Annual Progress Report
2012 - 2013

Project 1: Enhancing livelihoods of resource-poor farmers of Rajasthan through introduction of eco-friendly pigeonpea varieties

Project 2: Development of hybrid pigeonpea technology suitable for Rajasthan

Submitted to
Swami Keshwanand Rajasthan Agricultural University, Bikaner, Rajasthan

ICRISAT
Science with a human face
International Crops Research Institute for the Semi-Arid Tropics

Contents

PROJECT 1

Enhancing Livelihoods of Resource-poor Farmers of Rajasthan through Introduction of Eco-friendly Pigeonpea Varieties

HIGHLIGHTS

- Pigeonpea is the second most important pulse crop in Rajasthan but strangely it is cultivated only on a small amount of area – mainly due to the non-availability of suitable varieties. To enhance the production of pigeonpea in Rajasthan a project "Enhancing livelihoods of resource-poor farmers of Rajasthan through introduction of eco-friendly pigeonpea varieties" was undertaken by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru, in collaboration with the Swami Keshwanand Rajasthan Agricultural University (SKRAU), Rajasthan.
- During 2013 four districts (Jaipur, Alwar, Karauli and Dausa) were selected for introduction of new pigeonpea cultivars. Among these, the maximum number of demonstrations were organized in Jaipur district (212 ha). Seed yield in these demonstrations ranged from 600-1900 kg/ha, with an average of 1120 kg/ha.
- Nutrient management packages (suitable to their areas) were distributed to farmers. High yields, around (1900 kg/ha), were recorded in the fields where manure (Neem Plus) was used as a basal dose.
- Introduction of new pigeonpea varieties in Padasoli village has changed the lives of farmers, recording increased income between Rs 5,000 to 15,000 / ha. Earlier these fields were kept fallow in both rainy as well as post-rainy seasons due to non-availability of a suitable crop. In Padasoli village, where 177 demonstrations were conducted, 202 tons of grain were produced with an average yield of 1140 kg/ha.
- The cultivation of pigeonpea in these areas has given great relief to rural women as it has eliminated the drudgery of collecting fuel wood from nearby forest areas. Now the whole village is using dried pigeonpea stalks as fuel wood.
- The pigeonpea producers were also linked to the local market ,where farm produce is being directly sold at a good price. In addition, the project has installed four mini dal mills in the villages leading to value addition of their produce. Some selected farmers were also trained in grading and dal making, which has helped them to earn more income from this crop.

About the Project

Title: Enhancing livelihoods of resource-poor farmers of Rajasthan through introduction of eco-friendly pigeonpea varieties

Participating Institutions

- Agricultural Research Station, Durgapura, Swami Keshwanand Rajasthan Agricultural University (SKRAU), Jaipur, Rajasthan 302 018
- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru 502 324, Andhra Pradesh
- Department of Agriculture, Government of Rajasthan

Goal: To improve the livelihoods of resource poor farmers of Rajasthan by increasing crop productivity and conserving the environment

Objectives

The objectives are to:

- Develop an efficient crop production system involving pigeonpea;
- Produce large quantities of pigeonpea and link its production with marketing;
- Meet the protein requirements of poor farmers with locally produced dal;
- Manage degraded soils by growing pigeonpea for food production;
- Identify constraints to pigeonpea production, distribution, and marketing;
- Breed new pigeonpea cultivars suitable for different agro-ecological zones of Rajasthan.

Introduction

Pigeonpea (*Cajanus cajan* L. Millsp.) is an important pulse crop of rainfed agriculture in the semi-arid tropics of India. It is a versatile plant, which can grow successfully in a range of soil types, temperatures and photoperiod regimes. A substantial amount of carbohydrates conserved in the stem, root and other parts of the plant, help the pigeonpea plant to recover from unfavorable environmental conditions. The plant has many advantages which enhance its value as a soil ameliorant. These include: (i) release of soil-bound phosphorous; (ii) fix atmosphere nitrogen; and (iii) add valuable organic matter to soil. The pigeonpea crop has several uses such as cooked split peas as dal, fresh immature grains as vegetable, leaves as fodder, husks as livestock feed, and dried stems as domestic fuel wood.

In Rajasthan pigeonpea is cultivated on marginal lands by resource-poor farmers. It is the second important pulse crop in the state, and currently covers 39,000 ha in the state (Department of Agriculture, Rajasthan 2012). At present, the production of pigeonpea in the state is insufficient to meet domestic needs and hence the State Government has started new initiatives to enhance its production and productivity. This project was, therefore, conceptualized to enhance the production of pigeonpea by introducing a new and eco-friendly technology of early maturing varieties. The adoption of pigeonpea on dry tracts of the state would help in increasing the livelihoods of poor farmers living in the harsh environment of Rajasthan. This technology involves the production of early maturing (140-150 days) pigeonpea varieties that would provide an opportunity to increase crop intensity by growing a post-rainy season crop after harvesting pigeonpea. So as to enhance the income of farmers, it was also proposed to introduce a program for value addition at the village level. Farmers will also be trained in identifying important production, storage, and marketing constraints.

The following staff were appointed at the project site to carry out project activities:

- Dr Shrikant L Sawargaonkar : Project Scientist (from 1 August 2012 to 31 October 2012)
- Dr K Mohan Vishnuvardhan: Project Scientist (from 25 October 2012 to 8 May 2013)
- Mr NS Rajput: Field Assistant
- Mr Vishal Singh: Field Assistant
- Mr Sumer Singh: Field Attendant
- Mr Suneet Singh: Field Attendant
- Mr RP Daroga: Field Attendant

Output 1: Early maturing pigeonpea varieties introduced for cultivation in Rajasthan

Activity 1.1 Identification of production areas for introducing pigeonpea

For promotion of short duration pigeonpea varieties in Rajasthan, seven districts (Alwar, Jaipur, Dausa, Karauli, Sawai Madhopur, Bharatpur and Tonk) were identified. The project was launched in four districts in the 2012 cropping season, and the remaining three districts will be covered in 2013. Initially, the plan was to conduct on-farm trials on 40 ha in Alwar, Jaipur, Dausa and Karauli districts; however, due to positive response of farmers, especially in Jaipur and Karauli districts, 337 demonstrations were conducted (Table 1), each in one hectare area. In these demonstrations no control variety was used for comparison as the crop is new to the region. To achieve the target, a total of 5392 kg seed (@16 kg seed/ha) was distributed. The package of practices, such as selection of fertilizer and its dose, schedule of control measures, etc., were followed as per state recommendations. District wise information on targeted villages, number of demonstrations, area, and seed supplied is summarized in Table 2. The maximum number of demonstrations (117) was conducted in Padasoli village of Jaipur district.

The summary of production and productivity (kg/ha) recorded in these demonstrations is presented in Table 3. During the 2012 cropping season, demonstrations were conducted in 337 ha in Jaipur, Alwar, Karauli and Dausa; but abnormally heavy rains and waterlogged conditions resulted in heavy crop losses in Karauli and Dausa districts. Finally, of the 337 ha sown, only 271 ha were harvested with total production of 275.26 tons and mean productivity of 1015 kg/ha. Among the four districts, Jaipur covered the maximum area and its production and productivity were 240.52 tons and 1120 kg/ha, respectively. Highest productivity was recorded in Sarpanch ki Dhani village (1160 kg/ha), followed by Padasoli (1140 kg/ha), and Lalwas (1045 kg/ha). The yield in Alwar district ranged from 900-1540 kg/ha with an average productivity of 1075 kg/ha. Jaipur and Alwar were the most productive districts. According to the Indian Meteorological Department, Pune, the two districts, Karauli and Dausa were classified under Excess Rainfall Zone (60%) during 2012. The weather data for Rajasthan and Patancheru are presented in Annexure I.

Activity 1.2 Training of farmers in pigeonpea production technology

Nine training programs were conducted in the target four districts. Pre-sowing training programs (Figure 1) were organized in each district with selected volunteer farmers. A total of 400 farmers (337 male, 63 female), attended these training programs and they were trained in all the major field operations necessary for growing a good crop of pigeonpea. Later a farmers' training program on pigeonpea production was also organized on 14 October 2012, bringing together 102 progressive men and 11 women farmers from 16 villages of the targeted districts. Farmers were trained in crop production practices including field preparation, fertilizer application and seed treatment by adopting the standard FIR [Fungicide, Insecticide and Rhizobium] strategy. Training on cultural practices, integrated pest management, integrated disease management, integrated nutritional management and post-harvest technology was given by a team of experts including Dr SJ Singh, Dr Pradeep Singh Sehekhawat, Dr SR Dhaka, and Dr SS Manohar (from SKRAU) and Dr SL Sawargaonkar (ICRISAT).

A training program was also conducted in Padasoli village (Jaipur) to create awareness among farmers on several aspects related to pigeonpea cultivation, seed multiplication, and value addition of the end product. Dr KB Saxena, Principal Project Investigator, ICRISAT, was also present at this training program and he responded to a number of queries (Figure 2).

A Farmers' Field Day was conducted at Padasoli village on 29 October 2012. Dr CV Sameer Kumar and Cristina P Bejosano from ICRISAT were present at this event. Dr SJ Singh and Dr PS Sehekhawat from ARS, Durgapura along with local Village Heads of nearby villages hosted this program. A progressive farmer, Mr Bhavar Singh of Nadoti village was invited as the Chief Guest. During this program a booklet in

Hindi titled "Production Techniques of Pigeonpea" was released. At this meeting farmers shared their experiences with pigeonpea cultivation. Dr SJ Singh, Co-Project Investigator, ARS, Durgapura delivered the keynote address wherein he expounded about the package of practices in pigeonpea cultivation and the benefits from pigeonpea crop. Addressing the farmers, Dr CV Sameer Kumar expressed happiness about the interest and enthusiasm of farmers in pigeonpea cultivation. This program was a grand success and after the field day, an exposure visit to the pigeonpea fields of Padasoli and Lalwas villages was undertaken (Figure 4).

The reaction of farmers are summarised below:

- Farmers were happy with the performance of early maturing pigeonpea variety ICPL 88039;
- In the crops where moisture stress was observed at the time of flowering, spraying with a 2% Urea solution was found to be most effective in controlling flower drop;
- Women of these villages were extremely happy because they got very good fuel wood (locally called *balitha*) from the dry stems of pigeonpea;
- Farmers appreciated the installation of the seedgrader-cum-mini dal mill provided by the project.

Activity 1.3 Development of suitable crop protection technology for controlling diseases and insects through integrated pest and disease management.

For successful implementation of the project on eco-friendly pigeonpea cultivation in Rajasthan, a crop management package was developed. In order to achieve high yields, seeds were treated with *Trichoderma* @ 6 g/kg seed to avoid initial damage of the seed from various soil and seed borne diseases.

Activity 1.4 Monitoring of on-farm demonstrations

Monitoring of the on-farm demonstrations is an integral part of this project. For regular monitoring of the activities and production constraints in farmers' fields, ICRISAT appointed a team of five Field Assistants, one State Coordinator, and a Local Coordinator from ARS, Durgapura. This helped in understanding production constraints and in recommending suitable options to overcome these stresses. During the 2012 cropping season, seven monitoring programs were undertaken (Table 4) to guide farmers at different stages of crop growth.

Output 2: A self-sustaining seed system developed

Activity 2.1 Develop a large-scale pigeonpea seed production program

To meet future requirements it was found essential to produce sufficient quantities of seed at village level. This seed was produced under the strict supervision of a Breeder. Since pigeonpea is a self-pollinated crop, due to its peculiar floral morphology, it allows out-crossing to some extent (up to 25%). Hence to maintain seed quality, distance of 200 m from other pigeonpea was maintained and to maintain purity of the variety rouging was also done before and at the time of flowering.

In 2012, 12 ha area was sown for seed multiplication of variety ICPL 88039. One farmer each from Lalwas, Padasoli and Kaneta villages was selected and trained in all aspects of quality seed production. Breeder seed of ICPL 88039 was provided by ICRISAT and monitored by the scientific staff of ARS, Durgapura. The entire seed multiplication program was conducted with regular monitoring and strict supervision of Dr SJ Singh. Rouging was done before and after the flowering time. From this, a total of 12.2 tons of certified seed was produced (Table 5 & Figure 8).

Activity 2.2 Seed multiplication of promising breeding lines

Seed of five promising genotypes (Pusa 992, Pusa 991, ASJ 105, UPAS 120 and ICPL 88039) was grown at Agricultural Research Station, Durgapura. The area sown and production details are presented in Table 6.

Output 3: Production constraints identified

During the 2012 cropping season the major production constraint was uncertain and heavy rains leading to waterlogged conditions. The entire state of Rajasthan received heavy rains during the 2012 cropping season and the crop in the districts of Karauli and Dausa was destroyed. In Jaipur and Alwar districts no major constraint was noticed. In some places low yields were recorded due to prolonged dry spell during flowering to pod filling stage.

Output 4: Back-up research conducted

Activity 4.1 Evaluation of early maturing high yielding varieties for rainfed areas

Most of the marginal farmers have no or little underground irrigation facility. The target areas usually receive about 400 mm rainfall during the rainy season, hence most of the farmers grow early maturing crops like pearl millet, chickpea, etc. Through this eco-friendly pigeonpea project, we successfully introduced an early maturing pigeonpea variety ICPL 88039 in four districts of eastern Rajasthan. We also have plans to breed new high yielding early maturing cultivars for different regions.

In order to identify new high yielding cultivars, a series of station trials were sown at ARS, Durgapura. Five genotypes (Pusa 992, Pusa 991, ASJ 105, UPAS 120, and ICPL 88039) were evaluated for their earliness and productivity with three replications and 24 m^2 plot size. Each plot was 4 m long with 60 cm row-to-row and 30 cm plant-to-plant spacing. Among these ASJ 105 (3227 kg/ha) recorded the highest yield. ICPL 88039 was the earliest to flower and mature (Table 7).

Activity 4.2 Evaluation of super early lines for yield and adaptation

ICRISAT has recently bred super-early genotypes which mature 15-20 days earlier than ICPL 88039, in both determinate and non-determinate groups. This material will be suitable for the double-cropping system in the state. These super early lines mature in 130-140 days, and provide sufficient time to undertake the cultivation of wheat in the same field. At Patancheru, these lines mature in 85-90 days and produce about 800-1000 kg/ha yield. In 2012, as a first step, attempts were made to study the adaptation of these lines in Rajasthan, Uttarakhand, and Patancheru. For this purpose, ICRISAT sent four trials including two non-determinate (NDT) types and two determinate (DT) types of 46 super early lines (26 NDT and 20 DT) to ARS, Durgapura (Table 8). Both the experiments were abandoned due to waterlogging.

Activity 4.3 Selection of superior genotypes from segregating populations for yield and yield contributing traits

During 2012, a number of breeding populations were developed by crossing elite lines at Patancheru in a 10 × 10 diallel mating scheme (Table 9). The 45 F_1 hybrids will be evaluated in 2013 at ARS, Durgapura. The segregating populations (F_2 onwards) of these crosses will also be grown at Durgapura for pedigree selection with respect to maturity, yield and other agronomic traits.

Activity 4.4 Evaluation of super-early pigeonpea lines at Patancheru

4.4.1 Determinate (DT) trial: In all six super early DT lines from F_5 generation were evaluated at Patancheru during the 2012 rainy season with three replications along with MN 5 as standard check (Table 10). Data on days to 50 % flowering, days to 75 % maturity, plant height (cm), seeds/pod, 100-seed mass (g),

seed color, plant stand, seed yield (kg/ha) were recorded along with observations on incidence of fusarium wilt (%) and sterility mosaic (%) diseases. Since diseases were not an issue, priority was given to earliness and good agronomic traits.

ICPL 20338 and ICPL 20341 (48 days) were the earliest to flower, followed by ICPL 20339 (50 days), while standard check flowered in 54 days. ICPL 20338 was earliest to mature (85 days) followed by ICPL 20341, which was significantly earlier than standard check MN 5 (92 days). Mean seeds/pod was maximum in ICPL 20336 (4.4). 100-seed mass was highest in ICPL 20340 (8.5 g). All these lines with the exception of ICPL 20336 had brown seeds. As compared to MN 5 (770 kg/ha), ICPL 20341 recorded 820 kg/ha yield. In this trial a comparison of productivity (kg/ha/day) was also estimated and ICPL 20341 produced grains @ 9.3 kg/ha/day; in the control this value was 8.4 kg/ha/day, suggesting relatively greater efficiency of the super-early genotypes.

ICPL 20341 was a good yielder (820 kg/ha) as well as early flowering (48 days). ICPL 20340 was ranked second with respect to seed yield (765 kg/ha) and it was significantly superior in seed size over control. Similarly, ICPL 20339 was also found promising with respect to days to flower (48 days) and resistance to fusarium wilt (13.3 %) and sterility mosaic (6.7 %) diseases. ICPL 20338 (11.8 %) and ICPL 20339 (13.3%) were found promising for fusarium wilt and ICPL 20339 for sterility mosaic (6.7%) diseases.

4.4.2 Non- determinate (NDT) trial: Eleven advanced super-early NDT lines were evaluated in RCBD at Patancheru with three replications, using ICPL 88039 and PAU 881 as standard checks during 2012 (Table 11). ICPL 20330 (55 days) was the earliest to flower and it was followed by ICPL 20328 (56 days), ICPL 20331 (57 days), and ICPL 20335 (57 days). The control PAU 881 (55 days) also took almost the same time to flower. ICPL 20327 (60 days) and ICPL 20334 (60 days) compared well with ICPL 88039 (61 days) for flowering. ICPL 20330 (96 days) matured eight days earlier than ICPL 88039 and three days later than PAU 881. Plant height was maximum in ICPL 20325 (46 cm) which was significantly taller than both the checks ICPL 88039 (41 cm) and PAU 881 (40 cm). The check entries had longer pods as compared to the test lines. Among the test entries ICPL 20325 had the boldest seeds.

ICPL 20325 recorded the highest yield (1665 kg/ha) followed by ICPL 20326 (1660 kg/ha). The checks ICPL 88039 and PAU 881 yielded 1530 kg/ha and 1250 kg/ha, respectively. ICPL 20325 recorded greater yield/ha/day (16.0 kg) as compared to the check (14.7 kg), suggesting that the new genotypes exceeded the control in productivity by a margin of 2 kg/ha/day. Hence, it can be assumed that these lines are more efficient in productivity. The incidence of fusarium wilt was minimum in ICPL 20331 (5.9%), while ICPL 20335 (66.7%), ICPL 20326 (64.7%), and ICPL 20329 (64.3%) were highly susceptible. ICPL 20326 (23.5%) was tolerant to sterility mosaic disease. Considering overall performance, ICPL 20328 was the best with 1570 kg/ha yield and significant reduction in flowering and maturity (Table 11).

4.5 Evaluation of new super early advanced breeding lines

4.5.1 Determinate trial: The newly identified seven promising super early DT lines selected from F_5 progeny trials were tested in RCBD with three replications during 2012 (Table 12). Of these, ICPL 11249 was the earliest to flower (49 days) as compared to MN 5 which flowered in 54 days. Considering days to 75% maturity ICPL 11250, ICPL 11249, and ICPL 11251 (89 days) were earliest to mature and these were significantly earlier than the check MN 5 (95 days). ICPL 11253 was tallest (49.5 cm) followed by ICPL 11251 (49.2 cm); while 100-seed mass was highest in ICPL 11249 (8.7 g) and it was significantly superior to the check. All the super early lines tested in this trial had brown seeds. The seed size of the test lines was also significantly superior to MN 5. ICPL 11255 recorded highest yield of 760 kg/ha followed by ICPL 11251 (660 kg/ha) and ICPL 11249 (610 kg/ha). In this material also, the two super early lines demonstrated greater productivity of 8.4 and 7.4 kg/ha/day, respectively, as compared to check MN 5 (6 kg/ha/day).

4.5.2 Non-determinate trial: This trial consisted of eight super early F_6 lines and it was laid in RCBD with three replications with two standard checks (ICPL 88039 and PAU 881) during 2012 at Patancheru (Table 13). Among the lines tested, ICPL 11247 (59 days) was the earliest to flower and mature (98 days) and it compared well with control PAU 881 which took 58 days to flower and 97 days to mature. Overall, ICPL

11244 gave highest yields of 1250 kg/ha with highest 100 seed mass value (8.5 g) over the standard check PAU 881 (6.2 g). ICPL 11247 flowered and matured significantly earlier than the standard check ICPL 88039 and recorded superior grain yield of 1110 kg/ha over the standard checks.

4.6 Multi-location testing of advanced super early lines

4.6.1 Determinate trials: During 2012, ICRISAT initiated a multi-location testing program in collaboration with PAU, Ludhiana (Punjab), ARS, Durgapura (Rajasthan) and IARI (New Delhi). A set of six super early lines was evaluated in a multi-location trial in North India along with MN 5 as standard check. Data on all the important traits were recorded (Table 14). The trial planted at ARS, Durgapura (Rajasthan) failed due to waterlogging.

Ludhiana: Data from Ludhiana revealed that ICPL 20337 and ICPL 20340 were earliest (121 days) to mature and these were significantly earlier than the check MN 5 (139 days). ICPL 20336 (1545 kg/ha) was the highest yielder followed by ICPL 20341 (1415 kg/ha). Yield/ha/day was also calculated in this trial which revealed that the highest yielding line ICPL 20336 had daily productivity (12.1 kg/ha) and it was similar to that of the check (Table 14).

New Delhi: ICPL 20341 (Table 14) was earliest to mature (117 days), followed by ICPL 20339 (118 days). ICPL 20340 had the boldest seeds (9.17 g/100 seeds). Higher yield was obtained in ICPL 20338 (820 kg/ha) followed by ICPL 20339 (815 kg/ha). The check MN 5 yielded 715 kg/ha.

Mean performance: Mean performance across two locations showed that ICPL 20341 (120 days) was earliest to mature (Table 14). The boldest seed was harvested from ICPL 20340 (8.63 g). ICPL 20336 produced the highest yield of 1075 kg/ha, and it was marginally lower than the check MN 5 (1180 kg/ha). All the lines had brown seed coat color. In general, the performance of the tested lines was good at Ludhiana. ICPL 20340 was the best across the two locations, considering its earliness, 100-seed mass and yield.

4.6.2 Non-determinate trial: A set of 11 super early non-determinate pigeonpea lines was evaluated in a multi-location trial at Ludhiana (Punjab), Durgapura (Rajasthan), and IIPR (New Delhi) during rainy 2012 in North India along with ICPL 88039 and PAU 881 as checks. The trial in Jaipur failed due to waterlogging.

Ludhiana: ICPL 20334 and ICPL 20335 (117 days) were the earliest to mature, and these were significantly earlier to the checks ICPL 88039 (150 days) and PAU 881 (132 days). In addition, seed yield was highest in ICPL 20325 (1595 kg/ha) followed by ICPL 20327 (940 kg/ha) and these were inferior to the controls, ICPL 88039 and PAU 88 (Table 15).

New Delhi: ICPL 20332 (116 days) matured earliest followed by ICPL 20334 and ICPL 20335 (118 days). Most of the entries matured significantly earlier than both the standard checks, ICPL 88039 (134 days) and PAU 881(132 days). ICPL 20330 (641 kg/ha) was the top yielder. The performance of both the checks was superior to the lines tested (Table 15).

Mean performance: Overall performance across the two locations for important traits under consideration is presented in Table 15. ICPL 20334 (118 days) was the earliest to mature. Seed size was largest in ICPL 20333. Summary of seed yield performance across three locations revealed that ICPL 20325 (1065 kg/ha) was the top yielder followed by ICPL 20327 (940 kg/ha); however, the standard checks ICPL 88039 (1882 kg/ha) and PAU 881 (1400 kg/ha) yielded much more than the lines tested at both locations.

4.7 Preliminary multi-location testing of new determinate and non-determinate lines

4.7.1 Determinate lines: A set of seven super early determinate pigeonpea lines was evaluated in a preliminary multi-location trial in Ludhiana, New Delhi, Almora, and Jaipur along with MN 5 as a standard check (Table 16).

Ludhiana: ICPL 11254, ICPL 11249, and ICPL 112 were the earliest to mature in 128 days; and these were significantly earlier than the check MN 5 (137 days). The seed size of 11255 was larger than the control MN 5. ICPL 11251 (1905 kg/ha) was the top yielder, while check MN 5 yielded 1545 kg/ha. This yield advantage was also accompanied by higher productivity of 14.6 kg/ha/day.

New Delhi: ICPL 11254 (118 days) was the earliest to mature, while the control MN 5 matured in 128 days. ICPL 11252 (935 kg/ha) was the best for yield with MN 5 recording 780 kg/ha.

Almora: At this location all the seven entries matured significantly earlier than standard check MN 5 (127 days). ICPL 11250 was earliest to mature (113 days), followed by ICPL 11251 and ICPL 11254 (115 days). ICPL 11255 was the top yielder (1000 kg/ha) and it was significantly higher than standard check MN 5 (710 kg/ha).

Mean performance: Overall performance across the two locations for important traits is presented in Table 16. ICPL 11254 was earliest (118 days) to mature followed by ICPL 11252 (122 days) and ICPL 11249 (123 days). All the three entries matured earlier than standard check MN 5 (129 days). ICPL 11251 recorded highest mean yield of 1165 kg/ha over the locations, followed by ICPL 11255 (1000 kg/ha) and ICPL 11253 (990kg/ha).

4.7.2 Non-determinate lines: The non-determinate pigeonpea lines were evaluated at four locations of North India with significant altitudinal differences. A set of eight lines was selected for a preliminary multi-location trial along with ICPL 88039 as a standard check (Table 17). The trial at ARS, Durgapura failed due to waterlogging.

Ludhiana: The data revealed that ICPL 11243 (126 days) was the earliest to mature. Maturity duration for all the entries except ICPL 11244 (148 day) was significantly earlier to standard check ICPL 88039 (149 days). Boldest seeds were found in ICPL 11244 and it was also the top yielder (2030 kg/ha). The control, ICPL 88039 produced 2365 kg/ha seed yield.

New Delhi: ICPL 11242, ICPL 11243 and ICPL 11245 matured (126 days) significantly earlier than the standard check, ICPL 88039 (137 days). Considering yield performance at this location, ICPL 11248 (944 kg/ha) was top yielder followed by ICPL 11244 (870 kg/ha) and it was significantly superior to check ICPL 88039 (630 kg/ha).

Almora: Compared to the other three locations, the maturity duration at Almora was extended due to cold weather. ICPL 11241 (147 days) was earliest to mature, followed by ICPL 11242 (149 days) and ICPL 11246 (149 days). The check ICPL 88039 matured in 163 days. Boldest seed size was recorded in ICPL 11243. In comparison to other three locations, the yield levels in Almora were high. ICPL 11241 (1445 kg/ha) was the top yielder followed by ICPL 11244 (1309 kg/ha) and ICPL 11243 (1340 kg/ha). However, none of the lines could out-yield the standard check, ICPL 88039 (1445 kg/ha).

Mean performance: ICPL 11243 (136 days) was earliest to mature followed by ICPL 11241 (136 days) and ICPL 11242 (137 days). Overall 100-seed mass ranged between 7.3 to 8.4 g, with ICPL 11244 (8.4 g) being the boldest. ICPL 11244 (1070 kg/ha) was the top yielder; while ICPL 11248 (990 kg/ha) and ICPL 11247 (875 kg/ha) were at second and third position, respectively (Table 17).

4.8 Evaluation of F_6 testcross selections

4.8.1 Determinate selections: Only four F_6 testcross progenies of super early duration were evaluated at Patancheru along with MN 5 as a standard check (Table 18). All the four progenies flowered in 53 days with average days to maturity of 87 days. Progeny ICPX 070168-2-1-1-1-4*) was top yielder (440 g/plot) followed by ICPX 070168-5-3-10-1-8* (400 g/plot), ICPX 070168-1-4-1-1-12* (391 g/plot) and ICPX 070168-9-3-4-1-16* (380 g/plot). All these progenies were selected for further testing.

4.8.2 Non-determinate selections: Out of the 93 non-determinate F_6 testcross progenies evaluated at Patancheru in the augmented block design including ICPL 88039 as check, 21 selections were made on the basis of visual selection scores recorded at the time of maturity (Table 19). Progeny ICPX 070168-6-2-4-1-19* (450 g/plot) was the top yielder followed by progeny ICPX 070168-8-1-15-3-15* (390 g/plot) with a mean seed yield of 304 g/plot. Maximum number of selections were made from cross ICPX 070168. Selfed seed from all the selections was produced in off-season at Patancheru. These lines will be tested in advanced lines trials during 2013.

4.9 Evaluation of super early non-determinate F_5 progenies

Sixty-four non-determinate F_5 progenies were tested in augmented block design using ICPL 88039 as a standard check (Table 20) at Patancheru. Twenty selections were made on the basis of visual selection scores for different agronomic traits. While selecting the lines, relatively more weightage was given to early maturity with considerable pod load on the plants. Maturity among the progenies ranged from 95 to 100 days with a mean of 96.1 days. Progeny ICPX 060073-3-4-1-26* (520 g/plot) was the top yielder; and ICPX 060026- 2-1-6-5-23* (360 g/plot) and ICPX 060064-1-4-4-2* (360 g/plot) occupied the second rank. These progenies were found superior to the standard check ICPL 88039 (278 g/plot). The selected lines were grown during off season for seed multiplication.

4.10 Evaluation of promising super-early F_6 progenies

4.10.1 Determinate progenies: To evaluate F_6 determinate progenies of super early duration, an experiment was laid on an augmented block design, using MN 5 as repeating check (Table 21). Out of the 37 progenies evaluated, 18 were selected on the basis of plant vigour scores at flowering stage. Progenies ICPX 060036-12-2-1-2-8* (50 days) and ICPX 060036-12-2-1-2-18* (50 days) were the earliest to flower and there were significantly earlier than the control MN 5 (53 days). These lines also matured earlier to the check (86 days) and had significantly more number of seeds/pod (4.2) over the standard check MN 5 (3.7).Three promising progenies ICPX 060077-6-10-11-8-23*, ICPX 060077-3-7-2-11-13* and ICPX 060077-11-6-6-5-30* had larger seeds than the control (7.6 g). All the progenies selected from this trial had brown seeds.

4.10.2 Non-determinate progenies: One hundred and thirty super-early, non-determinate F_6 progenies were evaluated in augmented block design with ICPL 88039 as check. Of these, 69 selections (Table 22) were made on the basis of visual selection scores recorded at the time of flowering and maturity for important agronomy traits. Progenies ICPX 060077-6-8-11-5-2* (52 days), ICPX 060077-6-8-11-5-11* (52 days), and ICPX 060077-7-4-1-1-11* (52 days) were significantly earlier in relation to the control ICPL 88039 (60 days). Observations on 100-seed weight revealed that ICPX 060063-8-9-9-1-5* and ICPX 060027-8-2-9-1-15* had seed size similar to that of the control ICPL 88039. Selection ICPX 060036-4-13-6-1-31* (625 g/plot) was the top yielder, while ICPX 060077-6-5-10-3-12* (560 g/plot) and ICPX 060027-3-4-4-1-26* (555 g/plot) were in second and third position. ICPL 88039 produced 590 g/plot yield. All these selected lines were grown during off-season for seed multiplication.

4.11 Evaluation of F_4 super-early, determinate progenies

Single plant selections were made in the determinate testcross F_4 populations. Each plant was tagged for days to first flower and compared with control MN 5 (55 days). From this material 18 single plants were selected (Tables 23, 24) on the basis of days to earliness. These selections will be evaluated in progeny rows in the next season.

4.12 Evaluation of cleistogamous progenies

Extra early selections: Since the cleistogamous trait prevents natural out-crossing, a breeding program was initiated to convert the variety ICPL 88039 into cleistogamous flower type (Figure 9). This will ultimately help in safeguarding genetic purity as a consequence of more efficient natural selfing. In all, 12 families with cleistogamous flowers were evaluated during 2012 (Table 25) and 171 single plant selections were made on the basis of days to flower, days to maturity, seed size, and seed coat color. Mean days to flower recorded in

the progenies of family (ICPX 060131-2-2 x ICPL 88039)-4-4-3 was 67.1 days and it ranged between 62-71 days. All the progenies of this family were brown seeded and matured in 105 days. The progenies derived from (ICPX 060131-2-2 x ICPL 88039)-4-4-7 matured in 110 days. All the selected progenies were grown in the off-season for generation advancement.

Super early selections: Seventy-eight F_3 progenies, derived from cross between cleistogamous non-determinate and super early lines, were evaluated during 2012. In this material selections were made for the flower type (cleistogamous) and other agronomy attributes (Table 26). In the progenies of family (ICPX 060131-5-2-1-2 x ICPX 060016-17-4-3) -B*-3, average flowering took place in 59.7 days with 100-seed mass of 8.04 g. Most of the progenies had brown seed coat color, but a few individual progenies from family (ICPX 060131-5-3-10-2 x ICPX 060016-17-4-3) -B*-2* had cream seeds.

F_2 population: Five crosses were made to transfer cleistogamous trait into super early maturing lines, and their F_2 populations were sown during 2012 (Table 27). Out of these, only one cross (ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4) looked promising and from this only four plants with 55 days to flower were selected for generation advancement during off season. Among the selected plants (ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4-)-B*-2 was earliest to flower (53 days).

Output 5: Suitable crop management package for high productivity developed

To achieve higher yields at different targeted locations of Rajasthan, a crop management package was developed which included four main components: (i) Variety selection (VS); (ii) Integrated nutrient management (INM); (iii) Integrated pest management (IPM); and (iv) Farmers' participatory seed production (FPSP). Eighty hectares of the crop was covered under this approach. For INM study, variety ICPL 88039 was selected and the treatments were zinc sulphate, sulphur, neem cake, and foliar spray of urea. For insect control through IPM organic insecticide NSKE (10%) and inorganic insecticide Acephate @ 2 kg/ha was used on variety ICPL 88039. Four varieties ICPL 88039, Pusa 992, UPAS 120, and ASJ 105 along with organic fertilizer (Neem plus) and inorganic fertilizer (SSP, $ZnSO_4$) were distributed to farmers for application in four districts (Table 28).

Among the districts, Jaipur had a maximum of 212 demonstrations, which produced 241 tons grains with an average productivity of 1120 kg/ha. According to fertilizer management packages (FMP), it was clear that the application of organic manure (either as Anmol Neem plus or/with 10 % NSKE) gave higher yields when compared to other nutrient packages. The highest yield (1630 kg/ha) was recorded in IPM package where NSKE used as a spray along with Anmol Neem plus as manure, followed by 1240 kg/ha which was recorded in FPSP package where Anmol Neem plus is used as manure (Table 29 & Figure 10).

Output 6: Human resource developed

Training programs were organized for farmers to provide training in the cultivation of crop and seed production (Figure 11). A package module was developed on pigeonpea production in Hindi and distributed to the farmers. A popular article about cultivation of pigeonpea in regions of Rajasthan was published in a daily newspaper dated 2 September 2012 (Figure 12). During rainy season 2012 an exposure visit to ICRISAT, Patancheru was organized for four progressive farmers along with the local coordinator of Rajasthan to motivate the farmers and to show different activities related to hybrid seed production, seed storage, dal preparation, etc.

Output 7: Value addition and marketing of the produce organized

Activity 7.1 Introduce small-scale processing machine for making dal in villages

As pigeonpea is a new to crop in some villages, most people were not aware of of pigeonpea dal till date. As a part of capacity building, we planned to install mini-dal mills in the villages which will also provide employment and quality dal in the village itself. The main purpose of this activity was to make available high protein (20-22 %) food *(dal)* to farmers and their families at an economical rate. At present the retail prices of *dal* are around Rs 90 / kg which is beyond the buying capacity of many farmers. Therefore, under this project, efforts are being made to provide quality nutrition to farmers from their own produce. To achieve this, the project purchased four small scale *dal* machines for key locations. These were Padasoli (Bassi taluka); Lalwas (Jamwa Ramgarh taluka) of Jaipur district; Nadauti (Karauli district); and Gotoli (of Alwar district). Two mini-dal mills have already started functioning at Padasoli and Lalwas and the inaugural function was led by Drs KB Saxena, SJ Singh, KM Vishnuvardhan and an ICRISAT team during 13 and 14 March 2013 (Figure 13). The event was covered by the local newspaper, *Rajasthan Patrika* of 15 March 2013 (Figure 14).

Activity 7.2 Linking production with commercial marketing and processing

Linking production with marketing is most important for the adoption of a new crop in any region. We propose to visit the local markets to help farmers in selling their produce at competitive prices in the open market. With our efforts, now one local seed company, KD Seed, has contracted the seed growers and lifted the seed from the village (Figure 15). In addition to this, we will also study the constraints in marketing of pigeonpea in Rajasthan. By the end of the 2012 cropping season most of the villages will get in touch with local markets, and the retailers have been contacted to purchase the seed directly from the villages. The network between farmers and local markets will be developed in the coming season.

TABLES

Table 1. Target villages identified and area sown for promotion of pigeonpea in Rajasthan during 2012

District	Villages	Target for 2012 (ha)	Area sown in 2012 (ha)	Difference (ha)
Jaipur	Padasoli, Lalwas, Sarpanch ki Dhani	10	212	+ 202
Dausa	Kaillai, Mala Khera	10	6	- 4
Karauli	Bagor, Jeetkipur, Gudli, Nadoti, Salawat, Saher, Gadhhkhera	10	107	+ 97
Alwar	Gotoli, Daulatpura	10	12	+ 2
	Total	40	337	+ 297

Table 2. Details of on-farm demonstrations conducted in four districts of Rajasthan during 2012

District	Village	On-farm trials (no.)	Area (ha)	Seed distributed (kg)
Jaipur	Padasoli	177	177	2832
	Lalwas	20	20	320
	Sarpanch ki Dhani	15	15	240
	Total	212	212	3392
Karauli	Bagor	43	43	688
	Jeetkipur	30	30	480
	Gudli	12	12	192
	Nadauti	10	10	160
	Salawat	6	6	96
	Shahar	3	3	48
	Gadhhkheda	3	3	48
	Total	107	107	1712
Dausa	Kailai	4	4	64
	Mala Khera	2	2	32
	Total	6	6	96
Alwar	Gotoli	10	10	160
	Daulatpura	2	2	32
	Total	12	12	192
Grand Total		337	337	5392

Table 3. Summary of productivity in demonstrations during *kharif*, 2012

District/ Village	Area sown (ha)	Area harvested (ha)	Total production (ton)	Yield range (kg/ha)	Yield (kg/ha)
Jaipur					
Padasoli	177	177	202.19	600-1900	1142.3
Lawas	20	20	20.91	800-1480	1045.5
Sarpanch ki Dhani	15	15	17.42	660-1510	1161.3

District/ Village	Area sown (ha)	Area harvested (ha)	Total production (ton)	Yield range (kg/ha)	Yield (kg/ha)
Total	212	212	240.52	600-1900	1118.7
Alwar					
Milakpur	7	7	9.94	960-1540	1420.0
Daulatpura	5	5	6.20	900-1450	1239.0
Total	12	12	16.14	900-1540	1075.7
Karauli					
Bagour	43	27	12.14	280-528	449.7
Gudli	12	1	0.54	-	538.0
Jeetkipura	30	7	2.92	250-560	417.1
Nadauti	10	-	-	-	-
Gadkhera	3	-	-	-	-
Saher	3	-	-	-	-
Salawat	6	5	2.88	565-585	479.5
Total	107	40	18.48	250-528	462.0
Dausa					
Kailai	4	1	-	125	125
Malakhera	2	-	-	-	-
Total	6	1	-	0.125	125
All total	337	271	275.26	-	1015.7

Table 4. Details of the monitoring during the cropping season, 2012

Number of monitoring	Stage of the crop	Remarks
First monitoring	At the time of sowing	Our field staff helped the farmers in sowings with the help of seed drill.
Second monitoring	Vegetative stage	Observe the germination, and the growth of the crop in 14 villages of four districts. Due to severe rain and waterlogging at Karauli and Dausa districts most of the crop was affected (Figures 5 & 6).
Third monitoring	Vegetative to flower initiation stage	Gave instructions to the farmers about pest identification and found some pod borer incidence
Fourth & Fifth monitoring	Flowering to pod initiation stage & Pod filling stage	To avoid further damage, spraying was done and monitored by the ICRISAT staff, Rajasthan (Figure 7)
Sixth monitoring	At harvest	Gave instructions on harvesting, sun drying methods and handling the harvest
Seventh monitoring	At threshing	Gave instructions about threshing, storage of the produce and marketing

Table 5. Details of area, production and productivity of seed multiplication of ICPL 88039 during 2012 at Rajasthan

Name of Farmer	Village	District	Area sown (ha)	Date of sowing	Total yield (kg)
Deep Singh	Lalwas	Jaipur	7	16/07/2012	7000
Ram Kumar Meena	Padasoli	Jaipur	3	16/07/2012	2200
Sankar Singh	Kaneta	Jaipur	2	18/07/2012	3000
	Total		12	-	12200

Table 6. Basic seed production of early pigeonpea varieties during Kharif 2012, ARS, Durgapura, Rajasthan

Genotype	Production (kg)
ICPL 88039	93.14
Pusa 992	64.98
ASJ 105	62.74
Pusa 991	18.30
UPAS 120	1.88

Table 7. Evaluation of early maturing trial data Kharif 2012, ARS, Durgapura, Rajasthan

Genotype	Days to 50% flowering	Seeds /pod	Yield /plot (kg)	Yield (kg/ha)
ICPL 88039	77	4	3.04	1268
Pusa 992	78	4	3.80	1583
ASJ 105	85	4	7.75	3227
Pusa 991	80	4	3.81	1589
UPAS 120	87	3	1.59	653

Table 8. Information on materials and methods used in the station trials

Trial name	Test entries	Controls	Replic-ations	Spacing (cm)	Rows/ plot	Sowing date	Remarks
Multilocation super early trial - I (NDT)	12	4	3	60 x 30	4	11-Jul-12	Poor germination (waterlogging)
Multilocation super early trial - II (NDT)	14	3	3	60 x 30	4	11-Jul-12	Poor germination (waterlogging)
Multilocation super early trial - I (DT)	10	3	3	60 x 30	4	11-Jul-12	Poor germination (waterlogging)
Multilocation super early trial - II (DT)	10	3	3	60 x 30	4	11-Jul-12	Poor germination (waterlogging)

Table 9. List of non-determinate parents selected for diallel mating at Patancheru

Parent	Origin	Days to flower	Days to maturity	Plant height (cm)	Seeds/ pod	100-seed weight (g)	Seed color
ICPL 88039	ICRISAT	55	100	160	4	10	B
ICPL 88034	ICRISAT	80	125	195	4.1	9.5	B
ICPL 86022	ICRISAT	55	100	155	3.5	8.9	C
AL 201	PAU	67	108	150	-	-	B
P 992	IARI	70	110	130	-	-	B
ICPL 161	ICRISAT	85	132	200	3.5	8.7	B
UPAS 120	GBPUAT	74	112	212	4.1	7.2	B
NDT line 1	ICRISAT	50	85	-	-	-	B
NDT line 2	ICRISAT	52	90	-	-	-	B
AL 881	PAU	70	110	-	-	-	B

Table 10. Performance of super early determinate pigeonpea lines at Patancheru, 2012. (Test no. 3)

Entry Name	Days to 50 % flowering	Days to 75 % maturity	Plant height (cm)	Seeds/ pod	100-seed mass (g)	Seed color	Plant stand	Yield (kg/ha)	Yield/ day (kg)	Fusarium wilt (%)	Sterility mosaic (%)
ICPL 20336	55	95	44.8	4.4	6.9	Cream	15	156	1.6	18.2	63.6
ICPL 20337	55	93	50.7	4.0	7.5	Brown	33	430	4.6	41.2	82.4
ICPL 20338	48	85	51.7	3.8	7.1	Brown	40	672	7.9	11.8	47.1
ICPL 20339	50	90	50.8	3.8	6.8	Brown	35	561	6.2	13.3	6.7
ICPL 20340	51	93	48.3	3.9	8.5	Brown	40	766	8.2	37.5	50.0
ICPL 20341	48	88	48.7	3.7	7.2	Brown	35	818	9.3	31.3	28.6
MN 5 (C)	54	92	53.7	3.8	7.3	Brown	35	773	8.4	46.7	33.3
Mean	53.6	92.7	53.99	3.89	7.29	-	33.8	657.5	7.1	28.57	44.53
LSD	3.8	3.7	8.18	0.59	0.59	-	12.8	364.0	3.91	-	-
SE±	1.06	1.06	2.26	0.14	0.14	-	3.5	99.6	1.06	-	-
CV (%)	3.4	1.9	7.18	7.21	3.86	-	17.9	26.2	26.06	-	-

Table 11. Performance of super early, non-determinate brown seeded pigeonpea lines at Patancheru, 2012. (Test No 5)

Entry Name	Days to 50 % flowering	Days to 75 % maturity	Plant height (cm)	Seeds /pod	100-seed mass (g)	Plant stand	Yield kg/ha	Yield/ day (kg)	Fusarium wilt (%)	Sterility mosaic (%)
ICPL 20326	58	101	94.0	3.9	6.4	38	1660	16.4	64.7	23.5
ICPL 20328	56	100	104.0	3.9	6.7	39	1568	15.7	23.1	83.8
ICPL 20330	55	96	79.0	4.1	5.8	42	940	9.8	40.0	53.3
ICPL 20331	57	100	104.0	3.8	6.3	36	1262	12.6	5.9	76.5
ICPL 20335	57	98	84.0	3.6	6.3	33	952	9.7	66.7	26.7
PAU 881 (C)	55	93	93.0	4.1	6.5	40	1249	13.4	-	-
ICPL 20325	64	104	99.0	3.8	7.0	46	1667	16.0	52.9	29.4
ICPL 20327	60	100	103.0	4.0	6.2	30	1128	11.3	20.0	80.0
ICPL 20329	61	101	100.0	3.9	6.9	34	1268	12.5	64.3	57.1
ICPL 20332	61	100	78.0	3.8	6.3	39	918	9.2	37.5	56.3
ICPL 20333	64	102	75.0	3.8	5.8	34	743	7.3	52.6	42.1
ICPL 20334	60	101	80.0	3.6	6.3	39	1061	10.5	30.0	70.0
ICPL 88039 (C)	61	104	94.0	4.2	8.3	41	1528	14.7	62.5	31.3
Mean	58.9	99.4	91.71	3.91	6.56	37.7	1217.2	12.2	-	-
LSD	4.1	4.8	11.87	0.39	0.55	11.4	555.3	5.63	-	-
SE±	1.2	1.3	3.39	0.14	0.14	3.2	158.2	1.60	-	-
CV (%)	3.4	2.4	6.39	4.87	4.12	14.9	23.1	22.71	-	-

Table 12. Performance of super early, determinate pigeonpea brown seeded lines at Patancheru, 2012. (Test no. 4)

Entry Name	Days to 50 % flowering	Days to 75 % maturity	Plant height (cm)	Seeds/ pod	100-seed mass (g)	Plant stand	Yield (kg/ha)	Yield/ day (kg)
ICPL 11249	49	89	47.5	3.9	8.7	42	608	6.8
ICPL 11250	50	88	45.7	3.8	8.4	40	566	6.4
ICPL 11251	51	89	49.2	3.9	8.0	37	658	7.4
ICPL 11252	50	90	47.8	3.8	8.1	40	520	5.8
ICPL 11253	52	92	49.5	4.1	8.2	41	594	6.5
ICPL 11254	52	93	47.3	3.9	8.4	41	496	5.3
ICPL 11255	50	91	47.5	4.0	8.5	39	760	8.4
MN 5 (C)	54	95	46.2	3.6	7.3	35	573	6.0
Mean	53.0	82.9	51.23	3.95	7.94	37.7	665.8	8.0
LSD	2.6	5.2	5.68	0.39	0.58	5.7	293.9	3.42
SE±	0.7	1.41	1.56	0.14	0.14	1.6	81.4	0.94
CV (%)	2.4	3.0	5.32	4.70	3.50	7.2	21.2	23.13

Table 13. Performance of super early, non-determinate pigeonpea brown seeded lines at Patancheru, 2012. (Test no. 6)

Entry Name	Days to 50 % flowering	Days to 75 % maturity	Plant height (cm)	Seeds/pod	100-seed mass (g)	Plant stand	Yield (kg/ha)	Yield/day (kg)
ICPL 11241	63	102	85.3	3.7	6.3	31	936	9.2
ICPL 11242	62	102	75.0	3.8	5.9	20	541	5.3
ICPL 11243	65	105	95.0	3.7	6.2	37	1206	11.5
ICPL 11244	66	105	91.3	3.9	8.5	36	1251	11.9
ICPL 88039 (C)	65	103	81.3	4.0	8.7	34	1063	10.3
ICPL 11245	61	100	72.7	3.6	6.4	32	828	8.3
ICPL 11246	61	100	74.7	3.9	6.4	31	646	6.5
ICPL 11247	59	98	79.0	3.7	6.3	38	1110	11.3
ICPL 11248	61	101	85.0	3.6	6.3	31	900	8.9
PAU 881 (C)	58	97	88.3	4.0	6.2	34	1050	10.8
Mean	61.5	100.7	83.52	3.82	6.74	32.8	969.9	9.6
LSD	5.9	5.8	10.63	0.51	0.70	11.6	497.9	5.10
SE±	1.7	1.6	2.97	0.14	0.21	3.2	139.3	1.42
CV (%)	4.7	2.8	6.16	6.53	5.03	17.2	24.8	26.65

Table 14. Performance of super early, determinate pigeonpea lines tested in advanced MLT in North India, 2012

Location	Punjab				Delhi				Seed coat color	Overall mean			
Entry Name	Days to 75 % maturity	100-seed mass (g)	Yield (kg/ha)	Yield/day (kg)	Days to 75 % maturity	100-seed mass (g)	Yield (kg/ha)	Yield/day (kg)		Days to 75 % maturity	100-seed mass (g)	Yield (kg/ha)	Yield/ day (kg)
ICPL 20336	128	7.40	1543	12.1	119	7.43	611	5.1	Cream	123.5	7.415	1077	8.6
ICPL 20337	121	8.00	1054	8.7	120	6.97	492	4.1	Brown	120.5	7.485	774	6.4
ICPL 20338	128	7.70	1183	9.2	122	7.62	822	6.7	Brown	125	7.66	1003	8.0
ICPL 20339	128	7.70	1029	8.0	118	7.02	815	6.9	Brown	123	7.36	922	7.5
ICPL 20340	121	8.10	1157	9.6	120	9.17	796	6.6	Brown	120.5	8.635	977	8.1
ICPL 20341	122	7.50	1415	11.6	117	7.12	552	4.7	Brown	119.5	7.31	983	8.2
MN 5 (C)	139	7.60	1543	11.1	120	7.44	814	6.8	Brown	129.5	7.52	1179	8.9
Mean	132.0	7.70	1528.9	11.6	122.3	7.51	714.82	5.8	-	127.15	7.605	1121.9	8.71
LSD	1.2	0.30	440.6	3.20	10.15	0.99	288.76	2.59	-				
SE±	0.4	0.10	120.6	0.87	2.78	0.27	79.03	0.70	-				
CV (%)	0.4	2.0	13.7	13.31	3.93	6.26	19.15	20.97	-				

Table 15. Performance of super early, non-determinate brown seeded pigeonpea lines tested in advanced MLT in North India, 2012

Location	Punjab				Delhi				Overall mean			
Entry Name	Days to 75 % maturity	100-seed mass (g)	Yield (kg/ha)	Yield/day (kg)	Days to 75 % maturity	100-seed mass (g)	Yield (kg/ha)	Yield/day (kg)	Days to 75 % maturity	100-seed mass (g)	Yield (kg/ha)	Yield/day (kg)
ICPL 20325	141	7.7	1595	11.3	131	6.1	537	4.1	136	6.9	1066	7.7
ICPL 20326	136	7.2	1286	9.5	135	5.6	469	3.5	136	6.4	877	6.5
ICPL 20327	139	7.1	1312	9.4	128	6.2	573	4.5	134	6.7	942	7.0
ICPL 20328	119	8.0	977	8.2	126	6.1	391	3.1	123	7.1	684	5.7
ICPL 20329	128	7.2	1080	8.4	129	5.4	448	3.5	129	6.3	764	6.0
ICPL 20330	122	7.6	772	6.3	121	6.3	641	5.3	122	7.0	706	5.8
ICPL 20331	128	7.5	1003	7.8	122	6.6	313	2.6	125	7.1	658	5.2
ICPL 20332	125	7.4	952	7.6	116	6.1	469	4.0	121	6.8	710	5.8
ICPL 20333	118	7.6	875	7.4	124	6.8	323	2.6	121	7.2	599	5.0
ICPL 20334	117	7.5	823	7.0	118	6.6	323	2.7	118	7.1	573	4.9
ICPL 20335	117	7.2	772	6.6	118	6.1	589	5.0	118	6.7	680	5.8
ICPL 88039 (C)	150	7.7	3086	20.6	134	7.8	677	5.1	142	7.8	1882	12.8
PAU 881 (C)	132	7.7	1919	14.5	132	6.7	885	6.7	132	7.2	1402	10.6
Mean	129.2	7.50	1311.0	10.15	126.2	6.4	530.9	4.2	127.7	6.95	921	7.2
LSD	1.5	0.30	473.1	3.43	6.3	0.8	355.7	2.70				
SE±	0.4	1.90	134.9	0.97	1.6	0.2	94.9	0.72				
CV (%)	0.6	0.10	17.8	17.12	1.9	4.9	25.28	24.38				

Table 16. Performance of super early, determinate brown seeded pigeonpea lines tested in preliminary MLT in North India, 2012

Location	Punjab				Delhi				Almora				Overall mean			
Entry Name	Days to 75 % maturity	100-seed mass (g)	Yield (kg/ha)	Yield/ day (kg)	Days to 75 % maturity	100-seed mass (g)	Yield (kg/ha)	Yield/ day (kg)	Days to 75 % maturity	100-seed mass (g)	Yield (kg/ha)	Yield / day (kg)	Days to 75 % maturity	100-seed mass (g)	Yield (kg/ha)	Yield/day (kg)
ICPL 11249	128	7.6	1286	10.0	124	8.5	782	6.3	118	8.9	875	7.4	123	8.3	981	7.9
ICPL 11250	129	8.2	1312	10.2	126	8.4	741	5.9	113	8.7	708	6.3	123	8.4	920	7.4
ICPL 11251	130	8.2	1903	14.6	126	8.3	804	6.4	115	9.0	792	6.9	124	8.5	1166	9.3
ICPL 11252	128	8.6	1415	11.1	121	8.0	937	7.7	116	7.9	625	5.4	122	8.2	992	8.1
ICPL 11253	129	8.1	1543	12.0	126	8.4	630	5.0	120	8.9	792	6.6	125	8.5	988	7.9
ICPL 11254	122	8.0	1312	10.8	118	7.5	570	4.8	115	8.8	750	6.5	118	8.1	877	7.4
ICPL 11255	130	8.7	1145	8.8	124	8.8	852	6.9	119	8.0	1000	8.4	124	8.5	999	8.0
MN 5 (C)	137	7.0	1543	11.32	128	7.2	778	6.12	127	7.8	708	5.63	131	7.3	1010	7.6
Mean	133	8.00	1523.9	11.46	126.0	7.95	798.1	6.33	119.1	8.5	791.7	6.65	126.0	8.15	1037.9	8.15
LSD	1.5	0.32	271.5	2.01	3.26	0.75	293.8	2.37	9.8	1.5	240.8	2.17				
SE±	0.4	0.12	75.2	0.55	0.91	0.29	115.1	0.65	2.5	0.4	60.3	0.54				
CV (%)	0.5	1.90	8.5	8.44	1.24	4.51	17.7	18.02	2.9	6.3	10.8	11.55				

Table 17. Performance of super early, non-determinate brown seeded pigeonpea lines tested in preliminary MLT in North India, 2012

Location	Punjab				Delhi				Almora				Overall mean			
Entry Name	Days to 75 % maturity	100-seed mass (g)	Yield (kg/ha)	Yield/day (kg)	Days to 75 % maturity	100-seed mass (g)	Yield (kg/ha)	Yield/ day (kg)	Days to 75 % maturity	100-seed mass (g)	Yield (kg/ha)	Yield/ day (kg)	Days to 75 % maturity	100-seed mass (g)	Yield (kg/ha)	Yield /day (kg)
ICPL 11241	129	7.6	1157	9.0	131	7.5	793	6.1	147	7.6	1444	9.8	136	7.6	1132	8.3
ICPL 11242	137	7.9	1492	10.9	126	7.4	652	5.2	149	7.1	1278	8.6	137	7.5	1141	8.2
ICPL 11243	126	7.7	772	6.1	126	7.0	415	3.3	152	9.7	1339	8.8	135	8.1	842	6.1
ICPL 11244	148	8.5	2032	13.7	140	8.2	870	6.2	151	8.4	1389	9.2	146	8.4	1430	9.7
ICPL 11245	129	7.6	1466	11.4	126	7.5	352	2.8	155	6.8	1167	7.5	137	7.3	995	7.2
ICPL 11246	127	7.6	1440	11.3	137	7.2	541	3.9	149	7.1	1222	8.2	138	7.3	1068	7.8
ICPL 11247	132	7.6	1286	9.7	134	7.3	778	5.8	150	7.3	1306	8.7	139	7.4	1123	8.1
ICPL 11248	135	7.7	1569	11.6	135	7.2	945	7.0	151	6.9	1222	8.1	140	7.3	1245	8.9
ICPL 88039 (C)	149	8.2	2366	15.9	137	8.2	630	4.6	163	8.5	1444	8.9	150	8.3	1480	9.8
Mean	134.7	7.8	1571.7	11.67	132.0	7.44	963.0	7.30	146.2	7.79	1361.6	9.31	137.6	7.7	1298.8	9.4
LSD	1.6	0.2	353.7	2.55	7.5	0.86	356.1	2.64	7.1	0.53	383.6	2.33				
SE±	0.4	0.1	98.9	0.71	2.1	0.24	99.60	0.73	1.8	0.13	98.1	0.57				
CV (%)	0.6	1.1	10.9	10.67	2.7	5.58	24.87	24.42	1.8	2.44	10.2	8.59				

Table 18. Super early, determinate F_6 generation testcross progenies selected at Patancheru, 2012

Plot no	Entry name	Days to 50 % flowering	Days to 75 % maturity	Plant height (cm)	Seeds/ pod	Visual* selection score at flowering	Visual* selection score at maturity	Plant stand	100-seed mass	Seed coat color	Yield/ plot (g)	Self Seed qty.(g)
692	ICPX 070168-2-1-1-1-4*	53	88	65.0	3.8	1.5	1.5	24	8.5	B	440.1	56.4
693	MN 5 (C)	53	88	60.0	3.8	3.0	2.0	25	7.3	B	481.0	-
694	ICPX 070168-5-3-10-1-8*	53	85	50.0	3.8	1.5	2.0	22	8.3	B	400.1	480.0
695	MN 5 (C)	55	90	55.1	3.6	2.0	2.0	18	7.4	B	390.0	-
696	ICPX 070168-1-4-1-1-12*	53	88	55.0	3.5	2.0	2.0	24	8.3	B	390.5	350.1
697	ICPX 070168-9-3-4-1-16*	53	85	56.0	3.5	2.0	2.5	20	8.4	B	380.4	449.8
	Mean	53	86.5	56.5	3.65	1.75	2	22.5	8.375	-	413.68	
	MN 5 (Check mean)	54.0	89.0	57.50	3.70	2.50	2.00	21.5	7.35	-	435.50	-
	SE	1.0	1.0	2.5	0.1	0.5	0.0	3.5	0.1	-	45.5	-

* Visual selection scores recorded in comparison with check in 1-5 scale 1 being best, 2-Very good, 3- Good, 4- Poor and 5- Worst

Table 19. Super early, non-determinate F_6 generation testcross progenies selected at Patancheru, 2012

Plot No	Entry name	Days to 50 % flowering	Days to 75 % maturity	Plant height (cm)	Seeds /pod	Visual* selection score at flowering	Visual* selection score at maturity	Plant stand	Yield/ plot (g)	100-seed mass	Seed coat color	Seed qty. (g)
375	**ICPL 88039 (C)**	59	100	115.0	4.2	3.0	3.0	26	395.0	8.4	B	-
383	ICPX 070168-2-2-10-3-19*	55	95	75.0	4.0	2.0	2.0	29	320.0	8.0	B	277.5
386	**ICPL 88039 (C)**	58	95	115.0	3.6	3.0	3.0	30	530.0	8.3	B	-
392	ICPX 070168-8-1-15-2-15*	56	100	85.0	3.9	3.0	3.0	29	350.0	8.0	B	100.0
398	**ICPL 88039 (C)**	59	100	107.0	4.0	3.0	3.0	25	325.0	8.5	B	-
401	ICPX 070168-8-1-15-3-6*	56	100	85.0	3.8	3.0	2.5	22	300.0	8.4	B	247.0
404	**ICPL 88039 (C)**	59	100	100.0	3.9	3.5	4.0	21	325.0	8.6	B	-
408	ICPX 070168-8-1-15-3-15*	57	100	88.0	3.8	2.5	2.0	34	390.0	7.3	B	328.5
415	**ICPL 88039 (C)**	59	100	105.0	4.2	3.0	3.0	25	505.0	8.4	B	-
419	ICPX 070168-8-1-15-5-6*	53	95	88.0	3.8	3.0	3.0	29	185.0	8.2	B	260.0
422	**ICPL 88039 (C)**	60	102	120.0	4.1	3.0	4.0	21	435.0	8.5	B	-
426	ICPX 070168-8-1-15-5-12*	53	95	80.0	4.0	2.5	2.5	27	180.0	7.3	B	202.5
428	**ICPL 88039 (C)**	58	100	125.0	3.9	3.0	3.5	24	460.0	8.6	B	-
434	ICPX 070168-6-2-4-1-5*	57	100	95.0	4.2	3.5	2.5	26	180.0	8.1	B	255.0
435	ICPX 070168-6-2-4-1-19*	63	102	85.0	4.2	3.0	2.5	32	450.0	8.4	B	238.0
439	**ICPL 88039 (C)**	60	102	105.0	4.2	3.0	3.0	24	455.0	8.6	B	-
443	ICPX 070168-4-1-4-3-1*	57	98	75.0	4.2	2.5	2.5	25	300.0	9.1	B	291.0
444	ICPX 070168-4-1-4-3-5*	57	98	90.0	4.0	3.0	3.0	26	335.0	8.3	B	115.0
445	**ICPL 88039 (C)**	59	100	125.0	4.0	3.0	3.0	30	430.0	8.5	B	-
446	ICPX 070168-4-1-4-3-9*	57	100	100.0	3.7	3.5	2.5	25	320.0	8.4	B	293.0
451	ICPX 070168-4-1-4-4-17*	57	100	110.0	3.0	2.5	3.0	25	250.0	7.6	B	287.0
457	**ICPL 88039 (C)**	59	100	65.0	4.2	3.0	3.0	29	440.0	8.4	B	-

Plot No	Entry name	Days to 50 % flowering	Days to 75 % maturity	Plant height (cm)	Seeds /pod	Visual* selection score at flowering	Visual* selection score at maturity	Plant stand	Yield/ plot (g)	100-seed mass	Seed coat color	Seed qty. (g)
462	ICPX 070168-6-5-6-1-13*	57	98	75.0	3.8	3.0	2.5	34	290.0	7.4	B	232.0
463	ICPX 070168-6-5-6-1-17*	58	100	75.0	4.0	3.0	2.5	32	280.0	7.6	B	108.0
465	ICPX 070168-6-5-6-1-19*	55	95	70.0	4.0	2.5	2.5	36	250.0	7.0	B	181.0
468	ICPX 070168-6-5-6-2-2*	55	95	100.0	4.2	2.0	2.5	25	320.0	7.8	B	261.0
469	ICPX 070168-6-5-6-2-3*	58	98	90.0	4.1	2.0	2.0	28	320.0	7.5	B	313.0
471	ICPX 070168-6-5-6-2-5*	59	100	95.0	3.9	2.0	2.0	32	350.0	7.6	B	111.0
473	ICPX 070168-6-5-6-2-10*	56	95	85.0	3.9	3.0	2.5	25	350.0	7.8	B	226.0
474	ICPX 070168-6-5-6-2-11*	59	100	88.0	3.8	3.0	2.5	27	335.0	8.6	B	268.0
475	ICPX 070168-6-5-6-2-12*	57	95	85.0	3.9	2.5	2.5	34	330.0	7.4	B	279.5
	Mean	56.8	98.0	86.6	3.9	2.7	2.5	28.7	304.0	7.9	-	-
	ICPL 88039 (Check mean)	59.0	100.4	109.0	4.0	3.1	3.3	26.2	421.0	8.5	-	-
	SE	0.2	0.3	5.5	0.1	0.1	0.1	0.9	27.2	0.1	-	-

Table 20. Super early, non-determinate F_5 generation progenies selected at Patancheru, 2012

Plot no	Entry name	Days to 50 % flowering	Days to 75 % maturity	Plant height (cm)	Seeds/ pod	Visual* selection score at flowering	Visual* selection score at maturity	Plant stand	Yield/ plot (g)	100-seed mass	Seed coat color	Self Seed qty. (g)
478	ICPX 060026-2-11-8-8*	59	100	110.0	4.0	3.0	3.0	27	300.0	8.1	B	110.0
480	**ICPL 88039 (C)**	63	105	115.0	3.5	3.0	4.0	13	185.0	8.4	B	-
483	ICPX 060026- 2-1-6-4-22*	57	98	95.0	4.2	3.0	2.5	19	290.0	6.7	B	274.5
484	ICPX 060026- 2-1-6-3-3*	55	95	95.0	4.0	2.5	2.5	29	290.0	8.0	B	215.5
485	ICPX 060026- 2-1-6-3-4*	57	95	75.0	3.9	4.0	3.0	21	260.0	7.5	B	75.0
491	**ICPL 88039 (C)**	63	105	90.0	3.8	3.5	4.0	9	170.0	8.5	B	-
493	ICPX 060026-2-11-1-4*	55	95	100.0	3.6	2.5	2.5	28	320.0	8.7	B	303.0
499	ICPX 060064-1-4-2-16*	55	95	106.0	4.0	3.0	2.5	19	250.0	8.0	B	110.0
505	**ICPL 88039 (C)**	65	105	95.0	4.2	4.0	3.5	8	115.0	8.8	B	-
512	ICPX 060064-1-4-8-26*	53	95	90.0	4.0	1.5	1.5	28	340.0	7.2	B	211.0
513	ICPX 060026- 2-1-6-5-5*	53	95	95.0	4.0	2.0	2.0	28	330.0	6.0	B	227.0
514	ICPX 060026- 2-1-6-5-8*	53	95	105.0	4.0	3.0	3.0	21	350.0	6.6	B	75.0
516	**ICPL 88039 (C)**	64	102	120.0	4.3	2.0	2.5	21	520.0	8.5	B	-
517	ICPX 060026- 2-1-6-5-23*	53	95	85.0	4.1	2.0	3.0	22	360.0	6.2	B	240.0
519	ICPX 060073-3-4-1-10*	53	95	95.0	4.2	2.5	2.5	25	250.0	7.0	B	100.0
520	ICPX 060073-3-4-1-26*	53	95	90.0	3.9	2.0	2.5	28	520.0	9.0	B	291.0
521	ICPX 060026- 2-1-5-6-2*	52	95	80.0	3.8	2.0	2.5	25	320.0	9.0	B	245.0
522	ICPX 060026- 2-1-5-6-12*	52	95	90.0	4.1	3.0	2.5	20	190.0	7.8	B	249.0
526	ICPX 060064-1-4-4-2*	55	98	95.0	3.9	3.0	2.5	24	360.0	8.6	B	304.0
527	**ICPL 88039 (C)**	60	100	100.0	4.1	3.0	3.0	20	370.0	8.6	B	-
535	ICPX 060064-1-7-5-2*	57	100	80.0	3.8	3.0	3.0	20	210.0	8.4	B	102.0
537	ICPX 060064-1-7-5-10*	55	95	90.0	3.9	3.0	2.5	17	280.0	7.4	B	200.0
542	ICPX 060026- 2-1-5-1-17*	55	95	85.0	4.1	2.5	2.5	22	300.0	8.6	B	355.0
543	ICPX 060067-13-4-3-3*	55	95	85.0	3.2	3.0	3.0	20	200.0	7.6	B	283.0
544	ICPX 060067-13-4-3-7*	58	100	85.0	4.0	4.0	3.0	20	245.0	7.1	B	110.0
	Mean	54.8	96.1	91.6	3.9	2.7	2.6	23.2	298.3	7.7	-	-
	ICPL 88039 (Check Mean)	63.0	103.0	107.7	4.0	3.1	3.4	15.0	277.9	8.4	-	-
	SE	0.6	0.8	4.8	0.2	0.2	0.2	2.4	52.3	0.1	-	-

Table 21. Super early, determinate F_6 generation progenies selected at Patancheru, 2012

Plot no	Entry name	Days to 50 % flowering	Days to 75 % maturity	Plant height (cm)	Seeds/ pod	Visual* selection scores at flowering	Plant stand	100-seed mass (g)	Seed coat color	Self Seed qty. (g)
807	ICPX 060034-12-6-1-5-10*	55	90	45.0	4.0	2.0	26	9.0	B	290.7
810	**MN 5 (C)**	58	90	60.0	3.8	3.0	-	7.6	B	-
812	ICPX 060066-1-1-13-3-12*	53	85	45.0	3.8	1.5	27	9.3	B	300.0
816	ICPX 060077-11-6-6-5-3*	55	90	50.0	3.7	2.0	18	9.3	B	219.0
817	ICPX 060077-11-6-6-5-30*	53	85	55.0	3.8	1.5	28	9.4	B	306.2
819	ICPX 060077-11-6-6-7-24*	53	90	45.0	3.8	2.5	24	8.3	B	350.0
821	**MN 5 (C)**	58	100	65.0	3.8	3.5	-	7.7	B	-
822	ICPX 060077-3-7-2-11-13*	53	90	55.0	4.0	2.0	24	9.6	B	190.0
823	ICPX 060077-6-10-11-8-6*	53	90	55.0	3.6	3.0	17	8.9	B	153.0
824	ICPX 060077-6-10-11-8-16*	52	85	60.0	3.7	1.5	23	8.5	B	220.7
825	ICPX 060077-6-10-11-8-23*	53	90	60.0	3.6	1.0	24	9.7	B	184.8
828	**MN 5 (C)**	55	100	62.0	3.6	2.0	-	7.5	B	-
829	ICPX 060036-12-2-1-2-7*	52	80	56.0	3.7	1.5	12	8.2	B	167.6
830	ICPX 060036-12-2-1-2-8*	50	80	59.0	4.0	1.0	20	8.3	B	263.0
831	ICPX 060036-12-2-1-2-18*	50	80	58.0	4.2	1.5	24	8.0	B	290.6
832	ICPX 060036-12-2-1-5-11*	52	80	54.0	4.1	2.0	27	8.2	B	204.8
833	ICPX 060036-12-2-1-5-12*	52	80	51.0	3.9	2.5	18	8.0	B	334.0
834	**MN 5 (C)**	55	95	61.0	3.4	2.0	-	7.6	B	-
835	ICPX 060066-16-3-4-2-4*	52	80	50.0	3.4	2.0	30	8.5	B	34.5
836	ICPX 060066-16-3-4-2-19*	52	80	52.0	3.8	1.5	27	8.3	B	108.7
837	ICPX 060066-16-3-4-2-2*	52	85	54.0	3.8	1.5	26	8.8	B	145.0
840	ICPX 060077-6-5-10-4-26*	53	85	53.0	3.4	3.0	7	9.0	B	174.0
	Mean	52.5	84.7	53.2	3.80	1.9	-	8.7	-	-
	MN 5 (Check mean)	53.0	86.0	62.0	3.70	2.5	-	7.6	-	-
	SE	0.5	0.2	3.0	0.0	0.0	-	0.1	-	-

Table 22. Super early, non-determinate F_6 generation progenies selected at Patancheru, 2012

Plot no	PEDIGREE	Days to 50 % flowering	Days to 75 % maturity	Plant height (cm)	Seeds /pod	Visual* selection score at flowering	Visual* selection score at maturity	Plant stand	100-seed mass	Seed coat color	Yield /plot (g)	Self Seed qty. (g)
549	ICPX 060063-8-1-13-1-11*	53	95	100.0	4.0	3.5	2.5	22	7.3	LB	370.0	263.0
552	**ICPL 88039 (C)**	63	102	100.0	4.2	3.0	3.0	22	8.4	B	540.0	-
553	ICPX 060077-6-8-11-2-3*	53	90	110.0	3.6	2.5	2.5	24	7.6	B	315.0	110.0
556	ICPX 060077-6-8-11-2-11*	55	95	105.0	3.8	3.0	2.5	17	8.4	B	325.0	256.0
557	ICPX 060077-6-8-11-2-17*	53	95	90.0	3.7	3.0	2.5	18	7.7	B	200.0	86.3
559	**ICPL 88039 (C)**	59	100	125.0	4.2	3.0	3.0	17	8.3	B	485.0	-
564	ICPX 060077-6-8-11-5-2*	52	90	85.0	3.7	2.0	2.0	18	7.9	B	185.0	95.6
565	ICPX 060077-6-8-11-5-11*	52	90	85.0	3.5	2.0	2.0	24	7.7	B	300.0	100.0
566	ICPX 060077-7-4-1-1-11*	52	90	90.0	3.7	1.5	1.0	29	7.9	LB	540.0	325.5
570	**ICPL 88039 (C)**	59	100	130.0	4.1	3.0	3.0	20	8.4	B	690.0	-
574	ICPX 060066-16-11-10-6-17*	54	98	100.0	3.4	2.5	2.5	20	6.8	B	270.0	88.3
575	ICPX 060066-16-11-10-6-18*	53	95	95.0	3.8	3.0	2.5	14	8.4	B	350.0	196.0
580	ICPX 060066-16-11-10-8-19*	55	95	100.0	3.9	3.5	3.0	16	7.3	B	200.0	78.6
581	**ICPL 88039 (C)**	59	100	115.0	4.4	2.5	3.0	29	8.4	B	690.0	-
582	ICPX 060077-6-4-15-1-1*	53	95	90.0	3.6	2.0	2.5	17	7.1	B	200.0	111.2
585	ICPX 060063-8-9-9-1-5*	54	95	104.0	3.8	2.0	3.0	21	8.8	B	490.0	210.0
586	ICPX 060063-8-9-9-1-7*	54	95	100.0	4.0	1.5	2.0	25	8.4	B	510.0	304.0
587	ICPX 060063-8-9-9-1-15*	55	100	90.0	3.9	3.0	2.5	21	7.3	B	300.0	110.2
588	**ICPL 88039 (C)**	59	100	120.0	4.2	3.0	3.0	17	8.5	B	425.0	-
589	ICPX 060063-8-9-9-1-24*	53	95	90.0	3.6	2.5	2.5	18	7.8	B	350.0	252.0
590	ICPX 060063-8-9-9-3-11*	54	95	100.0	3.8	2.5	2.5	21	7.0	LB	470.0	312.0
591	ICPX 060063-8-9-9-3-24*	54	98	90.0	4.2	3.0	2.0	16	8.1	B	520.0	113.0
592	ICPX 060063-8-9-9-3-26*	54	98	115.0	3.6	1.5	2.0	22	6.2	B	460.0	224.0
593	ICPX 060063-8-9-9-4-10*	55	100	90.0	4.0	3.0	2.5	24	7.5	B	360.0	331.5
Plot	PEDIGREE	Days to 50	Days to	Plant	Seeds	Visual*	Visual*	Plant	100-	Seed	Yield	Self

no		% flowering	75 % maturity	height (cm)	/pod	selection score at flowering	selection score at maturity	stand	seed mass	coat color	/plot (g)	Seed qty. (g)
599	ICPX 060077-6-9-16-3-23*	55	100	95.0	3.9	3.0	2.5	25	7.1	B	410.0	95.6
600	ICPX 060077-6-9-16-3-33*	54	98	100.0	3.8	2.0	2.0	30	7.4	B	540.0	381.0
606	**ICPL 88039 (C)**	60	112	110.0	4.4	3.0	3.0	10	8.4	B	-	
601	ICPX 060077-6-9-16-3-35*	54	98	105.0	3.7	1.5	2.0	24	7.9	LB	455.0	320.5
602	ICPX 060077-6-9-16-4-6*	53	95	100.0	3.5	1.5	2.0	29	7.1	B	500.0	393.0
603	ICPX 060077-6-9-16-4-13*	53	95	110.0	3.8	1.5	1.0	25	7.2	B	480.0	229.0
604	ICPX 060077-6-9-16-4-23*	54	95	100.0	3.4	2.0	2.0	23	6.1	B	455.0	124.0
610	ICPX 060077-6-9-17-1-17*	55	100	90.0	3.4	3.5	2.5	19	7.9	B	290.0	110.0
612	ICPX 060066-16-8-14-3-16*	55	95	85.0	3.6	3.0	2.5	14	6.8	B	185.0	95.0
613	ICPX 060066-16-8-14-3-17*	54	95	75.0	4.0	2.5	1.0	20	7.5	LB	390.0	192.0
614	ICPX 060036-4-13-6-1-11*	55	95	85.0	4.0	3.0	2.0	19	7.0	B	255.0	110.0
615	ICPX 060036-4-13-6-1-31*	54	95	85.0	4.0	2.0	2.0	23	7.5	LB	625.0	231.0
616	ICPX 060036-4-13-6-1-12*	54	95	95.0	3.4	3.0	2.0	14	7.7	B	220.0	114.0
617	**ICPL 88039 (C)**	59	100	120.0	4.2	3.0	3.0	24	8.5	B	585.0	-
618	ICPX 060027-3-4-4-1-16*	53	95	90.0	4.0	2.0	2.0	22	7.0	B	445.0	114.0
619	ICPX 060027-3-4-4-1-26*	53	95	90.0	3.8	2.5	1.5	21	7.6	B	555.0	140.0
620	ICPX 060027-3-4-4-2-6*	53	95	90.0	3.9	2.5	2.5	17	7.7	B	300.0	76.3
621	ICPX 060027-3-4-4-2-24*	53	95	105.0	4.0	2.0	2.0	17	7.5	B	460.0	108.0
622	ICPX 060027-3-4-4-2-29*	53	95	95.0	4.1	1.5	2.5	23	7.2	B	460.0	213.0
623	ICPX 060027-12-3-2-1-12*	55	95	95.0	4.0	3.0	2.5	32	6.6	B	490.0	237.0
624	**ICPL 88039 (C)**	60	102	120.0	4.4	3.0	2.5	27	8.4	B	680.0	-
626	ICPX 060027-12-3-2-1-23*	55	95	90.0	3.7	3.5	2.5	25	7.6	B	355.0	78.6
628	ICPX 060027-12-3-2-3-8*	55	96	90.0	3.8	2.5	2.5	23	7.5	B	410.0	331.5
629	ICPX 060027-12-3-2-3-14*	55	98	95.0	4.0	3.0	2.5	24	8.4	B	425.0	100.5
631	**ICPL 88039 (C)**	60	105	125.0	4.5	3.0	3.0	22	8.3	B	580.0	-

Plot no	PEDIGREE	Days to 50 % flowering	Days to 75 % maturity	Plant height (cm)	Seeds /pod	Visual* selection score at flowering	Visual* selection score at maturity	Plant stand	100-seed mass	Seed coat color	Yield /plot (g)	Self Seed qty. (g)
633	ICPX 060077-7-4-19-1-2*	55	100	90.0	3.4	3.5	2.0	23	6.9	B	355.0	87.6
635	ICPX 060077-7-4-19-1-15*	55	100	105.0	3.8	2.0	2.5	29	8.6	B	430.0	89.6
636	ICPX 060077-7-4-19-2-6*	53	90	100.0	3.6	2.0	2.5	25	7.7	B	390.0	95.6
637	ICPX 060077-7-4-19-2-15*	53	90	85.0	3.8	1.5	2.0	31	7.5	B	495.0	210.0
638	ICPX 060077-7-4-19-2-23*	55	95	100.0	3.9	1.5	2.0	23	8.4	B	515.0	252.0
640	ICPX 060077-7-4-19-3-4*	55	98	105.0	3.7	2.0	2.0	26	7.3	LB	435.0	222.0
641	ICPX 060077-7-4-19-3-12*	53	95	85.0	3.7	2.0	2.0	27	7.4	B	340.0	157.5
643	ICPX 060077-7-4-19-3-13*	53	95	80.0	4.0	2.5	3.0	25	8.5	B	350.0	88.9
646	ICPX 060077-7-4-19-4-6*	53	95	95.0	3.7	3.5	2.5	20	8.5	B	305.0	95.6
649	ICPX 060027-8-2-9-1-15*	53	98	90.0	4.0	3.5	2.5	19	8.8	B	255.0	111.0
650	ICPX 060027-8-2-9-1-16*	53	98	80.0	3.9	3.0	3.0	27	7.4	B	300.0	87.3
651	ICPX 060027-8-2-9-1-14*	53	95	90.0	3.8	2.0	3.0	26	8.1	B	305.0	59.3
652	**ICPL 88039 (C)**	60	100	135.0	4.7	3.0	3.0	30	8.5	B	355.0	-
653	ICPX 060036-4-13-9-2-4*	53	90	80.0	4.2	2.5	1.0	26	7.2	B	355.0	89.6
656	ICPX 060036-4-13-9-2-33*	53	95	105.0	4.2	2.5	2.0	24	8.3	B	35.0	77.6
658	ICPX 060036-4-13-9-3-27*	55	90	85.0	4.0	3.0	2.5	26	6.8	B	250.0	58.6
660	**ICPL 88039 (C)**	60	100	135.0	4.7	3.0	3.0	27	8.6	B	625.0	-
661	ICPX 060063-8-9-1-4-5*	53	90	100.0	4.0	3.0	2.5	28	8.0	B	345.0	78.6
664	ICPX 060063-8-9-1-8-9*	53	95	95.0	3.9	3.0	2.5	24	7.9	B	400.0	45.6
665	ICPX 060063-8-9-1-8-13*	53	95	100.0	3.8	2.5	2.0	33	7.2	B	400.0	136.5
666	**ICPL 88039 (C)**	62	102	125.0	4.5	3.0	3.0	25	8.7	B	670.0	-
669	ICPX 060063-8-9-1-8-18*	55	100	100.0	3.8	3.0	3.5	25	7.9	B	415.0	170.5
670	ICPX 060077-6-5-2-1-3*	53	95	90.0	3.5	3.5	2.5	21	7.5	B	360.0	89.4
672	ICPX 060077-6-5-2-1-28*	55	100	110.0	3.9	3.5	3.0	23	7.3	B	390.0	78.4
674	ICPX 060077-6-5-2-2-1*	53	98	95.0	3.6	2.5	2.5	23	7.6	B	390.0	75.8
676	ICPX 060077-6-5-2-2-24*	55	100	95.0	3.4	3.0	2.5	24	7.2	B	305.0	89.6
683	ICPX 060077-6-5-10-13-11*	55	100	105.0	3.8	2.5	3.0	19	7.2	B	395.0	142.5
689	ICPX 060077-6-5-10-3-12*	55	95	85.0	3.4	3.0	2.5	26	7.1	B	560.0	197.0
	Mean	53.8	95.6	94.5	3.8	2.5	2.3	22.9	7.6	-	377.2	-
	ICPL 88039 (Mean)	59.9	101.8	122.9	4.4	3.0	3.0	22.7	8.4	-	590.4	-
	SE	0.3	0.9	2.6	0.1	0.0	0.0	1.5	0.1	-	29.8	-

Table 23. Single plant selections made in brown seeded super early F_4 determinate testcross material at Patancheru, 2012

Plot no	PEDIGREE	Days to first flower	100-seed mass (g)	Self Seed qty. (g
707	ICPX 080001-5-3-4*-10*	47	7.0	6.0
707	ICPX 080001-5-3-4*-11*	48	7.9	11.5
707	ICPX 080001-5-3-4*-12*	49	6.0	10.5
707	ICPX 080001-5-3-4*-24*	48	7.5	12.5
707	ICPX 080001-5-3-4*-25*	48	7.7	18.5
707	ICPX 080001-5-3-4*-27*	49	7.5	12.5
707	ICPX 080001-5-3-4*-28*	48	7.4	15.5
710	ICPX 080001-6-1-18*-10*	48	7.5	17.3
710	ICPX 080001-6-1-18*-15*	49	8.1	9.4
711	MN 5 (check)	55	7.2	-
712	ICPX 080003-9-2-17*-6*	48	7.6	11.0
712	ICPX 080003-9-2-17*-19*	48	5.9	7.0
713	ICPX 080001-7-1-16*-18*	49	8.5	19.4
714	ICPX 080001-5-5-2*-10*	49	8.1	12.0
714	ICPX 080001-5-5-2*-16*	49	7.2	27.5
715	ICPX 080003-7-1-6*-8*	49	8.1	21.0
715	ICPX 080003-7-1-6*-10*	48	7.6	8.9
715	ICPX 080003-7-1-6*-13*	49	8.3	8.5
715	ICPX 080003-7-1-6*-15*	48	7.8	8.0
	MN 5 (check)	55	7.2	-

Table 24. Single plant selections made in super early F_4 determinate material at Patancheru, 2012

Plot no	PEDIGREE	Days to first flower	100-seed mass	Seed color	Self Seed qty. (g)
719	ICPX 060012-1-10-4-2*-14*	50	6.8	Cream	13.2
720	ICPX 060012-1-8-2-19*-6*	50	8.5	Brown	17.5
720	ICPX 060012-1-8-2-19*-9*	47	7.8	Brown	20.3
	MN 5 (Check)	54	7.3	Brown	-

Table 25. Single plant selections made in cleistogamous non-determinate pigeonpea lines at Patancheru, 2012

Plot no	Progeny selected	Entry name	Days to flowering	Visual selection* scores at maturity	100-seed mass (g)	Seed coat color	Self Seed qty. (g)
854	1	(ICPX 060131-2-2 x ICPL 88039)-4-4-3-1	68	3.5	9.5	Brown	56.0
854		(ICPX 060131-2-2 x ICPL 88039)-4-4-3-2	68	3.0	10.0	Brown	122.0
854		(ICPX 060131-2-2 x ICPL 88039)-4-4-3-3	70	3.5	8.0	Brown	160.0
854		(ICPX 060131-2-2 x ICPL 88039)-4-4-3-4	69	3.5	8.0	Brown	77.0
854		(ICPX 060131-2-2 x ICPL 88039)-4-4-3-5	66	3.5	8.5	Brown	85.0
854		(ICPX 060131-2-2 x ICPL 88039)-4-4-3-6	62	4.0	8.1	Brown	46.0
854		(ICPX 060131-2-2 x ICPL 88039)-4-4-3-7	63	3.5	8.4	Brown	81.5
854		(ICPX 060131-2-2 x ICPL 88039)-4-4-3-8	66	4.0	9.5	Brown	122.0
854		(ICPX 060131-2-2 x ICPL 88039)-4-4-3-9	71	3.5	8.0	Brown	150.0
854		(ICPX 060131-2-2 x ICPL 88039)-4-4-3-10	67	3.5	10.0	Brown	171.0
854		(ICPX 060131-2-2 x ICPL 88039)-4-4-3-11	66	4.0	7.0	Brown	94.0
854		(ICPX 060131-2-2 x ICPL 88039)-4-4-3-12	68	4.0	8.5	Brown	93.0
854		(ICPX 060131-2-2 x ICPL 88039)-4-4-3-13	68	3.0	9.5	Brown	132.0
		Progeny Mean	67.1		8.6		
		SE	0.70		0.26		
856		(ICPX 060131-2-2 x ICPL 88039)-4-4-7-2	67	4.0	8.0	Brown	88.0
856		(ICPX 060131-2-2 x ICPL 88039)-4-4-7-3	67	3.5	9.0	Brown	131.0
856		(ICPX 060131-2-2 x ICPL 88039)-4-4-7-4	72	4.0	8.5	Brown	62.0
856		(ICPX 060131-2-2 x ICPL 88039)-4-4-7-5	66	3.5	9.5	Brown	39.0
856		(ICPX 060131-2-2 x ICPL 88039)-4-4-7-6	71	5.0	NG	Brown	NG
856		(ICPX 060131-2-2 x ICPL 88039)-4-4-7-7	63	3.0	8.5	Brown	160.0
856		(ICPX 060131-2-2 x ICPL 88039)-4-4-7-8	69	3.5	10.5	Brown	89.0
856		(ICPX 060131-2-2 x ICPL 88039)-4-4-7-9	64	3.5	7.5	Brown	123.0
856		(ICPX 060131-2-2 x ICPL 88039)-4-4-7-10	70	3.0	8.5	Brown	206.0
856		(ICPX 060131-2-2 x ICPL 88039)-4-4-7-11	71	3.5	8.5	Brown	96.0

Plot no	Progeny selected	Entry name	Days to flowering	Visual selection* scores at maturity	100-seed mass (g)	Seed coat color	Self Seed qty. (g)
		Progeny Mean	67.9		8.9		
		SE	0.88		0.31		
860	3	(ICPX 060131-2-2 x ICPL 88039)-4-6-4-1	68	3.5	8.5	Brown	179.0
860		(ICPX 060131-2-2 x ICPL 88039)-4-6-4-2	70	4.0	9.5	Brown	203.0
860		(ICPX 060131-2-2 x ICPL 88039)-4-6-4-3	69	3.5	8.5	Brown	193.7
		Progeny Mean	69.1		8.8		
		SE	0.57		0.33		
862	4	(ICPX 060131-2-2 x ICPL 88039)-4-6-6-1	64	3.5	9.5	Brown	171.0
862		(ICPX 060131-2-2 x ICPL 88039)-4-6-6-2	68	3.5	7.5	Brown	138.0
862		(ICPX 060131-2-2 x ICPL 88039)-4-6-6-3	66	3.0	7.0	Brown	156.0
862		(ICPX 060131-2-2 x ICPL 88039)-4-6-6-4	71	4.0	7.3	Brown	161.0
862		(ICPX 060131-2-2 x ICPL 88039)-4-6-6-5	71	3.5	9.5	Brown	216.0
862		(ICPX 060131-2-2 x ICPL 88039)-4-6-6-6	71	3.5	7.5	Brown	150.0
862		(ICPX 060131-2-2 x ICPL 88039)-4-6-6-7	57	4.0	7.6	Brown	176.0
862		(ICPX 060131-2-2 x ICPL 88039)-4-6-6-8	71	3.5	7.5	Brown	202.0
862		(ICPX 060131-2-2 x ICPL 88039)-4-6-6-9	56	4.0	8.5	Brown	142.0
862		(ICPX 060131-2-2 x ICPL 88039)-4-6-6-10	65	4.0	7.0	Brown	130.0
862		(ICPX 060131-2-2 x ICPL 88039)-4-6-6-11	69	3.5	7.5	Brown	87.0
862		(ICPX 060131-2-2 x ICPL 88039)-4-6-6-12	68	4.0	6.5	Brown	133.0
862		(ICPX 060131-2-2 x ICPL 88039)-4-6-6-13	67	4.0	8.3	Brown	112.7
		Progeny Mean	66.45		7.80		
		SE	1.38		0.28		
863	5	(ICPX 060131-2-2 x ICPL 88039)-4-6-7-1	75	4.0	7.4	Brown	-
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-2	69	4.0	7.0	Brown	178.0

Plot no	Progeny selected	Entry name	Days to flowering	Visual selection* scores at maturity	100-seed mass (g)	Seed coat color	Self Seed qty. (g)
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-3	69	4.0	8.0	Brown	189.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-4	63	3.5	8.0	Brown	240.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-5	73	4.0	9.0	Brown	153.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-6	67	4.5	7.5	Brown	192.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-7	65	3.5	7.0	Brown	174.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-8	65	4.0	6.5	Brown	114.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-9	71	3.5	7.0	Brown	181.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-10	66	4.5	7.5	Brown	82.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-11	71	3.5	10.0	Brown	193.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-12	67	3.5	8.5	Brown	157.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-13	64	4.0	9.0	Brown	130.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-14	62	3.5	7.5	Brown	168.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-15	64	4.0	8.0	Brown	88.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-16	67	4.0	8.5	Brown	135.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-17	63	4.0	7.0	Brown	150.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-18	62	3.5	7.7	Brown	198.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-19	69	3.5	8.0	Brown	231.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-20	66	3.5	7.5	Brown	208.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-21	68	3.5	7.5	Brown	193.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-22	66	3.5	7.0	Brown	193.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-23	64	3.5	7.5	Brown	185.0
863		(ICPX 060131-2-2 x ICPL 88039)-4-6-7-24	66	4.0	9.2	Brown	98.5
		Progeny Mean	66.7		7.83		
		SE	0.69		0.17		
864	6	(ICPX 060131-2-2 x ICPL 88039)-4-6-8-1	71	4.0	9.0	Brown	114.2
864		(ICPX 060131-2-2 x ICPL 88039)-4-6-8-2	64	4.0	9.5	Brown	165.2
864		(ICPX 060131-2-2 x ICPL 88039)-4-6-8-3	71	4.5	9.5	Brown	154.0

Plot no	Progeny selected	Entry name	Days to flowering	Visual selection* scores at maturity	100-seed mass (g)	Seed coat color	Self Seed qty. (g)
864		(ICPX 060131-2-2 x ICPL 88039)-4-6-8-4	69	4.0	8.0	Brown	175.0
864		(ICPX 060131-2-2 x ICPL 88039)-4-6-8-5	71	4.0	7.5	Brown	172.0
864		(ICPX 060131-2-2 x ICPL 88039)-4-6-8-6	73	3.5	7.0	Brown	268.0
864		(ICPX 060131-2-2 x ICPL 88039)-4-6-8-7	64	3.0	7.0	Brown	167.0
864		(ICPX 060131-2-2 x ICPL 88039)-4-6-8-8	68	3.5	7.0	Brown	238.0
864		(ICPX 060131-2-2 x ICPL 88039)-4-6-8-9	69	3.0	7.0	Brown	165.0
864		(ICPX 060131-2-2 x ICPL 88039)-4-6-8-10	68	3.5	7.0	Brown	131.0
864		(ICPX 060131-2-2 x ICPL 88039)-4-6-8-11	67	3.5	6.7	Brown	193.0
864		(ICPX 060131-2-2 x ICPL 88039)-4-6-8-12	71	4.0	7.5	Brown	107.0
		Progeny Mean SE	68.83 0.81		7.73 0.30		
875	7	(ICPX 060131-2-1 x ICPL 20229)-1-1-4-1	73	3.5	8.5	Brown	160.0
875		(ICPX 060131-2-1 x ICPL 20229)-1-1-4-2	73	4.0	7.8	Brown	123.0
875		(ICPX 060131-2-1 x ICPL 20229)-1-1-4-3	71	4.0	8.5	Brown	94.0
875		(ICPX 060131-2-1 x ICPL 20229)-1-1-4-4	66	3.5	8.4	Brown	155.0
875		(ICPX 060131-2-1 x ICPL 20229)-1-1-4-5	66	4.0	7.5	Brown	83.0
875		(ICPX 060131-2-1 x ICPL 20229)-1-1-4-6	71	3.5	8.0	Brown	148.0
875		(ICPX 060131-2-1 x ICPL 20229)-1-1-4-7	71	4.0	7.0	Brown	124.0
875		(ICPX 060131-2-1 x ICPL 20229)-1-1-4-8	65	4.0	8.5	Brown	181.0
875		(ICPX 060131-2-1 x ICPL 20229)-1-1-4-9	71	3.0	8.0	Brown	223.0
875		(ICPX 060131-2-1 x ICPL 20229)-1-1-4-10	71	3.5	7.5	Brown	163.0
875		(ICPX 060131-2-1 x ICPL 20229)-1-1-4-11	66	3.5	7.2	Brown	190.0
875		(ICPX 060131-2-1 x ICPL 20229)-1-1-4-12	73	4.0	7.0	Brown	81.0
875		(ICPX 060131-2-1 x ICPL 20229)-1-1-4-13	69	4.0	7.0	Brown	139.0
875		(ICPX 060131-2-1 x ICPL 20229)-1-1-4-14	71	4.0	8.0	Brown	150.0
875		(ICPX 060131-2-1 x ICPL 20229)-1-1-4-15	71	4.0	8.9	Brown	136.3

Plot no	Progeny selected	Entry name	Days to flowering	Visual selection* scores at maturity	100-seed mass (g)	Seed coat color	Self Seed qty. (g)
875		(ICPX 060131-2-1 x ICPL 20229)-1-1-4-16	68	3.5	9.2	Brown	142.8
		Progeny Mean	69.75		7.94		
		SE	0.68		0.17		
879	8	(ICPX 060131-2-1 x ICPL 20229)-1-1-9-1	73	4.0	8.3	Brown	120.3
879		(ICPX 060131-2-1 x ICPL 20229)-1-1-9-2	67	4.0	8.5	Brown	83.0
879		(ICPX 060131-2-1 x ICPL 20229)-1-1-9-3	70	4.0	8.0	Brown	135.0
879		(ICPX 060131-2-1 x ICPL 20229)-1-1-9-4	72	4.0	6.7	Brown	136.0
879		(ICPX 060131-2-1 x ICPL 20229)-1-1-9-5	73	3.0	6.5	Brown	205.0
879		(ICPX 060131-2-1 x ICPL 20229)-1-1-9-6	66	2.5	6.5	Brown	156.0
879		(ICPX 060131-2-1 x ICPL 20229)-1-1-9-7	73	3.5	7.5	Brown	202.0
879		(ICPX 060131-2-1 x ICPL 20229)-1-1-9-8	73	4.0	7.5	Brown	84.0
879		(ICPX 060131-2-1 x ICPL 20229)-1-1-9-9	68	3.0	7.0	Brown	247.0
879		(ICPX 060131-2-1 x ICPL 20229)-1-1-9-10	66	5.0	NG	Brown	NG
879		(ICPX 060131-2-1 x ICPL 20229)-1-1-9-11	73	3.5	7.5	Brown	129.0
879		(ICPX 060131-2-1 x ICPL 20229)-1-1-9-12	69	3.5	6.5	Brown	50.0
879		(ICPX 060131-2-1 x ICPL 20229)-1-1-9-13	66	3.0	8.5	Brown	193.0
		Progeny Mean	69.9		7.42		
		SE	0.84		0.23		
886	9	(ICPX 060131-2-1 x ICPL 20229)-2-6-3-1	73	3.5	7.5	Brown	146.0
886		(ICPX 060131-2-1 x ICPL 20229)-2-6-3-2	72	3.5	7.0	Brown	98.0
886		(ICPX 060131-2-1 x ICPL 20229)-2-6-3-3	73	3.0	7.0	Brown	156.0
886		(ICPX 060131-2-1 x ICPL 20229)-2-6-3-4	69	3.5	6.0	Brown	186.0
886		(ICPX 060131-2-1 x ICPL 20229)-2-6-3-5	69	2.5	7.3	Brown	226.0
886		(ICPX 060131-2-1 x ICPL 20229)-2-6-3-6	74	2.5	6.5	Brown	229.0
886		(ICPX 060131-2-1 x ICPL 20229)-2-6-3-7	72	3.5	6.6	Brown	180.0

Plot no	Progeny selected	Entry name	Days to flowering	Visual selection* scores at maturity	100-seed mass (g)	Seed coat color	Self Seed qty. (g)
886		(ICPX 060131-2-1 x ICPL 20229)-2-6-3-8	71	3.5	7.0	Brown	177.0
886		(ICPX 060131-2-1 x ICPL 20229)-2-6-3-9	74	3.5	7.0	Brown	123.0
886		(ICPX 060131-2-1 x ICPL 20229)-2-6-3-10	74	3.5	7.5	Brown	130.0
886		(ICPX 060131-2-1 x ICPL 20229)-2-6-3-11	73	3.5	7.5	Brown	125.0
		Progeny Mean	72.1		6.99		
		SE	0.55		0.14		
887	10	(ICPX 060131-2-1 x ICPL 20229)-2-7-4-1	73	3.0	7.6	Brown	151.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-2	66	3.5	8.5	Brown	179.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-3	62	3.0	8.5	Brown	206.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-4	62	3.0	7.5	Brown	208.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-5	63	3.0	7.6	Brown	246.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-6	65	2.5	7.5	Brown	231.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-7	65	3.0	7.0	Brown	254.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-8	65	1.5	7.5	Brown	297.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-9	73	3.0	8.5	Brown	208.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-10	72	3.0	8.0	Brown	261.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-11	67	4.0	7.8	Brown	184.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-12	68	3.5	7.9	Brown	170.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-13	65	3.0	5.9	Brown	274.5
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-14	70	3.0	8.8	Brown	100.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-15	71	3.0	8.5	Brown	252.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-16	66	2.5	7.5	Brown	153.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-17	69	3.0	6.5	Brown	205.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-18	73	3.5	8.0	Brown	151.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-19	69	3.0	9.5	Brown	136.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-20	71	3.0	8.5	Brown	269.0

Plot no	Progeny selected	Entry name	Days to flowering	Visual selection* scores at maturity	100-seed mass (g)	Seed coat color	Self Seed qty. (g)
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-21	68	3.5	7.5	Brown	324.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-22	64	3.0	7.5	Brown	208.0
887		(ICPX 060131-2-1 x ICPL 20229)-2-7-4-23	71	3.5	8.5	Brown	207.0
		Progeny Mean	67.7		7.85		
		SE	0.74		0.16		
889	11	(ICPX 060131-2-1 x ICPL 20229)-2-9-2-1	71	2.5	7.5	Brown	213.0
889		(ICPX 060131-2-1 x ICPL 20229)-2-9-2-2	71	3.5	7.5	Brown	131.0
889		(ICPX 060131-2-1 x ICPL 20229)-2-9-2-3	73	3.5	7.5	Brown	137.0
889		(ICPX 060131-2-1 x ICPL 20229)-2-9-2-4	69	3.5	8.1	Brown	95.8
889		(ICPX 060131-2-1 x ICPL 20229)-2-9-2-5	71	4.0	8.5	Brown	77.0
889		(ICPX 060131-2-1 x ICPL 20229)-2-9-2-6	69	2.5	7.5	Brown	135.0
889		(ICPX 060131-2-1 x ICPL 20229)-2-9-2-7	74	4.0	8.1	Brown	149.5
889		(ICPX 060131-2-1 x ICPL 20229)-2-9-2-8	71	4.0	7.6	Brown	115.2
889		(ICPX 060131-2-1 x ICPL 20229)-2-9-2-9	69	3.5	6.5	Brown	155.0
889		(ICPX 060131-2-1 x ICPL 20229)-2-9-2-10	72	3.5	7.0	Brown	163.0
889		(ICPX 060131-2-1 x ICPL 20229)-2-9-2-11	69	3.5	7.0	Brown	107.0
889		(ICPX 060131-2-1 x ICPL 20229)-2-9-2-12	73	3.5	6.0	Brown	122.0
889		(ICPX 060131-2-1 x ICPL 20229)-2-9-2-13	73	3.5	6.5	Brown	165.0
889		(ICPX 060131-2-1 x ICPL 20229)-2-9-2-14	73	3.5	6.5	Brown	138.0
889		(ICPX 060131-2-1 x ICPL 20229)-2-9-2-15	69	2.5	7.0	Brown	125.0
		Progeny Mean	71.1		7.25		
		SE	0.46		0.18		
890	12	(ICPX 060131-2-1 x ICPL 20229)-3-10-3-1	73	4.0		Brown	
890		(ICPX 060131-2-1 x ICPL 20229)-3-10-3-2	74	4.0	9.8	Brown	30.0
890		(ICPX 060131-2-1 x ICPL 20229)-3-10-3-3	71	2.5	9.5	Brown	90.8
890		(ICPX 060131-2-1 x ICPL 20229)-3-10-3-4	73	3.5	9.7	Brown	91.4
890		(ICPX 060131-2-1 x ICPL 20229)-3-10-3-5	71	3.0	8.2	Brown	50.3
890		(ICPX 060131-2-1 x ICPL 20229)-3-10-3-6	70	3.0	-	Brown	-

Plot no	Progeny selected	Entry name	Days to flowering	Visual selection* scores at maturity	100-seed mass (g)	Seed coat color	Self Seed qty. (g)
890		(ICPX 060131-2-1 x ICPL 20229)-3-10-3-7	71	3.0	-	Brown	-
890		(ICPX 060131-2-1 x ICPL 20229)-3-10-3-8	74	3.0	8.7	Brown	90.9
890		(ICPX 060131-2-1 x ICPL 20229)-3-10-3-9	74	3.0	8.6	Brown	115.0
890		(ICPX 060131-2-1 x ICPL 20229)-3-10-3-10	73	3.0	10.5	Brown	70.0
890		(ICPX 060131-2-1 x ICPL 20229)-3-10-3-11	71	3.5	8.5	Brown	100.0
890		(ICPX 060131-2-1 x ICPL 20229)-3-10-3-12	71	3.5	9.2	Brown	121.9
890		(ICPX 060131-2-1 x ICPL 20229)-3-10-3-13	74	2.5	9.3	Brown	66.9
890		(ICPX 060131-2-1 x ICPL 20229)-3-10-3-14	74	2.0	8.6	Brown	135.3
890		(ICPX 060131-2-1 x ICPL 20229)-3-10-3-15	74	3.5	9.0	Brown	96.4
890		(ICPX 060131-2-1 x ICPL 20229)-3-10-3-16	74	3.5	10.1	Brown	70.9
890		(ICPX 060131-2-1 x ICPL 20229)-3-10-3-17	75	3.5	8.6	Brown	45.0
		Progeny Mean	72.7		9.16		
		SE	0.37		0.18		

Table 26. Single plant selections made in super early, non-determinate cleistogamous pigeonpea lines at Patancheru, 2012

Plot no	Entry name	Days to 50 % flowering	Visual selection* score at maturity	100-seed mass (g)	Seed color	Self Seed qty. (g)
731	(ICPX 060131-5-2-1-2 x ICPX 060016-17-4-3)-B*-3*-1	62	2.0	8.8	Brown	76.7
731	(ICPX 060131-5-2-1-2 x ICPX 060016-17-4-3)-B*-3*-2	62	2.5	7.5	Brown	134.0
731	(ICPX 060131-5-2-1-2 x ICPX 060016-17-4-3)-B*-3*-3	56	3.0	7.5	Brown	104.0
731	(ICPX 060131-5-2-1-2 x ICPX 060016-17-4-3)-B*-3*-4	59	3.0	8.5	Brown	123.0
731	(ICPX 060131-5-2-1-2 x ICPX 060016-17-4-3)-B*-3*-5	64	2.5	9.5	Brown	126.0
731	(ICPX 060131-5-2-1-2 x ICPX 060016-17-4-3)-B*-3*-6	56	2.5	7.5	Brown	142.5
731	(ICPX 060131-5-2-1-2 x ICPX 060016-17-4-3)-B*-3*-7	59	1.0	7.0	Brown	167.0
	Progeny Mean	59.7		8.04		
	SE	1.16		0.34		
752	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4)-B*-2*-1	62	1.5	5.5	Brown	174.0
752	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4)-B*-2*-2	67	4.0	6.5	Brown	68.0
752	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4)-B*-2*-3	65	3.5	6.0	Brown	110.0
752	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4)-B*-2*-4	58	3.5	5.0	Brown	97.0
752	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4)-B*-2*-5	59	-	NG	-	-
752	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4)-B*-2*-6	70	3.0	7.3	Brown	211.8
752	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4)-B*-2*-7	63	3.5	7.1	Brown	76.8
752	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4)-B*-2*-8	60	2.5	6.7	Brown	173.9
752	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4)-B*-2*-9	64	3.0	5.6	Brown	15.0
752	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4)-B*-2*-10	63	3.5	7.0	Brown	93.0
752	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4)-B*-2*-11	64	2.5	7.0	Brown	226.0
752	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4)-B*-2*-12	64	4.0	6.5	Brown	94.0
752	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4)-B*-2*-13	61	2.0	7.0	Brown	288.0
	Progeny Mean	63.07		6.43		
	SE	0.90		0.21		

Plot no	Entry name	Days to 50 % flowering	Visual selection* score at maturity	100-seed mass (g)	Seed color	Self Seed qty. (g)
775	(ICPX 060131-5-3-10-2 x ICPX 060016-17-4-3)-B*-2*-1	71	3.0	7.5	Brown	81.0
775	(ICPX 060131-5-3-10-2 x ICPX 060016-17-4-3)-B*-2*-2	70	3.5	6.5	Brown	104.0
775	(ICPX 060131-5-3-10-2 x ICPX 060016-17-4-3)-B*-2*-3	69	4.0	9.5	Brown	73.0
775	(ICPX 060131-5-3-10-2 x ICPX 060016-17-4-3)-B*-2*-4	64	3.0	7.0	Brown	110.0
775	(ICPX 060131-5-3-10-2 x ICPX 060016-17-4-3)-B*-2*-5	66	3.5	7.5	Brown	103.5
775	(ICPX 060131-5-3-10-2 x ICPX 060016-17-4-3)-B*-2*-6	68	4.0	7.3	Cream	46.0
775	(ICPX 060131-5-3-10-2 x ICPX 060016-17-4-3)-B*-2*-7	57	4.0	6.7	Cream	28.0
775	(ICPX 060131-5-3-10-2 x ICPX 060016-17-4-3)-B*-2*-8	60	4.0	7.4	Cream	56.3
775	(ICPX 060131-5-3-10-2 x ICPX 060016-17-4-3)-B*-2*-9	NG	NG	NG	NG	NG
775	(ICPX 060131-5-3-10-2 x ICPX 060016-17-4-3)-B*-2*-10	61	3.5	7.0	Brown	37.0
775	(ICPX 060131-5-3-10-2 x ICPX 060016-17-4-3)-B*-2*-11	67	3.5	6.9	Cream	142.8
775	(ICPX 060131-5-3-10-2 x ICPX 060016-17-4-3)-B*-2*-12	70	3.5	6.9	Brown	104.0
775	(ICPX 060131-5-3-10-2 x ICPX 060016-17-4-3)-B*-2*-13	70	2.5	6.8	Brown	180.0
	Progeny Mean	65.4		7.25		
	SE	1.40		0.22		

Table 27. Selections made in cleistogamous x super-early F_2 lines at Patancheru, 2012

Plot no	Pedigree	Plant stand	Cleisto flower	Normal flower	Selection/ Rejection	REMARKS
801	(ICPX 060131-5-3-3-1 x ICPX 060077-8-1)-B*	82	17	65		
802	(ICPX 060131-5-3-3-2 x ICPX 060016-17-4-3)-B*	56	5	51		
803	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4-)-B*	37	10	27	Y	Select 4 plants with df < 55
804	(ICPX 060132-3-1-2-2 x ICPX 060016-17-4-3)-B*	22	1	21		
805	(ICPX 060132-8-1-2-2 x ICPX 060016-17-4-3)-B*	176	35	141		

Selected plants:

Plot no	Pedigree	Days to flowering	100-seed mass (g)	Seed coat color	Self Seed qty. (g)	REMARKS
803	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4-)-B*-1	55	6.0	Brown	3.0	
803	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4-)-B*-2	53	8.5	Brown	24.5	
803	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4-)-B*-3	55	6.2	Brown	11.0	Shrivelled seed
803	(ICPX 060131-5-3-3-3 x ICPX 060077-7-4-4-)-B*-4	55	8.2	Brown	20.5	

Table 28. Details of crop management package for achieving high productivity of pigeonpea

Name of trial	Variety	Treatments	Area (ha)	Fertilizer / Manure		
				SSP (bags)	$ZnSO_4$ (kg)	Neemplus (bags)
Variety Evaluation	ICPL 88039, Pusa 992	*RDF / RDM	80	40	400	40
Integrated Nutrient Management	ICPL 88039	$ZnSO_4$	30	15	300	-
		Sulphur / Neemcake	30	15	-	-
		Foliar spray (2% Urea)	30	15	-	-
Integrated Pest Management	ICPL 88039	Acephate @ 2 kg/ha	30	15	-	-
		NSKE (10%)	60	-	-	30
FPSP	ICPL 88039, Pusa 992, UPAS 120, ASJ 105	RDF / RDM	77	-	-	30
	Total		337	100	700	100

Table 29. Summary table of yield based on crop management package during *Kharif* 2012

S.No	Name of the Trial	Variety	Treatments	Village	Area (ha)	Range of Yield (kg/ha)	Yield (kg/ha)
I	Variety Evaluation	ICPL 88039	*RDF / RDM	Padasoli	50	1000-1625	1217
II	Integrated Nutrient Management	ICPL 88039	$ZnSO_4$	Padasoli	20	710-1100	878
			Sulphur / Neem cake	Padasoli	20	750-1250	967
			Foliar spray (2% Urea)	Padasoli	20	680-1200	883
III	Integrated Pest Management	ICPL 88039	Acephate @ 2 kg/ha	Padasoli	30	600-1440	1004
			NSKE (10%)	Padasoli	15	1420-1900	1629
IV	FPSP	ICPL 88039	RDF / RDM	Padasoli, Lalwas	57	660-1800	1238
				Sarpanch ki Dhani	212	600-1900	1119

Table 30. Evaluation of F_1 hybrids for fertility restoration

Sl. No	Cross	F_1 seeds	No. of Plants			BC_1F_1 seeds
			Total	Sterile	Sterility %	
1	ICPA 2156 x ICPX 060024-7-6-4-9-12*-10*	60	25	25	100	50
2	ICPA 2156 x ICPL 20338	60	25	25	100	106
3	ICPA 2156 x ICPX 060026- 2-1-5-6-2*	62	25	25	100	107
4	ICPA 2156 x ICPL 2011247	60	25	25	100	138
5	ICPA 2156 x ICPL 20325	64	25	25	100	94
6	ICPA 2156 x ICPL 20339	62	25	25	100	100
7	ICPA 2156 x ICPX 060036-12-2-1-2-18*	63	25	25	100	32
8	ICPA 2156 x ICPX 060063-8-9-9-1-7*	64	25	25	100	77
9	ICPA 2156 x ICPX 060064-1-4-8-26*	62	25	25	100	75
10	ICPA 2156 x ICPX 060077-6-9-16-4-13*	65	25	25	100	58
11	ICPA 2156 x ICPL 20330	67	25	25	100	155
12	ICPA 2156 x ICPX 070168-8-1-15-5-12*	68	25	25	100	86

Table 31. Crosses made with the known restorer ICPL 87119 to study the fertility restoration

Sl. No	Cross	Seeds
1	(ICPA 2156 x ICPX 060026- 2-1-5-6-2*) x ICPL 87119	25
2	(ICPA 2156 x ICPL 2011247) x ICPL 87119	42
3	(ICPA 2156 x ICPL 20325) x ICPL 87119	36
4	(ICPA 2156 x ICPX 060064-1-4-8-26*) x ICPL 87119	55
5	(ICPA 2156 x ICPX 070168-8-1-15-5-12*) x ICPL 87119	23

Table 32. List of testers sown for crossing with CMS lines

Sl. No.	Tester	S.N.	Tester
1	ICPL 88039	11	ICPL 98011
2	ICPL 86022	12	ICPL 20215
3	ICPL 88034	13	ICPX 100001
4	ICPL 90048	14	ICPL 92043
5	ICPL 149	15	ICPL 161
6	ICPL 81-3	16	ICPL 20333
7	ICPL 90030	17	ICPL 20334
8	ICPL 90034	18	PAU-881
9	ICPL 90040	19	PUSA 992
10	ICPL 93106	20	AL-201

Table 33. List of hybrid trials grown at ARS, Durgapura during 2012

Trial name	Test entries	Controls	Replications	Spacing (cm)	Rows/ plot	Sowing date
Hybrid trial-I	10	2	2	60x 30	4	11-Jul
Hybrid trial-II	10	2	2	60x 30	4	11-Jul
Hybrid trial-III	10	2	2	60 x 30	4	11-Jul
State hybrid trial –I	10	1	3	60x 30	4	12-Jul
State hybrid trial –II	10	1	3	60x 30	4	12-Jul
State advanced hybrid trial -I	10	1	3	60x 30	4	12-Jul
State advanced hybrid trial -II	10	1	3	60x 30	4	12-Jul

Table 34. Performance of short duration pigeonpea hybrids at Patancheru, 2012

Hybrid	Days to		Plant height	Seed /pod	100-seed mass (g)	Plant stand	Fertility %	Grain yield (kg/ha)	seed/color	Superiority (%) over			(%) Disease incidence	
	flower	mature								C_1	C_2	C_3	Wilt	SM
ICPH 2438	76	122	180	3.9	9.2	42	100	1544	B	0.2	14	31	100	0
ICPH 2441	72	114	185	4.2	8.6	45	100	1388	B	-10	3	18	100	0
ICPH 2364	70	114	175	3.9	8.9	44	100	1373	B	-11	2	16	50	50
ICPH 2429	74	120	185	4.0	8.9	46	100	1366	B	-11	1	16	100	0
ICPH 2447	72	114	170	4.0	9.8	44	100	1295	B	-16	-4	10	100	0
ICPH 2433	80	128	195	3.9	9.2	48	100	1214	B	-21	-10	3	100	0
ICPH 2431	80	128	190	3.9	9.0	41	100	1189	B	-23	-12	1	100	0
ICPH 3310	70	112	175	3.7	8.8	40	100	1162	B	-25	-14	-2	100	0
ICPH 2363	76	120	195	3.9	10.8	46	100	1038	B	-33	-23	-12	67	33
UPAS 120 (C_1)	86	129	185	3.8	9.8	42	-	1541	B	-	-	-	0	67
ICPL 161 (C_2)	78	122	175	4.0	7.9	42	-	1349	B	-	-	-	75	25
ICPL 88039 (C_3)	61	105	155	3.8	8.8	44	-	1181	B	-	-	-	80	20
SEm ±	± 1.0	± 1.4	± 5.3	± 0.13	± 0.26	± 3.1	-	± 176.3	-	-	-	-	-	-
Mean	74.5	119.2	180.4	3.90	9.16	43.7	-	1303.4	-	-	-	-	-	-
CV(%)	2.0	1.7	4.1	4.89	3.98	10.1	-	19.1	-	-	-	-	-	-

FIGURES

Figure 1. Training program on pigeonpea production conducted at ARS, Durgapura (Rajasthan)

Figure 2. Interaction with the farmers of Padasoli, Jaipur district during the visit of DR KB Saxena, Principal Investigator of the project, ICRISAT, Patancheru

Figure 3. Farmers' Field Day conducted at Padasoli, Jaipur district, Rajasthan

Figure 4. Field visit along with Padasoli farmers during Field Day

Figure 5. Waterlogging in a farmers' field in Karauli district

Figure 6. Crop lost due to waterlogging in a farmers' field in Karauli district

Figure 7. Spraying at pod filling stage at Padasoli village, Jaipur district

Figure 8. An excellent pigeonpea seed production plot at Lalwas, Jaipur district

Figure 9. Cleistogamous flower structure

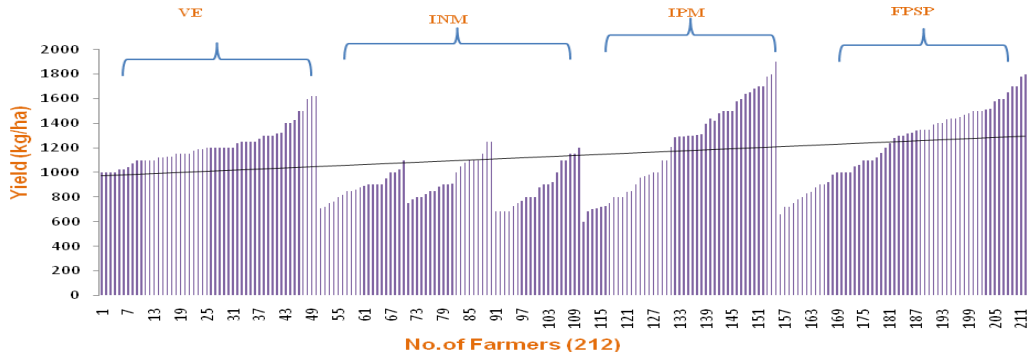

Figure 10. Yield range based on different nutrient management package at Jaipur district during 2012 cropping season

Figure 11. Drs. SJ Singh and Shrikant Sawargaonkar discussing about pigeonpea production with farmers at Jaipur

रपिटल STATE CAPITAL डेली न्यूज़ 7

वैज्ञानिकों ने विकसित की नई प्रजातियां : किसान बो सकेंगे साल में दो फसल

अब 5 माह में अरहर फसल

पहले एक साल लगने से कम थी किसानों की रुचि

पुरुषोत्तम ज्ञर

जयपुर ▷ 30 अगस्त

यहां हुए सफल प्रयोग

23 प्रतिशत प्रोटीन

फैक्ट फाइल

ये हैं नई किस्में

ईंधन जलाने के लिए उपयुक्त

Figure 13. Dr KB Saxena, Principal Scientist, ICRISAT addressing the Villagers at Padasoli, Jaipur during the inaugural function of Mini-dell mill

राजस्थान पत्रिका

जयपुर . शुक्रवार
15.03.2013

किसान बेच सकेगा दलहन फसलों की दाल

बांसखोह . अंतरराष्ट्रीय दलहन फसलों की दाल फसल अनुसंधान संस्थान आंध्रप्रदेश व स्वामी केशवानंद कृषि विश्वविद्यालय बीकानेर, राजस्थान कृषि अनुसंधान संस्थान दुर्गापुरा के संयुक्त तत्वावधान में गुरुवार को ग्राम पंचायत पड़ासोली स्थित मेवालों की ढाणी में दाल मिल का उद्घाटन किया गया। इस अवसर कृषि वैज्ञानिक डॉ. सक्सेना ने बताया कि किसानों को अपनी फसल का उत्पादन बढ़ाने व फसल की सही लागत मिले। इसके लिए कई प्रयोग किए जा रहे हैं। कृषक साथी योजना कोषाध्यक्ष बाबूलाल शर्मा ने बताया कि दाल मिल के माध्यम से किसानों की दलहन फसल की दाल निःशुल्क निकाली जाएगी। इससे किसान स्वयं अपनी फसल का फायदा उठाकर दाल बाजार में बेच सकेगा। स्थानीय निवासी चंद्रशेखर शर्मा ने बताया कि गत दिनों क्षेत्र में दलहन की फसल अरहर की 1500 क्विंटल से अधिक पैदावार हुई थी। (निसं)

Fig 14. The 'Rajasthan patrika' covered the news of Mini-dal mill inaugural function

Figure 15. Seed lifting by Local Private Seed Company at Padasoli village of Jaipur district

ANNEXURES

ANNEXURE – I

I. Comparison of monsoon rainfall 2012 received at district headquarter and on district average basis in Rajasthan

S.No.	District	District Average Basis			District H.Q. Basis		
		Normal (mm)	Actual (mm)	Deviation %	Normal (mm)	Actual (mm)	Deviation %
1	Bikaner	228.7	288.9	26	228.7	296.0	29
2	Churu	313.7	376.4	20	313.7	372.0	19
3	Sri Gangasagar	201.4	225.4	12	201.4	284.0	41
4	Hammangarth	252.5	247.4	-2	252.5	176.0	-30
5	Barmer	243.4	224.0	-8	243.4	258.0	6
6	Jaisalmer	158.4	211.0	33	158.4	186.0	17
7	Jalore	394.2	307.0	-22	394.2	194.2	-51
8	Jodhpur	274.5	334.2	22	274.5	447.0	63
9	Pali	446.7	542.2	21	446.7	296.0	-34
10	Sirohi	868.6	689.5	-21	868.6	741.8	-15
11	Ajmer	429.6	591.6	38	429.6	568.4	32
12	Bhilwara	580.9	614.6	6	580.9	597.0	3
13	Nagaur	348.5	473.6	36	348.5	388.0	11
14	Tonk	566.0	598.1	6	566.0	673.0	19
15	Bharatpur	557.6	682.0	22	557.6	785.0	41
16	Dholpur	650.0	776.7	19	650.0	705.0	8
17	Karauli	637.4	771.1	21	637.4	567.1	-11
18	Sawai Modhopur	664.0	629.8	-5	664.0	661.0	0
19	Alwar	555.3	606.8	9	555.3	1013.0	82
20	Dausa	612.1	809.8	32	612.1	608.0	-1
21	Jaipur	524.6	598.5	14	524.6	1074.0	105
22	Jomjhumu	410.0	477.0	16	410.0	389.0	-5
23	Sikar	402.5	631.4	57	402.5	765.0	90
24	Baran	792.2	748.5	-6	792.2	736.0	-7
25	Bundi	655.9	591.9	-10	655.9	716.0	9
26	Jhalwar	855.1	736.3	-14	855.1	635.0	-26
27	Kota	746.3	638.2	-14	746.3	591.0	-21
28	Banswara	831.8	1156.9	39	831.8	1300.0	56
29	Chittorgarh	709.7	790.0	11	709.7	789.5	11

II. Comparison of rainfall received in district headquarters of Rajasthan during 2011 and 2012

Division	Year 2011				Year 2012			
	No. of Tehsils/ sub Tehsis Stations	Normal Average Rainfall (mm)	Average of Total R.F. data (mm)	% age deviation	No. of Tehsils/ sub Tehsis, Water Resources & IMD Stations	Normal Average Rainfall (mm)	Average of Total R.F. data (mm)	% age deviation
Bikaner	30	249.1	385.9	55	33	249.1	279.4	12
Jodhpur	44	397.6	575.3	45	93	397.6	432.2	9
Ajmer	63	481.1	655.9	36	101	481.0	589.2	22
Bharatpur	29	627.3	697.4	11	67	627.3	704.2	12
Jaipur	52	500.9	624.6	25	77	500.9	630.5	26
Kota	33	762.4	1243.5	63	61	762.4	684.9	-10
Udaipur	60	687.1	957.3	39	103	687.1	816.6	19
Whole Rajasthan	311	530.1	737.6	39	535	530.1	617.9	17

III. Weather data recorded at ICRISAT, Patancheru during 2012

Month	Rain (mm)	Evap (mm)	Max Temp (^oC)	Min Temp (^oC)	Rel Humidity 1at 07:17(%)	Rel Humidity 2at 14:17(%)	Wind velocity (in Kmph)	Solar Radiation (in mj/m^2)	Bright Sunshine (Hrs)
Jan	0.0	157.4	29.9	15.03	83.48	38.54	6.44	15.78	8.33
Feb	0.0	198.6	32.9	15.69	79.44	32.06	6.36	18.44	9.47
Mar	0.0	283.4	36.5	17.58	68.19	22.32	5.82	20.66	9.37
April	17.4	263.8	37.4	22.84	68.66	29.1	7.5	18.88	7.7
May	2.79	397.9	40.0	25.45	49.87	21.93	8.95	21.12	8.79
June	280.7	277.6	34.7	24.17	72.26	45.56	12.89	16.91	5.45
July	199.1	139.4	30.1	22.04	88.58	65.54	11.65	13.51	3.01
Aug	94.7	125.4	29.6	21.82	89.61	68.16	9.73	15.44	4.86
Sept	58.3	116.7	29.7	21.67	93.06	65.7	6.76	16.59	5.34
Oct	73.7	133.7	30.4	17.99	92.51	50.67	3.85	16.61	6.89
Nov	38.2	103.1	28.7	15.79	94.79	51.43	3.77	14.12	6.43
Dec	0.0	123.2	29.8	13.67	91.77	39.12	4.47	15.24	8.62
Total	765.2								

ANNEXURE – II

I. Pigeonpea on-farm varietal trials conducted during Kharif 2012 in villages of Jaipur District

1. Padasoli

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	$ZnSO_4$ (kg)	Seed Yield (kg/ha)
1	Smt.Bhaonri Devi W/O Shri Ramu Meena	Padasoli, Bassi, Jaipur	25	25	5	1200
2	Ramvatar S/O Shri Ram Ji Lal Meena	Padasoli, Bassi, Jaipur	25	25	5	1400
3	Ramji Lal Meena S/O Shri Jhula Lal Meena	Padasoli, Bassi, Jaipur	25	25	5	1400
4	Ramesh S/O Shri Ramji Lal Meena	Padasoli, Bassi, Jaipur	25	25	5	1300
5	Shyo Narayan S/O Shri Ram Niwas Meena	Padasoli, Bassi, Jaipur	25	25	5	1500
6	Ramesh S/O Shri Badri Narayan Meena	Padasoli, Bassi, Jaipur	25	25	5	1125
7	Hanuman S/O Shri Badri Narayan Meena	Padasoli, Bassi, Jaipur	25	25	5	1175
8	Azad S/O Shri Ramesh Sharma	Padasoli, Bassi, Jaipur	25	25	5	1075
9	Narayan S/O Shri Ram Sahay	Padasoli, Bassi, Jaipur	25	25	5	1025
10	Prabhat S/O Shri Chotu Ram Meena	Padasoli, Bassi, Jaipur	25	25	5	1100
11	Chotu S/O Shri Prabhat	Padasoli, Bassi, Jaipur	25	25	5	1100
12	Kalu S/O Shri Mangi Lal Gurjar	Padasoli, Bassi, Jaipur	25	25	5	1275
13	Raghuveer S/O Shri Mangi Lal Gurjar	Padasoli, Bassi, Jaipur	25	25	5	1300
14	Vishram S/O Shri Mangi Lal Gurjar	Padasoli, Bassi, Jaipur	25	25	5	1325
15	Siya Ram S/O Shri Choth Mal Sharma	Padasoli, Bassi, Jaipur	25	25	5	1200
16	Chothmal S/O Shri Narayan Sharma	Padasoli, Bassi, Jaipur	25	25	5	1125
17	Saroj S/O Shri Siya Ram Sharma	Padasoli, Bassi, Jaipur	25	25	5	1025
18	Kailash S/O Shri Narayan Sharma	Padasoli, Bassi, Jaipur	25	25	5	1250
19	Chiranji Lal S/O Shri Laxami Naran	Padasoli, Bassi, Jaipur	25	25	5	1150
20	Ramji Lal Meena S/O Shri Kalyan	Padasoli, Bassi, Jaipur	25	25	5	1000
21	Sedu S/O Shri Ganesh Gurjar	Padasoli, Bassi, Jaipur	25	25	5	1250
22	Ratan S/O Shri Sedu Gurjar	Padasoli, Bassi, Jaipur	25	25	5	1320

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	$ZnSO_4$ (kg)	Seed Yield (kg/ha)
23	Ramvatar S/O Shri Sedu Gurjar	Padasoli, Bassi, Jaipur	25	25	5	1190
24	Vikram S/O Shri Ratan Gurjar	Padasoli, Bassi, Jaipur	25	25	5	1240
25	Ramyati S/O Shri Ratan Gurjar	Padasoli, Bassi, Jaipur	25	25	5	1300
26	Babulal S/O Shri Rameshwar Sharma	Padasoli, Bassi, Jaipur	25	25	5	1425
27	Gyarasi Lal S/O Shri Suraj Mal Sharma	Padasoli, Bassi, Jaipur	25	25	5	1625
28	Kalu S/O Shri Gyarasi Lal Sharma	Padasoli, Bassi, Jaipur	25	25	5	1600
29	Jagdish S/O Shri Gyarasi Lal Sharma	Padasoli, Bassi, Jaipur	25	25	5	1625
30	Sunil S/O Shri Gyarasi Lal Sharma	Padasoli, Bassi, Jaipur	25	25	5	1500
31	Luccky S/O Shri Jagdish	Padasoli, Bassi, Jaipur	25	25	5	1200
32	Mohan Lal S/O Shri Radhyshyam Sharma	Padasoli, Bassi, Jaipur	25	25	5	1150
33	Ram Singh S/O Shri Govind Gurjar	Padasoli, Bassi, Jaipur	25	25	5	1100
34	Nahanu S/O Shri Chotu	Padasoli, Bassi, Jaipur	25	25	5	1250
35	Gokul S/O Shri Narayan	Padasoli, Bassi, Jaipur	25	25	5	1200
36	Rameshwar S/O Shri Babu Ram Sharma	Padasoli, Bassi, Jaipur	25	25	5	1150
37	Ram Ji Lal S/O Shri Babu Ram Sharma	Padasoli, Bassi, Jaipur	25	25	5	1100
38	Dev Narayan S/O Shri Gyarasi Lal	Padasoli, Bassi, Jaipur	25	25	5	1000
39	Shyam Sunder S/O Shri Prahlad Sharma	Padasoli, Bassi, Jaipur	25	25	5	1000
40	Ramesh S/O Shri Kalyan	Padasoli, Bassi, Jaipur	25	25	5	1120
41	Badri S/O Shri Prabhat	Padasoli, Bassi, Jaipur	25	25	5	1120
42	Jagdish S/O Shri Bhouri Lal	Padasoli, Bassi, Jaipur	25	25	5	1200
43	Ramkishor S/O Shri Ramanand Sharma	Padasoli, Bassi, Jaipur	25	25	5	1040
44	Ramkishor S/O Shri Paras Ram Sharma	Padasoli, Bassi, Jaipur	25	25	5	1200
45	Kanaram S/O Shri Ram Nath Meena	Padasoli, Bassi, Jaipur	25	25	5	1150
46	Suja Ram S/O Shri Shyo Narayan	Padasoli, Bassi, Jaipur	25	25	5	1200
47	Kajod S/O Shri Bhagwan Sahay	Padasoli, Bassi,	25	25	5	1190

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	$ZnSO_4$ (kg)	Seed Yield (kg/ha)
	Gurjar	Jaipur				
48	Girraj S/O Shri Bhagwan Sahay Gurjar	Padasoli, Bassi, Jaipur	25	25	5	1250
49	Surgyan S/O Shri Babulal Gurjar	Padasoli, Bassi, Jaipur	25	25	5	1100
50	Jagdish S/O Shri Ram Sahay Meena	Padasoli, Bassi, Jaipur	25	25	5	1000
51	Roshan Lal S/O Shri Ram Ji Lal Meena	Padasoli, Bassi, Jaipur	0	25	10	1100
52	Chitar S/O Shri Kalyan Meena	Padasoli, Bassi, Jaipur	0	25	10	950
53	Pachu Ram S/O Shri Kalyan Meena	Padasoli, Bassi, Jaipur	0	25	10	1000
54	Mangi Lal S/O Shri Laxaman Meena	Padasoli, Bassi, Jaipur	0	25	10	900
55	Girraj S/O Shri Rameshwar Prasad	Padasoli, Bassi, Jaipur	0	25	10	1025
56	Kailash S/O Shri Rameshwar Meena	Padasoli, Bassi, Jaipur	0	25	10	880
57	Ram Dayal Meena S/O Shri Kalyan Meena	Padasoli, Bassi, Jaipur	0	25	10	850
58	Nathu S/O Shri Raghu Nath Meena	Padasoli, Bassi, Jaipur	0	25	10	850
59	Ashok S/O Shri Madhu Lal Meena	Padasoli, Bassi, Jaipur	0	25	10	820
60	Ramdhan S/O Shri Laxaman Meena	Padasoli, Bassi, Jaipur	0	25	10	800
61	Ram Karan S/O Shri Prabhat	Padasoli, Bassi, Jaipur	0	25	10	900
62	Rameshwar S/O Shri Revad Meena	Padasoli, Bassi, Jaipur	0	25	10	900
63	Mahesh S/O Shri Ram Narayan Meena	Padasoli, Bassi, Jaipur	0	25	10	750
64	Gopi S/O Shri Ram Narayan Meena	Padasoli, Bassi, Jaipur	0	25	10	1000
65	Nand Lal S/O Shri Ram Dhan	Padasoli, Bassi, Jaipur	0	25	10	860
66	Tej Pal S/O Shri Ramla Meena	Padasoli, Bassi, Jaipur	0	25	10	900
67	Ram Phool S/O Shri Ram Chand Meena	Padasoli, Bassi, Jaipur	0	25	10	890
68	Deen Dayal S/O Shri Bihari Lal Sain	Padasoli, Bassi, Jaipur	0	25	10	720
69	Mukesh S/O Shri Ghasi Sharma	Padasoli, Bassi, Jaipur	0	25	10	760
70	Prakash S/O Shri Ramu Bairawa	Padasoli, Bassi, Jaipur	0	25	10	710
71	Badri S/O Shri Johari Lal	Padasoli, Bassi, Jaipur	0	25	0	825

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	$ZnSO_4$ (kg)	Seed Yield (kg/ha)
72	Ramesh S/O Shri Badri Narayan	Padasoli, Bassi, Jaipur	0	25	0	850
73	Smt. Arati W/O Shri Ramesh	Padasoli, Bassi, Jaipur	0	25	0	885
74	Guru Adhar S/O Shri Chotu Lal Meena	Padasoli, Bassi, Jaipur	0	25	0	900
75	Kailash S/O Shri Chotu Lal Meena	Padasoli, Bassi, Jaipur	0	25	0	800
76	Smt. Lali W/O Shri Kailash	Padasoli, Bassi, Jaipur	0	25	0	910
77	Smt. Bhagwati W/O Shri Guru Adhar	Padasoli, Bassi, Jaipur	0	25	0	1000
78	Tara Chand S/O Shri Kailash	Padasoli, Bassi, Jaipur	0	25	0	1100
79	Ram Ji Lal S/O Shri Harchanda	Padasoli, Bassi, Jaipur	0	25	0	1080
80	Sanvar Mal S/O Shri Ram Ji Lal	Padasoli, Bassi, Jaipur	0	25	0	1100
81	Om Prakash S/O Shri Jagan Sharma	Padasoli, Bassi, Jaipur	0	25	0	1250
82	Ram Karan S/O Shri Bhagwan Sahay	Padasoli, Bassi, Jaipur	0	25	0	1050
83	Balram S/O Shri Kalu Sharma	Padasoli, Bassi, Jaipur	0	25	0	1100
84	Kishan S/O Shri Kalu	Padasoli, Bassi, Jaipur	0	25	0	1250
85	Smt. Godavari Devi W/O Shri Kalu	Padasoli, Bassi, Jaipur	0	25	0	1150
86	Akshay S/O Shri Kishan	Padasoli, Bassi, Jaipur	0	25	0	900
87	Ram Jeet S/O Shri Kanhaiya Lal	Padasoli, Bassi, Jaipur	0	25	0	800
88	Kishan S/O Shri Ram Pratap	Padasoli, Bassi, Jaipur	0	25	0	850
89	Jay Ram S/O Shri Ram Pratap	Padasoli, Bassi, Jaipur	0	25	0	780
90	Prabhu S/O Shri Ram Pratap	Padasoli, Bassi, Jaipur	0	25	0	750
91	Ladu S/O Shri Ram Pratap	Padasoli, Bassi, Jaipur	0	25	0	1000
92	Ram Karan S/O Shri Kalyan	Padasoli, Bassi, Jaipur	0	25	0	920
93	Roshan S/O Shri Ladu	Padasoli, Bassi, Jaipur	0	25	0	900
94	Guru Prasad S/O Shri Ranjeet	Padasoli, Bassi, Jaipur	0	25	0	880
95	Ram Chandra S/O Shri Kishan	Padasoli, Bassi, Jaipur	0	25	0	900
96	Ashok S/O Shri Jai Ram	Padasoli, Bassi,	0	25	0	680

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	$ZnSO_4$ (kg)	Seed Yield (kg/ha)
		Jaipur				
97	Golu S/O Shri Roshan	Padasoli, Bassi, Jaipur	0	25	0	770
98	Billa S/O Shri Prabhu	Padasoli, Bassi, Jaipur	0	25	0	680
99	Smt. Kani W/O Shri Ranjeet	Padasoli, Bassi, Jaipur	0	25	0	680
100	Smt. Kamali W/O Shri Jai Ram	Padasoli, Bassi, Jaipur	0	25	0	800
101	Smt. Manbhari W/O Shri Kishan	Padasoli, Bassi, Jaipur	0	25	0	750
102	Babu S/O Shri Bhagwan Gupta	Padasoli, Bassi, Jaipur	0	25	0	800
103	Ramvatar S/O Shri Chiranji Lal	Padasoli, Bassi, Jaipur	0	25	0	680
104	Ram Babu S/O Shri Chiranji Lal	Padasoli, Bassi, Jaipur	0	25	0	725
105	Ram Dayal S/O Shri Madho Sharma	Padasoli, Bassi, Jaipur	0	25	0	800
106	Ram Gopal S/O Shri Madho Sharma	Padasoli, Bassi, Jaipur	0	25	0	1150
107	Jagdish S/O Shri Kanhaiya	Padasoli, Bassi, Jaipur	0	25	0	1150
108	Shrawan S/O Shri Kanhaiya	Padasoli, Bassi, Jaipur	0	25	0	1100
109	Hanumana S/O Shri Amar Chand	Padasoli, Bassi, Jaipur	0	25	0	1200
110	Ram Ratan S/O Shri Hanuman	Padasoli, Bassi, Jaipur	0	25	0	1100
111	Nanag S/O Shri Chittar Mali	Padasoli, Bassi, Jaipur	0	25	0	800
112	Bhairu S/O Shri Nahanu Mali	Padasoli, Bassi, Jaipur	0	25	0	800
113	Jai Ram S/O Shri Shrawan	Padasoli, Bassi, Jaipur	0	25	0	720
114	Ramesh S/O Shri Prabhat	Padasoli, Bassi, Jaipur	0	25	0	800
115	Kushal S/O Shri Ram Narayan	Padasoli, Bassi, Jaipur	0	25	0	700
116	Mukesh S/O Shri Ram Lal	Padasoli, Bassi, Jaipur	0	25	0	750
117	Shankar S/O Shri Nanaga	Padasoli, Bassi, Jaipur	0	25	0	600
118	Girraj S/O Shri Kailash Bairawa	Padasoli, Bassi, Jaipur	0	25	0	680
119	Ram Charan S/O Shri Kailash Bairawa	Padasoli, Bassi, Jaipur	0	25	0	710
120	Ram Kalyan S/O Shri Damodar Sharma	Padasoli, Bassi, Jaipur	0	25	0	725

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	$ZnSO_4$ (kg)	Seed Yield (kg/ha)
121	Murari S/O Shri Damodar Sharma	Padasoli, Bassi, Jaipur	0	25	0	1300
122	Om Prakash S/O Shri Damodar Sharma	Padasoli, Bassi, Jaipur	0	25	0	1310
123	Kedar S/O Shri Damodar Sharma	Padasoli, Bassi, Jaipur	0	25	0	1295
124	Ashok S/O Shri Ram Kalyan	Padasoli, Bassi, Jaipur	0	25	0	1305
125	Santosh S/O Shri Ram Kalyan	Padasoli, Bassi, Jaipur	0	25	0	1300
126	Dinesh S/O Shri Murari	Padasoli, Bassi, Jaipur	0	25	0	1285
127	Bhola S/O Shri Murari	Padasoli, Bassi, Jaipur	0	25	0	1290
128	Ram Karan S/O Shri Gyarasi Lal Gurjar	Padasoli, Bassi, Jaipur	0	25	0	1210
129	Gyarasi Lal S/O Shri Chotu	Padasoli, Bassi, Jaipur	0	25	0	1440
130	Durga Prasad S/O Shri Gyarasi Lal	Padasoli, Bassi, Jaipur	0	25	0	1395
131	Durga Lal S/O Shri Kailash Bairawa	Padasoli, Bassi, Jaipur	0	25	0	980
132	Bhagwan Sahay S/O Shri Pachu Ram	Padasoli, Bassi, Jaipur	0	25	0	1000
133	Ram Kumar S/O Shri Panchu Ram Meena	Padasoli, Bassi, Jaipur	0	25	0	1100
134	Duji Prasad S/O Shri Panchu Ram Meena	Padasoli, Bassi, Jaipur	0	25	0	960
135	Ravi Kant S/O Shri Panchu Ram Meena	Padasoli, Bassi, Jaipur	0	25	0	1100
136	Gagan S/O Shri Ram Kumar	Padasoli, Bassi, Jaipur	0	25	0	900
137	Rakesh S/O Shri Jagdish	Padasoli, Bassi, Jaipur	0	25	0	1000
138	Ghanshyam S/O Shri Chand Mal	Padasoli, Bassi, Jaipur	0	25	0	850
139	Sita Ram S/O Shri Bhagwan Sahay	Padasoli, Bassi, Jaipur	0	25	0	840
140	Dharm Pal S/O Shri Govind	Padasoli, Bassi, Jaipur	0	25	0	970
141	Smt. Kali W/O Shri Jai Narayan	Padasoli, Bassi, Jaipur	25	0	0	1500
142	Tara Chand S/O Shri Jai Narayan	Padasoli, Bassi, Jaipur	25	0	0	1700
143	Smt. Kamala W/O Shri Kalu Ram	Padasoli, Bassi, Jaipur	25	0	0	1680
144	Girraj S/O Shri Narasi Meena	Padasoli, Bassi, Jaipur	25	0	0	1780

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	$ZnSO_4$ (kg)	Seed Yield (kg/ha)
145	Gopal S/O Shri Narasi Meena	Padasoli, Bassi, Jaipur	25	0	0	1650
146	Satpal S/O Shri Narasi Meena	Padasoli, Bassi, Jaipur	25	0	0	1500
147	Narasi S/O Shri Kana Meena	Padasoli, Bassi, Jaipur	25	0	0	1640
148	Hanuman S/O Shri Gapal Meena	Padasoli, Bassi, Jaipur	25	0	0	1500
149	Badri Prasad S/O Shri Sooja Ram Meena	Padasoli, Bassi, Jaipur	25	0	0	1480
150	Gopal S/O Shri Srawan Lal	Padasoli, Bassi, Jaipur	25	0	0	1420
151	Mool Chand S\O Shri Sita Ram	Padasoli, Bassi, Jaipur	25	0	0	1800
152	Kalyan Sahay S/O Shri Babulal Meena	Padasoli, Bassi, Jaipur	25	0	0	1700
153	Ravi Shankar S/O Kalyan Sahay Meena	Padasoli, Bassi, Jaipur	25	0	0	1900
154	Kamali Bai W/O Indraraj	Padasoli, Bassi, Jaipur	25	0	0	1600
155	Mool Chand S/O Shri Sedu Bairva	Padasoli, Bassi, Jaipur	25	0	0	1580
156	Genda S/O Shri Ram Sahay Gurjar	Padasoli, Bassi, Jaipur	25	0	0	1390
157	Chittar S/O Shri Ram Sahay Gurjar	Padasoli, Bassi, Jaipur	25	0	0	1350
158	Ramdhan S/O Shri Mangala Gurjar	Padasoli, Bassi, Jaipur	25	0	0	1400
159	Mukesh S/O Shri Ramdhan Gurjar	Padasoli, Bassi, Jaipur	25	0	0	1440
160	Radheshyam S/O Shri Ramanand	Padasoli, Bassi, Jaipur	25	0	0	1450
161	Smt. Santara W/O Shri Ganga Sahay	Padasoli, Bassi, Jaipur	25	0	0	1440
162	Murari S/O Shri Prabhati Lal	Padasoli, Bassi, Jaipur	25	0	0	1500
163	Suresh S/O Shri Sita Ram	Padasoli, Bassi, Jaipur	25	0	0	1200
164	Raghav Das S/O Shri Bharat Das	Padasoli, Bassi, Jaipur	25	0	0	1000
165	Amar Singh S/O Shri Keshar Singh	Padasoli, Bassi, Jaipur	25	0	0	1120
166	Prethavi Singh S/O Shri Amar Singh	Padasoli, Bassi, Jaipur	25	0	0	1240
167	Madho Lal S/O Shri Ram Sahay Bairwa	Padasoli, Bassi, Jaipur	25	0	0	1280
168	Kalu S/O Shri Ladu Ram	Padasoli, Bassi, Jaipur	25	0	0	1780

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	$ZnSO_4$ (kg)	Seed Yield (kg/ha)
169	Satyanarayan S/O Shri Kalu Ram	Padasoli, Bassi, Jaipur	25	0	0	1800
170	Moti Lal S/O Shri Kalu Ram Meena	Padasoli, Bassi, Jaipur	25	0	0	1600
171	Guddu S/O Shri Kalu Ram Meena	Padasoli, Bassi, Jaipur	25	0	0	1580
172	Smt.Sunita W/O Shri Satya Narayan	Padasoli, Bassi, Jaipur	25	0	0	1650
173	Ram Niwas S/O Shri Chotu	Padasoli, Bassi, Jaipur	25	0	0	1700
174	Sita Ram S/O Shri Ram Niwas	Padasoli, Bassi, Jaipur	25	0	0	1520
175	Hari Mohan S/O Shri Choth Mal	Padasoli, Bassi, Jaipur	25	0	0	1500
176	Mangala S/O Shri Sola Ram	Padasoli, Bassi, Jaipur	25	0	0	1700
177	Pappu S/O Shri Sola Ram	Padasoli, Bassi, Jaipur	25	0	0	1600
Padasoli Total Production (A):						202190
Padasoli productivity (a):						1142.3

Note: S.No. 91-110 = 2% Urea spray; 111-140 = 2kg/ha Acephate spray; 141-155 = NSKE

Average Padasoli productivity = 1142 kg/ha
Gross profit = 1142 × 35 = Rs. 39970/- (Rs. 35 /kg of seed)
Total expenses = Rs. 2800/- (Including seed and fertilizer cost)
Net profit = Gross profit – Total expenditure
= Rs. 39970.00-Rs. 2800.00
= Rs. 37170.00

2. Lalwas

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	ZnSO4 (kg)	Seed Yield (kg/ha)
1	Kalyan Singh S/O Shri Mahtab Singh	Lalwas, Jamuaramgarh, Jaipur	20	0	0	900
2	Kasmir Singh S/O Shri Mahtab Singh	Lalwas, Jamuaramgarh, Jaipur	20	0	0	840
3	Jeet Ram S/O Shri Ram Lal Choudhari	Lalwas, Jamuaramgarh, Jaipur	20	0	0	920
4	Sonu Singh S/O Shri Kailash Singh	Lalwas, Jamuaramgarh, Jaipur	20	0	0	900
5	Bhag Chandra S/O Shri Ram Pratap	Lalwas, Jamuaramgarh, Jaipur	20	0	0	830
6	Himmat Singh S/O Shri Vijay Singh	Lalwas, Jamuaramgarh, Jaipur	20	0	0	1100

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	ZnSO4 (kg)	Seed Yield (kg/ha)
7	Poornima Singh W/O Shri Deep Singh	Lalwas, Jamuaramgarh, Jaipur	20	0	0	1050
8	Priyangni Singh W/O Shri Himmat Singh	Lalwas, Jamuaramgarh, Jaipur	20	0	0	1160
9	Ritu Singh W/O Shri Randeer Singh	Lalwas, Jamuaramgarh, Jaipur	20	0	0	1000
10	Kajod Singh S/O Shri Dan Singh	Lalwas, Jamuaramgarh, Jaipur	20	0	0	980
11	Girraj S/O Shri Prabhati Lal	Lalwas, Jamuaramgarh, Jaipur	20	0	0	1470
12	Vijay Singh S/O Shri Gulab Singh	Lalwas, Jamuaramgarh, Jaipur	20	0	0	1340
13	Deep Singh S/O Shri Vijay Singh	Lalwas, Jamuaramgarh, Jaipur	20	0	0	1480
14	Shyam Singh S/O Shri Kajod Singh	Lalwas, Jamuaramgarh, Jaipur	20	0	0	1000
15	Kamni Singh W/O Shri Rajendra Singh	Lalwas, Jamuaramgarh, Jaipur	20	0	0	1100
16	Amar Singh S/O Shri Keshar Singh	Lalwas, Jamuaramgarh, Jaipur	20	0	0	1060
17	Priti Singh W/O Shri Amar Singh	Lalwas, Jamuaramgarh, Jaipur	20	0	0	1100
18	Prahalad Singh S/O Shri Mahtab Singh	Lalwas, Jamuaramgarh, Jaipur	20	0	0	1000
19	Jansi Ram S/O Shri Chandra Lal Mali	Lalwas, Jamuaramgarh, Jaipur	20	0	0	800
20	Ramkesh S/O Shri Ram Phool	Lalwas, Jamuaramgarh, Jaipur	20	0	0	880
Lalwas total production (B):						20910
Lalwas productivity (b):						1046

Average Lalwas productivity = 1046 kg/ha

Gross profit = 1046 × 35 = Rs. 36610/- (Rs. 35 /kg of seed)

Total expenses	=	Rs. 2800/- (Including seed and fertilizer cost)
Net profit	=	Gross profit - Total expenditure
	=	Rs. 36,610.00 - Rs. 2800.00
Net profit	=	Rs. 33,810.00

3. Sarpanch ki Dhani

S. No	Farmer name	Address	Manure (kg)	Fertilizer (kg)	ZnSO4 (kg)	Seed Yield (kg/ha)
1	Badri Meena S/O Shri Kalyan Meena	Sarpanch Ki Dhani, J. Ramgarh,Jaipur	20	0	0	660
2	Mool Chand S/O Shri Nanak Meena	Sarpanch Ki Dhani, J. Ramgarh,Jaipur	20	0	0	780
3	Seema Sharma W/O Shri Ram Avtar sharma	Sarpanch Ki Dhani, J. Ramgarh,Jaipur	20	0	0	720
4	Ram Gopal S/O Shri Laxami Narayan Meena	Sarpanch Ki Dhani, J. Ramgarh,Jaipur	20	0	0	750
5	Sita Ram S/O Shri Bhagwan Sahay Meena	Sarpanch Ki Dhani, J. Ramgarh,Jaipur	20	0	0	720
6	Prahalad Kharwal S/O Shri Ram Niwas	Sarpanch Ki Dhani, J. Ramgarh,Jaipur	20	0	0	1300
7	Sedu Ram Meena S/O Shri Sher Singh	Sarpanch Ki Dhani, J. Ramgarh,Jaipur	20	0	0	1350
8	Dugarsi Lal S/O Shri Ganga Ram Meena	Sarpanch Ki Dhani, J. Ramgarh,Jaipur	20	0	0	1435
9	Madho S/O Shri Kalyan	Sarpanch Ki Dhani, J. Ramgarh,Jaipur	20	0	0	1350
10	Rang Lal S/O Shri Madho Lal	Sarpanch Ki Dhani, J. Ramgarh,Jaipur	20	0	0	1510
11	Ashok S/O Shri Madho Lal	Sarpanch Ki Dhani, J. Ramgarh,Jaipur	20	0	0	1500
12	Rakesh S/O Shri Ram Phool	Sarpanch Ki Dhani, J. Ramgarh,Jaipur	20	0	0	1300
13	Ram Phool S/O Shri Kalyan	Sarpanch Ki Dhani, J. Ramgarh,Jaipur	20	0	0	1320
14	Kamlesh S/O Shri Ram Phool	Sarpanch Ki Dhani, J. Ramgarh,Jaipur	20	0	0	1400
15	Ram Karan S/O Shri Kalyan Meena	Sarpanch Ki Dhani, J. Ramgarh,Jaipur	20	0	0	1325
Sarpanch ki Dhani total production (C) (kg):						17420
Sarpanch ki Dhani productivity (c) (kg/ha):						1161
Jaipur total production (A+B+C) (kg):						240520
Jaipurproductivity (a+b+c) (kg/ha):						1119

Average Sarpanch ki Dhani productivity	=	1161 kg/ha
Gross profit	=	1161 × 35 = Rs. 40635/- (Rs. 35 /kg of seed)
Total expenses	=	Rs. 2800/- (Including seed and fertilizer cost)
Net profit	=	Gross profit - Total expenditure
	=	Rs. 40,635.00 - Rs. 2800.00
Net profit	=	**Rs. 37,835.00**

Average Jaipur productivity	=	1119 kg/ha
Gross profit	=	1119 × 35 = Rs. 39165/- (Rs. 35 /kg of seed)
Total expenses	=	Rs. 2800/- (Including seed and fertilizer cost)
Net profit	=	Gross profit - Total expenditure
	=	Rs. 39,165.00 - Rs. 2800.00
Net profit	=	**Rs. 36,365.00**

II. Pigeonpea on-farm varietal trials conducted during Kharif 2012 in villages of Alwar District

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	ZnSO4 (kg)	Seed Yield (kg/ha)
Milakpura						
1	Noor Mohamad S/O Shri Hakmu	Milak Pur, Gotoli, Alwar	25	25	5	1540
2	Smt. Jubaida W/O Shri Maqsud	Milak Pur, Gotoli, Alwar	25	25	5	1450
3	Ramkishor S/O Shri Ratan	Milak Pur, Gotoli, Alwar	25	25	5	1530
4	Hakmu S/O Shri Mussa	Milak Pur, Gotoli, Alwar	25	25	5	1280
5	Illeyas S/O Shri Changga	Milak Pur, Gotoli, Alwar	25	25	5	1470
6	Waqil S/O Shri Illeyas Ahmad	Milak Pur, Gotoli, Alwar	25	25	5	1320
7	Naseeb S/O Shri Jumman	Milak Pur, Gotoli, Alwar	25	25	5	1350
Milakpur total production (D) (kg):						9940
Milakpur productivity (d) (kg/ha):						1420
Daulatpura						
1	Bhagwan S/O Shri Gheesa Ram	Daulatpra, Bansur, Alwar	25	25	5	900
2	Narendra S/O Shri Mohan Lal	Daulatpra, Bansur, Alwar	25	25	5	1340
3	J.S.Shekhawat S/O Shri Gokul Singh	Daulatpra, Bansur, Alwar	25	25	5	1450
4	Mahendra Singh S/O Shri Jagdish Singh	Daulatpra, Bansur, Alwar	25	25	5	1300
5	Deepak S/O Shri Chotu Ram	Daulatpra, Bansur, Alwar	25	25	5	1205
Daulatpura total production (E) (kg):						6195
Daulatpura productivity (e) (kg/ha):						1239
Alwar total Production (D+E) (kg):						16135
Alwar productivity (d+e) (kg/ha):						1076

III. Pigeonpea on-farm varietal trials conducted during Kharif 2012 in villages of Karauli District

1. Bagaur

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	ZnSO4 (kg)	Seed Yield (kg/ha)
1	Bijendra S/O Shri Ram Charan	Bagaur Bass, Nadauti, Karauli	0	0	5	0
2	Manoj S/O Shri Bali Chand Dhakad	Bagaur Bass, Nadauti, Karauli	0	0	5	0
3	Chetram S/O Shri Ram babu	Bagaur Bass, Nadauti, Karauli	0	0	5	0
4	Mawasi S/O Shri Chittar Dhakad	Bagaur Bass, Nadauti, Karauli	0	0	5	0
5	Ram Khiladi S/O Shri Hira Lal Dhakad	Bagaur Bass, Nadauti, Karauli	0	0	5	0
6	Ram Ji Lal S/O Shri Mangi Lal Dhakad	Bagaur Bass, Nadauti, Karauli	0	0	5	0
7	Ramkishor S/O Shri Mangi Lal Dhakad	Bagaur Bass, Nadauti, Karauli	0	0	5	0
8	Kishan Singh S/O Shri Kaniya Dhakad	Bagaur Bass, Nadauti, Karauli	0	0	0	0
9	Shyam Lal S/O Shri Bali Chand	Bagaur Bass, Nadauti, Karauli	0	0	0	0
10	Mawasi Ram S/O Shri Bori Lal Dhakad	Bagaur Bass, Nadauti, Karauli	0	0	0	0
11	Ram Niwas S/O Shri Ram Singh Dhakad	Bagaur Bass, Nadauti, Karauli	0	0	0	0
12	Hari Om S/O Shri Ram Singh Dhakad	Bagaur Bass, Nadauti, Karauli	0	0	0	0
13	Shiv Dayal S/O Shri Roopram Dhakad	Bagaur Bass, Nadauti, Karauli	0	0	0	0
14	Bajarang S/O Shri Kana Ram Dhakad	Bagaur Bass, Nadauti, Karauli	0	0	0	0
15	Yadram S/O Shri Ram Narayan	Bagaur Bass, Nadauti, Karauli	0	0	0	0
16	Mawasi S/O Shri Kishan Lal	Bagaur Bass, Nadauti, Karauli	0	0	0	0
17	Roshan S/O Shri Hari Ram Dhakad	Bagaur Bass, Nadauti, Karauli	0	50	5	280
18	Ramdayal S/O Shri Tikaram Dhakad	Bagaur Bass, Nadauti, Karauli	0	50	5	330
19	Jagdish S/O Shri Sita Ram	Bagaur Bass, Nadauti, Karauli	40	0	0	400
20	Ram Kishan S/O Shri Sita Ram	Bagaur Bass, Nadauti, Karauli	40	0	0	405
21	Suresh S/O Shri Shrawan	Bagaur Bass, Nadauti, Karauli	40	0	0	416
22	Badan Singh S/O Shri Dharam Singh	Bagaur Bass, Nadauti, Karauli	40	0	0	422
23	Dharam Singh S/O Shri Bhouri Lal Dhakad	Bagaur Bass, Nadauti, Karauli	0	50	5	425
24	Ramesh S/O Shri Rambabu Dhakad	Bagaur Bass, Nadauti, Karauli	40	0	0	430

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	ZnSO4 (kg)	Seed Yield (kg/ha)
25	Rambabu S/O Shri Ramji Lal	Bagaur Bass, Nadauti, Karauli	0	50	5	430
26	Mukut S/O Shri Roshan Dhakad	Bagaur Bass, Nadauti, Karauli	0	50	5	440
27	Niranjan S/O Shri Ramsaroop	Bagaur Bass, Nadauti, Karauli	0	50	5	440
28	Anup S/O Shri Rambabu Dhakad	Bagaur Bass, Nadauti, Karauli	0	50	5	442
29	Ashok S/O Shri Ram Kishan Dhakad	Bagaur Bass, Nadauti, Karauli	0	50	5	450
30	Bachchu S/O Shri Mangal Ram	Bagaur Bass, Nadauti, Karauli	40	0	0	450
31	Prem Singh S/O Shri. Mool Chand	Bagaur Bass, Nadauti, Karauli	0	50	5	460
32	Anil S/O Shri Ram babu Dhakad	Bagaur Bass, Nadauti, Karauli	0	50	5	460
33	Kedar S/O Shri Ramji Lal Dhakad	Bagaur Bass, Nadauti, Karauli	40	0	0	465
34	Sonpal S/O Shri Prasadi Lal Dhakad	Bagaur Bass, Nadauti, Karauli	40	0	0	470
35	Binnu S/O Shri Ramroop	Bagaur Bass, Nadauti, Karauli	0	50	5	470
36	Gyasi Ram S/O Shri Guru Dhakad	Bagaur Bass, Nadauti, Karauli	40	0	0	478
37	Ramdhan S/O Shri Ram Ji Lal Dhakad	Bagaur Bass, Nadauti, Karauli	40	0	0	481
38	Kunj Bihari S/O Shri Ram Bharoshe Dhakad	Bagaur Bass, Nadauti, Karauli	0	50	5	505
39	Ramesh S/O Shri Kishan Dhakad	Bagaur Bass, Nadauti, Karauli	0	50	5	505
40	Ramesh Chand S/O Shri Kishor Dhakad	Bagaur Bass, Nadauti, Karauli	0	50	5	517
41	Ram Khiladi S/O Shri Narayn Dhakad	Bagaur Bass, Nadauti, Karauli	0	0	0	519
42	Mukesh S/O Shri Jagan Dhakad	Bagaur Bass, Nadauti, Karauli	0	50	5	525
43	Ramkishan S/O Shri Jhori Lal Dhakad	Bagaur Bass, Nadauti, Karauli	0	0	0	528

Bagaur total production (F) (kg): 12143
Bagaur productivity (f) (kg/ha): 449.7

2. Gudli

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	ZnSO4 (kg)	Seed Yield (kg/ha)
1	Shailendra Singh S/O Shri Govind Singh	Gudli, Nadauti, Karauli	0	0	0	0
2	Bhawani Singh S/O Shri Narayan Singh	Gudli, Nadauti, Karauli	0	0	0	0
3	Kamlesh S/O Shri Prabhu Meena	Gudli, Nadauti, Karauli	0	0	0	0
4	Jagdish S/O Shri Kalyan Singh	Gudli, Nadauti, Karauli	0	0	0	0
5	Babu Singh S/O Shri Kalyan Singh	Gudli, Nadauti, Karauli	0	0	0	0
6	Pooran Singh S./O Shri Gend Singh	Gudli, Nadauti, Karauli	0	0	0	0
7	Himmat Singh S/O Shri Gend Singh	Gudli, Nadauti, Karauli	0	0	0	0
8	Jitendra Singh S/O Shri Himmat Singh	Gudli, Nadauti, Karauli	0	0		0
9	Nand Singh S/O Shri Pooran Singh	Gudli, Nadauti, Karauli	0	0	0	0
10	Govind Singh S/O Shri Surgyan Singh	Gudli, Nadauti, Karauli	0	0	0	0
11	Nawal S/O Shri Gopi Kharwad	Gudli, Nadauti, Karauli	0	0	0	0
12	Bhagwan Singh S/O Shri Gend Singh	Gudli, Nadauti, Karauli	0	0	0	538
Gudli total production (G) (kg):						538
Gudli productivity (g) (kg/ha):						538

3. Jeetkipur

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	ZnSO4 (kg)	Seed Yield (kg/ha)
1	Nootan Singh S/O Shri Narayan Singh	Jeet Ki, Nadauti, Karauli	0	0	0	0
2	Jaisingh S/O Shri Narayan Singh	Jeet Ki, Nadauti, Karauli	0	0	0	0
3	Smt.SavroopKanwar W/O Shri Narayan Singh	Jeet Ki, Nadauti, Karauli	0	0	0	0
4	Prabhati Bairawa S/O Shri Sukhram Bairwa	Jeet Ki, Nadauti, Karauli	0	0	0	0
5	Mohan Singh S/O Shri Gokul Singh	Jeet Ki, Nadauti, Karauli	0	0	0	0
6	Smt. Shanti Devi W/O Shri Mohan Singh	Jeet Ki, Nadauti, Karauli	0	0	0	0
7	Mahesh Singh S/O Shri Mohan Singh	Jeet Ki, Nadauti, Karauli	0	0	0	0
8	Balveer Singh S/O Shri Mohan Singh	Jeet Ki, Nadauti, Karauli	0	0	0	0
9	Manveer Singh S/O Shri Mohan Singh	Jeet Ki, Nadauti, Karauli	0	0	0	0

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	ZnSO4 (kg)	Seed Yield (kg/ha)
10	Bag Singh S/O Shri Narayan Singh	Jeet Ki, Nadauti, Karauli	0	0	0	0
11	Dileep Singh S/O Shri Narayan Singh	Jeet Ki, Nadauti, Karauli	0	0	0	0
12	Mahedra Singh S/O Shri Narayan Singh	Jeet Ki, Nadauti, Karauli	0	0	0	0
13	Mahaveer Singh S/O Shri Narayan Singh	Jeet Ki, Nadauti, Karauli	0	0	0	0
14	Dharmendra Singh S/O Shri Narayan Singh	Jeet Ki, Nadauti, Karauli	0	0	0	0
15	Babu Singh S/O Shri Gokul Singh	Jeet Ki, Nadauti, Karauli	0	0	0	0
16	Hari Om Singh S/O Shri Babu Singh	Jeet Ki, Nadauti, Karauli	0	0	0	0
17	Kishan Singh S/O Shri Babu Singh	Jeet Ki, Nadauti, Karauli	0	0	0	0
18	Raghuveer Singh S/O Shri Gokul Sin gh	Jeet Ki, Nadauti, Karauli	0	0	0	0
19	Smt. Manju Kanwar W/O Shri Mahesh Singh	Jeet Ki, Nadauti, Karauli	0	0	0	0
20	Rajesh Jain S/O Shri Ganesh Jain	Jeet Ki, Nadauti, Karauli	0	0	0	0
21	Mulk Raj S/O Shri Harsai Prajapati	Jeet Ki, Nadauti, Karauli	0	0	0	0
22	Ram Nari S/O Shri Mulk Raj Prajapati	Jeet Ki, Nadauti, Karauli	0	0	0	0
23	Chandra Shekhar S/O Shri Ganesh Jain	Jeet Ki, Nadauti, Karauli	0	0	0	0
24	Smt. Kamla Devi W/O Shri Narayn Singh	Jeet Ki, Nadauti, Karauli	0	0	0	250
25	Ganpat Singh S/O Shri Narayn Singh	Jeet Ki, Nadauti, Karauli	0	0	0	350
26	Smt. Sanju Kanwar W/O Shri Manveer Singh	Jeet Ki, Nadauti, Karauli	0	0	0	360
27	Narayan Singh S/O Shri Gokul singh	Jeet Ki, Nadauti, Karauli	0	0	0	430
28	Khem Singh S./O Shri Mohan Singh	Jeet Ki, Nadauti, Karauli	0	0	0	450
29	Dheer Singh S/O Shri Mohan Singh	Jeet Ki, Nadauti, Karauli	0	0	0	520
Jeetkipur total production (H) (kg):						**2920**
Jeekipur productivity (h) (kg/ha):						**417.14**

4. Nadauti

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	ZnSO4 (kg)	Seed Yield (kg/ha)
1	Madan Mohan Singh S/O Shri Chhitar Singh	Nadauti, Nadauti, Karauli	40	0	0	0
2	Lakhan Singh S/O Shri Chhitar Singh	Nadauti, Nadauti, Karauli	40	0	0	0
3	Kamod Singh S/O Shri Laxman Singh	Nadauti, Nadauti, Karauli	40	0	0	0
4	Smt. Rampyari Devi W/O Shri Laxman Singh	Nadauti, Nadauti, Karauli	40	0	0	0
5	Mool Singh S/O Shri Pratap Singh	Nadauti, Nadauti, Karauli	40	0	0	0
6	Shyam Singh S/O Shri Chhitar Singh	Nadauti, Nadauti, Karauli	0	0	0	0
7	Ram Chandra S/O Shri Chhitar Singh	Nadauti, Nadauti, Karauli	0	0	0	0
8	Smt. Munni Devi W/O Shri Bhawani Singh	Nadauti, Nadauti, Karauli	0	0	0	0
9	Smt Munni Devi W/O Shri Mool Singh	Nadauti, Nadauti, Karauli	0	0	0	0
10	Mool Singh S/O Shri Chhitar Singh	Nadauti, Nadauti, Karauli	0	0	0	0

Total crop loss due to rain

5. Garhkhera

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	ZnSO4 (kg)	Seed Yield (kg/ha)
1	Ashok Kumar S/O Shri Bhori Lal Sharma	Garhkhera, Nadauti,Karauli	0	0	0	0
2	Girraj S/O Shri Bhori Lal Sharma	Garhkhera, Nadauti,Karauli	0	0	0	0
3	Smt. Manorama Devi W/O Shri Bhori Lal Sharma	Garhkhera, Nadauti,Karauli	0	0	0	0

Total crop loss due to rain

6. Saher

S.No.	Farmer name	Address	Manure(kg)	Fertilizer (kg)	ZnSO4 (kg)	Seed Yield (kg/ha)
1	Shriphal S/O Shri Jaila Meena	Saher, Nadauti, Karauli	0	0	0	0
2	Ramphool S/O Shri Jaila Meena	Saher, Nadauti, Karauli	0	0	0	0
3	Kamal S/O Shri Jaila Meena	Saher, Nadauti, Karauli	0	0	0	0

Total crop loss due to rain

7. Salawad

S.No.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	ZnSO4 (kg)	Seed Yield (kg/ha)
1	Girraj S/O Shri Bhori Lal Meena	Salawad, Nadauti, Karauli	0	0	0	0
2	Bhawani S/O Shri Girraj Meena	Salawad, Nadauti, Karauli	0	50	5	565
3	Govind S/O Shri Bhori Lal Meena	Salawad, Nadauti, Karauli	0	50	5	570
4	Ramesh Chand S/O Shri Bharat Lal Meena	Salawad, Nadauti, Karauli	0	50	5	575
5	Suresh S/O Shri Bharat Lal	Salawad, Nadauti, Karauli	0	50	5	582
6	Jasram S/O Shri Keshari Lal Meena	Salawad, Nadauti, Karauli	0	50	5	585
Salawad Total production (I) (kg):						**2877**
Salawad productivity (i) (kg/ha):						**479.5**
karoli total production (F+G+H+I) (kg):						**18478**
karoli total productivity (f+g+h+i) (kg/ha):						**450.68**

IV. Pigeonpea on-farm varietal trials conducted during Kharif 2012 in villages of Dausa district

1. Kailai

S.N.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	ZnSO4 (kg)	Seed Yield (kg/ha)
1	Amar Singh S/O Shri Kan Singh	Kailai, Shikrai, Dausa	0	0	0	0
2	Samandra Singh S/O Shri Kan Singh	Kailai, Shikrai, Dausa	0	0	0	0
3	Hanuman Singh S/O Shri Padam Singh	Kailai, Shikrai, Dausa	0	0	0	125
4	Manohar Gurjar S/O Shri Radhakishan	Kailai, Shikrai, Dausa	0	0	0	0

Rain causes crop loss

2. Malakhera

S.N.	Farmer name	Address	Manure (kg)	Fertilizer (kg)	ZnSO4 (kg)	Seed Yield (kg/ha)
1	Om Prakash S/O Shri Mitthan Lal	Malakhera, Rajgarh, Dausa	0	0	0	0
2	Mool singh S/O Shri Kan Singh	Malakhera, Rajgarh, Dausa	0	0	0	0

Rain causes crop loss

Rajasthan Total Production (A+B+C+D+E+F+G+H+I) (Kg) : 275258

Rajasthan Total Productivity (a+b+c+d+e+f+g+h+i) (kg/ha) : 1015.7

ANNEXURE – III

Table 1. Performance of short duration hybrid pigeonpea Trial -1 at ARS, Durgapura, Rajasthan during rainy 2012

Entry Name	Days to 50% flowering	Days to maturity	Plant height (cm)	100 seed Mass (g)
ICPH 3630	**97**	**143**	**97.9**	**7.7**
ICPH 3629	97	143	101.3	6.8
ICPH 3311	**90**	**135**	**87.1**	**7.2**
ICPH 3323	94	136	86.8	7.75
ICPH 3313	**95**	**135**	**99**	**6.95**
ICPH 3633	**97**	**138**	**88**	**7.1**
ICPH 3316	97	147	98	8.35
ICPH 4394	94	137	85.2	7
CHECK				
ICPL 88039	96	133	85.8	5.7
ICPL 86022	97	139	96.3	6.4
Mean	95.25	138.4	92.54	7.09

Table 2. Performance of short duration hybrid pigeonpea Trial – 2 at ARS, Durgapura, Rajasthan during rainy, 2012

Entry Name	Days to 50% flowering	Days to maturity	Plant height (cm)	100 seed Mass (g)
ICPH 4534	**97**	**143**	**104.3**	**11.1**
ICPH 4535	94	146	96	11.4
ICPH 4536	94	142	102.6	11.85
ICPH 3318	94	138	99.4	10.45
ICPH 4537	**94**	**140**	**102.2**	**11.15**
ICPH 3651	**94**	**141**	**93.5**	**10.35**
ICPH 4538	96	142	90.5	10.2
ICPH 3631	95	136	102.1	10.95
CHECK				
ICPL 86022	95	144	99.8	11.25
ICPL 88039	96	140	82.9	10.7
GRAND MEAN	94.65	140.95	97.33	10.94

Table 3. Performance of short duration hybrid pigeonpea Trial - 3 at ARS, Durgapura, Rajasthan during rainy, 2012

Entry Name	Days to 50% flowering	Days to maturity	Plant height (cm)	100 seed mass (g)
ICPH 3674	97	140	88.7	11.15
ICPH 3675	98	139	101	9.55
ICPH 4482	98	136	100.7	11.25
ICPH 3685	**99**	**143**	**79.6**	**10.95**
ICPH 3683	98	142	100.2	9.5
ICPH 3679	97	142	83	9.85
ASJH 101	99	142	84.6	10.65
ASJH 102	104	141	74.8	13.4
CHECK				
ICPL 88039	106	145	87.2	10.55
ICPL 86022	101	145	78.1	11.9
Mean	99.5	141.3	87.79	10.88

ANNEXURE – IV

Table 1. Performance of state's advanced pigeonpea hybrid trial-1 (NDT) at ARS, Durgapura, Rajasthan during rainy 2012

S.No.	Entry Name	Days to 50% flowering	Days to maturity	Plant height (cm)	100 Seed mass (g)
1	SJPH-101	85.0	141.0	122.5	8.1
2	SJPH-102	83.0	143.3	125.2	7.3
3	SJPH-103	88.0	148.0	124.3	8.9
4	SJPH-104	88.0	142.0	128.9	8.9
5	SJPH-105	87.3	143.3	125.6	8.3
6	SJPH-106	88.3	145.3	122.5	7.9
7	SJPH-107	86.0	142.7	127.6	8.6
8	SJPH-108	86.3	145.0	130.3	7.1
9	SJPH-109	85.3	146.7	120.0	8.1
CHECK					
10	UPAS-120 (C)	81.7	143.7	133.1	7.4

Table 2. Performance of state's advanced pigeonpea hybrid trial-2 (DT) at ARS, Durgapura, Rajasthan during rainy 2012

S. No.	Entry Name	Days to 50% flowering	Days to maturity	Plant height (cm)	100 Seed mass (g)
1	SJPH-201	77	125.3	62.3	9.9
2	SJPH-202	68	124.7	70.4	9.0
3	SJPH-203	70	126.7	71	9.1
4	SJPH-204	80	124.3	79.4	9.2
5	SJPH-205	70	121	62.4	9.6
6	SJPH-206	66	122.3	76.6	9.2
7	SJPH-207	89	126.7	63.8	9.0
8	SJPH-208	86	130	51.8	9.3
9	SJPH-209	84	125.7	78.4	8.8
CHECK					
10	UPAS-120©	77	124.7	72.2	9.5

Table 3. Performance of state's initial pigeonpea hybrid trial-3 (NDT) at ARS, Durgapura, Rajasthan during rainy 2012

S. No.	Entry Name	Days to 50% flowering	Days to maturity	Plant height (cm)	100 Seed mass (g)
1	SJPH-301	85.3	141.0	127.7	8.3
2	SJPH-302	94.6	146.3	138.0	6.8
3	SJPH-303	95.3	147.7	111.1	6.6
4	SJPH-304	91.3	145.3	122.0	7.6
5	SJPH-305	94.6	145.0	102.2	6.9
6	SJPH-306	93.0	144.7	130.1	7.1
7	SJPH-307	96.0	146.3	97.4	7.9
8	SJPH-308	89.0	145.0	121.8	7.3
CHECK					
9	MN-5 (C)	95.0	142.0	120.5	8.1
10	ICPH-2438 (C)	92.3	143.0	128.9	6.8

Table 4. Performance of state's initial pigeonpea hybrid trial-4 (DT) at ARS, Durgapura, Rajasthan during rainy 2012

S. No.	Entry Name	Days to 50% flowering	Days to maturity	Plant height (cm)	100 Seed mass (g)
1	SJPH-401	74.0	124.3	69.7	9.1
2	SJPH-402	74.3	128.7	74.8	8.1
3	SJPH-403	74.3	125.7	79.8	7.8
4	SJPH-404	73.3	121.3	74.9	7.5
5	SJPH-405	75.0	121.3	83.2	7.7
6	SJPH-406	74.0	124.0	72.2	7.9
7	SJPH-407	73.6	128.0	74.5	8.2
8	SJPH-408	74.6	127.7	63.3	7.6
CHECK					
9	MN-5 (C)	72.6	123.7	69.0	9.4
10	ASJ-105 (LC)	74.6	124.3	81.0	7.7