where she mainly grows local pigeonpea all year round. She gets only 200-250 kg yield from local pigeonpea, because of which she had lost faith in local pigeonpea varieties and always wanted to try and find other varieties that might yield better.

She followed most of the recommended techniques and at harvest, her 0.4 ha land yielded 500 kg pure grain. She was delighted with this unexpected bumper yield.

During April 2013, ICRISAT staff organized a village meeting where Malatidevi learned about new, improved and high-yielding pigeonpea varieties developed by ICRISAT, which are suitable for the area. She decided to grow these varieties on her 0.4 ha of upland instead of local varieties, registered her name on the beneficiary list for growing them, and received three kg seed of ICPL 14001 free of cost as project support. She prepared her land, applied two cartloads FYM, and sowed the seed in the first week of July at a spacing of 75 cm × 60 cm. During sowing, she had applied 40 kg DAP, and after fifty days she did the first weeding, applied another 20 kg urea and did the earthing up of soil. Her crop growth was excellent. During flowering, she sprayed Triazophos and during pod stage applied DDVP (Dichlorvos) and managed to protect her crop from pest damage. She had availed these pesticides from the Agriculture department at a subsidy. To reduce weeds, she did weeding by hand three times. Regular field visits of ICRISAT, NGO and Agriculture department staff helped her to take better care of her crop. She followed most of the recommended techniques and at harvest, her 0.4 ha land yielded 500 kg pure grain. She was delighted with this unexpected bumper yield, because in previous years local pigeonpea had yielded hardly 100-200 kg yield from the same land. Malatidevi kept 40 kg for household needs and sold the remaining 460 kg at ₹ 45 per kg, earning a gross profit of ₹ 20,700 as gross profit. Her net profit was ₹ 15,700. This first success has inspired Malatidevi to grow this variety on her 0.4 ha land again next year.



## Prabhakar Mandangi: Successful achievement of a young farmer



Photo by SK Mohanty, DCO, Rayagada

Village: Chakunda, Block: Ramnaguda, District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.4 ha  
Spacing: 75 cm × 60 cm  
Yield: 450 kg

**P**rabhakar Mandangi, a 40-year-old marginal farmer, lives in Chakunda village with his mother, wife, and two children (both at primary school). He works as Krusak sathi in the agriculture department. Prabhakar owns 1.6 ha of land, which he tends to in addition to his regular job. Of these, 0.8 ha are uplands and 0.8 ha are lowlands. In his lowland, he grows paddy every year and in the uplands he grows vegetables on 0.4 ha and local pigeonpea on the other 0.4 ha. However, local pigeonpea yields from 0.4 ha hardly gets 100-200 kg. Prabhakar is a keen learner, eager to learn about new things, new ideas and new crops. He always attends the meeting/training programs of Agriculture department both within and outside the district. During an awareness program organized by staff from ICRISAT and a local NGO (CSATD) in his village, Prabhakar learned about the improved and high-yielding ICRISAT pigeonpea varieties suitable for rainfed uplands of Odisha. In addition, he learned that pigeonpea is far more drought tolerant than other crops, is cheaper to cultivate and yields higher profits. He decided to try growing the ICPL 14001 in place of local varieties on about 0.4 ha of his upland. He received three kg seed of ICPL 14001 as project support. Prabhakar plowed his land and sowed the seed at a spacing of 75 cm × 60 cm in the first week of July. During sowing he applied 15 kg DAP and 10 kg MOP with 6 kg Boron. After 45 days, he did the first weeding by hand and earthing up of soils to crop and made ridges. At this time, he applied another 15 kg DAP and 10 kg potash to the crop. He also did weeding by hand twice to control weeds. He had attended the training program on IPM/IDM in pigeonpea that ICRISAT organized at Ramnaguda and gained deeper knowledge on effective pest management in pigeonpea. To protect his crop from pest infestation he applied two sprayings (neem oil, Triazophos) during flowering and pod stages. He had bought these pesticides from the agriculture department at a 50% subsidy. Besides this, he also applied one hormone spray (Planofix) to check flower drop. At harvest, his 0.4 ha land yielded 450 kg pure grains, of which he kept 50 kg for household consumption and sold the remaining 400 kg to local traders at ₹ 50 per kg, earning ₹ 20,000. He had spent about ₹ 5,000 on cultivation, so earned a net profit of ₹ 15,000. Earlier, the same 0.4 ha of land under local pigeonpea hardly earned him about ₹ 5,000-6,000 as profit. His success has elated him and next year he plans to grow this new variety on 4 ha of land by taking more land on lease. Besides this, he has also shared his success with other farmers.

He decided to try growing the ICPL 14001 improved variety in place of local varieties on about 0.4 ha of his upland. He received three kg seed of ICPL 14001 as project support.



## Subarao Nisika: ICPL 14001 is really one of the best pigeonpea varieties ever seen



Photo by SK Mohanty, DCO, Rayagada

Village: Parikiti, Block: Ramnaguda, District: Rayagada.  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.8 ha  
Spacing: 75 cm × 60 cm  
Yield: 860 kg

Subarao Nisika, a 54-year-old small farmer, lives in Parikiti village with his wife, son, daughter-in-law, and one nephew. Besides farming, he is a member of ATMA (Agriculture Technology Management Agency), Ramnaguda and is watershed secretary. He owns 2.4 ha of land, of which 1.6 ha are uplands and the rest (0.8 ha) are lowlands. In his lowlands, he grows paddy every year and in the uplands he grows cotton and local pigeonpea. His 1.6 ha of upland was yielding approximately ₹ 25,000 profit (₹ 16,000 ha<sup>-1</sup>). From the Agriculture department staff, he learned about ICRISAT and its pigeonpea project. During May 2013 he attended the awareness program conducted in his village by ICRISAT and NGO (CSATD) staff and learned about these improved high-

Subarao attended the training program on IPM/IDM in pigeonpea organized by ICRISAT at Ramnaguda during November and learned about effective pest management in pigeonpea.

yielding ICRISAT pigeonpea varieties suitable for rainfed upland areas. He decided to try growing about 0.8 ha of his upland with a new pigeonpea variety in place of the local variety. He attended the district-level training program on pigeonpea seed production at Rayagada, where he learned more about improved and scientific cultivation practices of pigeonpea. Besides this, he was also provided with booklets and leaflets on cultivation practices and pest management in pigeonpea, which helped him gain knowledge about proper cultivation practices. He received 6 kg seed of ICPL 14001 free of cost as project support. He plowed his land thrice and sowed the seed in the second week of July at a spacing of 75 cm × 60 cm by making ridges. To prevent termite infestation, he applied 10 kg Chloropyriphos dust during sowing along with 20 kg DAP. After 45 days, he did the first weeding, earthing up soils to the crop and applied 20 kg DAP, 15 kg urea and 15 kg MOP. He did hand weeding thrice to avoid weed infestation, and managed to control weeds effectively. Subarao attended the training program on IPM/IDM in pigeonpea organized by ICRISAT at Ramnaguda during November and learned about effective pest management in pigeonpea. To protect his crop from pest infestation he applied two sprayings (DDVP, Triazophos) during flowering and pod stages. He had bought the pesticides from the agriculture department at a subsidy. The crop growth was excellent, but cyclone Phailin damaged about 25 % of the crop. At harvest, the remaining 0.6 ha land yielded 860 kg pure grains (1,430 kg ha<sup>-1</sup>). He kept 60 kg for household consumption and sold the remaining 800 kg in the local market at ₹ 40 per kg, earning ₹ 32,000. He had spent about ₹ 16,000 on cultivation, and earned a net profit of ₹ 16,000 from the 0.6 ha of land (₹ 27,000 ha<sup>-1</sup>). The per ha yield of local pigeonpea was not more than 500-600 kg. He says that this variety is a very good one among pigeonpea varieties. Subarao realized that that yield was low due to rain and storm, otherwise from that 0.8 ha land he could have definitely got a yield of not less than 1,200-1,300 kg. He used his profit for digging a borewell in his farm and next year he plans to grow the same variety again on his 0.8 ha land.



## Tuna Bidika: First success motivated expansion of the pigeonpea area



Photo by Romanchal SA, FA, Ramnaguda

Village: Mohipanga, Block: Ramnaguda, District: Rayagada  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.8 ha  
Spacing: 90 cm × 60 cm  
Yield: 750 kg

**T**una Bidika, a 45-year-old farmer from Mohipanga village, lives with his wife and two school-going daughters. He owns 4.4 ha of land, of which 2.8 ha are uplands and 1.6 ha are lowlands. In his lowlands he grows paddy every year and in the uplands he grows cotton. In his experience, cotton cultivation is both expensive and risky, and needs more labor. Therefore, he was in search of a different crop, which would give more profit with less expenditure and risk. From the staff of ICRISAT and CSATD he learned about the new improved and high-yielding pigeonpea. He attended the awareness programs conducted in his village by ICRISAT staff and learned more about these improved high-yielding ICRISAT pigeonpea varieties suitable for rainfed upland areas. He decided to grow

As project support, he received three kg seed of ICPL 14002 free of cost. He plowed his land three times and sowed the seed in second week of July at a spacing of 90 cm × 60 cm.

around 0.8 ha of his upland with a new improved variety in place of cotton. Always eager to learn about new things, new ideas and new crops, he never misses the meetings/training programs organized by the Agriculture department in different areas and that habit helped him with the knowledge to grow the new improved pigeonpea varieties. As project support, he received three kg seed of ICPL 14002 free of cost. He plowed his land three times and sowed the seed in second week of July at a spacing of 90 cm × 60 cm. After 45 days, he did the first weeding by hand and earthing up soils to the crop, making ridges. At that time he also applied 40 kg DAP and 20 kg MOP to the crop. He did hand weeding thrice to control weeds.

Tuna attended the IPM/IDM training program organized at Ramnaguda by ICRISAT and gained more deep knowledge on effective control of insects/pests in pigeonpea. To protect his crop from pests, he sprayed pesticides thrice (Triazophos, neem oil and DDVP) during flowering and pod stages. Besides this, he also applied one hormone spray (Planofix) to check flower drop. He was very happy to see the vigorous crop growth and heavy pod setting. However, during cyclone Phailin, he lost about 0.1 ha crop and some pods were damaged. Despite this setback, at harvest the remaining 0.6 ha land yielded 750 kg pure grains (approximately 1,250 kg ha<sup>-1</sup>). He kept 50 kg with him for household consumption and sold the remaining 700 kg to local traders at ₹ 50 per kg, earning ₹ 35,000. He had spent about ₹ 10,000 on cultivation, and earned a net profit of ₹ 25,000. In his experience, local pigeonpea yields far less – hardly 500-600 kg ha<sup>-1</sup> – in comparison to these improved varieties. Tuna used the profit for his wife's medical treatment and daughter's education. This first success excited him greatly and motivated him to increase the area under pigeonpea by reducing other crops in his uplands. Next year he has planned to grow these new varieties on four ha of land. He is grateful to ICRISAT for its help.



## Aina Praska: Pigeonpea is more profitable than any other upland crop



Photo by LK Muduli, FA, K Singhpur

Village: Raghunathapur, Block: Kalyansinghpur, District: Rayagada  
Pigeonpea Variety: ICPL 14001 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.8 ha  
Spacing: 90 cm × 75 cm  
Yield: 970 kg

**A**ina Praska, a 31-year-old illiterate farmer, lives in Raghunathapur village with his wife. He owns about 8 ha of land, of which 6 ha are under paddy and 2 ha are uplands. In his upland he grows mainly cotton, local pigeonpea and ragi all year around. During 2012, other farmers of his village had grown the Maruti variety under ICRISAT-RKVY pigeonpea program. Having seen their success, he had also planned to grow this variety in the following year. In May 2013, an awareness program on improved pigeonpea production technology was organized in his village. He attended the meeting and acquired much more knowledge on different improved, high-yielding pigeonpea varieties developed by ICRISAT, and about scientific cultivation practices for greater

At harvest, his 0.8 ha land yielded 970 kg. He kept about 70 kg for household consumption and sold the remaining 900 kg to local traders at ₹ 35 per kg, earning ₹ 31,500.

production. He decided to grow these new varieties in 0.8 ha of his land, where he had been cultivating cotton and local pigeonpea in previous years. However, local pigeonpea varieties were hardly yielding 200-300 kg per 0.4 ha land. Aina registered his name in the beneficiary list as a seed grower for 0.8 ha. He received 6 kg foundation seed of ICPL 14001, 40 kg DAP fertilizer and pesticides (neem oil, Triazophos, DDVP) for three sprayings at 1 l ha<sup>-1</sup> free of cost as project support. After preparing the land, he sowed seed in line at a spacing of 90 cm × 75 cm during the second week of July. During sowing, he applied 50 kg DAP. After 45 days, he did the first weeding and earthing up of soil to the crop. At this time, he again applied 50 kg DAP. He had attended the training programs on seed production and IPM/IDM in pigeonpea organized by ICRISAT at various times and put to good use the knowledge he gained from them. He did weeding by hand thrice to control weeds. The pest infestation in the crop was very severe, so he sprayed his crop thrice with the pesticides supplied by the project (neem oil during flowering time, Triazophos during pod stage and DDVP during pod maturity stage). Despite this, some portion of his crop was damaged due to severe pest attack. At harvest, his 0.8 ha land yielded 970 kg. Aina realized that if he had sprayed his crop one or two times more, he would have possibly got a yield of 300-400 kg more. He kept about 70 kg for household consumption and sold the remaining 900 kg to local traders at ₹ 35 per kg, earning ₹ 31,500. He had spent about ₹ 10,000 on cultivation, and so obtained a net profit of ₹ 21,500, which he used to buy a motorcycle. Aina was very happy with the yield he obtained, as that no other crop he grew on that land had ever earned him as much profit. He plans to grow the same variety in a larger area next year by reducing cotton and local pigeonpea.





## Jagannatha Praska: Dream of profit from pigeonpea came true



Photo by LK Muduli, FA, K Singhpur

Village: Kotaguda, Block: K Singhpur, District: Rayagada  
Pigeonpea Variety: ICP 7035 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1.6 ha  
Spacing: 75 cm × 75 cm  
Yield: 1,500 kg

Jagannatha Praska, a 25-year-old educated farmer, lives in Kotaguda village. He has no patta land, but farms two ha of leased land every year, of which 0.8 ha is under paddy and the remaining 1.2 ha are medium lands where he mainly grows cotton, ragi and local pigeonpea varieties. But his experience showed him that growing cotton is both labor- and cost-intensive, with relatively poor returns. So he was looking for an alternative crop which would give more profit with less expenditure and which was suitable for rainfed uplands. During the 2012-13 cropping season, he came in contact with ICRISAT staff and learned about new, improved and high-yielding pigeonpea varieties developed by ICRISAT which were suitable for these areas. Since he was facing so many problems cultivating cotton, and local pigeonpea also yielded far less in comparison to new ICRISAT varieties as described by ICRISAT staff during village meetings, he decided to try growing one of these new pigeonpea varieties in place of cotton and local pigeonpea. The first time he tried, he grew ICPL 14001 on only 0.4 ha land. But since he was cultivating that variety for the first time he did not take as much care of it as advised by ICRISAT staff and lost about 70% of the crop to pest infestation and weed, and he got a yield of only 300 kg. But he also realized that the low yield was due to his negligence, otherwise he would have got a yield of at least 600-700 kg from the same 0.4 ha. Since he had knowledge of the superior performance of the new variety, in the following 2013-14 cropping season he increased the area under it to 1.6 ha. But in view of the soil conditions of that area and problems of pest infestation, ICRISAT staff advised him to grow ICP 7035 variety in place of ICPL 14001. He received 12 kg foundation seed of ICP 7035, 50 kg DAP fertilizer and enough pesticides for three sprayings.

Jagannatha sowed the seed in the first week of July in line at a spacing of 75 cm × 75 cm where he was earlier cultivating cotton and local pigeonpea. At the time of sowing, he applied 50 kg DAP, and after 50 days when he did the first weeding he applied a second dose of 50 kg DAP. To protect his crop from pest infestation he sprayed it thrice with project supplied pesticides (neem oil during flowering, Triazophos during pod stage and DDVP during pod maturity stage) and controlled his crop effectively. He also did the weeding thrice to control weeds. He had attended the training programs on seed production and IPM/IDM organized by ICRISAT at various times which, along with advice received from ICRISAT and NGO staff on their field visits, helped him to care for his crop properly. However, due to sudden heavy rain, about 0.6 ha of his crop was totally damaged.

At harvest, his 1 ha land yielded 1,500 kg of pure seeds. He kept about 100 kg for household consumption, sold 450 kg to ICRISAT at ₹ 60 per kg and sold the remaining 600 kg to local traders at ₹ 36 per kg, earning ₹ 48,600. Having spent about ₹ 15,000 on cultivation, Jagannatha made a net profit of ₹ 33,600. He saved his profit to use for his brother's marriage. He was extremely happy and said that his dream of growing a profitable pigeonpea variety has come true. He plans to increase the area under this variety to 2 ha next year.

At harvest, his 1 ha land yielded 1,500 kg of pure seeds. He kept about 100 kg for household consumption, sold 450 kg to ICRISAT at ₹ 60 per kg and sold the remaining 600 kg to local traders at ₹ 36 per kg, earning ₹ 48,600.



## Nilambar Kulusika: Unexpected success at the first try



Photo by LK Muduli, FA, K Singhpur

Village: Khajuriguda, Block: K Singhpur, District: Rayagada  
Pigeonpea Variety: ICPL 14001 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha.  
Spacing: 90 cm × 75 cm  
Yield: 1,050 kg

**N**ilambar Kulusika, a 34-year-old smallholder farmer lives with his wife, mother and two children in Khajuriguda village. He owns 4 ha of land, of which 2.4 ha are lowlands where he grows only paddy and the remaining 1.6 ha are uplands. On about 0.4 ha of that 1.6 ha land he was growing local pigeonpea varieties and the other 1.2 ha was under cotton, ragi and black gram all year round. The local pigeonpea was hardly yielding 200-250 kg, so Nilambar was always on the lookout for high-yielding pigeonpea varieties to grow in place of locals. He learned about ICRISAT's improved pigeonpea varieties from other farmers, who told him these had been grown in nearby villages in 2012 and given excellent yield. During May 2013, a village awareness campaign

program was organized in his village by ICRISAT and NGO staff. At that meeting, Nilambar learned more about ICRISAT's new, improved and high-yielding pigeonpea varieties which are most suitable for rainfed upland ecosystems of Odisha. He also gathered knowledge on scientific cultivation practices for yield enhancement in pigeonpea, which he had not known about before. He decided to grow one of these new varieties by reducing area under cotton and local pigeonpea. Nilambar registered his name in the beneficiary list for cultivating the new variety ICPL 14001 on 1 ha land under the seed production program. He received eight kg breeder seeds of ICPL 14001, 50 kg DAP fertilizer and pesticides (neem oil, Triazophos, DDVP) for three sprayings at 1 l ha<sup>-1</sup> free of cost as project support. He prepared his land during the third week of July and sowed seeds in line at a spacing of 90 cm × 75 cm. During sowing he applied 50 kg DAP and 20 kg MOP with FYM. After 50 days he did the first weeding, again applied 50 kg DAP and did the earthing up of soil to the crop. He had attended a training program on seed production at Rayagada and the IPM/IDM training program at Dhamalima, where he gained deep knowledge on scientific methods of pigeonpea production technology and effective management of pest and diseases in pigeonpea. Besides these he had also been provided with booklets/leaflets written in Odiya that provided further guidance on taking proper care of his crop. He managed to control weeds effectively by weeding the crop by hand thrice. To protect the crop from pest infestation he sprayed pesticides thrice (neem oil before flowering, Triazophos during pod initiation stage and DDVP during pod maturity stage). Despite this, the pest infestation was very severe and the first flush of flowers dropped. He then sprayed Imida clopid after 15 days of spraying Triazophos and managed to control Maruca. The second flush



of flowers led to good pod setting and at harvest, he obtained a yield of 1,050 kg of pure seed. He kept about 50 kg for household consumption, and sold 550 kg to ICRISAT at ₹ 60 per kg and the remaining 450 kg to local traders at ₹ 35 per kg. He earned about ₹ 48,000, with a net profit of ₹ 35,000. He saved this profit for constructing a new house. Nilambar was extremely happy with this first success and the yield performance of this new variety and he plans to increase the area under it to 2 ha next year.

He kept about 50 kg for household consumption, and sold 550 kg to ICRISAT at ₹ 60 per kg and the remaining 450 kg to local traders at ₹ 35 per kg. He earned about ₹ 48,000, with a net profit of ₹ 35,000.

## Praska Dasa: A smile on my face after a long time



Photo by SK Mohanty, DCO, Rayagada

Village: Kirkalpadu, Block: K Singhpur, District: Rayagada  
Pigeonpea Variety: ICPL 14001 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.4 ha  
Spacing: 90 cm × 75 cm  
Yield: 420 kg

Praska Dasa, a 38-year-old illiterate farmer, lives with his wife, three sons and three daughters in Kirkalpadu village. He owns 3.2 ha of patta land, of which 1.6 ha are under paddy and 1.6 ha are uplands where he mainly grows cotton, local pigeonpea, maize and ragi and some vegetables. During 2012, farmers of other villages had grown ICRISAT improved pigeonpea varieties with great success. Praska had heard about the success of those farmers so in 2013 he, along with other farmers of his village, requested the Agriculture dept. field assistant and NGO staff to supply seeds to them. In May 2013, field assistant of that block along with NGO staff organized a village meeting where Praska and other farmers of his village learned more about different new, improved and high-yielding varieties/hybrids developed by ICRISAT. Besides this, he also gained diversified knowledge about practices to enhance the yield in pigeonpea, which he had not known before. He was very excited and decided to grow these varieties by reducing area under cotton, as per cotton is expensive and highly risky to grow, besides being very labor intensive. Praska registered his name to grow these varieties on 0.4 ha land through the seed production program. He received three kg foundation seeds of ICPL 14001, 20 kg DAP and pesticides (neem oil, Triazophos, DDVP) for three sprayings free of cost as project support. During the second week of July, he sowed seeds in line with a spacing of 90 cm × 75 cm. During sowing he did not apply any fertilizer, because during plowing he had applied about three tractor loads of FYM. After 60 days, he weeded the field, applied 20 kg DAP and finished earthing up soil to the crop. To keep his field free from weeds, he weeded the field thrice by hand. He also sprayed the crop thrice with project supplied pesticides (neem oil + Chloropyriphos before flowering, Triazophos during early pod stage and DDVP during pod maturity stage). He had attended the district level/block level training program on seed production and pest and disease management in pigeonpea which helped him to take care of his crop in a proper and timely manner. However, despite all his efforts, during pod maturity stage about 0.1 ha of his crop was damaged due to termite attack and Alternaria blight disease. At harvest, from the remaining 0.3 ha he obtained a yield of 420 kg (approximately 1,500 kg ha<sup>-1</sup>). At the same time on another 0.2 ha plot he had grown a local pigeonpea variety, which yielded and that plot yielded only 120 kg. This gave Praska practical proof that the new variety was definitely more productive than local traditional varieties. From his 420 kg produce, he kept about 50 kg for household consumption, distributed 50 kg to relatives and sold the remaining 320 kg to local traders at ₹ 40 per kg, earning ₹ 12,800. His net profit was ₹ 8,800, which he used toward part payment for a motorcycle. He was very happy at the yield performance of the Maruti variety and next year he plans to increase the area under this variety to 1 ha.

He received three kg foundation seeds of ICPL 14001, 20 kg DAP and pesticides (neem oil, Triazophos, DDVP) for three sprayings free of cost as project support. During the second week of July, he sowed seeds in line with a spacing of 90 cm × 75 cm.



## Sukanta Kulusika: New path for better livelihood



Photo by LK Muduli, FA, K.Singhpur

Village: Khajuriguda, Block: K.Singhpur, District: Rayagada  
Pigeonpea Variety: ICPL 14001 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.8 ha  
Spacing: 90 cm × 75 cm  
Yield: 650 kg

**S**ukanta Kulusika, a 35-year-old smallholder farmer, lives with his wife and two schoolgoing children in Khajuriguda village. He owns 4 ha of land, of which 2 ha are lowland where he grows paddy. On the other 2 ha, he was growing local pigeonpea varieties about 0.4 ha and the other 1.6 ha with cotton, ragi and black gram. As his 0.4 ha under local pigeonpea was hardly yielding 200-250 kg, he was always in search of new high-yielding pigeonpea varieties to grow in place of local varieties. He learned from other farmers about ICRISAT pigeonpea varieties which farmers in nearby villages had cultivated during 2012 with excellent results and was interested in learning more. In May 2013, a village awareness program was organized in his village by ICRISAT/

At harvest, he got a yield of 650 kg, of which he kept about 100 kg for household consumption, distributed 50 kg to his relatives and friends and sold 500 kg to ICRISAT at ₹ 60 per kg, earning ₹ 30,000. His net profit amounted to ₹ 21,000.

NGO staff, where he learned more about the new, improved and high-yielding pigeonpea varieties developed by ICRISAT which are suitable for rainfed upland ecosystems of Odisha. Besides this, he also gathered knowledge on scientific cultivation practices for yield enhancement in pigeonpea, which he was not familiar with. Sukanta decided to grow these new varieties by reducing the area under cotton and local pigeonpea. He registered his name in the beneficiary list for cultivating this new variety on 0.8 ha land under the seed production program. He received six kg breeder seed of ICPL 14001, 40 kg DAP fertilizer and pesticides (neem oil, Triazophos, DDVP) for three sprayings at 1 l ha<sup>-1</sup> free of cost as project support. He prepared his land during the third week of July and sowed seeds in line at a spacing of 90 cm × 75 cm, applying 50 kg DAP and 10 kg MOP with FYM at this time. After 50 days, he did a first round of weeding, and applied another 50 kg DAP and 20 kg urea while earthing up soil to the crop. He had attended a training program on seed production at Rayagada and the IPM/IDM training program at Dhamalima, where he gained deep knowledge on scientific methods of pigeonpea production technology and effective management of pest and diseases in pigeonpea. Besides these he had also been provided with booklets/leaflets written in Odiya that provided further guidance on taking proper care of his crop. He controlled weeds effectively by weeding the crop by hand thrice. To protect the crop from pest infestation, he sprayed pesticides thrice (neem oil before flowering, Triazophos during pod initiation stage and DDVP during pod maturity stage). But in his field, the pest infestation was very severe and he was not able to control this effectively, resulting in damage to most of the pods. At harvest, he got a yield of 650 kg, of which he kept about 100 kg for household consumption, distributed 50 kg to his relatives and friends and sold 500 kg to ICRISAT at ₹ 60 per kg, earning ₹ 30,000. His net profit amounted to ₹ 21,000, which he saved for constructing a new house. Sukanta was extremely excited at his success and the yield performance of this new variety, and with great pride he says that he has found a new way to improve his livelihood. Next year, he plans to increase the area under this variety to 2 ha by reducing cotton and local pigeonpea area.



## Apparao Himirika: Pigeonpea – best alternative for uplands of this area



Photo by G Rabi, NGO staff

Village: Patraput, Block: Kolnara, District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.8 ha  
Spacing: 75 cm × 60 cm  
Yield: 800 kg

**A**pparao Himirika, a poor farmer of Patraput village lives with his wife, son and daughter. He owns 1.6 ha of patta land, all medium lands, on which he mainly grows cotton, ragi and local pigeonpea all year round. During June 2013, an awareness program was organized in his village by ICRISAT/NGO/Agriculture Dept staff. Apparao attended that meeting along with other farmers, and learned about different new, improved and high-yielding pigeonpea varieties/hybrids developed by ICRISAT and suitable for rainfed upland areas of Odisha. Besides this, he also gained diversified knowledge on scientific methods of cultivation practices for more yield. He decided to try growing these new improved varieties in place of local pigeonpea, as the latter was not yielding well (hardly 500-600 kg ha<sup>-1</sup>). He registered his name in the beneficiary list for cultivating 2 acre of his land. As project support he received six kg seeds of ICPL 14001 free of cost. He prepared his land and sowed seeds in line at a spacing of 75 cm × 60 cm during the second week of July. During sowing he did not apply any fertilizer. After 45 days, he did the first weeding, applying 50 kg DAP mixing with 20 kg urea and earthing up soil to the crop. To control insects and pests he did two sprayings with Triazophos and DDVP, which he bought from the agriculture department at a subsidy. To control weeds, he did weeding by hand twice. The booklets/leaflets in Odiya that he received from ICRISAT staff also helped him guide him on best practices for sowing and intercultural operation. At harvest, he obtained a yield of 800 kg grain. He kept 100 kg with him for household consumption and sold the remaining 700 kg at ₹ 35 per kg, earning ₹ 24,500. According to him, in his 0.8 ha crop he had spent only ₹ 6,000 and got a net profit of ₹ 18,500. In previous years, from that particular field, he had been earning only ₹ 10,000 – 12,000 profit from local pigeonpea and cotton. Thus, he was very happy with the yield from ICPL 14001, because he had not seen that much yield in local varieties. Apparao is convinced that this variety is one of the best alternative for uplands of this area. He spent his profit to buy some gold ornaments for his daughter and he plans to grow this variety on more land with greater care next year.

At harvest, he got 800 kg grain. He kept 100 kg with him for household consumption and sold the remaining 700 kg at ₹ 35 per kg, earning ₹ 24,500. According to him, in his 0.8 ha crop he had spent only ₹ 6000 and got a net profit of ₹ 18,500.



## Jagabandhu Huika: Appreciate ICRISAT helping poor farmers



Village: Regadguda, Block: Kolnara, District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.4 ha  
Spacing: 75 cm × 75 cm  
Yield: 430 kg

Jagabandhu Huika, a 35 year-old poor farmer of Regadguda village lives with his wife, three sons and two daughters. His main occupation is farming, but he also works as a laborer to sustain his large family. He owns only 0.8 ha of patta land and all his lands are uplands. He mainly grows cotton, ragi and local pigeonpea all year round. During May 2013, an awareness program was organized in his village by ICRISAT/NGO/Agriculture Dept staff. Jagabandhu attended that meeting along with other farmers, and learned about different new, improved and high-yielding pigeonpea varieties/hybrids developed by ICRISAT and suitable for rainfed upland areas of Odisha.

At harvest, he obtained a yield of 430 kg. He kept 30 kg for household consumption and sold the remaining 400 kg at ₹ 40 per kg, earning ₹ 16,000. He had spent ₹ 2,000 on cultivation, and so his net profit amounted to ₹ 12,000.

Besides this, he also gained diversified knowledge on scientific methods of cultivation practices for greater yield. He decided to try growing these new improved varieties in place of local pigeonpea, as the latter was not yielding well (hardly 600-700 kg ha<sup>-1</sup>). He registered his name on the beneficiary list for cultivating 0.4 ha of land with ICPL 14001, and received 3 kg seed free of cost as project support. Jagabandhu prepared his land and sowed seeds in line at a spacing of 75 cm × 75 cm during the first week of July. During sowing he had applied only 20 kg ADAP. To control insects and pests he applied a single spraying with Triazophos, which he had procured from the agriculture department at a subsidy. To control weeds, he did weeding by hand twice. The booklets/leaflets in Odiya that he received from ICRISAT staff also helped him guide him on best practices for sowing and intercultural operation. At harvest, he obtained a yield of 430 kg. He kept 30 kg for household consumption and sold the remaining 400 kg at ₹ 40 per kg, earning ₹ 16,000. He had spent ₹ 2,000 on cultivation, and so his net profit amounted to ₹ 12,000. Jagabandhu used the profit to repay his loans. He was very happy and grateful to ICRISAT for helping the poor farmers of their area in this manner. Next year he plans to grow more area with the same variety.



## Jagarao Kondagiri: ICRISAT pigeonpea variety increased my profit



Photo by G Rabi, NGO staff

Village: Ribolkona, Block: Kolnara, District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Intercrop with cotton (IPPT)  
Total Area: 1.5 ha  
Cotton Area: 1.2 ha  
Pigeonpea Area: 0.3 ha  
Seed Rate: 2 kg ha<sup>-1</sup>  
Spacing: 75 cm × 60 cm  
Yield: 350 kg

Jagarao Kondagiri, a 48 year-old poor farmer, lives with his wife, two sons and one daughter in Ribolkona village. His main occupation is farming, besides which he works as a laborer to sustain his family. He owns 2 ha of patta land and all his lands are medium lands. He mainly grows cotton, ragi and local pigeonpea all year round. During May 2013, an awareness program was organized in his village by ICRISAT/ NGO/Agriculture Dept staff. Jagarao attended that meeting along with other farmers, and learned about different new, improved and high-yielding pigeonpea varieties/hybrids developed by ICRISAT and suitable for rainfed upland areas of Odisha. Besides this, he also gained diversified knowledge on scientific methods of cultivation practices for greater yield. He decided to try growing these new improved varieties in place of local pigeonpea. He registered his name on the beneficiary list for cultivating ICPL 14001 on 1.5 ha with cotton as intercrop. Jagarao received 2 kg seed free of cost as project support. He prepared his land and sowed seeds in line with cotton in a 4:1 ratio (4 rows cotton and 1 row pigeonpea) at a spacing of 75 cm × 60 cm, during the first week of July. After 45 days, he applied 50 kg Gromor and 50 kg urea after weeding. After 75 days, he again applied the same amount of fertilizer. To control weeds, he weeded by hand five times. As cotton is particularly susceptible to frequent and severe pest infestation, so Jagarao sprayed it with pesticides about six times to protect his crop. At harvest, the 1.5 ha yielded 1,300 kg cotton and 350 kg pigeonpea, without his having to spend any extra money on the latter. He sold the cotton at ₹ 44 per kg, earning ₹ 57,200, and sold the pigeonpea at ₹ 35 per kg, earning ₹ 12,250 as additional profit. In previous years, the local pigeonpea did not bring him more than ₹ 4,000-5,000 as additional profit due to a poor yield of hardly 150-200 kg. Jagarao was delighted at the performance of ICPL 14001 and the profit he made, and is convinced that the improved variety is superior to local varieties if proper care is taken. He plans to grow this variety in place of local varieties again next year.

At harvest, the 1.5 ha yielded 1,300 kg cotton and 350 kg pigeonpea, without his having to spend any extra money on the latter. He sold the cotton at ₹ 44 per kg, earning ₹ 57,200, and sold the pigeonpea at ₹ 35 per kg, earning ₹ 12,250 as additional profit.



## Nagesh Rao Huika: ICPL 14001 brought new hope for growing pigeonpea



Photo by G Rabi, NGO staff

Village: Ribolkona, Block: Kolnara, District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.4 ha  
Spacing: 75 cm × 60 cm  
Yield: 430 kg

**N**agesh Rao Huika, a 40-year-old poor farmer, lives in a small family with his wife, two sons and one daughter in Ribolkona village, of Kolnara block of Rayagada district. His main occupation is farming, besides which he works as a laborer to sustain his family. He owns 1.6 ha of patta land and all his lands are medium lands, where he mainly grows cotton, ragi, maize and local pigeonpea all year round. During May 2013, an awareness program was organized in his village by ICRISAT/NGO/Agriculture Dept staff. Jagarao attended that meeting along with other farmers, and learned about different new, improved and high-yielding pigeonpea varieties/hybrids developed by ICRISAT and suitable for rainfed upland areas of Odisha. Besides this, he

also gained diversified knowledge on scientific methods of cultivation practices for greater yield. He decided to try growing these new improved varieties in place of local pigeonpea as the latter was not yielding well (hardly 500-600 kg ha<sup>-1</sup>). He registered his name as a beneficiary for cultivating 0.4 ha of land with ICPL 14001. He received 3 kg seed of ICPL 14001 in as project support, free of cost. Nagesh Rao prepared his land and sowed seeds in line at a spacing of 75 cm × 60 cm, during the first week of July. He did not apply any fertilizer while sowing, but after 60 days, he applied 20 kg urea and 10 kg Gromor after weeding. To control insects and pests, he sprayed the crop with two pesticides (Triazophos during pod initiation stage and DDVP during pod maturity stage) which he obtained from the agriculture department at a subsidy. To control weeds, he weeded by hand twice. The booklets/leaflets in Odiya that he received from ICRISAT staff also helped him guide him on best practices for sowing and intercultural operation. At harvest, his 0.4 ha land yielded 430 kg grain. He kept 80 kg for household consumption and sold the remaining 350 kg at ₹ 36 per kg, earning ₹ 12,600. He had spent only ₹ 500 on cultivation, and made a net profit of ₹ 10,100. He was extremely happy with this high yield, because the local pigeonpea variety he grew prior to this had hardly yielded 150-200 kg. He says that this variety has brought new hope. He spent the profit on a bullock and next year he plans to grow the same variety on more land.



At harvest, his 0.4 ha land yielded 430 kg grain. He kept 80 kg for household consumption and sold the remaining 350 kg at ₹ 36 per kg, earning ₹ 12,600. He had spent only ₹ 500 on cultivation, and made a net profit of ₹ 10,100.



## Gopinatha Panda: New variety integrated with new technique brought success



Photo by MS Mangaraj, FA, Ramnaguda

Village: Mohipanga, Block: Ramnaguda, District: Rayagada  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.8 ha  
Spacing: 90 cm × 60 cm  
Yield: 1,000 kg

**G**opinatha Panda, a 38-year-old marginal farmer, lives in Mohipanga village with his wife and three children. He owns 2.4 ha of land, of which 0.6 ha are lowlands and 1.8 ha are uplands. In the lowlands, he grows paddy every year and in the uplands he grows local pigeonpea, vegetables in 0.8 ha land and in 0.8 ha he has developed a banana orchard. However, local pigeonpea was yielding hardly 500-600 kg ha<sup>-1</sup>, so he was looking out for better varieties to grow. He learned about ICRISAT's new improved and high-yielding pigeonpea from ICRISAT, the Agriculture department and NGO (CSATD) staff. In May 2013, he attended the awareness programs conducted in his village by ICRISAT staff and learned more about these improved high-yielding ICRISAT pigeonpea varieties suitable for rainfed upland areas. He was also provided with booklets and leaflets on cultivation practices and pest management in pigeonpea. Gopinatha decided to grow about 0.8 ha of upland with ICPL 14002 in place of the local pigeonpea variety, and received six kg seeds of ICPL 14002 free of cost as project support. He plowed his land thrice, applied one tractor load of FYM and sowed the seeds at a spacing of 90 cm × 60 cm during the second week of July. At the time of sowing, he applied 20 kg DAP and 10 kg MOP. After 45 days, he did the first weeding by hand and earthing up of soils, and made ridges, also applying a further dose of 20 kg Gromor and 15 kg MOP to the crop. In all, he did weeding by hand thrice and one chemical weeding by using the herbicide Glyphosate to control weed infestation.

Gopinatha had attended the training program on IPM/IDM in pigeonpea organized by ICRISAT at Ramnaguda and gained deeper knowledge about effective pest management in pigeonpea. Accordingly, to protect his crop from pest infestation he sprayed pesticides twice (Chloropyriphos, Triazophos) during the flowering and pod stages. He had obtained these pesticides from agriculture department in 50% subsidy rates. He also applied one hormone spray (Planofix) to check flower drop. At harvest, his 0.8 ha land yielded 1,000 kg pure grains. He kept 50 kg with him for household consumption and sold the remaining 950 kg to local traders at ₹ 50 per kg, earning ₹ 47,500. He had spent about ₹ 10,000 in his crop and earned ₹ 37,500 as net profit. He used his profit to buy a harrow and install a drip irrigation system in his mango orchard. Gopinatha was very excited at his success and grateful to ICRISAT for introducing their new pigeonpea varieties and new production technology in the area. Next year he plans to grow these new varieties on a larger area by acquiring 2 ha of land on lease. He has also shared the story of his success with other farmers.

At harvest, his 0.8 ha land yielded 1,000 kg. He kept 50 kg for household consumption and sold the remaining 950 kg to local traders at ₹ 50 per kg, earning ₹ 47,500. He had spent about ₹ 10,000 in his crop and earned ₹ 37,500 as net profit.



## K Chandrasekhara: Intercrop showed better performance than sole crop



Photo by Romanchal SA, FA, Ramnaguda

Village: Eduluwalsa, Block: Ramnaguda, District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Intercrop with cotton (IPPT)  
Seed Rate: 2 kg ha<sup>-1</sup>  
Area: 4.0 ha (Total area).  
Pigeonpea Area: 0.4 ha  
Cotton area: 3.6 ha  
Spacing: 90 cm × 60 cm  
Yield: 1,400 kg (pigeonpea)

**K** Chandrasekhara, a 31-year-old marginal farmer, lives with his parents, wife and small daughter in Eduluwalsa village. He works as a SS teacher in a nearby village. Besides teaching, he has great interest in farming and helps his father on his farm during holidays. He owns 1.2 ha of land, all lowlands, where he mainly grows paddy all year round. Besides this, he has acquired 4 ha land on lease, where he mainly grows cotton intercropped with local pigeonpea in a ratio of 8:1 (8 rows cotton + 1 row pigeonpea). In May 2013, an awareness meeting was organized in his village by ICRISAT and NGO staff. Chandrasekhara attended the meeting, where he learned about different new improved and high-yielding pigeonpea varieties of ICRISAT suitable for rainfed upland

At harvest, he obtained 8,000 kg cotton and 1,400 kg pigeonpea (approximately 3,500 kg ha<sup>-1</sup>). He sold the cotton at ₹ 45 per kg and earned ₹ 360,000. But he had spent about ₹ 250,000 on his cotton cultivation and made a net profit of ₹ 110,000.

areas of Odisha. Besides this, he gained knowledge about improved scientific cultivation practices in pigeonpea for better yield. He decided to try growing one of these new varieties in place of local pigeonpea with cotton as intercrop. He plowed his land three times and sowed seeds at a spacing of 90 cm × 60 cm with cotton at a ratio of 8:1 (8 rows cotton and 1 row pigeonpea). He received eight kg seeds of ICPL 14001 free of cost as project support. He sowed seeds during the last week of June 2013. He applied 200 kg Gromor, 200 kg urea and 50 kg MOP to his cotton crop, and to prevent insects/pests he had applied pesticide four times, because cotton tends to be susceptible to pests. Although he attended the IPM/IDM training at Ramnaguda organized by ICRISAT and learned about effective pest management and cultural management practices in pigeonpea, the practices applied for cotton were enough to take care of the pigeonpea as well. At harvest, he obtained 8,000 kg cotton and 1,400 kg pigeonpea (approximately 3,500 kg ha<sup>-1</sup>). He was very happy with the performance of this variety because in previous years he had been getting hardly 500-600 kg yield from local pigeonpea as intercrop. He sold the cotton at ₹ 45 per kg and earned ₹ 360,000. But he had spent about ₹ 250,000 on his cotton cultivation and made a net profit of ₹ 110,000. Of the 1,400 kg of pigeonpea, he kept 100 kg for household consumption and sold the remaining 1,300 kg at ₹ 50 per kg, earning ₹ 65,000 as additional income, whereas the local pigeonpea he was growing earlier hardly yielded ₹ 25,000-30,000 as profit. Chandrasekhara was extremely excited at seeing the yield performance of this new pigeonpea variety and plans to grow it again intercropped with cotton next year.



## Nagabhusana Mandangi: First success encouraged me to grow this variety again



Photo by Romanchal SA, FA, Ramnaguda

Village: Kotaguda, Block: Ramnaguda, District: Rayagada  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.8 ha  
Spacing: 90 cm × 75 cm  
Yield: 850 kg

**N**agabhusana Mandangi, a 35-year-old smallholder farmer, lives in Kotaguda village with his wife, two mothers and two school-going daughters. He owns 5.2 ha of land, of which 3.2 ha are uplands and 2 ha are lowlands. In his lowlands, he grows paddy every year and in the uplands he grows local pigeonpea, vegetables and cotton all year round. Nagabhusana was searching for new pigeonpea varieties which would give a better yield than the local varieties he had been cultivating since a long time with unsatisfactory yields of hardly 500-600 kg yield per ha.

In his quest, he heard about ICRISAT's new, improved and high-yielding pigeonpea from the village agriculture workers. In May 2013, he attended the awareness programs conducted in his village by ICRISAT staff and learned more about these improved high-yielding pigeonpea varieties suitable for rainfed upland areas of Odisha. He also acquired booklets and leaflets on cultivation practices and pest management in pigeonpea in Odiya. He decided to grow one of these new varieties on about 0.8 ha of upland in place of the local variety and received six kg seeds of ICPL 14002 free of cost as project support. He plowed his land thrice, applied one tractor load of FYM and sowed the seeds at a spacing of 90 cm × 75 cm during the first week of July. At the time of sowing, he applied 50 kg DAP and 10 kg MOP. After 45 days, he did the first of three weeding by hand and earthing up of soils to the crop, and made ridges. At that time he also applied 50 kg urea. He had attended the training program on IPM/IDM in pigeonpea organized by ICRISAT at Ramnaguda and gained deeper knowledge on effective pest management in pigeonpea.

Timely suggestions from ICRISAT/NGO and Agriculture department staff during their field visits also came in useful to him. To protect his crop from pest infestation, he had applied two sprayings (Chloropyriphos, Triazophos) during the flowering and pod stages. He obtained these pesticides from agriculture department at a 50% subsidy. Despite all the care he took, during cyclone Phailin some plants were damaged and mature pods dropped from the plant, and Nagabhusana estimates his loss at about 200-300 kg. At harvest, his 0.8 ha land yielded 850 kg pure grains of which he kept 50 kg for household consumption and sold the remaining 800 kg to local traders at ₹ 40 per kg, earning ₹ 32,000. He had spent about ₹ 8,000 on his crop and made a net profit of ₹ 24,000. He used his profit money for leveling his land and saved some amount for the next year's crop. Being excited with his first success, Nagabhusana plans to grow more area under the same variety next year.

At harvest, his 0.8 ha land yielded 850 kgs of which he kept 50 kg for household consumption and sold the 800 kg to local traders at ₹ 40 per kg, earning ₹ 32,000. He had spent about ₹ 8,000 on his crop and made a net profit of ₹ 24,000.



## Noka Kadraka: ICPL 14002 brought happiness to my family



Photo by Romanchal SA, FA, Ramnaguda

Village: Mohipanga, Block: Ramnaguda, District: Rayagada  
Pigeonpea Variety: ICPL 14002  
Cropping System: Intercrop with cotton (IPPT)  
Seed Rate: 2 kg ha<sup>-1</sup>  
Area: 0.8 ha  
Pigeonpea Area: 0.16 ha  
Cotton area: 0.64 ha  
Spacing: 90 cm × 60 cm  
Yield: 300 kg (pigeonpea)

**N**oka Kadraka lives in Mohipanga village with his wife, two daughters, and a son. All his children are high school students in the nearby village except his eldest daughter, who discontinued her studies after Class 10. Besides farming, he works as a mason, which earns him about 25-30 thousand rupees in a year and maintains his family. He owns only 0.8 ha of upland, on which he grows cotton intercropped with local pigeonpea all year round. However, the intercropped pigeonpea hardly yields 100-150 kg of yield. In May 2013 he attended an awareness campaign program organized in his village by ICRISAT/NGO (CSATD) and Agriculture dept. staff. There, he learned about different new, improved, and high-yielding pigeonpea varieties developed by ICRISAT, which are

He sold his cotton at ₹ 45 per kg and earned ₹ 54,000, but his net profit was only ₹ 24,000. Of the 300 kg of pigeonpea, he kept 50 kg for household consumption, sold the remaining 250 kg at ₹ 40 per kg and earned ₹ 10,000 as extra profit.

suitable for rainfed upland ecosystems of Odisha. He also learned about improved scientific cultivation practices for pigeonpea. He decided to grow one of those new varieties in place of the local variety with cotton as intercrop, and got 2 kg seeds of ICPL 14002 free of cost as project support. Noka prepared his 0.8 ha land and sowed seeds in first week of July. He sowed seeds at a ratio of 4:1 (four rows of cotton and one row pigeonpea) in line at a spacing of 90 cm × 60 cm during the first week of July. He applied 50 kg Gromor, 100 kg urea and 50 kg MOP in two split doses (the first 30 days after sowing and the second 60 days after sowing) to the cotton. To control weeds he weeded the crop four times using a tractor. As cotton tends to be much more susceptible to pest infestation than other crops, he applied pesticide sprayings four times. Continuous field monitoring by ICRISAT staff helped him to take care of his crop in a timely and proper manner. He had also attended the district- and block-level training programs conducted by ICRISAT, where he gained deep knowledge on scientific cultivation practices and pest and disease management in pigeonpea. At harvest, his land yielded 1,200 kg cotton and 300 kg pigeonpea (from 0.16 ha pigeonpea approximately at 1875 kg ha<sup>-1</sup>), whereas in previous years he obtained only 100-150 kg of local pigeonpea when intercropped with cotton. During cyclone Phailin some of his crops (both cotton and pigeonpea) were damaged, otherwise he would have got more yield. He sold his cotton at ₹ 45 per kg and earned about ₹ 54,000, but his net profit was only ₹ 24,000. Of the 300 kg of pigeonpea, he kept 50 kg for household consumption, sold the remaining 250 kg at ₹ 40 per kg and earned ₹ 10,000 as extra profit without any extra expenditure. He and his family were extremely happy at the success of this variety and he plans to grow it again on 0.8 ha land with cotton and on another 0.8 ha leased land as pure crop. Noka used the profit for his children's education.



## Rukuna Kumbarika: Praised ICRISAT for showing a profitable path



Photo by Romanchal SA, FA, Ramnaguda

Village: Kandajam, Block: Ramnaguda, District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.4 ha  
Spacing: 75 cm × 60 cm  
Yield: 500 kg

**R**ukuna Kumbarika, a 41-year-old widow, lives in Kandajam village with her son. Her main source of income is farming. She owns 2 ha of land, of which 1.6 ha are lowlands where she grows paddy, and 0.4 ha is upland where she grows finger millet. However, since the finger millet hardly gives her ₹ 2,000 - ₹ 2,500 as profit, she has always been thinking about trying to grow a different crop suitable for uplands, with more profit and less expenditure and risk. When she heard about high-yielding pigeonpea varieties of ICRISAT from village agriculture workers she contacted ICRISAT staff to learn more. She attended the awareness campaign with her son and learned about different ICRISAT's new, improved high-yielding varieties and about scientific cultivation practices that she had not known about before. She decided to grow one of these new varieties in her 0.4 ha upland, and received three kg seeds of ICPL 14001 free of cost as project support. She prepared her land and sowed seeds at a spacing of 75 cm × 60 cm in line during the last week of June. At the time of sowing she applied 40 kg DAP as a basal dose and after 50 days she again applied 20 kg DAP and 10 kg urea at the time of first weeding and earthing up. To protect the crop from weeds she weeded the field thrice by hand. She also attended the IPM/IDM training program at Ramnaguda organized by ICRISAT and learned about effective management of insects/pests in pigeonpea. She obtained Triazophos and DDVP from the agriculture department at a subsidy and sprayed her crop twice (Triazophos during flowering and DDVP during pod stage). At harvest, her 0.4 ha land yielded 500 kg of pure grain. She kept about 50 kg for household consumption and sold the remaining 450 kg at ₹ 40 per kg, earning ₹ 18,000 as gross profit, with a net profit ₹ 14,500. This made her very happy because the local varieties did not usually yield more than 200-250 kg per 0.4 ha. She praised ICRISAT for showing her a more profitable path of pigeonpea cultivation and next year she plans to grow this variety again taking even better care during cultivation. Rukuna used her profit to perform her son's marriage.

At harvest, her 0.4 ha land yielded 500 kg of pure grain. She kept about 50 kg for household consumption and sold the remaining 450 kg at ₹ 40 per kg, earning ₹ 18,000 as gross profit, with a net profit ₹ 14,500.



## Tubulu Karkaria: Was very excited at the yield in pigeonpea



Photo by Romanchal SA., FA, Ramnaguda

Village: Khambaguda, Block: Ramnaguda, District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Intercrop with cotton (IPPT)  
Seed Rate: 2 kg ha<sup>-1</sup>  
Area: 1.6 ha. (Total area). Pigeonpea Area: 0.32 ha, Cotton area: 1.28 ha  
Spacing: 90 cm × 75 cm  
Yield: 650 kg (pigeonpea)

**T**ubulu Karkaria, a 35-year-old marginal farmer lives in Khambaguda with his wife, parents, daughter, and two sons. His main occupation is agriculture. He owns 3.2 ha of land (0.8 ha paddy land and 2.4 ha upland) and in his uplands he mainly grows cotton, and local pigeonpea (both mono and intercropping with cotton). In May 2013, an awareness meeting was organized in his village by ICRISAT/NGO staff. He attended that meeting and learned about different new, improved, and high-yielding pigeonpea varieties of ICRISAT suitable for rainfed upland areas of Odisha. He also learned about improved scientific cultivation practices in pigeonpea for better yield. Tubulu decided to try growing one of these new varieties with his cotton as intercrop in place of local

As project support, he received four kg seeds of ICPL 14001 free of cost. He plowed his land three times and sowed seeds at a spacing of 90 cm × 75 cm with cotton at a ratio of 8:2 (8 rows cotton and 2 rows pigeonpea) during the second week of July 2013.

pigeonpea. As project support, he received get four kg seeds of ICPL 14001 free of cost. He plowed his land three times and sowed seeds at a spacing of 90 cm × 75 cm with cotton at a ratio of 8:2 (8 rows cotton and 2 rows pigeonpea) during the second week of July 2013. He applied 200 kg DAP, 200 kg urea and 200 kg MOP to his cotton crop in three phases. To protect the crop against insects/pests he sprayed pesticides six times, because cotton is very susceptible to severe infestation by pests. He attended the IPM/IDM training at Ramnaguda organized by ICRISAT, which helped him learn about effective pest management and proper cultural management practices in pigeonpea. However, he did not spend extra money on care separately for pigeonpea, because the practices he had applied for cotton helped the pigeonpea as well. At harvest, he obtained 3,600 kg cotton and 650 kg pigeonpea from 0.32 ha area (approximately 2,000 kg ha<sup>-1</sup>). He was very happy with the performance of this variety because in previous years the local variety had hardly yielded 200-250 kg as intercrop. He sold the 3,600 kg cotton at ₹ 38 per kg and earned ₹ 136,000, of which his net profit was only ₹ 64,000. Of the 650 kg of pigeonpea, he kept 100 kg for household consumption and sold the remaining 550 kg at ₹ 33 per kg, earning ₹ 18,150 as an additional income. Local pigeonpea, on the other hand hardly earned him about ₹ 8,000-9,000. He was extremely excited at the yield performance of this new pigeonpea variety and next year, he plans to grow it again on more area both as mono and intercrop, by reducing local pigeonpea.



## Banamali Saraka: Obtained yield beyond expectation



Photo by AK Satapathy, FA, Rayagada

Village: Kiapadu, Block: Rayagada. District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.4 ha  
Spacing: 75 cm × 60 cm  
Yield: 350 kg

**B**anamali Saraka, a 50-year-old marginal farmer lives with his wife, mother, two sisters and two small daughters in Kiapadu village. His main source of livelihood is cultivation. As this is not enough to sustain his family, he also works as a laborer for daily wages to supplement his income. He owns 0.8 ha of land, of which 0.4 ha is under paddy and another 0.4 ha is upland where he mainly grew maize all year round but earned a profit of hardly about ₹ 1,500-₹ 2,000. Thus, he had been thinking about growing some other crop which would suit his land and also give more profit than maize.

In 2012, when he heard about the new improved and high-yielding pigeonpea varieties of ICRISAT, he was interested in growing those varieties in place of maize. He contacted ICRISAT block staff and attended the awareness campaign meeting conducted in his village by ICRISAT staff, where he learned more about these varieties. He also learned about the scientific cultivation practices that can increase yield in pigeonpea. He decided to grow one of the new pigeonpea varieties in his 0.4 ha upland, but since he was sowing that variety for the first time he did not take proper care of the crop, and he obtained a yield of only 150 kg. In 2013, he decided to try growing the same variety again, and prepared his 0.4 ha plot for sowing.

In May 2013, he again attended the awareness campaign conducted in his village by ICRISAT/NGO staff, took greater interest than in the previous year to learn about other improved varieties and scientific methods of cultivation and prepared himself accordingly. He received three kg seed of ICPL 14001 free of cost as project support, prepared his land and sowed seeds in the third week of July in line at a spacing of 75 cm × 60 cm. After 50 days, he did the first weeding and earthing up of soils to the crop. In his crop he had not applied any chemical fertilizer besides one cartload of FYM. He did only one hand weeding and managed to reduce weeds partially. He did not apply any pesticides either. At harvest, he obtained a yield of 350 kg grain from his 0.4 ha land (approximately 875 kg ha<sup>-1</sup>). He kept 50 kg for household consumption and sold the remaining 300 kg to local traders at ₹ 36 per kg, earning ₹ 10,800 as gross profit. In his crop he had spent only ₹ 3,000 and got ₹ 7,300 as net profit (₹ 18,250 ha<sup>-1</sup>), which he had not expected. He was extremely happy with the good performance of this variety and next year he plans to grow it again. He used his profit to purchase a secondhand tractor.

At harvest, he got 350 kg grain from his 0.4 ha land (approximately 875 kg ha<sup>-1</sup>). He kept 50 kg for himself and sold the remaining 300 kg to local traders at ₹ 36 per kg, earning ₹ 10,800 as gross profit.



## Dama Miniyaka: Greater yield even with less care



Photo by AK Satapathy, FA, Rayagada

Village: Kiapadu, Block: Rayagada, District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.2 ha  
Spacing: 60 cm × 60 cm  
Yield: 240 kg

**D**ama Miniyaka is a poor farmer of Kiapadu village who owns only 0.8 ha of upland. His main occupation is agriculture, but the income from that 0.4 ha land is too low to sustain his family of five. To supplement their income, he and his wife work as daily laborers during off-seasons. Despite his low income, he is educating his two little daughters. Dama was always very worried about making ends meet, and wanting to find a way to earn more income from his land, but he had not found any solutions. In April 2012, a village meeting was organized in his village by ICRISAT staff. Dama attended the meeting along with other farmers of his village, where he learned about different new, improved and high-yielding ICRISAT pigeonpea varieties. Along with this he also

At harvest, his 0.2 ha plot yielded 260 kg of pure grain, of which he kept 60 kg for himself and sold the remaining 200 kg to local traders at ₹ 35 per kg, earning ₹ 7,000. He had spent only ₹ 1,800 on cultivation, and so a net profit of ₹ 5,200.

gained knowledge about scientific cultivation practices for better yield. He decided to grow those varieties on 0.4 ha land on a trial basis. But in 2012, he did not succeed in getting a good yield, getting only 140 kg grains. In May 2013, he again attended the village meeting organized by ICRISAT/NGO (CSATD) staff, and again decided to try growing that variety on 0.2 ha of his land. He registered his name on the beneficiary list, and received two kg seed of ICPL 14001 as project support. He plowed his land three times and applied half a cartload of FYM, and sowed seeds in line at a spacing of 60 cm × 60 cm in the third week of July. Besides FYM he did not apply any chemical fertilizer. After two months he did the first weeding and earthing up of soil to the crop. Pest infestation was very low, so he did not need to apply any pesticides in his crop. In addition, he weeded the plot by hand only twice. At harvest, his 0.2 ha plot yielded 260 kg of pure grain, of which he kept 60 kg for household consumption and sold the remaining 200 kg to local traders at ₹ 35 per kg, earning ₹ 7,000. He had spent only ₹ 1,800 on cultivation, and so a net profit of ₹ 5,200. He was extremely happy with his success and he admitted that the performance of this variety is really much better than the local varieties he had been growing earlier. He also felt that had he taken better care of his crop as advised by ICRISAT staff, his yield would have been higher. He used his profit for repairing his house and next year he plans to grow this variety on his entire 0.4 ha plot with appropriate care and management practices.





## Dharma Kadraka: First trial brought success



Photo by AK Satapathy, FA, Rayagada

Village: Kandhakhilum, Block: Rayagada, District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.2 ha  
Spacing: 75 cm × 60 cm  
Yield: 230 kg

**D**harma Kadraka, a 20-year-old smallholder farmer, lives with his wife and son in Kandhakhilum village. His main source of livelihood is agriculture, besides which he also works as a laborer on daily wages to sustain his family as his land does not yield much income. He owns 4 ha of land, of which 2 ha are uplands and 2 ha are paddy land. In his 2 ha uplands, he mainly grows finger millet, cotton and local pigeonpea (intercropped with cotton), but does not earn more than ₹ 15,000-₹ 20,000 as profit. Local pigeonpea was yielding only 500-600 kg ha<sup>-1</sup>. When he heard from local agriculture department staff about the new improved and high-yielding pigeonpea varieties/hybrids developed by ICRISAT, he decided to find out more. In April 2013, he attended the awareness campaign activities conducted in his village, where he learned more about these varieties and hybrids, as well as scientific cultivation practices to increase yield in pigeonpea. He also received booklets/leaflets on improved pigeonpea production practices and IPM/IDM practices written in Odiya, which helped guide him during implementation processes. Dharma decided to grow those new varieties in 0.2 ha land on a trial basis to test the performance of the improved varieties, and received two kg seeds of ICPL 14001 free of cost as project support. He prepared his land and sowed seeds in line at a spacing of 75 cm × 60 cm in the second week of July. During seed sowing he did not apply any chemical fertilizers. After 50 days he applied 10 kg urea, did the first weeding and earthing up of soils to the crop. To protect his crop from pest infestation, he applied one spraying with Triazophos which he obtained from the agriculture department at a 50% subsidy. He also weeded the crop by hand only twice. He did not take proper care as advised by ICRISAT staff, because he was unconvinced about the claims of superior performance of this new variety. At harvest, he got a yield of 230 kg grain from his 0.2 ha land (approximately 1,100 kg ha<sup>-1</sup>) which took him by surprise, because local pigeonpea grown on the same 0.2 ha land was hardly yielding 50-75 kg. He did not sell his produce and kept the whole 220 kg for household consumption. Dharma was extremely happy at his success in the first trial and the unbelievably good performance of this variety. Next year he plans to increase the area under this variety to 0.4 ha, and also to take more care of it.

At harvest, he got a yield of 230 kg grain from his 0.2 ha land (approximately 1,100 kg ha<sup>-1</sup>) which took him by surprise, because local pigeonpea grown on the same 0.2 ha land was hardly yielding 50-75 kg.



## Duku Miniyaka: The same area yielded more than double the profit



Photo by AK Satapathy, FA, Rayagada

Village: Kiapadu, Block: Rayagada, District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.2 ha  
Spacing: 75 cm × 60 cm  
Yield: 180 kg

**D**uku Miniyaka is a poor farmer of Kiapadu village who owns only 0.4 ha of upland. His main occupation is agriculture, but the income from that 0.4 ha land is too low to sustain his family of five. To supplement their income, he and his wife work as daily laborers during off-seasons. He mainly grows maize and finger millet all year round and obtains hardly ₹ 2,000-2,500 as profit. Despite his low income, he is educating his two little daughters. Duku was always very worried about making ends meet, and wanting to find a way to earn more income from his land, but he had not found any solutions. In May 2012, a village meeting was organized in his village by ICRISAT staff. Duku attended the meeting along with other farmers of his village, where he learned

At harvest, he obtained 180 kg of pure grain. He kept 30 kg for himself and sold the remaining 150 kg to local traders at ₹ 35 per kg, earning ₹ 5,250. He had spent only ₹ 1,500 on cultivation and made a net profit of ₹ 3,750, more than double the previous year's profit.

about different new, improved and high-yielding ICRISAT pigeonpea varieties. Along with this he also gained knowledge about scientific cultivation practices for better yield. He decided to grow those varieties on 0.4 ha land on a trial basis. However, since he was growing that variety for the first time, he did not follow the appropriate technologies suggested by ICRISAT staff, and obtained a yield of only 150 kg grains. In June 2013, he again attended the village meeting organized by ICRISAT/NGO (CSATD) staff, and again decided to try growing that variety on 0.2 ha of his land. He registered his name on the beneficiary list, and received two kg seed of ICPL 14001 as project support. He plowed his land three times and applied half a cartload of FYM, and sowed seeds in line at a spacing of 75 cm × 60 cm in the third week of July. Besides FYM he did not apply any chemical fertilizer. After two months he did the first weeding and earthing up of soil to the crop. Pest infestation was very low, so he did not need to apply any pesticides in his crop. In addition, he weeded the plot by hand only twice. At harvest, he obtained a yield of 180 kg of pure grain. He kept 30 kg for household consumption and sold the remaining 150 kg to local traders at ₹ 35 per kg, earning ₹ 5,250. He had spent only ₹ 1,500 on cultivation and made a net profit of ₹ 3,750, more than double the previous year's profit. He was extremely happy with his success and he realized that the performance of this variety is really far superior to the local varieties. He is grateful to ICRISAT for its help. He used his profit for repairing his house and next year he plans to grow this variety on his entire 0.4 ha plot with appropriate care and management practices.



## Kumudan Miniyaka: ICRISAT, a friend of poor farmers



Photo by AK Satapathy, FA, Rayagada

Village: Kiapadu, Block: Rayagada District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.2 ha  
Spacing: 75 cm × 60 cm  
Yield: 240 kg

**K**umudan Miniyaka, a poor illiterate farmer of Kiapadu village, owns only 1.6 ha of land (1.2 ha lowland and 0.4 ha upland). In his 0.4 ha upland he grows finger millet and maize all year round and from these crops he earns only ₹ 4,000-₹ 5,000 profit. He often faces crop damage due to adverse situations like drought or heavy rain. His main occupation is agriculture, but the production from his land varies from one year to the next, and his income from his land is not sufficient to sustain his five-member family (himself, his wife and three sons, of whom two are studying in the village primary school. So, in addition to farming, he and his wife work as laborers on daily wages during off seasons. Kumudan was always worried about how to make ends meet, and wanting to adopt a crop which can give greater yield with less investment and is suitable to the area.

In May 2012, a village meeting was organized in his village by ICRISAT, which Kumudan attended along with other farmers of his village. At that meeting he learned about different new, improved and high-yielding ICRISAT pigeonpea varieties and scientific cultivation practices for better yield. He first tried growing the Maruti variety in his 0.4 ha of upland on trial basis. From that 0.4 ha plot he got a yield of 180 kg, because he had not taken care of his crop properly. He realized his fault and decided to try the same variety again the following year with more care. In June 2013, he attended the village meeting organized by ICRISAT and paid greater attention to the knowledge shared by ICRISAT staff. He registered his name in the beneficiary list in that meeting to grow these new varieties on 0.2 ha, and received two kg seeds of ICPL 14001 as project support. He plowed his land three times, applied half a cartload of FYM and sowed seeds in line with a spacing of 75 cm × 60 cm in the third week of July. Except FYM, he did not apply any chemical fertilizer. After two months he did the first weeding and earthing up of soil to the crop. Pest infestation was very low, so he did not need to apply any pesticides in his crop. In addition, he weeded the plot by hand only twice. At harvest, his 0.2 ha plot yielded 240 kg of pure grain (1,200 kg ha<sup>-1</sup>), four times as much as the previous year. He kept 40 kg for household consumption and sold the remaining 200 kg to local traders at ₹ 35 per kg, earning ₹ 7,000. He had spent only ₹ 1,500 on cultivation, and earned a net profit of ₹ 5,500. He was very happy with his success and says that ICRISAT is really a friend of poor farmers. He used his profit for his children's education. He plans to grow this variety again next year on his entire 0.4 ha with appropriate care.

At harvest, his 0.2 ha plot yielded 240 kg of pure grain (1,200 kg ha<sup>-1</sup>), four times as much as the previous year. He kept 40 kg for himself and sold the remaining 200 kg to local traders at ₹ 35 per kg, earning ₹ 7,000. He earned a net profit of ₹ 5,500.



## Laxmana Kulusika: The search for greater yield in pigeonpea came true



Photo by AK Satapathy, FA, Rayagada

Village: Khambesu, Block: Rayagada District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.4 ha  
Spacing: 75 cm × 60 cm  
Yield: 360 kg

Laxmana Kulusika, a poor farmer, lives with his wife and four children in Khambesu village. His eldest son is studying in Class 10 in a residential school in Bhubaneswar and the other three study in the village school. His main occupation is cultivation, but he is also employed as a “Krusak Sathi” in the Agriculture department.

Laxmana owns only 2.4 ha of uplands, where he grows mainly maize, finger millet and local pigeonpea all year round. However, as the yield of local pigeonpea was very low, only about 500-550 kg ha<sup>-1</sup>, he was in search of new pigeonpea varieties with greater productivity. Since he was working in the agriculture department, he came to know through official sources about the new improved and high-yielding pigeonpea

varieties developed by ICRISAT. After some time, he attended a village meeting organized in his village by ICRISAT staff and learned more about the improved varieties and their yield performance. Besides this, he received some booklets and leaflets on improved production practices and IPM/IDM practices in pigeonpea, which helped him later during implementation processes. He decided to grow one of these varieties in his 0.4 ha upland, and received three kg seed of ICPL 14001 free of cost as project support. He prepared his land and sowed seeds at a spacing of 75 cm × 60 cm in line in the second week of July 2013. After 45 days, when he did the first weeding and earthing up of soil to the crop, he applied 15 kg DAP. He sprayed Triazophos only once during the pod formation stage, which only partially protected the crop from pest damage. He had obtained this pesticide from the agriculture department at a subsidy. He weeded the crop by hand twice, which was enough to control weeds only partially. He did not follow all the best practices as advised by ICRISAT staff, because he was growing this variety for the first time and he was unconvinced about its performance.

At harvest, despite this medium care he obtained a yield of 360 kg from his 0.4 ha (approximately 900 kg ha<sup>-1</sup>); whereas local varieties had never yielded more than 150-200 kg. He was astonished at the high yield, which he had not expected. He kept 60 kg for household consumption and sold the remaining 300 kg at ₹ 35 per kg, earning ₹ 10,500. He had spent about ₹ 2,500 on cultivation, and earned a net profit of ₹ 8,000, which he spent on his son’s education. He was very happy with his success and with the yield performance of this variety. He plans to grow these new varieties on a larger area next year by reducing the area under local variety.



At harvest, he got 360 kg from his 0.4 ha. He kept 60 kg for himself and sold the remaining 300 kg at ₹ 35 per kg, earning ₹ 10,500. He had spent about ₹ 2,500 on cultivation, and earned a net profit of ₹ 8,000.

## Pitambar Miniyaka: Found a suitable pigeonpea variety for my upland



Photo by AK Satapathy, FA, Rayagada

Village: Kiapadu, Block: Rayagada, District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.2 ha  
Spacing: 75 cm × 60 cm  
Yield: 280 kg

Pitambar Miniyaka, a 45-year-old marginal poor farmer lives with his wife, and four daughters in Kiapadu village. Agriculture is his main source of livelihood. He owns 2.4 ha of land, of which 0.8 ha are under paddy land and another 1.6 ha are upland in hilly tracts. In his 1.6 ha upland he mainly grows local pigeonpea, maize and finger millet all year round.

The local pigeonpea gives poor yields of about 500-600 kg ha<sup>-1</sup>. When he heard about the new improved and high-yielding pigeonpea varieties of ICRISAT, he contacted the Rayagada field assistant to find out more, as he wanted to grow new varieties of pigeonpea that would give more yield than local varieties. He attended the awareness campaign meetings conducted in his village by ICRISAT staff in June 2013 and learned more about these varieties, as well as scientific cultivation practices to increase yield in pigeonpea, which he had not known about before. After that he decided to grow these new varieties in his 0.2 ha upland area on a trial basis, and received two kg seed of ICPL 14001 free of cost as project support. He prepared the land and sowed seeds in line at interval spacing of 75 cm × 60 cm in the third week of July. After 50 days, he did the first weeding and earthing up soils to the crop. He did not apply any chemical fertilizers, but while plowing, he had applied one cartload of FYM. He controlled weeds partially by weeding by hand twice, and since the pest infestation in his crop was fairly low, he did not apply any pesticides.

With that level of low care, he obtained a yield of 280 kg grain from his 0.2 ha land (approximately 1,400 kg ha<sup>-1</sup>). He kept 30 kg for household consumption, and sold the remaining 250 kg to local traders at ₹ 35 per kg, earning ₹ 8,750 as gross profit. Pitambar had spent only ₹ 1,800 on cultivation, and made a net profit of ₹ 6,950 (₹ 34,750 per ha), which he had not expected. He decided to save his profit for future use. Pitambar is extremely happy with the good performance of this variety and says that after a long time he has found a suitable and high-yielding pigeonpea variety for his uplands. Next year he plans to grow this variety in 0.4 ha of his upland.

He obtained a yield of 280 kg grain from his 0.2 ha land (approximately 1,400 kg ha<sup>-1</sup>). He kept 30 kg for household consumption, and sold the remaining 250 kg to local traders at ₹ 35 per kg, earning ₹ 8,750 as gross profit.



## Arjuna Kashi: Negative impression vanished with positive result!



Photo by L.K. Muduli, FA, K.Singhpur

Village: Laxmipur, Block: Kalyansinghpur, District: Rayagada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.4 ha  
Spacing: 75 cm × 60 cm  
Yield: 500 kg

**A**rjuna Kashi, a 48-year-old farmer, lives with his wife, son and daughter in Laxmipur village. His son is studying in Class 8 and daughter in Class 5 in the village school. He owns 3.2 ha of land, of which 0.8 ha is under paddy and 2.4 ha are uplands, where he grows local pigeonpea, finger millet, cotton, maize, and upland paddy. The local pigeonpea variety he has been growing hardly yields 200-250 kg from 0.4 ha.

When Arjuna heard about the ICRISAT's new, improved pigeonpea varieties from village agriculture workers and farmers of nearby villages who had grown these varieties successfully, he was interested in finding out more. He and other farmers contacted the ICRISAT field staff and requested them to arrange a meeting in their village. This took place

in May 2013, where Arjuna learned about different new, improved and high-yielding pigeonpea varieties developed by ICRISAT suitable for the rainfed upland ecosystems of Odisha. He also learned about scientific cultivation practices for enhancement of productivity in pigeonpea. He decided to grow 0.4 ha with this new variety under the IPPT program by reducing his local pigeonpea area, and received three kg seed of ICPL 14001 as project support. He sowed the seeds in the first week of July at a spacing of 75 cm × 60 cm. During sowing he had not applied any fertilizer. After 45 day he did the first weeding and earthing up of soils to the crop, applying 30 kg urea and 20 kg potash at this time. He weeded the crop manually thrice, which helped control weeds partially. To protect his crop from pest infestation he sprayed twice with pesticides (Triazophos during early pod stage and DDVP during pod maturity stage) that he had obtained from the Agriculture department at a subsidy.

Continuous field monitoring by ICRISAT, NGO and Agriculture department staff helped him take better care of his crop, but despite this, he did not really follow all their advice as he was not fully convinced about the superior performance of this variety. At harvest, he obtained a yield of 500 kg grain (approximately 1,250 kg ha<sup>-1</sup>). He was extremely happy, because he had not expected such high yield and he admitted that this new variety had far exceeded his expectations. He kept 100 kg for household consumption and sold the rest to local traders at ₹ 32 per kg, earning ₹ 12,800. He had spent ₹ 3,000 on cultivation, and earned a net profit of ₹ 9,800, of which he spent some on his domestic expenditure and saved the rest for next year's crop. Next year he plans to increase his area under this variety to 0.8 ha.



At harvest, he got 500 kg grain (approximately 1,250 kg ha<sup>-1</sup>). He kept 100 kg for for himself and sold the rest to local traders at ₹ 32 per kg, earning ₹ 12,800. He had spent ₹ 3,000 on cultivation, and earned a net profit of ₹ 9,800

## Tiaka Biswanatha: Proper care definitely gives much more yield



Photo by L.K.Muduli, FA, K.Singhpur

Village: Katlang, Block: Kalyansinghpur, District: Rayagada  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 75 cm × 60 cm  
Yield: 1150 kg

Tiaka Biswanatha, a 33-year-old illiterate farmer, lives with his wife and mother in Katlang village. His main occupation is agriculture. He owns 4 ha patta land, of which 2.8 ha are paddy land and 1.2 ha are uplands, where he grows local pigeonpea, finger millet and flax seed all year round. In May 2012, he attended a meeting arranged by ICRISAT staff in his village and learned about ICRISAT's new, improved and high-yielding pigeonpea varieties. That year, he grew ICPL 14001 on 0.4 ha of his land, but did not follow the best practices advised by ICRISAT staff, which resulted in extensive damage due to severe pest infestation and weeds. At harvest, the yield was only 150 kg. Most of the other farmers in his village who were growing these varieties lost their entire crops completely due to neglect, but those who had taken proper care got a fairly good yield. In May 2013, he again attended the meeting organized by ICRISAT staff with the help of NGO and agriculture department staff. This time, he paid more attention to learning about scientific cultivation practices for productivity enhancement in pigeonpea. He decided to grow this variety again on 1 ha upland with proper care, replacing cotton and local pigeonpea, as the local pigeonpea yield is very low and cotton is an expensive and high-risk crop to grow.

Since the farmers had experienced many problems in 2012 when they cultivated ICPL 14001, they wanted to try a different variety this time. Also, the soil in their village was slightly heavy, and more suited to the pigeonpea variety Asha. In view of these facts, ICRISAT staff decided to grow ICPL 14002 in place of ICPL 14001 and distributed seeds accordingly. Biswanatha received eight kg seed of ICPL 14002 for his 1 ha land as project support and sowed this in the second week of July at a spacing of 75 cm × 60 cm. He applied 30 kg DAP and 15 kg MOP at this time, and did not apply any more fertilizer to his crop. After two months he did the first weeding and then weeded twice more at intervals of two months. However, due to continuous rainfall in the region, weed infestation was severe and he was not able to control the weeds completely. To protect his crop from pests he sprayed pesticides twice (Triazophos during early pod stage and DDVP during pod maturity stage). He obtained these from the Agriculture department at a subsidy. Continuous field monitoring by ICRISAT, NGO and the Agriculture department staff helped him take greater care of his crop. At harvest, his 1 ha land yielded 1,150 kg grain. He was astonished, because he had never seen that much yield in pigeonpea and he realized that proper care can definitely lead to much greater yield in improved pigeonpea varieties. Of his produce, he kept 100 kg for household consumption and sold the remaining 1,050 kg to local traders at ₹ 33 per kg, earning ₹ 34,650. He had spent ₹ 10,000 in all, and made a net profit of ₹ 24,650, of which he spent some on his domestic expenses and saved the rest towards a new house. He plans to increase the area under this variety to three ha next year by leasing more land.

At harvest, his 1 ha land yielded 1,150 kg grain. Of his produce, he kept 100 kg for household consumption and sold the remaining 1,050 kg to local traders at ₹ 33 per kg, earning ₹ 34,650.



## Tiaka Lula: Happy to get a high-yielding new pigeonpea variety from ICRISAT



Photo by L.K. Muduli, FA, K.Singhpur

Village: Katlang, Block: Kalyansinghpur, District: Rayagada  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.6 ha  
Spacing: 75 cm × 60 cm  
Yield: 750 kg

Tiaka Lula, a 40-year-old farmer, lives with his wife, sister, son and four daughters in Katlang village. His two youngest daughters study at a free boarding school in Bhubaneswar. His main occupation is farming, and his wife, sister and older daughters help him with this. He owns only 1.2 ha land, of which 0.4 ha is paddy land and rest 0.8 ha are uplands, where he grows local pigeonpea, finger millet, and maize all year round. However, the local pigeonpea variety yields hardly 200-250 kg yield from 0.4 ha.

Therefore, in 2012, when Lula heard about ICRISAT's new, improved and high-yielding pigeonpea varieties from village agriculture workers and ICRISAT staff, he was interested in learning more. That year he tried cultivating "Maruti" variety on 0.6 ha land but, since he was cultivating it for the first time, did not follow the techniques described by ICRISAT staff properly. As the farmers typically did not spray any pesticides in their local varieties, he followed the same practice here. As a result, most of the crop was damaged due to severe pest infestation. At harvest, from that partially damaged plot Lula got a yield of about 300 kg and that made him realize that if he had taken proper care of his crop he would have obtained a much greater yield. In May 2013, Lula again attended the village meeting organized by ICRISAT staff with the help of NGO and agriculture department staff, and paid more attention to discussions about scientific cultivation practices for production enhancement in pigeonpea. He decided to again grow this variety on 0.6 ha land with proper care.

Since the farmers had experienced many problems in 2012 when they cultivated ICPL 14001, they wanted to try a different variety this time. Also, the soil in their village was slightly heavy, and more suited to the pigeonpea variety Asha. In view of these facts, ICRISAT staff decided to grow ICPL 14002 in place of ICPL 14001 and distributed seeds accordingly. Lula received five kg seeds of ICPL 14002 as project support for his 0.6 ha, and sowed the seeds at a spacing of 75 cm × 60 cm in the second week of July. He did not apply any chemical fertilizer to his crop, because he had applied a sufficient amount of FYM in his field. After two months he did the first weeding and then weeded twice more at intervals of two months. However, due to continuous rainfall in the region, weed infestation was severe and he was not able to control the weeds completely. To protect his crop from pests he sprayed pesticides twice (Triazophos during early pod stage and DDVP during pod maturity stage). He obtained these from the Agriculture department at a subsidy. Continuous field monitoring by ICRISAT, NGO and the Agriculture department staff helped him take greater care of his crop. At harvest, his 0.6 ha land yielded 750 kg grain (approximately 1,250 kg ha<sup>-1</sup>). Lula was very happy, because he had not expected such high yield from a pigeonpea crop. He kept 100 kg for household consumption and sold the remaining 605 kg to local traders at ₹ 38 per kg, earning ₹ 24,700. He had spent ₹ 7,000 on cultivation, so he made a net profit of ₹ 17,700, of which he spent some for his children's education and saved the rest for domestic expenses. Next year he plans to increase the area under this variety to one ha.



At harvest, his 0.6 ha land yielded 750 kg grain (approximately 1,250 kg ha<sup>-1</sup>). He kept 100 kg for himself and sold the remaining 605 kg to traders at ₹ 38 per kg, earning ₹ 24,700. He had spent ₹ 7,000 and made a net profit of ₹ 17,700



## Tiaka Saru: Fruitful new livelihood alternative for poor farmers



Photo by L.K. Muduli, FA, K.Singhpur

Village: Katlang, Block: Kalyansinghpur, District: Rayagada  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 75 cm × 60 cm  
Yield: 1,100 kg

**T**iaka Saru, a 40-year-old illiterate farmer, lives with his wife, three daughters and son in Katlang village. He owns 6 ha patta land, of which 3.6 ha are paddy land and the remaining 2.4 ha are upland, where he grows local pigeonpea, finger millet, maize, sesame, black gram and flax seed all year round. In May 2012, he attended a meeting organized by ICRISAT staff in his village and learned about ICRISAT's new, improved and high-yielding pigeonpea varieties and decided to try growing these. That year he tried cultivating "Maruti" variety on 0.4 ha land but, since he was cultivating it for the first time, did not follow the techniques described by ICRISAT staff properly. As the farmers typically did not spray any pesticides in their local varieties, he followed the same practice here. As a result, most of the crop was damaged due to severe pest infestation.

At harvest, he obtained only 100 kg yield from his crop. Other farmers in his village who were growing these varieties lost their entire crops completely due to neglect, but those who had taken proper care got a fairly good yield. In May 2013, Saru again attended the village meeting organized by ICRISAT staff with the help of NGO and agriculture department staff, and paid more attention to discussions about scientific cultivation practices for production enhancement in pigeonpea. He decided to grow this variety again on 1 ha upland with proper care, replacing cotton and local pigeonpea, as the local pigeonpea yield is very low and cotton is an expensive and high-risk crop to grow. Since the farmers had experienced many problems in 2012 when they cultivated ICPL 14001, they wanted to try a different variety this time. Also, the soil in their village was slightly heavy, and more suited to the pigeonpea variety Asha. In view of these facts, ICRISAT staff decided to grow ICPL 14002 in place of ICPL 14001 and distributed seeds accordingly. Saru received eight kg seeds of ICPL 14002 as project support, and sowed these in line at a spacing of 75 cm × 60 cm in the second week of July. He did not apply any chemical fertilizer, because during plowing he had applied sufficient amount of FYM (about four cartloads). After two months he did the first weeding and then weeded thrice more at intervals of one month. To protect his crop from pests he sprayed pesticides twice (Triazophos during early pod stage and DDVP during pod maturity stage). He obtained these from the Agriculture department at a subsidy.

Continuous field monitoring by ICRISAT, NGO and the Agriculture department staff helped him take greater care of his crop. At harvest his 1 ha land he yielded 1,100 kg grain. He was very happy, because he had not got that much yield in pigeonpea before. He is grateful to ICRISAT for helping him find a most fruitful alternative livelihood. Of his 1,100 kg grain, he kept 50 kg for household consumption and sold the rest to a local trader at ₹ 38 per kg, earning ₹ 39,900. He had spent ₹ 8,000 on cultivation, and got a net profit of ₹ 31,900. He was very happy at his success and next year he plans to increase his area under this crop.

At harvest, his 1 ha land yielded 1,100 kg grain. Of this, he kept 50 kg for himself and sold the rest to a trader at ₹ 38 per kg, earning ₹ 39,900. He had spent ₹ 8,000 on cultivation, and got a net profit of ₹ 31,900.



## Pradip Kumar Panda: ICRISAT's ICPL 14001 won me the President's award



Photo by S.K.Mohanty, DCO, Rayagada

Village: Antamoda, Block: Kolnara, District: Rayagada  
Pigeonpea Variety: ICPL 14001 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 14 ha  
Spacing: 90 cm × 75 cm  
Yield: 20,100 kg

**P**radip Kumar Panda is a 38-year-old progressive and highly educated farmer of Rayagada district. He lives in Antamoda in an eleven member joint family that includes his parents and brother. He owns about 24.7 ha of land (6.5 ha own Patta land and 18.2 ha leased land). Of these, 2.4 ha are lowlands and the remaining 22.3 ha are medium lands in which he grows pigeonpea, cotton, maize, sweet corn, finger millet, black gram, green gram and vegetables all year round.

In May 2012 when he attended the village meeting organized in his village by ICRISAT, he learned about new, improved and high-yielding pigeonpea varieties/hybrids developed by ICRISAT, which he had not heard of before.

Besides this, he was also facing numerous problems in

cotton cultivation, as cotton is a very expensive and high-risk crop and the profit in comparison to expenditure is negligible. Another important thing he realized was that cultivating cotton continuously causes soil status to deteriorate and soil productivity to continuously decrease. So he decided to grow about 2 ha with the new pigeonpea varieties by reducing cotton. Since he had assured irrigation, he planned to undertake seed production on five ha. He applied all the technologies properly and in time, and that year he produced 6,500 kg certified seed of ICPL 14001. He was awarded the Best Farmer award at the district and state levels in recognition of his success. That success convinced him that if farmers applied all the proper technologies, then they would definitely get more profit from these new pigeonpea varieties than they were getting from cotton and local pigeonpea varieties.

During the 2013 cropping season, Pradip decided to grow the same variety (ICPL 14001) on 14 ha by reducing all his cotton and local pigeonpea areas. Accordingly he prepared his land by plowing deeply by tractor, and applied PSM to reduce acidity. Influenced by him, other farmers of his village also applied for the seed production program in their fields. Pradip got 112 kg breeder seeds of ICPL 14001, 700 kg DAP and pesticides (Triazophos, neem oil, DDVP) for three sprayings (at 1 l ha<sup>-1</sup>) free of cost as project support. He sowed seeds in the third week of June in line at a spacing of 90 cm × 75 cm. Although he had been advised to sow seeds in ridges, he decided against that because he felt that in very light soils, heavy rain can wash away the ridges. He decided it would be better to make ridges during the first weeding. Accordingly he sowed seeds, applying only FYM. After 25 days he did the first weeding by applying weedicide (Glycel), first protecting his crop by covering seedlings with plastic disposable glasses. After weeding, he applied chemical fertilizer (Gromor 700 kg, DAP 350 kg and urea 250 kg). After two months he did the second weeding by tractor, applied the rest of the fertilizer (same

He obtained 19,200 kg pure foundation seeds. He kept 200 kg for household consumption and 800 kg to sell as dal, and sold the remaining 18,200 kg seed to ICRISAT at ₹ 60 per kg, earning ₹ 1,092,000.





quantity as the first application) and did the earthing up of soils to the crop. He was careful to always keep his field free from weeds. He had attended the training programs on seed production and IPM/IDM organized by ICRISAT, which helped him to gain additional knowledge about taking good care of his crop.

To keep his crop free from pests, he sprayed with pesticides five times (neem oil during vegetative stage [60 day-old plants], Imidacloprid + Espete powder just before flowering, Fem [pesticide] mixed with Nativa [antibiotic] after the second spraying, DDVP during early pod stage and Triazophos during pod maturity stage) and managed to control the pests very effectively. He also applied Planofix hormone during flower initiation to ensure better flowering. During flowering, heavy rain caused stems to rot just above the ground and some plants wilted due to this. To check this he applied a fungicide, "Sharp," which protected his crop. He also sprayed another fungicide, 'Max,' to control leaf blight.

To maintain purity he had rogued out all the off-type plants during flowering. Besides all this, regular monitoring by ICRISAT and Agriculture department staff who regularly visited his field and helped him to identify these problems, helped him fix all the problems in time. Unfortunately, about 900 kg of seeds were damaged due to heavy rain during harvesting and threshing. He finally obtained 19,200 kg (excluding 900 kg damaged seeds) pure foundation seeds. He kept 200 kg for household consumption and 800 kg to sell as dal, and sold the remaining 18,200 kg seed to ICRISAT at ₹ 60 per kg, earning ₹ 1,092,000. He had spent about ₹ 320,000 in all, and made a net profit of ₹ 772,000.

In recognition of his success during the 2012-13 cropping season Pradip was awarded the Best Farmer award by the Honorable President of India on February 10, 2014, with a cash prize of ₹ 100,000 and a certificate. He was extremely happy at his success and very grateful to ICRISAT and the Department of Agriculture for their role in his success. He plans to grow about 20 ha acres of land with this variety next year by reducing all cotton, maize and other minor millets. He has now become a role model for farmers not only in his district but also in the state of Odisha.

## Alti Sunil Kumar: Extremely happy with the yield performance of ICPL 14001



Photo by S.K. Mohanty, DCO, Rayagada

Village: Darabada, Block: Kolnara, District: Rayagada  
Pigeonpea Variety: ICPL 14001 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 90 cm × 75 cm  
Yield: 1500 kg

**A**lti Sunil Kumar, is a 42-year-old farmer who lives in Darabada village with his wife. He owns 4.8 ha of patta land, of which 2.4 ha are lowlands where he grows paddy and 2.4 ha are medium lands where he mainly grows crops like cotton, local pigeonpea and maize all year round. Besides this, he looks after 12 ha that belongs to his three brothers, because two brothers live abroad and the third runs a dairy farm in the village. During the cropping year 2012-13 Sunil had grown about 4 ha of lands with ICPL 14001 under seed production program, but due lack of proper care and heavy pest infestation most of the crop was damaged and he got a very low yield. However, Sunil was not discouraged and decided to grow this variety again with better care the

Of the 1500 kg yield he got, he kept 600 kg for household consumption and to share with his three brothers and relatives and sold the remaining 900 kg to ICRISAT at ₹ 60 per kg, earning ₹ 54,000.

following year on 2 ha land. He registered his name on the beneficiary list for foundation seed production with ICRISAT, and received 16 kg breeder seeds of ICPL 14001, 100 kg DAP fertilizer and pesticides (neem oil, Triazophos and DDVP) for three sprayings (at 1 l ha<sup>-1</sup>) free of cost as project support. He also attended the district level training program on seed production organized at Rayagada by ICRISAT, where he gained deeper knowledge about different new, improved and high-yielding pigeonpea varieties/hybrids developed by ICRISAT and also learned about scientific cultivation practices for yield enhancement. Besides this, he was provided with booklets/leaflets on pigeonpea production practices, cultural management practices and IPM/IDM, which helped him a lot during implementation. In the first week of July, he sowed seeds in line with a spacing of 90 cm × 75 cm, having first applied 50 kg DAP, 50 kg urea and 20 kg MOP. After 45 days, he did the first weeding, again applied 50 kg DAP, 50 kg urea and 20 kg MOP and did the earthing up of soil to the crop. To protect the crop from insects, he sprayed his crop three times with supplied pesticides, but the pest infestation was very severe and he managed to control it only partially. Besides this, due to scarcity of labor, he was not able to weed properly due to which about 0.4 ha of the crop was damaged. With the average care he gave, he got a yield of 1500 kg pure foundation seeds from the remaining land and he admits that due to his own negligence he lost about 1000 kg yield. Of the 1500 kg he got, he kept 600 kg for household consumption and to share with his three brothers and relatives and sold the remaining 900 kg to ICRISAT at ₹ 60 per kg, earning ₹ 54,000. He had spent about ₹ 20,000 on cultivation, and made a net profit of ₹ 34,000. He was extremely happy and plans to increase the area under this variety next year by reducing cotton, as cotton is expensive and high risk expenditure and labor. He utilized some of his profit to perform his brother's marriage and saved the rest for next year's crop.



## Achhana Pedenti: ICRISAT changed my negative thinking towards pigeonpea cultivation



Photo by S.K. Mohanty, DCO, Rayagada

Village: Lilibadi, Block: Kolnara, District: Rayagada  
Pigeonpea Variety: ICPL 14001 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1.6ha. (0.8 ha damaged)  
Spacing: 90 cm × 75 cm  
Yield: 800 kg

Achhana Pedenti, a 38-year-old progressive farmer of Lilibadi village lives with his wife, two daughters and son in a small family. His children all go to school. He owns 2 ha of patta land where he grows cotton and local pigeonpea all year round. Besides this he has taken 6 ha more (0.8 ha low and 5.2 ha medium land) on lease, where he grows crops like paddy, cotton and maize. In May 2012, at a village meeting organized in his village by ICRISAT/NGO staff, he came to know about different new, improved and high-yielding pigeonpea varieties developed by ICRISAT which are suitable for rainfed up-land ecosystems of Odisha. He also learned about scientific cultivation practices for pigeonpea. He registered his name on the beneficiary list to grow these varieties on 1 ha and received eight kg seeds of ICPL 14001 and 100 kg DAP fertilizer free of cost. That year, he was growing this variety for the first time, and did not take appropriate care as advised by ICRISAT staff, and about 60 percent of his crop was destroyed by insects. Despite this, he got a yield of about 700 kg, far better than the low 500-600 kg yield of local varieties in favorable conditions. Being quite excited by this success, he planned to increase the area under this variety the following year. In June 2013 he attended the ICRISAT meeting along with other farmers and registered his name on the beneficiary list for again growing ICPL 14001 on 1.6 ha of land. Compared to 2012, more farmers from his village had decided to grow this variety in their lands. Achhana received 12 kg foundation seeds of ICPL 14001, 75 kg DAP and pesticides (Triazophos, neem oil, DDVP) for three sprayings as project support. He sowed seeds in the first week of July in line at a spacing of 90 cm × 75 cm, after applying 50 kg DAP. After 50 days, he did the first weeding and again applied 75 kg DAP and 25 kg urea, also earthing up soil to the crop at this time. He had attended the district level training program on seed production and block level training program on IPM/IDM, which taught him about scientific methods of seed production and disease/pest management in pigeonpea. He also got booklets/leaflets in Odiya on pigeonpea cultivation practices and insect/pest management. To control insects he had applied three sprayings of pesticides, but faced severe infestation by insect pests, and was also unable to control weeds properly due to labor problems. This caused severe damage to about 0.8 ha of his crop. At harvest, the remaining 0.8 ha crop yielded about 800 kg. He was happy because he had not expected this yield given all his problems taking care of the crop, but also realized that had he taken proper care he would have got about 1800-2000 kg ha<sup>-1</sup>. He kept 300 kg for household consumption and for distributing to his relatives and sold 500 kg to ICRISAT at ₹ 60 per kg, earning ₹ 30,000. He had spent about ₹ 12,000 in all, and made a net profit of ₹ 18,000, of which he spent some on his family and saved the rest for next year crop. Achhana says that ICRISAT really changed his negative thinking towards pigeonpea cultivation and he plans to grow more area under this variety next year.

He kept 300 kg for household consumption and for distributing to his relatives and sold 500 kg to ICRISAT at ₹ 60 per kg, earning ₹ 30,000. He had spent about ₹ 12,000 in all, and made a net profit of ₹ 18,000



## Bhimarao Pedenti: ICRISAT brought an improvement in livelihood



Photo by S.K. Mohanty, DCO, Rayagada

Village: Gobarapali, Block: Kolnara, District: Rayagada  
Pigeonpea Variety: ICPL 14002 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.8 ha  
Spacing: 90 cm × 75 cm  
Yield: 850 kg

**B**himarao Pedenti, a 35-year-old smallholder farmer, lives in Gobarapali village with his wife, parents, and two small daughters. He owns 4.4 ha of land and all are medium land. In his land he mainly grows cotton, tobacco, and local pigeonpea all year round. In May 2012, ICRISAT and Agriculture department staff organized a meeting in his village, where he learned about ICRISAT's different new, improved and medium/short duration high-yielding pigeonpea varieties and hybrids, which are largely resistant to disease and suitable for rainfed upland ecosystems of Odisha. He also heard about scientific and improved production practices for better yield. Bhimarao decided to grow those improved varieties, because the yield performance of local

varieties was not satisfactory. He registered his name on the beneficiary list for growing 1 ha of pigeonpea under the seed production program, and received eight kg seeds (at 8 kg ha<sup>-1</sup>), and 100 kg DAP fertilizer free of cost as project support. That year, he did not bother to take proper care of his crop, because the variety was new to him and he was not sure about how it would perform. Despite this, he got a yield of 800 kg which he was not expecting, and he decided to increase the area under this variety in the following year. In May 2013, he registered his name on the beneficiary list for both foundation and hybrid (AXR) seed production. He received eight kg foundation seeds of ICPL 14002, 6 kg seed for hybrid seed production, DAP 100 kg, and pesticides (neem oil, Triazophos, DDVP) for three spraying (at 1 l ha<sup>-1</sup>) free of cost as project support. He prepared his land and sowed seeds in ridges at a spacing of 90 cm × 75 cm (0.8 ha with ICPL 14002 and 1 ha with hybrid seed) during the second week of July. Besides project support, he also bought his own fertilizer. In both fields, during sowing he applied 100 kg DAP (at 50 kg ha<sup>-1</sup>) and FYM. After 50 days he again applied 50 kg DAP and 50 kg urea in each field. In previous years he had not taken proper care, but during 2013-14 he started to take care his crop right from the initial stages. He weeded 3-4 times, and also sprayed his crop with the pesticides at the proper time (1st spraying with neem oil just before flowering, 2nd spraying with Triazophos during early pod stage and 3rd spraying with DDVP during pod maturity stage). He had also rogued out off-type plants from his field to maintain purity. Though hybrid seed production was not satisfactory due to very low pollination and poor agronomical practices, he got a good yield from ICPL 14002. During cyclone Phailin about 0.2 ha of the crop was destroyed, but from the remaining 0.6 ha he got 800 kg of pure seeds (approximately 1333 kg ha<sup>-1</sup>) whereas the yield of local pigeonpea in that area is hardly 700-750 kg ha<sup>-1</sup>. He kept about 150 kg for household consumption and for his relatives and sold 650 kg seed to ICRISAT at ₹ 60 per kg, earning about ₹ 39,000. He had spent about ₹ 12,000 on his 0.8 ha crop and made a net profit of ₹ 27,000. He was very happy with the success of this variety and next year he plans to increase the area under this variety. He spent some of his profit to repair his house and saved the rest for next year's crop.



He kept about 150 kg for household consumption and for his relatives and sold 650 kg seed to ICRISAT at ₹ 60 per kg, earning about ₹ 39,000. He had spent about ₹ 12,000 on his 0.8 ha crop and made a net profit of ₹ 27,000.

## Narendra Bidika: ICRISAT taught us the adoption of new technology in pigeonpea cultivation

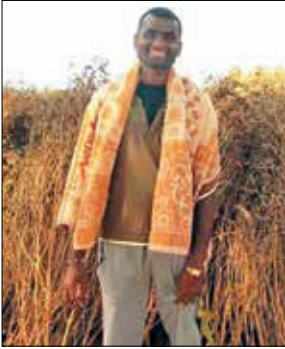


Photo by S.K. Mohanty, DCO, Rayagada

Village: Gobarapali, Block: Kolnara, District: Rayagada  
Pigeonpea Variety: ICPL 14002 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.8 ha  
Spacing: 90 cm × 75 cm  
Yield: 750 kg

**N**arendra Bidika, a 28-year-old marginal farmer, lives in Gobarapali with his wife and parents. He owns 1.8 ha of medium land and has also taken some land on lease. He grows mainly cotton, local pigeonpea, finger millet and sunflower all year round. During the cropping year 2012-13, some farmers of his village had grown ICPL 14002 and got an excellent yield which was far superior to that of the local varieties. From then on, Narendra had been thinking about growing these new ICRISAT varieties. In May 2013, a meeting was conducted in his village during which he learned about different new, improved and high-yielding pigeonpea varieties/hybrids developed by ICRISAT, as well as improved and scientific cultivation practices for better yield. He registered his name on the beneficiary list to grow these new varieties on 0.8 ha of land by reducing local varieties and received six kg seeds of ICPL 14002, 40 kg DAP and pesticides for three sprayings free of cost as project support. He prepared his land and sowed seeds in line with a spacing of 90 cm × 75 cm during the second week of July. During seed sowing he had applied 50 kg DAP. After 45 days he did the first weeding, again applied 40 kg DAP and did the earthing up of soil to the crop. He had attended the district-level training program on seed production and the IPM/IDM training program organized by ICRISAT, where learned about production practices and effective management of insects/pests in pigeonpea. He also got different booklets/leaflets on cultural management practices and IPM/IDM which gave him additional knowledge managing the crop. To control weeds, he weeded the crop thrice and to protect his crop from insects and pests, he sprayed pesticides three times (neem oil just before flowering, Triazophos during pod initiation stage and DDVP during pod maturity stage). However, due to heavy rainfall and termite attack during the pod stage, about 0.2 ha of the crop was damaged and from the remaining 0.6 ha area, most of the pods dropped. At harvest, from the 0.6 ha, he got a yield of 750 kg (approximately 1250 kg ha<sup>-1</sup>). Narendra realized that if the termite infestation and heavy rain had not happened, he would have easily got about 1400-1500 kg yield. Of the 750 kg harvest, he kept about 100 kg for household consumption and sold the remaining 650 kg to ICRISAT at ₹ 60 per kg, earning about ₹ 39,000. He had spent only ₹ 10,000 on cultivation and made a net profit of ₹ 29,000. In previous years, he had been cultivating cotton on that land, but cotton cultivation is very expensive, labor-intensive and highly risky, and yields less profit. Compared to cotton, pigeonpea needs far less expenditure and labor, and gives greater profit. Narendra was extremely happy with the performance of this variety and plans to increase the area under it next year. He is very grateful to ICRISAT for introducing this and teaching farmers about the adoption and management of new technology in pigeonpea.

At harvest, from the 0.6 ha, he got a yield of 750 kg. Of the 750 kg harvest, he kept about 100 kg for himself and sold the remaining 650 kg to ICRISAT at ₹ 60 per kg, earning about ₹ 39,000. He made a net profit of ₹ 29,000.



## Purusotti Kondagiri: Success story of a successful seed grower



Photo by G.Rabi, NGO staff, Kolnara

Village: Darabada, Block: Kolnara, District: Rayagada  
Pigeonpea Variety: ICPL 14001 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 90 cm × 75 cm  
Yield: 1800 kg

**P**urusotti Kondagiri, a 42-year-old marginal farmer, lives in Darabada village with his wife, two sons and daughter. He owns 2 ha of patta land and all of this is medium land. Besides this, he has also taken 2.4 ha land on lease. He grows mainly cotton, local pigeonpea, finger millet and maize all year round. In 2012, when ICRISAT staff visited his village he learned about the pigeonpea project implemented by ICRISAT in the area. He then attended an awareness meeting organized by ICRISAT staff in his village, where he learned more about the different new, improved and high-yielding pigeonpea varieties with high productivity developed by ICRISAT and suitable to the area. He also gained more knowledge about scientific cultivation practices in pigeonpea.

At harvest, he got a yield of 1,800 kg from his land. He kept about 200 kg for himself and sold the remaining 1,600 kg to local traders at ₹ 47 per kg, earning ₹ 75,200. He had spent about ₹ 20,000 on cultivation, and made a net profit of ₹ 55,000.

He was facing many problems in cotton cultivation and not making much profit, so he decided to grow these new pigeonpea varieties by reducing area under cotton. Another reason he was motivated to grow improved pigeonpea varieties was that in local pigeonpea the yield performance was low and he was getting hardly 625-750 kg ha<sup>-1</sup>. He grew 0.8 ha with ICPL 14001 and got 1000 kg yield (1250 kg ha<sup>-1</sup>). Very happy at his success, he decided to increase the area under this variety the following year. During the 2013 cropping season he registered his name on the beneficiary list for seed production on his 2 ha land during a meeting conducted in his village by ICRISAT and NGO staff. He got 16 kg foundation seed of ICPL 14001, 100 kg DAP and pesticides (neem oil, Triazophos and DDVP) for three sprayings at 1 l ha<sup>-1</sup> free of cost as project support. He plowed his land thrice and applied two tractor loads of FYM, and sowed seeds in line at a spacing of 90 cm × 75 cm in the second week of July. He applied 100 kg DAP and 50 kg urea at the time of sowing. After 60 days he did the first weeding, again applied 100 kg DAP and did the earthing up of soil to the crop. The knowledge he gained from attending different training programs organized by ICRISAT at district and block levels helped him to take proper care of his crop and with effective management of harmful insects/pests in pigeonpea. He sprayed pesticides in time and managed to protect most of his crop but he still lost some pods to pests. In addition, crop growth was less in 2013 than in 2012, because the land was more fertile in 2012 due to continuous cotton cultivation. At harvest, he got a yield of 1,800 kg from his two ha land. He kept about 200 kg for household consumption and to distribute to his relatives and sold the remaining 1,600 kg to local traders at ₹ 47 per kg, earning ₹ 75,200. He had spent about ₹ 20,000 on cultivation, and made a net profit of ₹ 55,000. He used some of his profit for his children's education, bought gold ornaments (five grams) for his daughter and saved the remainder. He was extremely happy, and plans to grow two ha with ICRISAT pigeonpea varieties again next year.





## Rajaroo Pedenti: Impact of other successful farmers show the way

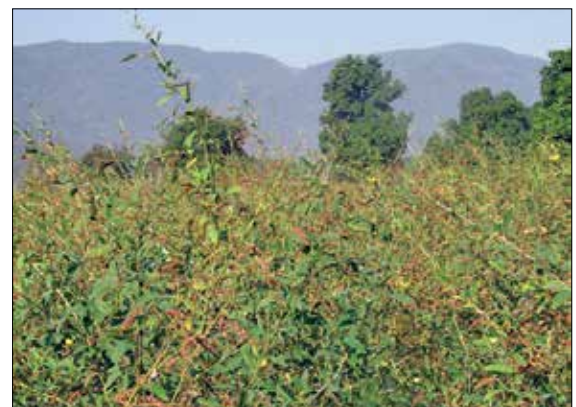


Photo by G. Rabi, NGO staff, Kolnara

Village: Lilibadi, Block: Kolnara, District: Rayagada  
Pigeonpea Variety: ICPL 14001 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1.6 ha  
Spacing: 90 cm × 75 cm  
Yield: 1800 kg

Rajaroo Pedenti, a smallholder farmer of Lilibadi village, lives with his parents, children and younger brother's family in an eleven-member joint family. He owns 4 ha of land jointly, of which 3.2 ha are patta land and 0.8 ha are legally occupied government lands. Of the 4 ha, 3.2 ha are uplands and 0.8 ha are paddy lands. In his 3.2 ha uplands, he mainly grows cotton and some local pigeonpea all year round. In 2012, six farmers from his village had cultivated ICRISAT ICPL 14001 under the seed production program and all of them got a very good yield. Rajaroo was influenced by their success and decided to try growing this variety the following year. In May 2013, an awareness meeting was organized by ICRISAT and its partner NGO (CSATD) staff in his village, where he learned about different new, improved and high-yielding medium/short-duration varieties and medium-duration hybrids of pigeonpea developed by ICRISAT which are suitable for rainfed upland ecosystems of Odisha. Besides this, he also learned about scientific cultivation techniques for enhancing yield in pigeonpea. Along with other farmers he registered his name on the beneficiary list for growing ICPL 14001 on 1.6 ha land by reducing area under cotton. He received 12 kg foundation seed of ICPL 14001, 75 kg DAP and pesticides for three sprayings at 1 l ha<sup>-1</sup> as project support. Rajaroo prepared his land and sowed seeds in line at a spacing of 90 cm × 75 cm. At the time of sowing he did not apply any fertilizer, but after 60 days he applied 75 kg DAP along with 50 kg Gromor after weeding and then earthing up soil to the crop. He had attended the district level and block level training programs on cultural management practices and IPM/IDM in pigeonpea and learned about proper management practices along with effective pest and disease management practices in pigeonpea. He also received booklets and leaflets on these subjects in Odiya, which were of great help in caring for his crop, along with regular advice from ICRISAT staff during their field visits. He weeded the crop thrice to control weeds. During pest infestation periods he sprayed pesticides four times (three times with pesticides supplied through the project, and once with pesticide he bought). He sprayed neem oil just before flowering, Triazophos during early pod stage, DDVP during pod stage and Imidacloprid after 20 days of spraying DDVP and managed to control harmful insect pests effectively. At harvest, he obtained 1,800 kg of pure certified seeds, of which he kept 200 kg for household consumption, distributed 150 kg to his relatives and 50 kg to his laborers and sold the remaining 1,400 kg to ICRISAT at ₹ 60 per kg, earning ₹ 81,900 (after adjusting processing loss). He had spent about ₹ 20,000 in all, and made a net profit of ₹ 61,900. He used some of the profit to repair his tractor, spent some on his children's education and the rest for his family's needs. He was very happy at the yield performance of this variety and plans to grow it on more area next year.

At harvest, he got 1,800 kg of certified seeds, of which he kept 200 kg for himself, and sold 1,400 kg to ICRISAT at ₹ 60 per kg, earning ₹ 81,900. He had spent about ₹ 20,000 in all, and made a net profit of ₹ 61,900.







# Nuapada Pigeonpea Success Stories





## Parameswar Duria: ICRISAT pigeonpea – a good way to expand my wealth



Village: Sialati, Block: Komna, District: Nuapada  
Pigeonpea Variety: ICPL 14002 (Seed Production)  
Area: 0.8 ha  
Seed Rate: 8 kg ha<sup>-1</sup>  
Spacing: 90 cm × 30 cm  
Yield: 800 kg

Parameswar Duria is a 38 year old small farmer, staying with his wife and two daughters at Sialati village. He has studied upto matriculation at the high school in his village. Although he wished to go to college, his family could not afford it and so from a very young age, he engaged himself in agricultural work. He is now a well-known progressive farmer in his village Sialati.

As an educated farmer, he always tries to incorporate improved technology and improved input in his work. He is well-informed and is aware that this is not the time to use local seed or conventional technology since many factors like the soil and the climate have been changing. Besides, he feels there is an increase in the demand for food especially if one is to support a family and also sell some at the local market.

He is the owner of 2 ha of land which he has inherited from his parents, of which 1.2 ha is upland. In his village, the trend is to cultivate cotton. So he has been growing cotton for a long time. In 2012, he cultivated cotton in 1.2 ha of his land, spent ₹ 15,000 and made ₹ 35,000 as net benefit. He is really not satisfied with the earnings from his uplands because, getting such profits from cotton means hard labor for him and sometimes there are problems when the price of cotton fluctuates. He has also heard, that on continuous cultivation of cotton, the land gradually becomes unfertile. He then realized that other farmers in his village had been cultivating pigeonpea of an improved variety, introduced by ICRISAT and had eventually made good profits from it. Besides, pigeonpea is a crop which makes the land fertile. So finally, he decided to cultivate pigeonpea crop under an ICRISAT project in 2013 in 0.8 ha of the 1.2 ha of upland that he owns.

He contacted the Field Assistant of Komna and became a beneficiary of a certified seed production program. He received the seed input of ICPL 14002 with 40 kg DAP fertilizer from ICRISAT. He followed all the instructions and practices of pigeonpea cultivation very carefully from the beginning when the seeds were sown till when he harvested the crop.

The yield of his crop was 800 kg of which he sold 768 kg to ICRISAT at the rate of ₹ 60 per kg for which he got ₹ 46,000. He kept back only 32 kg for family consumption.

He purchased 0.8 ha of land in his wife's name with this money. He is very grateful for having tried ICRISAT pigeonpea and has decided to cultivate the crop in the next season in all his uplands, and completely abandon cotton. He wishes to use the improved variety of pigeonpea from ICRISAT in the long run and take some uplands as lease from other farmers in his village.

He says, "I have found the best way to expand my wealth, as I was able to purchase 0.8 ha of land with my first earning from pigeonpea under the ICRISAT project.

The yield of his crop was 800 kg of which he sold 768 kg to ICRISAT at the rate of ₹ 60 per kg for which he got ₹ 46,000. He kept back only 32 kg for family consumption.



## Narottam Duria: ICRISAT pigeonpea is profitable



Village: Sialati, Block: Komna, District: Nuapada  
Pigeonpea Variety: ICPL 14002  
Cropping System: Intercrop with cotton (IPPT)  
Area: 0.8 ha  
Yield: 500 kg

**N**arottam Duria who is 45 years old is staying at Sialati village with his wife, two sons and two daughters. He has only 2 ha of land as parental property and this is the only source of income for their livelihood. So, he and his family members always labor hard to have a good crop from their land. Besides cultivating paddy in the 1.2 ha of lowland that he has, he grows cotton and kharif vegetables in the remaining 0.8 ha, which is upland. According to him, he makes a profit of ₹ 30,000 - ₹ 35,000 from cotton.

He never had the courage to stop cultivating cotton as, cotton had been the most profitable crop in his uplands. When he first came into contact with staff from ICRISAT at the

Eventually he consulted his wife and then decided to begin intercropping pigeonpea with his cotton crop. He enrolled himself as an IPPT farmer during 2012-13 and received a seed input of 12 kg of ICPL 14002 for his 0.8 ha of land.

village meeting, held at Hatisara, he got all the information regarding pigeonpea, its cultivation practices, its profitability and the residual effects it has on the soil. However he was still confused as to whether or not to attempt pigeonpea cultivation!

Eventually he consulted his wife and then decided to begin intercropping pigeonpea with his cotton crop. He enrolled himself as an IPPT farmer during 2012-13 and received a seed input of 12 kg of ICPL 14002 for his 0.8 ha of land.

As per the instructions he intercropped the pigeonpea in a 5:1 ratio with cotton. He continued his usual cropping practices and spent ₹ 12,000 on the entire cropping operation. He was very happy on seeing the growth pattern of improved pigeonpea – when it flowered and gave him the yield he had expected.

He harvested 800 kg cotton and 500 kg of pigeonpea from his field. He sold all the cotton at ₹ 3,500 per 100 kg for which he got ₹ 24,000, and sold 300 kg of pigeonpea at ₹ 35 per kg and got ₹ 10,500 at the local market. He kept 100 kg seed for his family's consumption and distributed 100 kg to his near and dear ones. Happy at his achievement, he decided to grow the crop in 2013 from the very beginning and enrolled himself as a beneficiary of the seed production program in 0.8 ha of land.

He utilized the money he made, for his eldest daughter's marriage. He is now very happy cultivating pigeonpea and has decided to give up cotton cultivation entirely. He is confident that he will be growing pigeonpea on a regular basis in the future.

## Tularam Sabar: Ratoon also possible in pigeonpea crop



Village: Sukulimundi, Block: Komna, District: Nuapada  
Pigeonpea Variety: ICPH 2740 (Hybrid Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.8 ha  
Spacing: 75 cm × 30 cm  
Yield: 600 kg

**T**ularam Sabar is a poor farmer, who stays with his family at Sukulimundi. He has a total of 4 ha of land. He had been growing pigeonpea since 2012. He was producing hybrid seeds of A × R of ICPH-2740 in his mango orchard of 0.8 ha. He has been carefully following all the instructions, practices and the right method to grow the crop. He has been maintaining A and R lines separately, planting the seeds in a 3:1 ratio of A and R lines and has been carrying out roguing, weeding as well as other intercultural operations and has been successful. He has made a good profit producing hybrid seeds of A × R of ICPH 2740.

Sabar told us that many of the methods and practices were new to him but he was extremely interested and enthusiastic.

So, after several suggestions, he did not cut the old plants after harvest as they continued to give rise to new vegetative lateral buds. He decided to keep the crop as an experiment in order to determine whether the plants would bear flowers and whether he could expect any kind of yield.

Illiterate farmers also think scientifically and Sabar decided to leave the plants as such and has taken 1.2 ha of land on lease in his village for foundation seed production of ICPL 14002.

In August during the 2013-2014 cropping season, he even applied DAP fertilizer. There was good flowering during the month of October and he managed to get 600 kg of seed from 0.8 ha. Though he was expecting a higher yield, he is happy as he got a yield of 600 kg without investing anything in the crop.

He sold 400 kg seed at the local market at ₹ 40 per kg for which he got ₹ 16,000. The remaining 200 kg he kept for his home and for distribution to his relatives.

He is the kind of farmer, who can do research and be dedicated to pigeonpea cultivation. It is remarkable that there has been such an expansion in the area covered by ICRISAT pigeonpea during the year 2014-15. By cultivating this crop under the project, Tularam Sabar, has played an important role in this expansion. He can therefore be considered a true farmer leader, who serves as an example to other farmers.

He sold 400 kg seed at the local market at ₹ 40 per kg for which he got ₹ 16,000. The remaining 200 kg he kept for his home and for distribution to his relatives.



## Dibya Kumar Sahu: Better crop among pulses become best by ICRISAT improved varieties



Village : Siallati, Block: Komna, District: Nuapada  
 Pigeonpea Variety: ICPL 14001 (Seed Production)  
 Seed Rate: 8 kg ha<sup>-1</sup>  
 Area: 2 ha  
 Spacing: 90 cm × 30 cm  
 Yield: 2,400 kg

**D**ibya Kumar Sahu was born into an educated family. He and his wife have two sons and stay with his father and mother. There are six members in his family. His wife is a matriculate and he has completed 12<sup>th</sup> standard. His two sons are studying at Bhawanipatna Government College. He is spending a lot of money on his children's education. He is a very hard worker in the agriculture sector. Sahu cultivates paddy in 2.4 ha of his lowland and pigeonpea and cotton in the other 5.2 ha. He has taken the upland on lease. He has provided a report that gives the details of his cultivation.

Sahu cultivates paddy in 2.4 ha of his lowland and pigeonpea and cotton in the other 5.2 ha. He has taken the upland on lease. He has provided a report that gives the details of his cultivation.

Year	Type of crops	Area	Expenditure	Gross income
2008	Cotton	5 ha	₹ 35,000	₹ 150,000
2009	Cotton	5 ha	₹ 40,000	₹ 140,000
2010	Cotton+Pigeonpea	5 ha	₹ 40,000	₹ 140,000

When he did pigeonpea cultivation he was aware of the actual price of pigeonpea. That year he sold the pigeonpea at ₹ 30 per kg as it was in greater demand in the market.

In the year 2011, he come into contact with people from ICRISAT and cultivated pigeonpea with proper supervision and technical input. Here are the details of Sahu's cultivation over the last three years.

Year	Type of crops	Area	Expenditure	Gross income
2011	Pigeonpea + cotton	5 ha	₹ 35,000	From cotton ₹ 50,000 From pigeonpea ₹ 70,000
2012	Pigeonpea (Maruti)	1 ha	₹ 5,000	₹ 71,000
2013	Pigeonpea (ICPL 14001)	2 ha	₹ 10,000	₹ 140,000



In 2013-2014 cropping season, Sahu generated an income of ₹ 140,000 from 2 ha of his land by selling to ICRISAT 2,333 kg at the rate of ₹ 60 per kg. The crop he harvested gave him a total yield of 2,400 kg. Sahu's experience is one of the best examples in the village. Inspired by him, many other farmers are now adopting pigeonpea cultivation. He says it is one of the most profitable crops among the pulses. He thanks ICRISAT for introducing such crops in their area.



## Pradeep Mallik: Repetition results in perfection



Village: Komna, Block: Komna, District: Nuapada  
 Pigeonpea Variety: ICPL 14002 (Seed Production)  
 Seed Rate: 8 kg ha<sup>-1</sup>  
 Area: 0.4 ha  
 Spacing: 90 cm × 30 cm  
 Yield: 800 kg

**P**radeep Mallik is an educated farmer who lives in Komna village with his wife and two sons. There are four members in his family. Both his sons have completed their education. The elder son has completed graduation and the younger one has completed post-graduation. He inherited 2 ha of land from his parents. He cultivates paddy in 1 ha of land and uses the other 1 ha for vegetable crops. He takes upland on lease for cotton cultivation. He has provided a report that gives the details of his cultivation.

In 2013, he came into contact with people from ICRISAT and cultivated pigeonpea with proper supervision and technical inputs.

Year	Type of crops	Area	Expenditure	Gross income
2010	Cotton	1.2 ha	₹ 15,000	₹ 80,000
2011	Cotton	1.2 ha	₹ 15,000	₹ 90,000
2012	Cotton+Pigeonpea	1.2 ha	₹ 20,000	₹ 120,000

In 2013, he came into contact with people from ICRISAT and cultivated pigeonpea with proper supervision and technical inputs. Here is a report of Pradeep's cultivation for the last three years.

Year	Type of crops	Area	Expenditure	Gross income
2011	Pigeonpea	0.4 ha	₹ 5,000	₹ 24,000
2012	Pigeonpea (Asha)	0.4 ha	₹ 5,000	₹ 40,000
2013	Pigeonpea (ICPL 14002)	0.4 ha	₹ 6,000	₹ 48,000

In the year 2014 he has cultivated in 1.2 ha of land and is expecting a good return from the crops. He thanks ICRISAT for introducing these crops in his village.



## Sabin Sahu: Regular pigeonpea grower prefers ICRISAT variety for cultivation



Village: Hatisara, Block: Komna, District: Nuapada  
 Pigeonpea Variety: ICPL 14002 (Seed Production)  
 Seed Rate: 8 kg ha<sup>-1</sup>  
 Area: 1 ha  
 Spacing: 120 cm × 45 cm  
 Yield: 1,250 kg

Sabin Sahu was born into an educated family. He is 47 years old and lives with his father, mother, wife and two sons. There are six members in his family. Sahu has 4.8 ha of land. He grows paddy in 2.8 ha of lowland and cotton in the other 2 ha of upland. He has provided a report that gives the details of his cultivation.

Sabin Sahu has 4.8 ha of land. He grows paddy in 2.8 ha of lowland and cotton in the other 2 ha of upland.

Year	Type of crops	Area	Expenditure	Gross income
2009	Cotton	5 ha	₹ 12,000	₹ 80,000
2010	Cotton	5 ha	₹ 14,000	₹ 80,000
2011	Cotton	5 ha	₹ 13,000	₹ 70,000
2012	Cotton + Pigeonpea (5:1)	5 ha	₹ 15,000	From cotton ₹ 80,000 From pigeonpea ₹ 16,000
2013	Pigeonpea	1 ha	₹ 7,000	₹ 75,000

When he did pigeonpea cultivation he was aware of the actual price of pigeonpea. That year, ie 2013 he sold 1,250 kg pigeonpea to ICRISAT at ₹ 60 per kg and made a satisfactory profit.

## Balika Chinagun: A woman farmer recognizing ICPL 14002 as the best pigeonpea variety



Village: Kutribahal, Block: Komna, District: Nuapada  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 120 cm × 45 cm  
Yield: 1,000 kg

**B**alika Chinagun is an illiterate farmer. She has three sons and one daughter. Her eldest son is married and has a 7-year-old daughter. There are seven members in her family. Smt Chinagun is a hard working woman. She spends long hours working in the fields with support from her family members. She has one borewell in the field. Every year she cultivates some vegetable crops in their land which she sells in the market. She manages her family with the profit she makes. She started pigeonpea (local) cultivation in the year 2012 and joined the ICRISAT project in the year 2013. Once she became a part of the ICRISAT program she got all types of technical input as well as fertilizer and pesticides and received valuable training. She followed all the norms and conditions and was properly monitored by ICRISAT field staff. She has provided a report with the details of her cultivation.

Every year she cultivates some vegetable crops in their land which she sells in the market. She started pigeonpea (local) cultivation in the year 2012 and joined the ICRISAT project in the year 2013.

Year	Type of crops	Area	Expenditure	Gross income
2012	Pigeonpea (local)	1 ha	₹ 2,500	₹ 12,000
2013	Pigeonpea (ICPL 14002)	1 ha	₹ 6,000	₹ 30,000

During 2012-13, she cultivated the local variety of pigeonpea and her net profit was around ₹ 10,000. However when she switched to ICPL 14002 in 2013-14, she made a profit of ₹ 24,000 from selling 750 kg at the local market for ₹ 40 per kg. Remaining produce of 250 kg was used during her son's marriage and for home consumption.

She used the profit she made in the year 2013 to get her son married. She is very happy and says, she will never leave out such high yielding crops in future. She expresses her thanks to ICRISAT for inspiring her to start such cultivation.

## Yuglal Majhi: Patience and confidence key to success



Village: Chatiaguda, Block: Sinapali, District: Nuapada  
Pigeonpea Variety: ICP 7035 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 2 ha  
Spacing: 90 cm × 30 cm  
Yield: 1400 kg

Yuglal Majhi is a leading farmer. The Block Agriculture Department, gives him the opportunity to carry out any kind of trial in his field and he has always produced a positive result out of it. So, he is well known as a good farmer amongst the farming community as well as in the district agriculture department.

During 2013-14, Majhi came to know about pigeonpea cultivation from a co-farmer in Sinapali and he met the field assistant of Sinapali block. He cultivated 2 ha of sandy loam land (taken on a yearly lease) under the Certified Seed Production Program with the ICP 7035 variety. He chose the river bank for this purpose and started preparing the land. Unfortunately, while he was preparing the land, he was severely affected with malaria and it took him a month to recuperate. After recovering, he immediately began preparing the land and completed sowing the seeds on 1 August 2013, following the straight line method with a planting distance of 90 cm × 30 cm.

Thereafter, he has not neglected the crop at all. He applied fertilizer (DAP) and did timely weeding and earthing. Since the soil was a sandy loam type, initially vegetative growth was not so vigorous. However, a top dressing of fertilizer during the first week of October, in combination with irrigation, speeded up the process and within 15 days, there was a massive bloom of flowers in an attractive red color which caught the eye of many people. This brought happiness and joy in Yugal's life. He was successful again in proving that with hard work and dedication, one can never fail in doing new things in life. He was indeed very proud to see the clusters of flowers all around the field. He took proper care of the field. He would keep a watch on it every moment. And at night, he would cover the flowers with a thatch. His patience and confidence proved that he is really one step ahead amongst other farmers.

Overall, he spent ₹ 12,500 in the process. He harvested 1,400 kg of seed from 2 ha of land and got ₹ 35,580 from the sales. He kept 908 kg that he used for other purposes. He gave some to the laborers, gifted some to his relatives and brothers, etc.

While he was selling his produce, he was faced with a financial burden – his grandson had a physio-surgical problem that had to be attended to. Fortunately, he got ₹ 15,000 as part of the payment for selling seeds to ICRISAT. Out of the total earning, he kept ₹ 25,000 at Sinapali bank for the coming season's cropping.

He feels very proud cultivating ICP 7035 variety because it brings him name and fame amongst all as a successful farmer. For his performance, he got the opportunity to go on an exposure visit to Rayagada district. He was appreciated by the people in Khariar Mahotsav, as his pigeonpea plants were the main exhibits there. This year, in 2014, he has involved himself in the cultivation of ICP 7035 variety in a large patch of land. He has already motivated a group of cultivators for this purpose and has planned to cultivate 10 ha of land with support from ICRISAT. He appreciates and acknowledges ICRISAT scientists and staff for their immense support and guidance.



Overall, he spent ₹ 12,500 in the process. He harvested 1,400 kg of seed from 2 ha of land and got ₹ 35,580 from the sales. He kept 908 kg that he used for other purposes.

## Bilasini Banchhor: ICRISAT pigeonpea could truly be trusted for better livelihood



Village: Goimundi, Block: Khariar, District: Nuapada  
Pigeonpea Variety: ICPH 2671 (Hybrid Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 75 cm × 30 cm  
Yield: A-line 710 kg, R-line 332 kg

**B**ilasini Banchhor, the wife of Parameswar Banchhor lives in Goimundi village of Khariar Block with her three children (two sons and one daughter). Her husband is a marginal farmer who owns only 0.5 ha of land which he has received as a share from his father. Due to the small land holding, they decided to rear cows as a result of which dairy became their prime source of income. Now they have five cows of improved breed. They get 20-30 liters of milk everyday and use this income to manage their family and give their children a higher education.

Bilasini says that till a few years ago they were able to manage their family smoothly. Now, it is becoming difficult to rear the cows and feed them properly, and it is very tough to get green fodder or grasses due to the changing situation. As the children are also growing up, the responsibility has increased. It has become very tough to manage the family with the limited income. For this reason, they decided to get involved in agricultural work. But, the problem was that her husband had only 0.5 ha of land at Goimundi village. Finally, Bilasini decided to utilize the 0.4 ha upland that was given by her father as her share of the property. So together, they had a total of 0.9 ha of land for agricultural use. She and her husband had a discussion regarding pigeonpea cultivation with Lalit Bhorasagria, a farmer of Goimundi. He had been cultivating the Asha variety of pigeonpea in his field at Goimundi and was getting good yields and also a good amount for his produce from ICRISAT. Parameswar told his wife to do pigeonpea cultivation at Bhoirajpur. Bilasini had only been waiting for her husband's consent, as she has already decided to do so. They both visited the ICRISAT office at Khariar and met the Field Assistant of Khariar block, RK Panda. He enrolled them for hybrid seed production of A × R of ICPH 2671 variety. They took 0.6 ha of land as lease from their neighbor and cultivated 1 ha of land in all. It was cumbersome initially to understand the sowing technology, and to maintain a sowing ratio of 3:1 of A- and R- lines etc. But as Bilasini was dedicated to cultivate the crop successfully she took this on as a challenge. They followed all the technology, and sowed the A-line seeds in 3 rows and the R-line seeds in 1 row. The couple travelled 15 km everyday from Goimundi to Bhoirajpur on a cycle to take care of the crop. After receiving training for disease and pest control and rouging techniques, they performed all the works in time and successfully. They had also ignored some bad comments about using technology for the cultivation of pigeonpea since generally people in their village were using the broadcasting method to cultivate pigeonpea. It was very audacious on Bilasini's part to cultivate the crop and she did so with success. Her husband also helped a lot, and provided watch and ward at night by making a thatch at the time of ripening of the pod. At last, they harvested a good crop and as per the advice of ICRISAT staff, they first harvested the R-line and then the A-line, kept the seeds separately and threshed them separately. They got a total of 710 kg seed from the A-line and 332 kg seed from the R-line. Parameswar sold out 685 kg A-line seed to ICRISAT at ₹ 75 per kg with total sales of ₹ 51,375 and used the 150 kg R-line seeds for home consumption and as gifts to relatives. As the couple said, they will never forget the pigeonpea varieties from ICRISAT and they plan to do seed production of the early variety during the year 2014-15 on that plot.

They got a total of 710 kg seed from the A-line and 332 kg seed from the R-line. Parameswar sold out 685 kg A-line seed to ICRISAT at ₹ 75 per kg with total sales of ₹ 51,375 and used the 150 kg R-line seeds for home consumption and as gifts to relatives.



## Tankadhar Behera: ICRISAT made him a master in pigeonpea hybrid seed production



Village: Sargimunda; Block: Boden, District: Nuapada  
Pigeonpea Variety: ICPH 2740 (Hybrid Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 120 cm × 60 cm  
Yield: A-line 710 kg, R-line 332 kg

**T**ankadhar Behera is a leading farmer residing in Sargimunda village of Boden block. Farming is the only livelihood option for his family. Besides cultivating paddy in medium and lowland, he cultivates maize, groundnut, millet, black gram and green gram in his upland. He never thought about cultivating high yielding varieties of crops in his upland. Neither did he imagine that there was improved technology available that could be applied to any crop in his less fertile uplands.

However, a major portion of his uplands ie, about 1.2 ha, is situated near a rivulet bank. Therefore there is scope for irrigation of this land. After coming across the details of pigeonpea cultivation, discussed in a village meeting at Sargimunda, he decided to go ahead with hybrid seed production as his land fulfilled all the criteria required for hybrid seed production. He came into contact with Sahabhagi Vikash Abhiyan (SVA) and ICRISAT staff at Khariar and enrolled his wife's name as a beneficiary. He received the seed input of A- and R- lines of ICPH 2740 as well as DAP fertilizer.

After following the instructions in the leaflet for pigeonpea hybrid seed production and getting the necessary guidance from ICRISAT staff, he prepared his field carefully with his family members. On the 17, 18 and 19 of July 2013, he planted both A- and R- line seeds simultaneously, maintaining a spacing of 120 cm × 60 cm and an A:R ratio of 3:1. In 1 ha of area, he had sown 6 kg of A-line and 3 kg of R-line seeds; applied 50 kg DAP fertilizer as band placement between two plants in a row. Thereafter, on 18 of August 2013, he did the inter-cultural operation, applied 20 kg each of DAP and urea and earthed up the entire field. Rouging work was done at different crop stages to have pure quality seed material. At the peak flowering period and during the pod filling stage, he used pesticides like Trizophos and DDVP to control the incidence of pest and diseases. For better pod setting, he also applied Plantaid (Micronutrient Complex) to the crop on his own initiative. To maintain isolation between A- and R- lines, particularly during harvesting, he tagged the R- lines with a red band. After flowering, the crop looked so impressive that it had a great impact on other farmers who were then motivated to begin cultivation in their village. He got the opportunity to attend a hybrid growers' conference held at ICRISAT during 2013-14.



During 2012-13, he had cultivated maize in this 1 ha of land, spent ₹ 9,500 and got ₹ 12,250 as net benefit. However, by doing hybrid seed production, during 2013-14, he harvested 710 kg seed from the A-line and 332 kg from the R-line. He sold out the entire harvest of A-line seeds at ₹ 7,500/100 kg, earned ₹ 53,250 and kept 110 kg of R-line seeds for his own consumption, besides giving some seeds as gifts to his relatives and to other villagers. During 2014-15, he had already prepared his land for hybrid seed production of (A × R) ICPH 3762 through the ICRISAT project.

During 2012-13, he had cultivated maize in his 1 ha of land, spent ₹ 9,500 and got ₹ 12,250 as net benefit. However, he harvested 710 kg seed from the A-line and 332 kg from the R-line. He sold the harvest of A-line seeds at ₹ 7,500 per 100 kg and earned ₹ 53,250

## Hitesh Kumar Ada: Where there is a wish, there is a way



Village: Jaybahal; GP: Rokal; Block: Boden; District: Nuapada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Intercrop with cotton (IPPT)  
Area: 1 ha  
Yield: 456 kg

**H**itesh Kumar Ada is a 27-year-old young farmer, who is technically qualified and has done an ITI course after the completion of the Intermediate class. But, neither did he get a government job nor did he get any assistance from the government to build a career with his technical qualifications. However, he sometimes engaged himself in farming work, with the help of his parents even while he was pursuing his studies.

During the previous year, his family members decided to grow cotton in their entire upland of 1 ha; the land is purely rainfed in nature and as is the practice, they made the ridges with 90 cm spacing to plant cotton seed.

Meanwhile, he got an opportunity to attend a meeting held in his village, organized by SVA, Khariar and ICRISAT. After the meeting, he became very enthusiastic and persuaded his parents to intercrop pigeonpea with cotton. He came into contact with ICRISAT staff, and received 2 bags (8 kg) of ICPL 14001 seed, free of cost under the IPPT program.

He followed a 3:1 ratio of cotton and pigeonpea crop. As is the usual practice, he applied 50 kg of DAP and 50 kg of urea fertilizer to the entire crop. Observing good vegetative growth of pigeonpea as compared to cotton, he became more interested in it. Just before the flowering, he applied Metasystox and as per the advice of ICRISAT staff, he also applied Plantaid to the entire crop.

He spent about ₹ 12,560 to carry out various practices from planting right up to harvesting. He harvested 400 kg of cotton and 456 kg of pigeonpea as an additional produce.

Earlier when they had cotton cultivation on their field, they managed to get hardly 500 kg of cotton, which would sell for about ₹ 20,000. After subtracting the expenditure of ₹ 12,560 they would get approximately ₹ 7,440 as net profit. But during 2013-14, he got a yield of 400 kg of cotton with an additional 560 kg of pigeonpea and received a net profit of ₹ 15,440. He kept 100 kg pigeonpea for consumption at home and gifted 56 kg to relatives and close friends.

The entire amount of ₹ 15,440 was spent to meet the household needs. Realizing the production potential of the improved pigeonpea variety, he has decided to cultivate pigeonpea in all his uplands under the seed production program in 2014-15.

During 2013-14, he got a yield of 400 kg of cotton with an additional 560 kg of pigeonpea and received a net profit of ₹ 15,440.



## Benu Hans: Hybrid pigeonpea makes him smile



Village: Daberi; GP: Khaira, Block: Boden, District: Nuapada  
Pigeonpea Variety: ICPH 2740 (Hybrid Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 90 cm × 30 cm  
Yield: A-line 734 kg, R-line 245 kg

**B**enu Hans, residing in Daberi village of Boden block, is the sole earning member in his family and agriculture is the only source of income for their livelihood.

As a usual practice, he grows cotton, black gram, green gram and local pigeonpea on his entire upland every year, but he manages to get only little produce. As he says, he had not imagined that profitable utility of his unfertile uplands would be possible if he were to cultivate a best suited crop of high yielding pigeonpea variety from ICRISAT. He came into contact with the ICRISAT staff at the village meeting, wherein he acquired the details of pigeonpea cultivation. He decided to do hybrid seed production (A X R) of the ICPH-2740 variety.

He attended the training program on seed production of pigeonpea held at Khariar and started preparing his field. He made the ridges with his family members, maintaining a spacing of 90 cm. He received the seed material of 5 kg ICPA 2047 and 3 kg ICPR 2740 lines and 50 kg DAP fertilizer as free input from ICRISAT. Between the 7 and 9 July 2013, he planted the seeds of A- line and R- line in a 3:1 ratio, maintaining a plant to plant distance of 30 cm. He applied DAP fertilizer as band placement in between two plants in all the ridge lines. He was encouraged by visualizing the good plant growth in his field. Further, he received training on Integrated Disease and Pest management, organized at Khariar by ICRISAT. Following the advice given in a leaflet distributed by ICRISAT, he continued to take care of his field properly. He got the pesticides Azaneem, Trizophos, Cloropyriphos and Dichlorovos from the ICRISAT office at Khariar as part of the package input, which is provided to seed growing farmers free of cost. Meanwhile, he got the opportunity to visit ICRISAT, Patancheru with other farmers from Nuapada district. He was impressed and also learnt a lot regarding pigeonpea cultivation by seeing the different methodology that was being implemented in growing pigeonpea on the ICRISAT campus. He also had a good time with pigeonpea seed growers from Andhra Pradesh at the Farmers' Field Day. Returning from ICRISAT, he started rouging work and visualizing the entire process of growing hybrid pigeonpea, he started labeling R-lines by tying a red ribbon for easy identification of male plants at the time of harvest. Taking so much care on his own initiative and engaging his family members in all operations, he spent about ₹ 12,560. Finally, he harvested 734 kg A-line as the hybrid seed of ICPH 2740 and 245 kg of R-line seed. He threshed both the seeds separately and stored them. He sold out 700 kg seed to ICRISAT at ₹ 75 per kg and got ₹ 52,500. He kept the R-line seed for his family's consumption. He utilized



some of his earnings for land development of his upland, saved ₹ 25,000 in his bank account for his daughter's marriage besides utilizing the rest for emergency household needs and a relative's marriage. He is very happy with his entire experience, getting so much support from ICRISAT. He appreciates and acknowledges all the help and support that was given to him by ICRISAT, and the knowledge that enabled him to cultivate unfertile rainfed upland in a profitable way. He desires to repeat hybrid seed production once again in his field during 2014-15.

He spent about ₹ 12,560. Finally, he harvested 734 kg A- line as the hybrid seed of ICPH 2740 and 245 kg of R-line seed. He threshed both the seeds separately and stored them. He sold out 700 kg seed to ICRISAT at ₹ 75 per kg and got ₹ 52,500.



## Gopal Ada: Formula for low input – high profit pigeonpea crop



Village: Gazdramunda, Block: Khariar, District: Nuapada  
Pigeonpea Variety: ICPL 14002  
Cropping System: Intercrop with blackgram, maize, groundnut, paddy (IPPT)  
Area: 0.8 ha  
Yield: 620 kg

**G**opal Ada, aged 65, can be truly called an intellectual farmer, because for the first time, he was able to create a great impact on a number of farmers and convince them to do pigeonpea cultivation in their uplands.

During a Field Day program, organized at Khariar at the end of the season of 2012, he attended the ICRISAT program as a non-beneficiary farmer. He participated, listened and learnt various beneficial things related to improved pigeonpea and its cultivation, that was being carried out by ICRISAT in his block. He came into contact with the Field Assistant of Khariar block, and asked for seed input to do intercropping in his 0.8 ha of upland.

Every year, he does a number of pure crops in his compact upland and has harvested various crop produces for his household consumption.

As such, during 2013, he cultivated small millet in 0.24 ha, black gram in 0.08 ha, maize in 0.26 ha, groundnut in 0.08 ha and paddy in 0.14 ha of land. But, unlike other years, he cultivated pigeonpea, ICPL 14002 as on intercropping for the first time. As per the advice he got on consulting ICRISAT staff, he did the intercrop with row spacing as follows: small millet and pigeonpea (5:2); blackgram and pigeonpea (5:2); maize and pigeonpea (1:1); groundnut and pigeonpea (5:1); and upland paddy with pigeonpea (5:2) ratios.

He got a major yield from pigeonpea cultivation and earned ₹ 21,150 by selling out 470 kg at ₹ 45 per kg in Khariar market. Besides, he managed to keep 100 kg pigeonpea for his own consumption and gifted 50 kg to his relatives. He earned an amount of ₹ 36,900 as profit.

He made a profound impact on fellow farmers with his new technique of pigeonpea cultivation. He has become an inspiration for other farmers who wish to follow intercropping in their upland crops, which would be beneficial for them. He says that due to the inter-cropping, the weed problem in his land was less than the previous year and this in turn minimized the labor cost.

This year he has decided to do seed production under the ICRISAT project and he has also been enrolled as a seed grower for the year 2014-15.

He got a major yield from pigeonpea cultivation and earned ₹ 21,150. Besides, he managed to keep 100 kg pigeonpea for his own consumption and gifted 50 kg to his relatives. He earned an amount of ₹ 36,900 as profit.

## Kuma Chandra Majhi: ICRISAT pigeonpea doubled my wife's confidence



Village: Mandiarucha, Block: Sinapali, District: Nuapada  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Area: 0.8 ha  
Seed Rate: 8 kg ha<sup>-1</sup>  
Spacing: 90 cm × 30 cm  
Yield: 594 kg

**K**uma Chandra Majhi, aged 38, lives in Mandiarucha village with his wife Jayanti Majhi, his son and his parents. He is the sole bread earner of his family. He owns 2 ha of land of which 0.8 ha is upland. So, it often becomes difficult to manage his family, just by doing cultivation. Sometimes, he goes to Chhattisgarh, Maharashtra, and Andhra Pradesh to earn some money for his family.

In his medium and lowland, he cultivates paddy and gets a good yield. However, in his upland, he changes the cropping pattern every year, as he does not get much yield from it. During 2012-13, he cultivated maize, spent about ₹ 8,000 and got ₹ 12,000 as net profit. He wanted to utilize his upland in a proper way so that he could earn more from it, which would be sufficient for him and his family.

One day, he attended farmers' meeting, which was being organized at his village and after listening to all the aspects of pigeonpea cultivation, its profitability and its beneficial effects, he was motivated and decided to grow pigeonpea under the ICRISAT project. He got himself enrolled and received the necessary inputs from the Field Assistant of Sinapali block.

As per the instructions, he started pigeonpea cultivation in his upland with the help of his wife. After the completion of the sowing work, during the first week of July, he decided to go to Mumbai to work as a laborer. His wife had always been against the idea of him going outside their village for any labor work. But he was compelled to do so as he did not have any other alternative.

His wife attended the meetings and training sessions organized by SVA and ICRISAT from time to time in their village, while he was away. She decided to try and improve the yield of the crops on their land. She devoted maximum time in her field to do various intercultural work dedicatedly. She applied urea 20 kg as top dressing, did the rouging work, and took care to spray the pesticides, supplied by ICRISAT to save the crop from pest attack.

But, unfortunately, some of the crop was damaged at the time of flowering and she lost about 0.32 ha area due to heavy rainfall. However, she managed to harvest her crop from 0.48 ha of land; threshed it and got 594 kg of seed. She had spent ₹ 5,000 for the crop and got a net benefit of ₹ 30,640. Besides, the household expenditure, she managed to save ₹ 7,500 in her SHG account.



Content with what she has done, she now awaits the arrival of her husband.

As she says, she is now preparing to do pigeonpea cultivation once again in their land with utmost care, using a good variety.

She managed to harvest her crop from 0.48 ha of land; threshed it and got 594 kg of seed. She had spent ₹ 5,000 for the crop and got a net benefit of ₹ 30,640. Besides, the household expenditure, she managed to save ₹ 7,500 in her SHG account.

## Bipin Patel: A progressive farmer



Village: Bhaludungri, Block: Khariar, District: Nuapada  
Pigeonpea Variety: ICPL 14001 (Seed Production)  
Area: 0.6 ha  
Seed Rate: 8 kg ha<sup>-1</sup>  
Spacing: 150 cm × 45 cm  
Yield: 990 kg

**B**ipin Patel was born into a traditional farming family in Bhaludungri village of Khariar block. People of his caste, both male and female do vegetable cultivation, and grow greens throughout the year. They sell their produce at the nearest market and this is the basic work that people of his caste do. He is a marginal farmer; he owns only 2 ha of land as inherited wealth from his father and later on, he purchased 1.2 ha of land. So he now owns 3.2 ha of land in all, out of which 2.0 ha is upland and is situated at 3 different patches in his village. In his uplands, he has never given much importance to good cultivation. He has grown horse gram, sweet potato, small millet, cotton, etc, over the years, but has never got a satisfactory yield. As he said that there is no difference between the expenditure and the profit. He hardly gets any net income from the upland. He came across pigeonpea cultivation by ICRISAT during 2012 and decided to do a trial with pigeonpea in his upland. He got himself enrolled for Certified Seed Production of the ICPL 14002 variety. He cultivated the crop in 0.4 ha of land. He followed the different practices partly and got a yield of 490 kg. He sold out 200 kg to ICRISAT and got a net profit of ₹ 11,700. He kept 125 kg for his family consumption and realized the sweet taste of the dal. This inspired him to do seed production of the improved variety under the ICRISAT project and he decided to cultivate the crop in his 1 ha of upland during the year 2013-14.

With a promise to cultivate the crop with the best technology, he was enrolled for the Foundation Seed Production of ICPL 14002 variety. On his own initiative, he sowed the crop seed with a 150 cm × 45 cm spacing instead of the 90 cm × 30 cm spacing he had kept during 2012. He said that in 2012 after luxurious vegetative growth, he faced problems during intercultural work, weeding and earth up and even during top dress of the fertilizer as well as while spraying. He widened the spacing, prepared his field and made ridges with the aforesaid spacing. He sowed the seeds on 23 June 2013, applied 30 kg DAP fertilizer as basal and also placed it as a band on the ridge between two seeds. On 20 August, he did the intercultural work with the application of 20 kg urea and 30 kg DAP as top dressing. He was content seeing the good vegetation in his field and as he had expected, he found good branching of the crop, which covered the entire space. During September, he did the intercultural work and weeding for the second time. Due to the wide spacing he did not face any problem in carrying out intercultural work. He successfully completed several rounds of spraying the pesticides. He used micronutrient spray and later, during pre-flowering, he sprayed Planofix. The wide spacing favored vegetative growth, led to good flowering and ultimately fine pod setting and as a result he was able to harvest a good yield of 990 kg, out of which he sold 550 kg seeds to ICRISAT at ₹ 6,000 per 100 kg and spent the money to repair his house. 75 kg was distributed among relatives, 255 kg was sold out at the local market at ₹ 4,000 per 100 kg and 110 kg was stored at home to use as dal. Impressed by the performance of these new varieties, this year in 2014-15, he has applied at ICRISAT to take up hybrid seed production.

He got himself enrolled for Certified Seed Production of the ICPL 14002 variety. He cultivated the crop in 0.4 ha of land. He got a yield of 490 kg. He sold 200 kg to ICRISAT and got a net profit of ₹ 11,700.



## Kumbha Rana: ICRISAT pigeonpea complements my dream



Village: Mandosil, Block: Khariar, District: Nuapada  
Pigeonpea Variety: ICPL 14002 (Seed Production)  
Area: 0.8 ha  
Seed Rate: 8 kg ha<sup>-1</sup>  
Spacing: 90 cm × 30 cm  
Yield: 893 kg

**K**umbha Rana is a reputed farmer staying at Mandosil village with his family. He has 4 ha of land holding which he had inherited from his parents. Of this, 1.2 ha is purely upland, 0.8 ha of which is situated near the river bank of the Sundar river. With his effort, he has established an orchard, where he has planted mango, banana, pineapple, etc and is growing seasonal vegetables also. He earns a good amount of money from his orchard. However, he was very worried about the utility of the remaining 0.8 ha of upland, situated near the village habitat. This upland is sloped with unfertile light soil. So he cultivates green gram and sometimes cotton every year but gets poor yield.

One day, he came into contact with the Field Assistant of Khariar and came to know all the details regarding pigeonpea cultivation by ICRISAT under the Odisha Pigeonpea Project. He became interested in pigeonpea cultivation for his 0.8 ha plot of land which he was worried about. He told his second son Jugeswar to enroll his name for the seed production programme. Jugeswar although young, to agricultural work is dedicated. With proper guidance from Kumbha Rana, Jugeswar leads all the aspects of their cultivation. He always remains in contact with the Government Agriculture and Horticulture Department, and regularly attends meetings and trainings. He enrolled as a farmer in the seed production program and received seed and fertilizer inputs for 0.8 ha of land. Due to the different soil type and topography, he opted first to prepare 0.4 ha of land, which was made up of heavy black soil. There he made ridges keeping a row to row spacing of 90 cm and sowed the seed at 30 cm intervals. But, he did not have enough time to prepare the land in the rest of the 0.4 ha area which is sandy to sandy loam soil. Meanwhile, due to heavy rain, he did not get the opportunity to sow the seed in time and was able to sow the seed only a month after the first sowing i.e., 7 August 2013. He did the intercropping operation in both the fields, observed good vegetative growth and during the flowering time he observed that the late sown crop had less flowering than the one sown earlier. He applied Planofix to both the fields to keep flowers for podding. Finally, he harvested his crop and got 893 kg of seed from both parts of the 0.8 ha plot. He recorded that the part where seed was sown first, provided 600 kg and the part of the land where the seed was sown later, yielded 293 kg. He is very happy with his performance and said, "if I could have sown the seed at the right time, I could have reaped a lot. He is very happy with the performance of ICRISAT pigeonpea in his unfertile upland.

He harvested his crop and got 893 kg of seed from both parts of the 0.8 ha plot. He recorded that the part where seed was sown first provided 600 kg and the part of the land where the seed was sown later, yielded 293 kg.

### Cost:Benefit

- a) Expenditure: ICRISAT support: DAP fertilizer, seed and pesticides: ₹ 2,710
- b) Own Expenditure: Ploughing, sowing, bunding, weeding, pest management and irrigation: ₹ 7950

Total Expenditure: ₹ 10,660

- a) Profit: Sold out to ICRISAT: 478 kg at ₹ 60/kg = ₹ 28,680

b) Gifted to relatives: 60 kg

c) Domestic use : 100 kg

d) Sold out at local market: 255 kg at ₹ 50/kg = ₹ 12,750

So, he earned ₹ 30,770 as net benefit, besides giving some seed to his relatives and keeping some for his own consumption as dal. He purchased ornaments for his daughter's marriage with ₹ 25,000 and the rest he kept for household consumption.

## Rushi Charan Sahu: Little effort is needed with ICRISAT improved variety



Village: Khariar, Block: Khariar, District: Nuapada  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Area: 0.04 ha  
Seed Rate: 8 kg ha<sup>-1</sup>  
Spacing: 60 cm × 30 cm  
Yield: 185 kg

Rushi Charan Sahu, aged 60 years, is a reputed Class-A contractor in Khariar Township of Nuapada district. With his effort and dedication to his work, he established a good name and is famous amongst people in the locality. He has completed his matriculation and belongs to a well-off family. His children are also well settled with good jobs in other states. Besides his profession, he is keen to do agricultural work and has planted flowering plants, fruit trees like papaya, mango, guava, etc, in his compound. He utilized his leisure time in his home garden. Unfortunately, he has only 0.43 ha of agricultural land of the lowland category. Every year, he sows long duration paddy in his land, because there is no scope to try any other crop.

He harvested his crop and got 185 kg seed. He kept 2 kg good seed for the next years cropping and gave 1 kg to Gupta his neighbor to cultivate. He gifted 23 Kg seeds to his near and dear and the remaining 160 kg seeds he kept for his home consumption as Dal.

One day, he had gone to meet one of his friends, Radhey Rana, who stays at Mandosil village of Khariar block. At that time, his friend was busy sowing pigeonpea seed, brought from the ICRISAT office, as he was one of the beneficiary farmers in the Odisha Pigeonpea Project, implemented by ICRISAT. On the request of his friend Radhey and given his interest in various types of cultivation, he took just 100 gm of ICPL 14002 seed from him. But, on the way back, he was wondering where to sow the seeds. Almost immediately, he realized where he could sow them. His lowland has high and had wide embankments all around the plot of about 0.04 ha and during this year in 2013, he had just repaired his land, just like in other years. So, he planted the seed, making the soil mound with 60 cm × 30 cm spacing in the entire embankment.

He was taking care of interculture and weeding and applied DAP fertilizer after one month of sowing on his own initiative; so there was good vegetative growth of the crop. But, due to heavy and incessant rainfall the first flush of flowers had shed. He got very worried and after pursuing his friend Radhey, he contacted the Field Assistant of Khariar about the situation. After inspecting the field the Field Assistant advised him to spray Planofix and Urea, two times at 10-day intervals. This process initiated sufficient flowers and gradually pod setting started. As per the advice of the Field Assistant of Khariar, he received pesticides from the Khariar Office and applied Trizophos and DDVP two times each at 10-day intervals. During November when he realized that the entire crop had sufficient pods in all the branches, he expected a good yield from his field.

During the first half of December, he harvested the paddy along with the neighboring farmers. Then, the area became quite lonely and he feared that his crop would be damaged by grazing cattle. So, he made a small hut there and watched the crop from morning to evening everyday for one whole month. He is a happy person and when someone he knows passes near his fields, he pleasantly shouts at them, “*Dekhare dekho, huda re karichhi mu harado chaso*” (Oh! Look out here, I have done pigeonpea crop on the bund)”. At last, he harvested his crop and got 185 kg seed. He kept 2 kg good seed for the next years cropping and gave 1 kg to Gupta his neighbor to cultivate. He gifted 23 kg seeds to his near and dear and the remaining 160 kg seeds he kept for his home consumption as dal.

He says that his son is appreciating the dal very much and ever since he got the dal, there is no entry of any other dal in his house. Realizing the potential of the improved Asha variety, he has decided to cultivate ICRISAT pigeonpea in a larger area, by taking uplands on lease from other people, next year.

## Raghunath Rana: ICRISAT pigeonpea – a unique crop



Village: Mandosil, Block: Khariar, District: Nuapada  
Pigeonpea Variety: ICPL 14002 (Seed Production)  
Area: 1.4 ha  
Seed Rate: 8 kg ha<sup>-1</sup>  
Spacing: 90 cm × 30 cm  
Yield: 1736 kg

**R**aghunath Rana, a renowned big farmer stays with his large family of 27 members in Mandosil village, situated 6 km away from Khariar town. He is the owner of 8.8 ha of land of which 4.8 ha is inherited from his parents and remaining lands were bought by him due to his dedication and effort in agriculture. Although he has other sources of income besides agriculture, like a rice mill, a grocery shop at the village, and a vehicle renting business, he has always paid special attention towards agricultural work. As agricultural infrastructure, he has a tractor and an improved plough. He has set up the irrigation infrastructure, which is provided from the lift irrigation point in his village at Sundar river. He also has a small farm pond near an upland patch of 2 ha.

He harvested the crop and got 1,736 kg seed as yield. He kept 447 kg to use as dal and sent 115 kg to his relative's house. He sold 1,174 kg to ICRISAT for seed purpose and got ₹ 70,440. He spent ₹ 12,165 (including ICRISAT input support of ₹ 4,655).

So, with the good irrigation facility, he has properly utilized his land resources and planted a mango orchard of 0.4 ha and a banana (tissue culture) orchard of 0.4 ha. He also cultivates seasonal vegetables near his farm pond throughout the year. Further, he has also owned a dairy resource and reared five improved breeds of cows. He is a wealthy and knowledgeable farmer who manages well both the land and human resources. But he was mostly practicing the traditional method of cultivation for upland crops. Meanwhile, there was a meeting organized by ICRISAT at their village. Radhey Rana, Raghunath's eldest son attended the meeting. He got to know about all the aspects of the pigeonpea seed production program managed by ICRISAT. He had a discussion with Raghunath regarding it. But Raghunath refused to grow pigeonpea because for him growing kharif vegetables was beneficial. When Radhey continued to pressurize him he finally gave in and agreed to grow the Asha variety of pigeonpea as specified by ICRISAT.

He sowed the seed between 23 and 26 June 2013, with 50 kg DAP fertilizer as basal dose. After one-and-a-half months he applied fertilizer once again at the pre-anthesis period, followed by two more sprayings at weekly intervals to control pest attack. Raghunath was very happy to see the vegetative growth and flowering. As advised, he has done the rouging of off-type plants to have a pure quality crop. He harvested the crop during the first week of January and got 1,736 kg seed as yield. He kept 447 kg to use as dal and sent 115 kg to his relative's house. He sold 1,174 kg to ICRISAT for seed purpose and got ₹ 70,440. He spent ₹ 12,165 (including ICRISAT input support of ₹ 4,655). So, his net benefit, besides his consumption and distribution was ₹ 58,275. He divided this money equally among his five sons.



He tells us that it is one of the best pulse crops which can improve the fertility status of his uplands and provide good dal. He plans to cultivate pigeonpea on a regular basis in his uplands and persuade other farmers to grow it as it is not like the local pigeonpea. It is rather unique and has several advantages, which can uplift a farmer economically.

## Makaru Majhi: Experience teaches how to lead – ICRISAT pigeonpea really benefits me



Village: Keshrajpur, Block: Boden, District: Nuapada  
Pigeonpea Variety: ICPH 2740 (Hybrid Seed Production)  
Area: 0.5 ha  
Seed Rate: 8 kg ha<sup>-1</sup>  
Spacing: 90 cm × 30 cm  
Yield: A-line 417 kg, R-line 96 kg

**M**akaru Majhi who is 49 years old, is an illiterate farmer staying with his wife and three children at Keshrajpur village. He has only 2 ha of cultivable land, of which 0.8 ha is upland. He has one small grocery shop at his village. He said, that because of this small land holding and the uncertainty in agricultural production, he had to run the grocery shop to support his family. Previously, this 5-acre land could provide sufficient food for his family throughout the year during his father's time. However, now the upland has become unfertile and hardly gives any yield. He cultivates rice in 1.2 ha of medium and lowland and in the upland he grows cotton, every year. But, incidence of pests and diseases was quite high in the cotton crop and his net income was being squeezed gradually, because he had to spend more and more on the cotton crop. So, when he came into contact with ICRISAT staff in the village meeting at Keshrajpur, he decided to grow pigeonpea in his land. Looking at the soil type and the condition of the land, he had enrolled himself to grow FPVST in his plot during 2012-13 year. He grew the crop with care and followed the ICRISAT procedure and portfolio regarding FPVST cultivation. He had grown five hybrid varieties along with a local variety. After evaluation, it was concluded that the yield of the ICPH 2740 variety is the best when compared to the other varieties. During the year 2012-13 itself, he harvested a good crop after a long period. This has made him confident to grow pigeonpea in his upland successfully and benefit from it. During 2013-14, he himself approached ICRISAT to enroll himself for the hybrid seed production program for 0.5 ha of his upland. He decided to cultivate green gram in the rest of the land. He had hoped to get a good yield by doing so, like he had in the previous year with FPVST. He enrolled as a beneficiary for hybrid seed production of ICPH 2740 (A × R) and he has been provided the A- and R- line seeds along with DAP fertilizer. He carefully prepared his land and sowed the seed in line on 15 July 2013, keeping a 90 cm × 30 cm spacing and followed the 3:1 ratio while planting A- and R- lines. He applied 20 kg DAP fertilizer as basal dose, which was provided by the project. There was good vegetative growth, as he had seen with FPVS trials. On 16 August, he did the weeding and earthing up work and applied 15 kg urea as top dressing. Flowering started in mid-September and as per the instructions, he red tagged all the R-line plants for easy identification of both the A- and R- lines. At the time of flowering, he did the rouging operation once. He applied the pesticides three times. During the month of December, all the other crops except the pigeonpea, were harvested. So, he faced a problem due to open grazing of cattle. As a result he was forced to harvest his crop just after it had attained physiological maturity. He got a yield of 417 kg from the A- line and 96 kg from the R-line. He sold out 330 kg to ICRISAT and earned ₹ 23,775. He distributed 65 kg among his relatives and kept 118 kg for his family's consumption. He spent ₹ 5,750 and got ₹ 18,025 as net benefit. He spent all this money to repair his house and also invested ₹ 5,000 in his grocery shop. He said that ICRISAT pigeonpea hybrid varieties are really good producers, which can uphold the livelihood of marginal farmers like him.

He got a yield of 417 kg from the A- line and 96 kg from the R-line. He sold out 330 kg to ICRISAT and earned ₹ 23,775. He distributed 65 kg among his relatives and kept 118 kg for his family's consumption. He spent ₹ 5,750 and got ₹ 18,025 as net benefit.



## Narottam Mahauti: Pigeonpea as intercrop could save the livelihood of my family



Village: Jaybahal, GP: Rokal, Block: Boden, District: Nuapada  
Pigeonpea Variety: ICPL 14002  
Cropping System: Intercrop with cotton (IPPT)  
Area: 0.8 ha  
Yield: 456 kg

Narottam Mahauti, is educated and has a degree in Science. He is an employee in the Education Department of the State Government of Odisha. His family is into farming. So he knows all the farming techniques and has done all the different kinds of agricultural work from his childhood. They have very limited land of 2.4 ha. Of this 0.8 ha land is purely upland. As an educated person, he has always tried to improve the productivity of their land by applying different nutrient components and by practicing different cropping methods. During the year, he found an opportunity to attend a community organization meeting held in their village at Jaybahal of Khariar block. The meeting was organized by SVA Khariar and ICRISAT, Nuapada. As he was familiar with the different aspects of pigeonpea cultivation, he applied to the Field Assistant at Khariar to be enrolled as a beneficiary in the project. He received the seed inputs of ICPL 14002 along with DAP fertilizer and pesticides. As per the discussion in the village meeting and as per instructions, he prepared his land of 0.8 ha thoroughly and made the bunding keeping a distance of 120 cm between successive rows. He planted the pigeonpea seed with cotton in a 5:1 ratio. After one month he weeded and earthed up the entire field. He observed good vegetative growth and when the flower buds appeared, he once again applied micronutrients like Korsa and Plantaid along with urea to both the cotton and pigeonpea crop.

During the end of September, there was heavy rain which resulted in the loss of the entire cotton crop and excessive shedding of the pigeonpea flowers. He and his family members were badly hit by this natural calamity. They did not expect any return from their 0.8 ha plot of land. When he brought this situation to ICRISAT's notice, he was told about the nature of multi-flowering in ICPL 14002. However, he did not believe, but since there was no other alternative, he decided to wait and see whether there would be a second flush of flowering.

In the middle of October, a second flush of flowers started appearing, bringing a ray of hope in Narottam's life. He waited patiently and everything went right after that. He could see good podding and ultimately he harvested a good crop and got 456 kg seed from that 0.8 ha of land. As the farmer said, he is very surprised that he was able to get a good crop, by cultivating the ICPL 14002 variety from ICRISAT. He appreciates it



everywhere he goes. This year he has big plans of taking up the seed production program in 2.4 ha of land in his village. He says that less input in terms of number and cost of labor for pigeonpea when compared to cotton, can fetch a good profit. Calculating the cost and benefit, he spent ₹ 6,560 to cultivate both cotton and pigeonpea and got 456 kg from pigeonpea. Out of this he sold 350 kg at Khariar market at the rate of ₹ 35per kg and got ₹ 12,250. He kept 106 kg for their home consumption and distributed some to his relatives.

Calculating the cost and benefit, he spent ₹ 6,560 to do both cotton and pigeonpea and got 456 kg from pigeonpea. Out of this he sold 350 kg in the market at the rate of ₹ 35per kg and got ₹ 12,250. He kept 106 kg for himself and distributed some to his relatives.



## Ganeshram Majhi: Comparatively ICRISAT pigeonpea provides better profit than any other upland crop



Village: Ranimunda (Majhipada), Block: Sinapali, District: Nuapada  
Pigeonpea Variety: ICPL 14001 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.4 ha  
Spacing: 90 cm × 30 cm  
Yield: 356 kg

**G**aneshram Majhi is a young farmer. He was provided with seeds of ICPL 14001 of foundation class, 20 kg DAP fertilizer and pesticides at different times. He had taken the crop as a trial, to find out whether pigeonpea is beneficial or not. He had been cultivating maize of composite and hybrid varieties in the last three years during kharif season on this homestead land of 0.40 ha.

As an educated and young farmer he expressed his desire to the staff from ICRISAT. He came to know from the village meeting that besides the capability to produce more, pigeonpea has the quality to make unfertile land fertile. So, he became enthusiastic and grew the crop as per ICRISAT specifications. Since some other farmers were also willing to leave maize and cultivate pigeonpea instead, they were all waiting to see the result of Ganesh's field trial.

He planted the seed on 27 June 2014 with a spacing of 90 cm × 30 cm and applied DAP as basal dose of fertilizer. After two months, he did the weeding, applied DAP as top dressing fertilizer and earthed up the entire field. In a few days, he observed profuse vegetative growth and most of the plants attained a height of 10-12 ft with about 3 ft radius. Improved pigeonpea needs more spacing for good branching, sufficient flowering and pod setting.

He spent about ₹ 3,700 for the pigeonpea crop and got a yield of 356 kg, which he sold for ₹ 21,360. On the other hand he spent ₹ 8,000 to cultivate 0.04 ha of maize in his adjacent plot and earned a total of ₹ 20,000. So, calculating both, he got ₹ 17,660 as net profit from pigeonpea and ₹ 12,000 as net profit from maize.

Further, he said, if he could follow the spacing of 120 cm × 45 cm, he could earn more from the pigeonpea. He utilized this earning to build a pucca house.

Besides the pigeonpea seed, he utilized the dry branches for fencing land near his home and used some of the small branches as fuel.

So, he finally concluded that pigeonpea is better than any other upland crop, because it provides high yields, has multiple uses, apart from being nutritious and tasty.

He spent about ₹ 3,700 for the pigeonpea crop and got 356 kg, which he sold for ₹ 21,360. He spent ₹ 8,000 to cultivate 0.04 ha of maize and earned ₹ 20,000. Calculating both, he got ₹ 17,660 as net profit from pigeonpea and ₹ 12,000 as net profit from maize.



## Durbal Majhi: ICRISAT pigeonpea renews his confidence



Village: Mandiarucha, Block: Sinapali, District: Nuapada  
Pigeonpea Variety: ICPL 14001 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.3 ha  
Spacing: 90 cm × 30 cm  
Yield: 397 kg

**D**urbal Majhi is a young, dynamic farmer, staying at Mandiarucha village with his parents and other family members. There are 10 members in his family. They have 9.0 acres of land, of which 3 acres is upland, and about 1 acre near his home. Durbal Majhi, being the eldest son manages the family's agricultural work. As it is the basic source of livelihood for them, they have never neglected agriculture and have been growing paddy in medium and lowland successfully, using an improved and hybrid variety of paddy seed, purchased from the Government Agriculture Department. However, the plot of land near his home is problematic. They have been trying to grow several crops for many years, all of which were failures. Each year, just before the harvesting of any crop, particularly at the time of fruiting, all the plants would die for some reason. Application of several chemicals could not stop the crop plants from dying.

During the 2012 season, ICRISAT launched its pigeonpea project work in Mandiarucha and he became a beneficiary in the IPPT program. He received the seed input of Asha variety for 0.3 ha area and cultivated the homestead plot, following the line sowing method and other practices advocated by ICRISAT. It was a trial, as he wanted to determine whether the improved pigeonpea would be a success on that particular plot? There were other farmers also, who were cultivating pigeonpea under the project. But, unfortunately, there was mass failure of all kharif season upland crops due to drought in his village. He became discouraged on seeing this failure.

During 2013-14, once again when ICRISAT staff tried to implement the program there, farmers hesitated to take up pigeonpea cultivation. Due to the failure of the IPPT program in 2012-13, ICRISAT had decided to implement the program with ICPL 14001, which is a bit earlier than the previous variety (Asha). Still, many farmers refused to do the cultivation and asked the ICRISAT staff to attend a village meeting regarding pigeonpea cultivation. Accordingly, a meeting was organized by the people there and all the ICRISAT staff attended the meeting. After several interactions, the farmers agreed to do the seed production program with ICPL 14001.

Durbal Majhi once again got prepared to do one more trial with the seed production program with ICPL 14001 in 0.72 acre of this problematic land. He prepared his field nicely and with the help of a rope, he started sowing the seed in line on 15 July 2013, keeping 90 cm × 30 cm spacing. On 20 July 2013, he did the interculture, weeding and earthing up work in the entire plot. He applied 15 kg DAP fertilizer, which was supplied by ICRISAT. He visualized good vegetative growth and later on good flowering. He applied the pesticides supplied by ICRISAT as a preventive measure to protect his crop. He was surprised that during the cropping period, he had not seen any problematic symptoms of disease or pest attack. He harvested his crop on 24 December 2013 and got 397 kg seed from 0.3 ha of land. Out of this, he sold 140 kg seed to ICRISAT at the rate of ₹ 60 per kg and earned ₹ 8,400. He distributed 57 kg to his relatives and kept 190 kg with him to use as dal and stored 10 kg seed with indigenous technology for sowing the next year. He also purchased a diesel generator set. Durbal Majhi says growing ICRISAT pigeonpea ICPL 14001, has given him the confidence to go ahead. During the year 2014, Majhi decided to cultivate the pigeonpea once again with improved practices and he is also encouraging other farmers to adopt the ICRISAT variety and technology.

He harvested his crop on 24 December 2013 and got 397 kg seed from 0.3 ha of land. Out of this, he sold 140 kg seed to ICRISAT at the rate of ₹ 60 per kg and earned ₹ 8,400.

## Satrughna Salma: My fallow land smiles with red flowers – all credit goes to ICRISAT pigeonpea



Village: Daberi, Block: Boden, District: Nuapada  
Pigeonpea Variety: ICP 7035 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.5 ha  
Spacing: 90 cm × 30 cm  
Yield: 560 kg

Satrughna Salma, aged 61 years is a well-renowned farmer in Daberi village of Khaira GP. He has passed 7th standard. He has 4.8 ha of cultivable land. Out of it 1.6 ha is upland, which is purely rainfed in nature. Satrughna has a big family and stays with his wife. He has six children, four daughters and two sons. He reared his children well, providing them with a good education. All this achievement is solely from the income from agriculture. He does agriculture with dedication. But he was worried about his uplands of 1.6 ha because that land is sloping and every year during the rainy season it is subjected to soil erosion. As a result of this the uplands have become unfertile and he is dependent on rainfall to grow any crop during the kharif season.

He spent ₹ 4,600 and got a yield of 560 kg seed. He distributed 200 kg seed and kept 100 kg for himself and stored 20 kg as seed the next year. He sold out 240 kg seed at the Khariar market at the rate of ₹ 40 per kg and earned ₹ 9,600.

About 4 years back he was utilizing the uplands to grow small millet, green gram, etc, in a traditional way. Since he did not use any improved variety of these crops the yield from these lands was very marginal. He said, that for this reason, he has left this upland fallow, and is concentrating on the remaining 3.2 ha of land. This is in the medium and lowland category and is fertile in nature. He cultivates rice in these lands and gets a satisfactory yield every year. They are the main backbone of his earning, which he can rely on. He does not put any more emphasis on the uplands and many a time, he has thought of selling his upland and buying some good fertile land. Meanwhile, he attended a village meeting, organized by ICRISAT at their village. He got to know about pigeonpea cultivation with improved varieties, that were available at ICRISAT. He asked whether his uplands would be suitable for these varieties? One day he showed his uplands to the ICRISAT staff and as per the advice he enrolled himself as a beneficiary of the seed production program in 0.5 ha of land. He has been provided the seed input of ICP 7035 variety with 20 kg of DAP fertilizer and a leaflet with details regarding the cultivation of pigeonpea.

When he was ready, he prepared his land with a tractor, made the ridges maintaining a distance of 90 cm × 30 cm and applied DAP fertilizer as basal split doses. He sowed the seed on 23 July 2014. Unfortunately for him, after one day of sowing, there was severe rainfall and about 0.2 ha land become waterlogged and water remained standing for a week, as a result of which, there was no germination. Only 0.32 ha of land remained in good condition. After one-and-a-half months, he did the interculture, weeding, top dressed with 15 kg urea and did the earthing up of the entire plot. Following this, there was good vegetative growth and flowers appeared towards the end of September 2013. He applied pesticides, supplied by ICRISAT three times to protect the crop. The slightly red flowers drew the attention of everyone. Satrughna was very happy, as he had not been cultivating anything on this land for the last four years and it had remained barren due to its physiography. On 27 January 2014, he harvested his crop and as he said, seeing the crop, his four married daughters helped him harvest the entire crop. He spent ₹ 4,600 to grow the crop and got a yield of 560 kg seed. He distributed 200 kg seed amongst his four daughters, kept 100 kg with him for home consumption and stored 20 kg as seed for the next year. He sold out 240 kg seed at the Khariar market at the rate of ₹ 40 per kg and got ₹ 9,600 as profit. He gifted ₹ 1,000 to each of his four daughters. He has utilized ₹ 5,000 to install an onion godown on his premises. He has promised to grow pigeonpea from ICRISAT every year in his uplands. During 2014 he become a beneficiary of the seed production program of ICPL 88039.

## Rajman Majhi: ICRISAT pigeonpea taught me a new lesson



Village: Ranimunda (Naik pada), Block: Sinapali, District: Nuapada  
Pigeonpea Variety: ICPL 14001 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.28 ha  
Spacing: 90 cm × 30 cm  
Yield: 346 kg

Rajman Majhi is a very intellectual farmer who stays with his family at Naikpada of Ranimunda village. He is 55 years of age now. However he is very smart and always keeps in touch with the Government Agriculture Department to keep himself informed regarding various schemes and technology. He is very interested in attending meetings training programs related to agriculture. He says, since 1992, he has been continuously doing pigeonpea cultivation in his field. Three times he has used the seeds he procured from the Government Agriculture Department. Otherwise, he uses the local variety of pigeonpea. He says, he gets about 200 kg of seed per 0.4 ha every year.

In May 2013, he attended a village meeting held at Ranimunda, organized by ICRISAT where he got to know about the ICRISAT pigeonpea, its production, benefits etc. He was surprised, on hearing about the production potentiality of pigeonpea, he was interested in growing it himself. He enrolled his name for the seed production program. He collected the seed of ICPL 14001 and 20 kg of DAP fertiliser input from the Field Assistant of Sinapli block along with a leaflet regarding the package of practices regarding pigeonpea cultivation.

He prepared his land which is situated near a rivulet, made the ridges keeping them 90 cm apart and put the DAP fertilizer as band placement in between and sowed the seed on 17 July 2013, with 30 cm spacing. He marked good germination everywhere and saw that plant growth was uniform and good. On 25 August 2013, he started weeding work, then earthed up the entire field and put 15 kg urea on his own initiative. After this, the growth of the plants were very vigorous, and he was very happy seeing his crop. By the end of September he noticed that the flowers were about to appear. So as per the instructions in the leaflet and the suggestions imparted during the training program in his village, he did four sprayings of pesticide at 15-day intervals.

He found his crop was without any pest and disease. Everything was going well, but due to lack of rainfall, his field started drying in October and as advised, he irrigated his field once in October and once more during the first week of December. At that time pod setting had already occurred and the pods began to develop inside.

On 28 December, he harvested his crop with great happiness, as growing ICRISAT pigeonpea was a new experience for him and it was a success. After threshing, he got 364 kg seed, out of which he sold 150 kg to ICRISAT at the rate of ₹ 60 per kg and earned ₹ 9,000. He kept 150 kg for consumption at home and distributed 40 kg to his relatives. He kept 16 kg of good seed for the next years cropping.

He said ICRISAT taught him a new lesson regarding pigeonpea cropping. He spent ₹ 4,000 and got ₹ 5,000 as net cash, besides other uses. He has decided not to grow any other variety and stick to the ICRISAT variety of pigeonpea in the future. He has taken the initiative to form a pigeonpea grower farmers' club at Ranimunda, and has given it the name - Maruti Nandan Farmers' Club (after the Maruti Variety)

During, 2014-15, he has enrolled himself as a farmer in the seed production program to grow ICP 7035 in 1.2 ha of land.

He harvested his crop with great happiness, as growing ICRISAT pigeonpea was a new experience for him and it was a success. After threshing, he got 364 kg seed, out of which he sold 150 kg to ICRISAT at the rate of ₹ 60 per kg and earned ₹ 9,000.

## Rabi Rana: Red flower and pod cluster attract others



Village: Lyad, Block: Sinapali, District: Nuapada  
Pigeonpea Variety: ICP 7035 (Seed Production)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.4 ha  
Spacing: 90 cm × 30 cm  
Yield: 686 kg

Rabi Rana is a leading farmer of Lyad village in Sinapali Block of Nuapada district in Odisha state. He belongs to the potter community and makes pots, tiles etc. He also has a few small patches of land. So, he takes some lands on lease from the Brahmin community for cultivation work during the kharif season every year, as a share crop. In the year 2013-14 he took 1 ha of upland from Prafulla Kumar Panda of Lyad who is a lecturer in Sinapali College. Panda and Rabi Rana contacted the Field Assistant of ICRISAT about cultivating pigeonpea in their field. After field verification the Field Assistant gave Rana ICP 7035 seeds and fertiliser inputs along with a leaflet regarding ridge making, seed planting on ridge, etc. He was also provided with training on application of fertilizer and pesticides. Rana got 50 kg DAP fertilizer from ICRISAT. After getting all types of input and training from the Field Assistant he sowed their seeds on 15 July 2013, following the procedure. As the land was nearer to his house he applied the fertilizer at the time of sowing as the first dose. Weeding and ridge making had been completed within 45 days of sowing. But soon after weeding and ridging some plants were damaged. Rana contacted the ICRISAT office at Khariar, regarding the matter. After the field visit, it was found that the death of the plants was due to termite attack and he was advised to apply Chlorpyrifos twice with a 10-day interval and triazophos after 25 days, both of which were supplied by ICRISAT. DDVP was also applied at the time of flowering and pod setting stage. Lastly he was successful in overcoming pest attacks and got a good yield of 686 kg seed in 0.4 ha land. The crops on the other 0.6 ha crops were lost due to heavy rain at the time of planting. He sold all the crops in his village, even though he had an opportunity to sell them at the ICRISAT office because he got a handsome price of ₹ 70 per kg. The villagers took these seeds immediately because they wanted to keep them for planting in the next year as they knew the pods were good.

He got a good yield of 686 kg seed in 0.4 ha land. He sold all the crops in his village, even though there is an opportunity to sell them at the ICRISAT office because he got a handsome price of ₹ 70 per kg.

### Profit /Loss calculation

1.Land preparation and ridge making	₹ 2,700
2.Weeding and grass controlling	₹ 1,400
3.Labor (at the time of harvesting)	₹ 600
	<u>₹ 4,700</u>

Harvested - 686 kg

Sold at village: 400 kg at ₹ 70/kg= ₹ 28,000

Domestic use: 150 kg, gifted to relatives: 100 kg, kept for seed: 36 kg, Net profit ₹ 23,300

Rabi Rana utilized his profit for his land development work and spent ₹ 10,000 on home expenses. He says, he is very happy with last year's crops. This year his pigeonpea field has become an inspiration for his village and nearby villages. Inspired by the red flowers and pod clusters, this year in 2014-15 about 61 ha of pigeonpea cultivation has been done in Lyad village and all are expecting a bumper crop.

## Hemanta Kumar Panda: Confidence building crop – ICRISAT pigeonpea variety



Village: Lyad, G.P: Makhapadar, Block: Sinapali, District: Nuapada  
 Pigeonpea Variety: ICP 7035 (Seed Production)  
 Seed Rate: 8 kg ha<sup>-1</sup>  
 Area: 2 ha  
 Spacing: 90 cm × 30 cm  
 Yield: 1233 kg

**H**emanta Kumar Panda is a 58-year-old leading farmer of Lyad village in Sinapali Block of Nuapada District of Odisha state. During a village meeting at Lyad, that he attended, he got to know about the beneficial aspects of different pigeonpea varieties, released by ICRISAT. He wanted to cultivate pigeonpea in his upland of 2 ha, where he was growing green gram and black gram in the previous year. He contacted the Field Assistant of Sinapali block for seed and fertilizer input. After field verification, he was provided with ICP 7035 seeds and 40 kg DAP fertilizer along with a leaflet regarding ridge making, seed planting on ridge, etc. He was also given training on the application of fertilizer and pesticides in the beneficiary group meeting at his village.

After getting all types of input and training from ICRISAT, he completed sowing the seeds on 13 July 2013. He followed ICRISAT guidelines i.e., he kept a row to row spacing of 90cm and a plant to plant spacing of 30 cm. He applied the fertilizer at the time of sowing as the first dose and thereafter, completed weeding and ridge making within 45 days. Panda always kept in touch with ICRISAT staff regarding all matters. As per the advice, he applied Chlorpyrifos twice in a 10-day interval and Triazophos after 25 days, both of which were supplied by ICRISAT. DDVP and neem were also applied at the time of flowering and at the pod development stage to protect the crop from pod borer attack. He was successful in overcoming pest attacks and got good crops in 2 ha land as per his expectations. He got a yield of 1,233 kg seed.

He sold out 600 kg seed at the local market at ₹ 50 per kg and got ₹ 30,000. He kept 400 kg seed for his own consumption as per the request of his mother and sent 200 kg to his father-in-law's house and kept 30 kg to use as seed in the next year. He kept his earnings in his bank account to support his son's higher studies at Bhubaneswar.

Panda always kept in touch with ICRISAT staff regarding all matters. As per the advice, he applied Chlorpyrifos twice in a 10-day interval and Triazophos after 25 days, both of which were supplied by ICRISAT.



### Profit/Loss calculation

1. Land preparation and ridge making	₹ 4,700
2. Weeding and grass controlling	₹ 2,100
3. Spraying charges (pest control)	₹ 400
4. Labor (at the time of harvesting)	₹ 700
Total expenditure	₹ 7,900
Profit	₹ 30,000 besides other uses
Net profit	₹ 22,100

Panda says that the profit he has made and the taste of the dal, makes him feel that the ICP 7035 variety can really build up the confidence of a farmer. This year in 2014-15 year, he has planned to do pigeonpea cultivation in his uplands with ICP 7035.



# Bolangir Pigeonpea Success Stories







## Gulati Mahananda: Where there is a will, there is success



Village: Gurunda, GP: Goimund, Block: Muribahal, District: Bolangir  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.5 ha  
Spacing: 90 cm × 30 cm  
Yield: 385 kg

**G**ulati Mahananda, a 39-year-old marginal farmer, lives in Gurunda village with her husband and two children. They own only 1.6 ha of land, of which 1 ha is upland. Due to their small land holding with more of upland, it is difficult to sustain the family on only agriculture, so she and her husband they both go out to work as laborers to make ends meet. This was not the case a decade ago, when there was good yield and they were getting good profits from their upland. In recent years, they changed their cropping pattern every year, growing small millet, horse gram, finger millet, groundnut and local pigeonpea varieties, and now they get hardly about ₹ 5,000 as net profit from the upland. That is why they do not consider the upland cultivation very significant. During 2013-14, she came across the volunteer workers of the NGO *Shramik Shakti Sangha* and learned about the multiple benefits of cultivating ICRISAT pigeonpea varieties. She also heard from her husband that other farmers of the village were growing these varieties. She asked her husband to enroll their name as beneficiaries to grow the improved pigeonpea variety on 0.5 ha.

She received four kg seed of ICPL 14002 as project support under the IPPT program, and the entire family helped prepare the land and sowed the seed in line, at a spacing of 90 cm × 30 cm. Thereafter, she did the interculture at the proper time, applied 10 kg of DAP fertilizer as top dressing and also did the earthing up of the entire field. At harvest, she achieved a yield of 385 kg, of which she kept 85 kg for household consumption and sold the remaining 300 kg seed in the local market in Bangomunda at ₹ 30 per kg, earning a profit of ₹ 9,000 as profit.

Mahananda was very happy with the production potential of ICRISAT varieties of pigeonpea. She also understands that they need to try and bring the land back to its earlier level of fertility for even better yield. She plans to grow the same variety on their entire one ha next year and in the future.

At harvest, she achieved a yield of 385 kg, of which she kept 85 kg for household consumption and sold the remaining 300 kg seed in the local market in Bangomunda at ₹ 30 per kg, earning a profit of ₹ 9,000 as profit.



## Krutibash Sahu: Pigeonpea is a good intercrop



Village: Patrapalli, Block: Muribahal, District: Bolangir  
Pigeonpea Variety: ICPL 14002  
Cropping System: Intercrop with groundnut (IPPT)  
Area: 0.5 ha  
Yield: 290 kg

**K**rutibash Sahu lives with his family in Patrapalli village. He owns 0.5 ha of upland in his village, on which he grows groundnut crop intercropped with a local pigeonpea variety, which he broadcasts in between the groundnut crop. However, his pigeonpea yield has not been very good. In 2013, Krutibash attended a meeting organized by the NGO *Shramik Shakti Sangha* in which he learned about the cultivation of ICRISAT's new, improved high-yielding pigeonpea varieties. During this meeting, the field assistant described details of the cultivation practices such as spacing, pest control, roguing and the yield capacity of improved pigeonpea varieties. Krutibash expressed his interest in growing the ICRISAT pigeonpea variety and received four kg of seed of ICPL 14002 as project support to intercrop with



groundnut. He prepared his land carefully and for the first time, he sowed both the groundnut and pigeonpea seed in line. He applied 15 kg DAP as basal fertilizer and sowed seeds at a spacing of 15 cm × 60 cm, in a 4:2 ratio (four rows of groundnut and 2 rows of pigeonpea). After 45 days, he did the interculture and earthing up of soil to the crop, and applied another 10 kg of DAP. Both the groundnut and pigeonpea were flowering well, and there was less pest infestation as well. At harvest, Krutibash obtained a yield of 110 kg groundnut and 290 kg pigeonpea. The previous year, he had got 50 kg groundnut and 100 kg local pigeonpea from the same field.

Krutibash was very happy with the experience, and plans to undertake seed production of the same ICRISAT improved variety in his plot next year. He appreciates both ICPL 14002 as well as the cultivation practices of ICRISAT greatly.

At harvest, Krutibash obtained a yield of 110 kg groundnut and 290 kg pigeonpea. The previous year, he had got 50 kg groundnut and 100 kg local pigeonpea from the same field.

## Bibhisana Bishi: Yield potential of ICRISAT variety is very promising



Village: Kodobhatta, GP: Dangarpada, Block: Muribahal, District: Bolangir  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 90 cm × 30 cm  
Yield: 757 kg

**B**ibhisana Bishi, is a 45-year-old, well-known leading farmer of Kodobhatta village. He owns 3 ha of land, of which 2 ha is upland. His primary occupation is agriculture, but he finds it hard to sustain his five-member family on farming alone. So, they have to resort to working as laborers for daily wages to make ends meet. In his uplands he grows cotton, small millet, horse gram, black gram and green gram and local pigeonpea varieties. However, he was barely earning ₹ 15,000 a year from these uplands.

In 2013-14, Bibhisana learned about ICRISAT's new, improved high-yielding pigeonpea varieties from the Krusak sathi in his village and volunteers of Shramik Shakti Sangha, Badbanki. He expressed his interest in cultivating ICRISAT's ICPL 14002 pigeonpea on one ha of upland under the IPPT program and received 8 kg seed of ICPL 14002 from the ICRISAT field assistant.

Bibhisana prepared his land and sowed the seeds, maintaining a spacing of 90 cm × 30 cm. He received regular advice from the field staff, and followed this as far as possible, weeding, earthing up soil, and applying manure and fertilizer when the crop reached knee height. Unfortunately, due to financial constraints, he was not able to apply pesticide to the crop. However, there was good flowering and podding in his crop.

At harvest, he obtained 757 kg seed, of which kept 72 kg for household consumption and to share with his neighbors. The latter were very pleased with this variety, finding that it tasted better and consumed less fuel to cook than the local variety. Bibhisana sold the remaining 685 kg at ₹ 30 per kg, earning ₹ 20,550, of which he used ₹ 20,000 to repair his house.

He is grateful to ICRISAT for both the improved seed, and for the new cultural practices he learned, such as planting the crop in rows. He feels that by taking good care to follow the ICRISAT technology and using the ICRISAT variety, anybody can harvest a good pigeonpea crop.

At harvest, he obtained 757 kg seed, of which he kept 72 kg for household consumption and to share with his neighbors. Bibhisana sold the remaining 685 kg at ₹ 30 per kg, earning ₹ 20,550, of which he used ₹ 20,000 to repair his house.



## Debarchan Sahu: ICRISAT variety supplements my meal with tasty dal



Village: Chitramunda, GP: Goimund, Block: Muribahal, District: Bolangir  
Pigeonpea Variety: ICPL 14002  
Cropping System: Intercrop with cotton (IPPT)  
Area: 0.5 ha  
Yield: 277 kg

**D**ebarchan Sahu is a marginal farmer who lives in Chitramunda village. There are five members in his family. His only son is mentally challenged and his wife suffers from a chronic disease for which she is being treated at a missionary hospital. There are no earning members in the family, and Debarchan subsists by growing vegetables, besides availing rice from the government's public distribution system (PDS) and old age pension.

Debarchan owns one ha of land; of which 0.5 ha is upland and the rest is lowland. Due to lack of resources, he was not able to tend his land. So he leased his 0.5 ha lowland to other and got some money; however, there were no takers for his

upland as it is barren and infertile. Every year, he works hard to grow cotton, green gram, horse gram and local pigeonpea varieties on his upland, but the yield is very low. While he gets rice from the PDS, he cannot afford to buy dal throughout the year.

In 2013-14, he came to know that ICRISAT and Shramik Shakti Sangh, Badbanki were providing improved, high-yielding pigeonpea seed through ICRISAT's Odisha pigeonpea project. Debarchan went to the Field Assistant of Bolangir and enrolled his name on the beneficiary list for ICPL 14002. He received four kg of seed as project support, and sowed the seed along with cotton as intercrop in a cotton:pigeonpea ratio of 4:1. He applied 15 kg DAP as basal fertilizer and after one month he did the interculture and the weeding and earthing up, followed by top dressing of five kg urea.

After one week, he observed that the pigeonpea was growing more vigorously than the cotton crop. This fired his enthusiasm. The crop was affected by pests, but due to his financial constraints, he could not afford pesticides to control the pest attack.

In January 2014, he harvested his crop and obtained 277 kg pigeonpea seed and 200 kg cotton. He kept 60 kg for household consumption and 10 kg for seed and sold the rest in the local market, earning ₹ 2,000 as net profit.



He realized that if he had applied pesticide to control the pest; he could have harvested more yield.

Debarchan is very happy with the Asha pigeonpea variety and said that ICRISAT helped rid him of his problem and ensured him a supply of good and tasty dal throughout the year. He has plans of growing ICRISAT pigeonpea on his 0.5 ha upland again next year.

He harvested his crop and obtained 277 kg pigeonpea seed and 200 kg cotton. He kept 60 kg for household consumption and 10 kg for seed and sold the rest in the local market, earning ₹ 2,000 as net profit.

## Astharaj Bhoi: ICRISAT ICPL 14001 enables me to stop migrating for work



Village: Aonlabhata, GP: Patrapalli, Block: Muribahal, District: Bolangir  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.5 ha  
Spacing: 75 cm × 30 cm  
Yield: 368 kg

**A**stharaj Bhoi, a 42-year-old marginal farmer, lives in Aonlabhata village. He owns 1.75 ha of land, of which half is upland and the rest is lowland. He grows paddy and sometimes seasonal vegetables on the lowland and in the upland he changes the cropping pattern every year, growing green gram, black gram, groundnut, and maize. However, due to unfertile land that is purely rainfed most of the year, he harvests very marginal produce. As a result, he struggles to earn enough to sustain his large family and has to supplement his income by working as a laborer. Sometimes, he even goes to other states to earn from wage labor work.

In 2012-13, he grew a local pigeonpea variety on 0.85 ha of his upland, following the traditional practice of sowing by broadcasting the seed, and obtained a yield of 95 kg. In 2013-14, he attended the meeting organized by ICRISAT in their village and learned about ICRISAT's new, improved high-yielding pigeonpea varieties and cultivation methods for enhanced production. Astharaj decided to try growing the ICRISAT pigeonpea and enrolled his name as an IPPT beneficiary. He received 10 kg of ICPL 14001 seed as project support. After plowing his field thrice, he sowed the seed in line at a spacing of 75 cm × 30 cm. After a month, he did the first weeding but was unable to do the hoeing and earthing up work due to his inability to engage labor. He applied 20 kg DAP fertilizer in his field as band placement. He also applied Triazophos twice in his field through his own effort during the peak vegetative period.

At harvest, he obtained 368 kg seed from his 0.5 ha. He regretted the fact that he was unable to do the hoeing and earthing up, because the yield would have been he could have got an even better yield. Astharaj kept 40 kg for household consumption, distributed 28 kg among his relatives and sold the remaining 300 kg seed in the local market, earning ₹ 9,000.

He freely admitted that he had not taken the claims about the superiority of the ICRISAT variety seriously, and so did not make an effort to follow all best practices during cultivation. However, despite this, he got a yield which was much beyond his expectations. He was very impressed by the performance of this variety and plans to grow it again next year on his entire 0.85 ha of upland and apply the full package of ICRISAT technology to ensure maximum yield. He has also become a staunch advocate of this variety to other farmers in his village.

At harvest, he obtained 368 kg seed from his 0.5 ha. Astharaj kept 40 kg for household consumption, distributed 28 kg among his relatives and sold the remaining 300 kg seed in the local market, earning ₹ 9,000.

## Geeta Sahu: ICRISAT seed and technology, provide me a new hope



Village: Chitramunda, Block: Muribahal, District: Bolangir  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 75 cm × 30 cm  
Yield: 768 kg

**S**mt Geeta Sahu, a 37-year-old farmer, lives in Chitramunda village with her husband and two daughters. They own only two ha of land, of which 1.5 ha is upland where they grow cotton, groundnut, and local pigeonpea variety every year. Geeta works hard to ensure a good yield in any crop she grows, but since they don't follow any improved technologies and management, she has been unable to get satisfactory yield from her upland.

Geeta dreams of educating her daughters well, but financial constraints and less income from their uplands have become a barrier to her achieving this. One day, she met a volunteer from Shramik Shakti Sangh, Badbanki, and came to know

from him about ICRISAT's new, improved high-yielding pigeonpea varieties and cultivation methods for enhanced production and its profitability. She became interested and expressed her desire to grow ICRISAT pigeonpea to her husband. She then got her name added to the beneficiary list for cultivating the improved pigeonpea, and received eight kg seed of ICPL 14002 from the Field Assistant of Bolangir as project support to do IPPT pure cropping in their field. They prepared their field of 1 ha and planted the seed in line at a spacing of 75 cm × 30 cm. At 45 days after sowing, she did the weeding, hoeing and earthing up of soil to the crop. She also applied 25 kg DAP fertilizer and made arrangement for pesticide spraying to the crop.

At harvest, Geeta obtained 768 kg of seed. They sold the entire produce at Titlagarh market and earned ₹ 23,040, with a net profit of ₹ 19,000. Geeta and her husband are extremely happy with their success. They confessed that the previous year they hardly managed to get 300 kg of produce. The high-yielding ICRISAT pigeonpea variety ICPL 14002, has brought a new ray of hope to them and they have decided to grow the same variety every year going forward. They are very grateful to ICRISAT and its scientists for giving them the opportunity to realize their dreams for their children.



At harvest, Geeta obtained 768 kg of seed. They sold the entire produce at Titlagarh market and earned ₹ 23,040, with a net profit of ₹ 19,000. Geeta and her husband are extremely happy at this success.

## Dhanamali Chhura: Good yield potential of ICRISAT pigeonpea gave me confidence



Village: Gurunda, Block: Muribahal, District: Bolangir  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.5 ha  
Spacing: 90 cm × 30 cm  
Yield: 370 kg

**D**hanamali Chhura is a marginal farmer who lives with her large family of seven members in Gurunda village. She owns only one ha of land, of which 0.8 ha is purely rainfed upland where she grows groundnut, green gram, black gram, and local pigeonpea varieties. However, due to traditional practice and low quality inputs. She was obtaining only marginal produce from her field every year. As a result, she and her family members have no choice but to go out of the state to work as laborers to sustain themselves.

In 2013-14, Tularam attended a meeting in her village where she learned about ICRISAT's new, improved high-yielding pigeonpea varieties and cultivation methods for enhanced production. She decided to try growing these varieties and enrolled her name as an IPPT beneficiary. She received four kg of ICPL 14002 seed from ICRISAT's NGO partner, Shramik Shakti Sangh, Badabanki. As per the instructions, she sowed the seed in line, maintaining a spacing of 90 cm × 30 cm.

After 45 days, she did the weeding and earthing up and applied 15 kg DAP and 5 kg urea as top dressing. After 1 month, she sprayed the pesticide Triazophos twice at the flower initiation stage. At harvest, she obtained 370 kg of seed which she sold at ₹ 30 per kg in the local market, earning a sum of ₹ 11,100 and a net profit of ₹ 9,300. She used the profit to repair her house.

According to Tularam, this was the first time she earned such a large amount from any crop cultivated on that field. She now truly believes that no other crop can produce such a good yield. In the year 2014-15, she again enrolled to the Asha variety pigeonpea in her entire 0.80 ha of upland.

At harvest, she obtained 370 kg of seed which she sold at ₹ 30 per kg in the local market, earning a sum of ₹ 11,100 and a net profit of ₹ 9,300. She used her profit to repair her house.



## Premananda Bhoi: ICRISAT pigeonpea is a better alternative than any other upland crop



Village: Titisilet, GP: Mundpadar, Block: Bangomunda, District: Bolangir  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.5 ha  
Spacing: 75 cm × 30 cm  
Yield: 480 kg

**P**remananda Bhoi is a 38-year-old farmer who lives with his seven-member family in Titisilet village. He owns 2.4 ha of land, of which 0.8 ha is purely rainfed upland.

Every year, he was growing small millet in his 0.8 ha upland. For the first time, he decided to change his cropping pattern and try pigeonpea cultivation instead of millet, with the improved variety seed from ICRISAT, on 0.5 ha.

He received a seed input of five kg ICPL 14002 as project support. He first prepared his land by making ridges, applied 20 kg DAP as band placement as the basal dose, and sowed the seed at a spacing of 75 cm × 30 cm. After 45 days, he did the weeding and earthing up in the field, also applying 20 kg

urea as top dressing. Three months after planting, during the pre-flowering period, he applied 20 kg urea again, as the second top dressing.

Anticipating pest attack, he sprayed the pesticide Corsa and a week later, applied Planofix to promote sufficient flowers and good pod formation.

He spent ₹ 6100 in all on cultivation. At harvest, all his care paid off, as he obtained 480 kg seed. He kept 100 kg for household consumption, distributed 80 kg among his relatives, and sold 300 kg in the local market, earning ₹ 12,000.

Premananda is very grateful to ICRISAT, its technology and the promising variety Asha. He has decided to continue growing this variety on his entire 0.8 ha of upland in the future because, in his opinion, ICRISAT pigeonpea is really the best alternative to any other upland crops.



He spent ₹ 6,100 in all on cultivation. At harvest, all his care paid off, as he obtained 480 kg seed. He kept 100 kg for household consumption, distributed 80 kg among his relatives, and sold 300 kg in the local market, earning ₹ 12,000.



## Maheswar Mahananda: Promoting ICRISAT pigeonpea variety



Village: Budhipadar, GP: Jhariar, Block: Bangomunda, District: Bolangir  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 90 cm × 30 cm  
Yield: 820 kg

**M**aheswar Mahananda lives in Budhipadar village. He is an educated and progressive farmer of the area and stays in close contact with the District Agriculture Department. He has been nominated several times to attend various important training programs in the district and at the state level as well. He has also had the opportunity of exposure to knowledge about different crops in various districts of Odisha through the exposure visit program by Agriculture department staff.

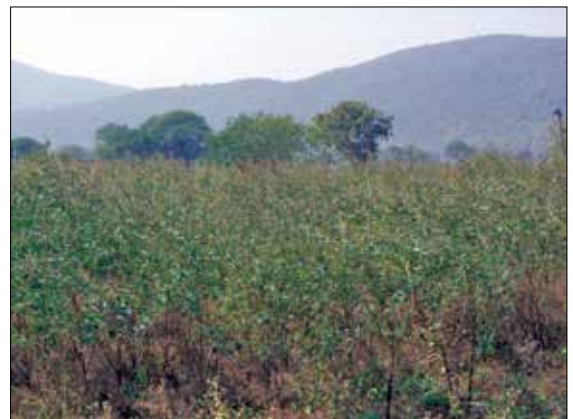
In 2013, Maheswar met the Field Assistant of ICRISAT and came to know details about ICRISAT's new, improved and high-yielding pigeonpea varieties and their profitability. He was interested in learning more, and decided to grow the variety on his upland of 1 ha area on a trial basis.

He prepared his land thoroughly, making ridges at 90 cm × 30 cm spacing, and sowed the seed by the end of July 2013. There was good plant growth, and during the first week of September, Maheswar weeded the field, applied 30 kg DAP fertilizer and earthed up the entire field. He was in regular contact with the ICRISAT staff throughout, and benefited from their advice through the course of the cultivation. In the first part of October, he noticed the infestation by Maruca. He contacted the ICRISAT field staff, and as per their advice, applied Triazophos pesticide twice at a 10-day interval. After 15 days, there was good flowering and ultimately he observed good pod setting also.

He spent ₹ 12,000 in all on cultivation, and harvested 820 kg seed from his 1 ha area. He kept 100 kg for household consumption, distributed 20 kg among the neighbors and sold 700 kg at ₹ 30 per kg, earning ₹ 21,000.

Being highly impressed by the performance of the ICRISAT pigeonpea, he plans to grow the same variety on 3 ha of upland during 2014-15. Besides this, he is also helping the volunteers of NGO partner Shramik Shakti Sangh, Badabanki to spread knowledge about the ICRISAT pigeonpea among the farmers of his village as well as neighboring villages.

He spent ₹ 12,000 in all on cultivation, and harvested 820 kg seed from his 1 ha area. He kept 100 kg for household consumption, distributed 20 kg among the neighbors and sold 700 kg at ₹ 30 per kg, earning ₹ 21,000.



## Kishore Sahu: Pattern of flowering in ICRISAT pigeonpea is miraculous



Village: Jharial, GP: Jharial, Block: Bangomunda, District: Bolangir  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 1 ha  
Spacing: 90 cm × 30 cm  
Yield: 500 kg

**K**ishore Sahu, is a 58-year-old, illiterate but wise farmer, living in Jharial village with his six-member family. His main source of livelihood is agriculture. He owns 4.5 ha of land, of which 1.5 ha is upland situated near a rivulet, with a big old evergreen tank nearby. He utilizes these resources well, growing groundnut every year on this upland. In 2012-13, he earned ₹ 8,200 from this area.

In 2013-14, he got an opportunity to attend a village meeting held at Jharial hillside, where he learned about various aspects of pigeonpea cultivation, ICRISAT technology and ICRISAT's improved pigeonpea ICPL 14002 and ICPL 14001. He became interested in growing pigeonpea on a trial basis, as he possessed all the resources he needed for this. Kishore

met the Field Assistant of Bolangir district, and enrolled his name with the IPPT program. He received eight kg ICPL 14002 seed as project support, prepared his land carefully and sowed the seed at a spacing of 90 cm × 30 cm. There was good crop emergence, which was encouraging. However, after one month, he observed the thick growth of grass and weeds in his field. He became very discouraged and did not make any effort to weed the field. In spite of advice from the field staff, he neglected his crop. However, after another month, he noticed that the plant growth was surpassing the height of the grass and there was good flower initiation. He became interested once more, and started going every day to tend to his field. After this, one day there was heavy flower drop due to heavy rain. He again became discouraged by these ups and downs, and once again did not go to his field for one week.

Suddenly, one day he went to the field and was surprised to see another flush of flowering in the damaged area. Not having any prior experience growing pigeonpea, he felt this was almost miraculous. From that day on, he became a spokesperson for pigeonpea, sharing his experience with other farmers. His crop showed good pod setting and when the pods started growing well, people started to steal pods in his absence. Despite all these setbacks, after six months, at harvest he obtained 500 kg seed, which was beyond his wildest expectations. He regretted not having done the intercultural practices, as he would then have had a yield of at least 200-300 kg more seed.

Kishore plans to cultivate the same variety once again next year, this time following all proper procedures. He is very grateful to ICRISAT for introducing him to the benefits of growing pigeonpea variety ICPL 14002.



At harvest he obtained 500 kg seed, which was beyond his wildest expectations. He regretted not having done the intercultural practices, as he would then have had a yield of at least 200-300 kg more seed.

## Tive Sunani: Benefits of line sowing vs broadcasting



Village: Aonlabhatta, GP: Patrapali, Block; Muribahal, District: Bolangir  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.25 ha  
Spacing: 90 cm × 30 cm  
Yield: 300 kg

**T**ive Sunani, a farmer from Aonlabhatta, found out about the ICRISAT pigeonpea project by sheer chance. One day, he was visiting the market in Bangomunda, saw a gathering and sat down to listen for a while. The meeting was organized by an NGO, Shramik Shakti Sangha of Badabanki village, and ICRISAT staff were talking about the improved pigeonpea, the cultivation methods and the high productivity of the crop. Tive asked whether his village was being included under the program and when he learned that it would be, he decided he would try growing ICRISAT pigeonpea on his upland.

He prepared his 0.5 ha upland for cultivation and received a seed input of 8 kg of ICPL 14001 as project support. He first planted his paddy seedlings in lowland and his attention being diverted by this, decided to use the traditional method of broadcasting the pigeonpea seed because he was already delayed. Luckily, he had only broadcasted on about 50% of his field when the Field Assistant of ICRISAT reached there and advised him against it. So, on the other 50% of his field, he became bound to sow the seed in line at 90 cm × 30 cm spacing.

After two months, there was heavy weed and grass growth all over the field. He needed to do the weeding and earthing up at that time, and found that it was possible in the line sown area only and there was no scope to do this in the broadcasted field. At that point, he realized the huge difference in the two kinds of cropping, and the advantage of sowing in line.

At harvest, the line-sown 0.25 ha area yielded 300 kg seed; while the weed-infested field gave only 80 kg. He kept 50 kg for household consumption, gave 30 kg to his relatives and neighbors, and sold 300 kg at the market in Bangomunda, earning ₹ 9,000.

He freely admits that he has learned a valuable lesson, and plans to grow the same variety on his entire 0.8 ha upland during 2014-15, and by following the entire package of practices as advocated by ICRISAT.

At harvest, the line-sown 0.25 ha area yielded 300 kg seed; while the weed-infested field gave only 80 kg. He kept 50 kg for household consumption, gave 30 kg to his relatives and neighbors, and sold 300 kg at the market, earning ₹ 9,000.



## Hrishikesh Bhoi: Hope ICRISAT pigeonpea will help fulfil my dreams



Village: Konsil, GP: Mundpadar, Block: Bangomunda, District: Bolangir  
Pigeonpea Variety: ICPL 14001  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.5 ha  
Spacing: 90 cm × 30 cm  
Yield: 430 kg

**H**rishikesh Bhoi is a young and dynamic farmer who lives with his parents, wife, son and daughter at Konsil village. He does not own any land, but being interested in agriculture and because regular work is scarce even in the nearest town of Khariar, he decided take some land on long lease and cultivate different crops.

During the year 2012-13, he had taken an upland of 1 ha on lease at his village for ₹ 2,000 only, and grown cotton, small millet and a local pigeonpea variety. However, in spite of high input, he did not get satisfactory yield from his land. Fortunately, during 2013-14, he met the Field Assistant and enrolled his name as an IPPT beneficiary. He received five kg ICPL 14001 seed from ICRISAT to cultivate on 0.5 ha of the upland.

At harvest, Hrishikesh obtained 430 kg from the 0.5 ha land. Of this, he kept 50 kg for household consumption, distributed 30 kg among relatives and neighbors, and sold 350 kg in the local market, earning ₹ 10,500.

Hrishikesh prepared the land thoroughly and made ridges before sowing the seed at a spacing of 90 cm × 30 cm.

After one month, he did the first weeding and earthing up. He also applied 30 kg DAP fertilizer in band placement on the row. The crop showed very excellent growth during the vegetative period, but in October it became infested with Maruca. To control this, he applied Triazophos twice to his crop. He was happy to see good flowering, and he applied DDVP once during the pod formation stage.



At harvest, Hrishikesh obtained 430 kg from the 0.5 ha land. Of this, he kept 50 kg for household consumption, distributed 30 kg among relatives and neighbors, and sold 350 kg in the local market, earning ₹ 10,500.

Hrishikesh is very happy with the returns he got this year and plans to take two more ha of land on lease to grow the ICPL 14001 pigeonpea in 2014-15. He hopes to buy some land with the profit he will earn from this ICRISAT variety during 2014-15.

## Bharat Sahu: ICRISAT pigeonpea can replace cotton



Village: Jhinkidungri, Block: Muribahal, District: Bolangir  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.5 ha  
Spacing: 90 cm × 30 cm  
Yield: 396 kg

**B**harat Sahu is an educated, well-known, young and dynamic farmer of Jhinkidungri village. For these reasons, he has been selected as the Krushak Sathi for the Gram panchayat. In March 2013, he organized a meeting in his village to educate people about the ICRISAT pigeonpea project and tell them about various improved high-yielding pigeonpea varieties. In the process of advising other farmers, he also decided to become a beneficiary of the IPPT program. He received five kg ICPL 14002 seed input as project support from the Field Assistant of Bolangir for his 0.5 ha of upland.

He prepared his land well, made ridges at 90 cm × 30 cm spacing and sowed the seed during the last week of June. He was happy to observe good plant emergence in his field.

During the second week of August he did the weeding, applied 20 kg DAP as band placement and earthed up the entire field.

He applied Triazophos just before the flowering initiation period. In all, he spent ₹ 2,100 for the cultivation. At harvest, he obtained 396 kg seed from 0.5 ha of land, which he sold at the local market, earning ₹ 11,880. This impressed him a lot, and he was convinced that only ICRISAT pigeonpea can produce such good yield with less input. He plans to do one FPVST trial and IPPT as intercropping in 0.50 ha of his upland next year to assess the productivity. He fully expects and aims to replace the cotton typically grown in the area with improved varieties of ICRISAT pigeonpea in the coming years.

At harvest, he obtained 396 kg seed from 0.5 ha of land, which he sold at the local market, earning ₹11,880.



## Bhodev Sahu: ICRISAT pigeonpea changed my mindset



Village: Jhinkidungri, Block: Muribahal, District: Bolangir  
Pigeonpea Variety: ICPL 14002  
Cropping System: Monocrop (IPPT)  
Seed Rate: 8 kg ha<sup>-1</sup>  
Area: 0.5 ha  
Spacing: 90 cm × 30 cm  
Yield: 480 kg

**B**hodev Sahu, a 40-year-old, dynamic farmer, lives in Jhinkidungri village with his six-member family. He owns 2.5 ha of land, of which 0.8 ha is purely rainfed upland.

Bhodev grows small millet in his field every year. Because of the undulating surface and poor quality, the land has already become barren and infertile, so the yield from this upland is very marginal. Bhodev had given up hope of ever being able to cultivate any crop well on such land.

In 2013-14 year, he came in contact with staff from the NGO Shramik Shakti Sangha and ICRISAT and enrolled his name as a beneficiary for the IPPT program. He received five kg of ICPL 14002 seed as project support.

At harvest, he obtained 480 kg of seed, of which he kept 150 kg for household consumption and distributed 50 kg among his neighbors and relatives. He sold 280 kg seed at the Bangomunda market at the rate of ₹ 30 per kg, earning ₹ 8,400.

He prepared his land thoroughly and sowed the seed at a spacing of 90 cm × 30 cm, applying 20 kg DAP as basal fertilizer.

After 45 days, he did the weeding and earthing up of soil and applied 20 kg DAP as top dressing fertilizer.

He also applied Corsa, just before flower initiation. He spent ₹ 4,000 in all for the cultivation.

At harvest, he obtained 480 kg of seed, of which he kept 150 kg for household consumption and distributed 50 kg among his neighbors and relatives. He sold 280 kg seed at the Bangomunda market at the rate of ₹ 30 per kg, earning ₹ 8,400.

Bhodev was very happy at the performance of the ICRISAT pigeonpea variety and plans to grow the same crop again next year on 0.8 ha of his upland. Since he thought nothing would ever grow well on his “barren” land, this came as a pleasant surprise and totally changed his mindset.



## Braja Rana: Plans to join seed production program



Village: Siletpada, Block: Muribahal, District: Bolangir  
Pigeonpea Variety: ICPH 2740  
Cropping System: Intercrop with cotton (IPPT)  
Area: 0.4 ha  
Yield: 365 kg

**B**raja Rana is a 52-year-old smallholder farmer living at Siletpada village with his large family. He owns 2.4 ha of total land, of which one ha is upland. He grows paddy in his medium and lowland and due to the infertile nature of the upland soil, he grows small millet, green gram, black gram and groundnut there with changing cropping pattern every year.

Braja was very worried about his upland, because it was not producing satisfactory yield. One day, he came in contact with volunteers from the NGO Shramik Shakti Sangha and learned about the ICRISAT improved high-yielding pigeonpea variety cultivation. He became interested in trying these varieties, and enrolled his name as a beneficiary in the IPPT program, planning to grow pigeonpea as an intercrop with cotton. He received three kg seed of ICPH 2740 variety from the Field Assistant of Bolangir as project support.

Braja prepared his field well and planted the cotton and pigeonpea at a 6:1 ratio in line (6 rows cotton and 1 row pigeonpea) during the last week of June. He applied DAP 20 kg as basal fertilizer, and observed good growth in both the cotton and the pigeonpea.

During the first week of August, he weeded, earthed up the soil and applied 20K kg DAP fertilizer as top dressing. He observed that during the vegetative stage, there was almost no incidence of pest in either of the crops. During the first week of September, he applied Triazophos as a control measure to protect against any kind of pest attack.

At harvest, he obtained 365 kg pigeonpea seed and 200 kg cotton. He kept 40 kg pigeonpea for household consumption and distributed 25 kg among his neighbors. He sold the remaining 300 kg pigeonpea seed in the local market at ₹ 30 per kg, earning ₹ 9,000, and sold his cotton at ₹ 38 per kg, earning ₹ 7,600.

Braja is very happy with his experience with the ICRISAT pigeonpea variety, and plans to participate in the seed production program next year.

At harvest, he got 365 kg pigeonpea seed and 200 kg cotton. He kept 40 kg for himself and distributed 25 kg among his neighbors. He sold 300 kg seed in market at ₹ 30 per kg, earning ₹ 9,000, and sold his cotton at ₹ 38 per kg, earning ₹ 7,600.















**International Crops Research Institute  
for the Semi-Arid Tropics**

The **International Crops Research Institute for the Semi-Arid Tropics** (ICRISAT) is a non-profit, non-political organization that conducts agricultural research for development in Asia and sub-Saharan Africa with a wide array of partners throughout the world. Covering 6.5 million square kilometers of land in 55 countries, the semi-arid tropics have over 2 billion people, of whom 644 million are the poorest of the poor. ICRISAT innovations help the dryland poor move from poverty to prosperity by harnessing markets while managing risks – a strategy called Inclusive Market-Oriented Development (IMOD).

ICRISAT is headquartered in Patancheru, Telangana, India, with two regional hubs and five country offices in sub-Saharan Africa. It is a member of the CGIAR Consortium. CGIAR is a global research partnership for a food secure future.

About ICRISAT: [www.icrisat.org](http://www.icrisat.org)

**ICRISAT-India (Headquarters)**

Patancheru 502 324  
Telangana, India  
Tel +91 40 30713071  
Fax +91 40 30713074  
[icrisat@cgiar.org](mailto:icrisat@cgiar.org)

**ICRISAT-Liaison Office**

CG Centers Block, NASC Complex,  
Dev Prakash Shastri Marg, New Delhi 110 012, India  
Tel +91 11 32472306 to 08  
Fax +91 11 25841294

**ICRISAT-Ethiopia**

C/o ILRI Campus, PO Box 5689  
Addis Ababa, Ethiopia  
Tel: +251-11 617 2541  
Fax: +251-11 646 1252/646 4645  
[icrisat-addis@cgiar.org](mailto:icrisat-addis@cgiar.org)

**ICRISAT-Kenya (Regional hub ESA)**

PO Box 39063, Nairobi, Kenya  
Tel +254 20 7224550, Fax +254 20 7224001  
[icrisat-nairobi@cgiar.org](mailto:icrisat-nairobi@cgiar.org)

**ICRISAT-Malawi**

Chitedze Agricultural Research Station  
PO Box 1096, Lilongwe, Malawi  
Tel +265 1 707297, 071, 067, 057, Fax +265 1 707298  
[icrisat-malawi@cgiar.org](mailto:icrisat-malawi@cgiar.org)

ICRISAT's scientific information: <http://EXPLOREit.icrisat.org>



ICRISAT is a member  
of the CGIAR Consortium

**ICRISAT-Mali (Regional hub WCA)**

BP 320, Bamako, Mali  
Tel +223 20 709200  
Fax +223 20 709201  
[icrisat-w-mali@cgiar.org](mailto:icrisat-w-mali@cgiar.org)

**ICRISAT-Niger**

BP 12404, Niamey  
Niger (Via Paris)  
Tel +227 20722529, 20722725  
Fax +227 20734329  
[icrisatsc@cgiar.org](mailto:icrisatsc@cgiar.org)

**ICRISAT- Nigeria**

PMB 3491  
Sabo Bakin Zuwo Road,  
Tarauni, Kano, Nigeria  
Tel: +234 7034889836; +234 8054320384,  
+234 8033556795  
[icrisat-kano@cgiar.org](mailto:icrisat-kano@cgiar.org)

**ICRISAT-Zimbabwe**

Matopos Research Station  
PO Box 776, Bulawayo, Zimbabwe  
Tel +263 383 311 to 15  
Fax +263 383 307  
[icrisatzw@cgiar.org](mailto:icrisatzw@cgiar.org)