ICRISAT is a member of the CGIAR Consortium. CGIAR is a global research partnership for a food secure future.
Acknowledgement

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Organizing Committee

SP Wani (Chair)
KH Anantha
Girish Chander
KNV Satyanarayana
Government of Karnataka-ICRISAT Initiatives

Review and Planning Workshop Proceedings

28 February – 2 March 2013
ICRISAT, Patancheru, India

Editors
Suhas P Wani and KH Anantha

Department of Agriculture
Government of Karnataka
Bengaluru, India

International Crops Research Institute for the Semi-Arid Tropics
Patancheru 502 324, Andhra Pradesh, India

2013
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#### Session 2  
**Technical Session I**

- **Chair:** KV Raju and Kaushik Mukherjee  
- **Rapporteur:** KH Anantha

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1400–1500  Group 1: Inputs mobilization including machineries for benchmark sites  Siddaraju, Subbaiah
          Group 2: Convergence and district coordinators  BK Dharmarajan
          Group 3: Capacity building and awareness enhancement  Shankarappa
          Group 4: Interventions and demonstration  TK Prabhakara Setty

Session 4  Special Session on Innovative Extension System
(Iinnovative extension system by invitation)
Chair  KV Raju and Kaushik Mukherjee
Rapporteur  Girish Chander
1400–1415  Private partnership for extension services: Setting the scene  Kaushik Mukherjee
1415–1445  Presentation by platform for Shared Values-PPP  Anirban Ghosh
1445–1500  Presentation by Zuari  YK Natesh
1500–1530  Discussions
1530–1600  Health break
1600–1630  Discussions

Session 5  Concluding Session
Chair  Kaushik Mukherjee
Rapporteur  KH Anantha

Presentation of Group Reports
1630–1645  Group 1
1645–1700  Group 2
1700–1715  Group 3
1715–1730  Group 4
1730–1740  Chair’s remarks  Kaushik Mukherjee
1740–1750  Chair’s remarks  KV Raju
1750–1755  Vote of thanks  K Krishnappa
1755–1830  Free time (discussion for production of seed for new cultivars)
1830–2000  Social get-together and entertainment  205 Lawns
2000  Workshop Dinner  205 Lawns

Friday, 01 March 2013

Session 6  Technical Session III: Bhoochetana 1 – What We have Achieved and What We Missed
Rapporteur  Girish Chander
0900–0905  Welcome
0905–0920  Overview of Bhoochetana progress and learnings  Suhas P Wani
0920–0935  Challenges faced for mobilizing inputs and solutions  KV Sarvesh
0935–0950  Capturing data from crop cutting experiments in state production  KV Raju
0950–1005  Recommendation of the BC2 Kharif plan workshop held at Belgaum on 28th Jan 2013  
BK Dharmarajan
1005–1050  Discussions
1050–1100  Health break

Session 7  
Technical Session IV: Sharing of Experiences from Districts: Innovations, Learnings and Challenges
Chair  Shankarlinge Gowda
Rapporteur  Mukund D Patil

Presentation by JDAs
1100–1115  JDA, Bidar
1115–1130  JDA, Bellary
1130–1145  JDA, Mysore

Presentation by ADAs
1145–1200  ADA, Koppal taluk, Koppal district
1200–1215  ADA, Malavalli taluk, Mandya district
1215–1230  ADA, Saundatti taluk, Belgaum district
1230–1300  Discussions
1300–1400  Lunch

Session 8  
Technical Session V: Bhoochetana Mission Program (BCMP-BCIP)
Chair  KV Raju
Rapporteur  Gajanan L Sawargaonkar

1400–1420  What is new in Bhoochetana II  Suhas P Wani
1420–1445  Bhoochetana II: Challenges and opportunities  KV Sarvesh
1445–1505  Improved new cultivars seed introduction strategy  K Anandakrishna
1505–1530  Health break

Session 9  
Technical Session VI: Group Work
Chair  BK Dharmarajan
Rapporteur  KH Anantha

1530–1730  Group 1: Inputs requirements  Subbaiah
Group 2: Capacity building: Innovative extension and awareness building  MA Shankar
Group 3: Documents and dissemination  Krishna Naik
Group 4: Convergence to enhance impact and data recording  BK Dharmarajan
Group 5: Climate change network (invited group meets for monitoring and evaluation, convergence, acceleration of space etc.,)  VS Prakash
Group 6: Seed Production Action Plan with special reference to new cultivars  Siddaraju & Anandakrishna
1730–1930  Get-together and experience sharing  IMOD Plaza
Saturday, 02 March 2013

0900–0915 Overview of the Day 2
0915–1030 Group reporting and discussion
1030–1100 Health break

Session 10 Technical Session VII
Chair KV Sarvesh
Rapporteur KL Sahrawat

1100–1300 District plan compilation and finalization, taluk-wise crops, areas, inputs, farm facilitators etc.

1300–1400 Lunch
1400–1500 Group presentation
1400–1410 Group 1: Inputs requirement
1410–1420 Group 2: Capacity building: Innovative extension and awareness building
1420–1430 Group 3: Documents and dissemination
1430–1445 Group 4: Convergence to enhance impact and data recording
1445–1500 Group 5: Climate change network

1500–1530 Health break

Session 11 Concluding Session
Chair KV Raju
Rapporteur K Krishnappa

1530–1545 Vision of agricultural development in Karnataka through Bhoochetana II and CGIAR initiative KV Sarvesh
1545–1555 Chair’s remarks KV Raju
1555–1600 Vote of thanks KH Anantha
Background

Karnataka is the largest dryland agriculture state in the country with 60% of its population dependent on agriculture for their livelihoods. For improving the livelihoods of small farm holders in the state by increasing agricultural growth rate, Government of Karnataka launched in 2009 a mission program “Bhoochetana” for bridging the yield gaps through science-led interventions. The goal of this mission program is to increase average productivity of selected crops in the 30 districts by 20% in four years. The specific objectives are: (i) to identify and scale-up best-bet options (soil, crop and water management) including improved cultivars to enhance productivity by 20% of the selected crops in selected 24 (later extended to 30) districts; (ii) to train DoA staff in stratified soil sampling at villages, analysis of macro- and micronutrients, preparation of GIS-based soil maps; and (iii) to guide DoA to establish high-quality soil analytical laboratory at Bengaluru and to undertake stratified soil sampling, their analyses and sharing results in nine districts; and (iv) to build capacity of the stake holders (farmers and consortium partners) in the sustainable management of natural resources and enhancing productivity in dryland areas.

During the year 2012, a Review and Planning Workshop for the Bhoochetana and Government of Karnataka, a CGIAR initiative (Bhoochetana Plus) was held at ICRISAT during July 2012 at Patancheru. Based on the success of the Bhoochetana, during the last four years (2009-2012), Government of Karnataka has undertaken a holistic integrated systems approach for converging all sectors of agriculture namely rainfed agriculture, irrigated agriculture, horticulture, livestock, cooperation and marketing, for enhancing the incomes of the farmers with technical backstopping by ICRISAT-led consortium of eight CGIAR institutions. The institutions are International Water Management Institute (IWMI), International Livestock Research Institute (ILRI), International Rice Research Institute (IRRI), International Maize and Wheat Improvement Center (CIMMYT), International Center for Agricultural Research in the Dry Areas (ICARDA), The International Food Policy Research Institute (IFPRI), The World Agroforestry Centre (ICRAF). The World Vegetable Center (AVRDC), state agricultural and horticultural universities and different line departments of Government of Karnataka also partnered. This GoK-CGIAR initiative is referred as “Bhoochetana Plus”. Following planning workshops in Bengaluru, Karnataka and Patancheru, Andhra Pradesh, detailed planning for four benchmark sites namely, Tumkur,
Raichur, Chikballapur and Bijapur was conducted along with Bhoochetana workshop. In all, 250 participants representing Department of Agriculture officials from 30 districts along with headquarter officials including Shri. SV Ranganth (CS), Shri. Kaushik Mukherjee (ACS&DC), Dr. KV Raju, Economic Advisor to Hon’ble CM, Shri. Shankarlinge Gowda, Principal Secretary (Ag&Hort), Shri. GVK Rau, Principal Secretary (Co-op), Shri. V Chandrasekhar, Commissioner (Ag), Dr. KV Sarvesh, Director (Ag) and Dr. SA Patil, Chairman, Karnataka Krishi Mission, district CEOs along with the representatives from DoA Karnataka, CGIAR institutes, AVRDC, State Universities, Corporates, NGOs, Farm Facilitators (FFs) and farmers participated in the workshop. The executive summary of Review and Planning workshop has been put together.

**Snap Shots of Workshop Deliberations**

**Inaugural Session**

During the three days Review and Planning meeting, the progress of GoK-CGIAR initiative during last one year and the Bhoochetana during the last four years along with detailed planning for the GoK-CGIAR initiative and Bhoochetana Mission Program (Bhoochetana II) were deliberated and finalized. The workshop reviewed key drivers of success and identified critical areas for building on earlier successes during the Bhoochetana II which included strategies to address climate related risks and improve livelihood.

1. Dr Peter Craufurd welcomed the dignitaries (M/S. SV Ranganath, IAS, Chief Secretary, Kaushik Mukherji, IAS, Additional Chief Secretary & Development Commissioner, Dr. KV Raju, Economic Advisor to Hon. Chief Minister of Karnataka, M/S. Shankarlinge Gowda, IAS, Principal Secretary (Ag & Hort), GV Krishna Rau, IAS, Principal Secretary (Cooperation), V Chandrasekhar, IAS, Commissioner (Agriculture), Dr. KV Sarvesh, Director (Agriculture) and Dr SA Patil, Chairman, Karnataka Krishi Mission, district CEOs, JDAs and ADAs of all the districts, Farm Facilitators, representatives of SAUs, CGIAR centers, private corporates, and ICRISAT team members.

2. Dr Suhas P Wani presented in a nutshell the journey during the last four years of Bhoochetana implementation, identified the drivers of success, key areas which need to be built further such as strengthening of farm facilitators which is a novel mechanism to reach millions of farmers, inputs delivery system, data recording, effective convergence
and establishing climate change researchers network in the state, inclusive livelihood approach and value addition for linking farmers to the market. The progress of baseline characterization of the selected four benchmark sites for the GoK-CGIAR initiative (Bijapur, Raichur, Tumkur, and Chikmagluru) and detailed plan of works to be undertaken by different CGIAR partner institutions where also briefed.

3. Mr Kaushik Mukherji appreciated the benefits of Bhoochetana and stressed the need to strengthen extension system for sustaining Bhoochetana possibly through public private partnerships and address the challenges during the Bhoochetana II. Mr Kaushik Mukherjee raised queries about the ex-ante benefits (additional household income) from the project and it was clarified and agreed to revisit the analysis to examine the higher level of benefits from the initiative.

4. Dr William D Dar, Director General of ICRISAT appreciated Bhoochetana initiative and acknowledged different stakeholders during his opening remarks. Dr Dar congratulated the DoA team for their hard team work as well as team led by Dr Wani for impressive achievements of Bhoochetana. Dr Dar noted that Bhoochetana has played a crucial role in inclusive market oriented development of farmers in Karnataka. It has not only improved the livelihoods of farm families but also enabled them to manage risks like droughts by building resilience in production systems.

5. Dr Sarvesh stressed the importance of collective action in Bhoochetana I for operationalizing the holistic solution at farm level and challenge to improve the timely supply of quality inputs to cover all 7.4 m ha in the state, Mr Chandrashekar, highlighted the importance of holistic approach, Dr SA Patil, highlighted the need to ensure regular/sustainable income for the farmers. Mr Shankarlinge Gowda identified the missing link of farmers to the market and suggested due attention should be given to address the missing link for sustainability.

6. Mr SV Ranganath, Chief Secretary, lauded the success of Bhoochetana which enabled Karnataka to achieve 5-6% annual growth rate in agriculture during last four years as compared to stagnant 2% growth and appreciated efforts of the ICRISAT and DoA team. He stressed the need to address the missing links in the system like livestock, horticulture, agro-forestry and market linkages. He also identified persistence, persuasion and ensuring inclusiveness of small farmers in
agricultural development as the drivers of Bhoochetana’s success. He also ensured full support and help of GoK for the Bhoochetana II and GoK CGIAR initiative. He recommended to name GoK-CGIAR initiative as Bhoochetana Plus. He emphasized on the need to strengthen involvement of private players in extension system and also address the issue of reducing the gap between rural and urban incomes for reducing migration.

**Technical Session**

7. In the Technical Session I, co-chaired by Dr KV Raju and Mr Kaushik Mukherjee, a detailed presentation on baseline characterization including GIS layer maps of four benchmark sites for Bhoochetana Plus was given by Dr Suhas P Wani along with different activities to be undertaken. Detailed discussion took place on the ex-ante economic benefit analysis and suggested that benefits from Bhoochetana Plus will be far more than projected, though, it was indicated that conservative calculations are made with adoption ceilings and ground realities. Dr KV Raju appreciated the progress made by the partner institutions and suggested to identify specific interventions with measurable monitoring indicators with timeline. The role of SAUs was clarified and made it clear that the SAUs are involved in all the programs at various levels. They were appreciated for their participation in taking science-led approach to the farmers’ doorstep.

8. In the parallel sessions on convergence, inputs, capacity building, interventions and demonstrations, and public private partnerships (PPP) for extension were deliberated by the groups. The PPP session was for the private corporate representatives and the group discussion was steered by Kaushik Mukherjee and KV Raju with support from Dr Suhas Wani. During the discussions presentations were made by the corporate representatives and what is expected by the GoK was highlighted. It was stressed that the extension bundled with inputs supply and machine hiring is expected and payment need to be based on performance and partial recovery of charges from the farmers as per the GoK guidelines. Suggestions were sought from the private corporate on what they can provide, what they expect from the government and how it can be made an exemplar system in the country.
9. Drs Siddaraju/Subbaiah presented the summary of discussions from the Inputs Mobilisation group including Machinery with the salient recommendations being: to ensure timely inputs availability focus on assessment of requirement finalisation of rate contract; indenting; ensuring quality; adequate godown facilities and timely payment to the vendors. It was agreed to have all inputs in place 15 days to 1 month before actual start of the season. Dr BK Dharmarajan summarized the recommendations from the Convergence group, which suggested establishment of state, district and taluk level committees to plug issues in convergence of on-shelf technologies and demonstration, supply of inputs, credit linkage, integrated farming system, farm mechanization, micro-irrigation, capacity building, post-harvest technologies, value addition, and market linkages. Capacity building group led by Shankarappa suggested to consider the existing constraints in benchmark sites, to follow improved production technologies, use of natural resources and external inputs, post-harvest technologies, and market information. Dr Prabhakara Setty for interventions/demonstrations group suggested output oriented interventions with measurable monitoring indicators. The potential interventions suggested include soil-water conservation and management, productivity enhancement, increasing labour efficiency, increasing livestock productivity, nutritional insecurity, and market linkages, etc.

10. On second day, Dr Suhas Wani presented detailed synthesis of Bhoochetana progress during four years and stated that area coverage increased progressively from 0.2, 1.2, 2.85 to 3.73 m ha by 2012-13 with impressive yield gains of 23 to 66 per cent over farmers’ practice. Even during the low rainfall years during 2011 and 2012, yield gains saw 25-38% increase and touched lives of 3.6 million families particularly small and marginal farmers. Soil mapping was completed, soil health information was effectively shared with all the stakeholders and use of balanced nutrient management including use of micronutrients was promoted amongst the farmers as entry point. In addition, crop diversification like castor in Kolar, coriander and pigeonpea as intercrop were introduced which significantly raised farmers’ incomes. Various farmers’ success stories have been compiled in a book and released. An economic assessment showed increased economic value to the tune of ₹ 646 crores in Karnataka due to adoption of improved management under Bhoochetana. This initiative
is now widely publicized at international and national fora. Key drivers of success identified are:

- Convergence, collective action, capacity building and consortium approach
- Holistic and integrated approach
- Effective monitoring and evaluation
- Innovative extension system using farm facilitators and lead farmers
- Champions at policy level
- Working passionately and persistently
- Tangible economic benefits for small farmers (inclusiveness)
- Broke vicious cycle of supply driven approach

11. Dr Sarvesh, recommended to strengthen the concept of FFs through quality assurance and effective monitoring on weekly basis by the ADAs, communicating deliberations from the Video Conference (VC) to FFs, replacing new cultivars, timely reporting, and on-line communication with inputs supplying companies.

12. Dr KV Raju highlighted the challenges of crop cutting experiments (CCEs) and inclusion of CCE’s data in to state statistics. A committee consisting of representatives from revenue department, RDPR department, watershed department, along with agriculture and DES is constituted to report within one month. He sought suggestions from the house to incorporate in the ToRs of the committee.

13. Dr Dharmarajan presented the recommendations of the Bhoochetana II Kharif plan workshop held at Belgaum on 28 January 2013.

- During kharif plan 50 lakh ha rainfed area plus 6 lakh paddy area and 2 lakh sugarcane area are targeted.
- Establishment seed villages and agri machinery hiring centers in the villages.
- For FFs minimum qualification recommended is 10th standard (SSLC) and need to be engaged for 180 days during kharif season and 270 days for kharif and rabi seasons.
- The area per FF will be 500 ha in all areas and they receive the honorarium and not salary; their honorarium may be increased to ₹ 200 against 150 per day.
• All FFs to be provided with similar T shirt, cap and a bag from the centralized place.
• Two Lead Farmers are recommended per FF for 15 days.
• All existing trainings to continue along with two additional days for all FFs/extension agents on climate change.
• Current wall writings to continue, but other possible means such as tractors etc. may also be used for dissemination of Bhoochetana information. The information must be crisp and eye catching.
• Establishment of district level technical committee with JDA as chairman and DWDO, DDA, KVK head, ICRISAT scientist as members for convergence and monitoring.
• Establishment of demonstrations in 5 ha per hobli @ ₹ 2,000 ha⁻¹ under KVK scientist
• Conduct of exposure visits for 50 farmers/extension workers in the neighboring districts @ ₹ 25,000 per visit
• Studies on climate resilient agriculture to be undertaken and pilot the ICT Tablet-based extension system in a few districts.
• Setting up of kiosks in the districts.
• Incentives and awards for good farmers, FF’s and extension officers along with competitions for farmers

The estimated budget is ₹ 172 crores. Dr Dharamarajan listed the responsibilities as under:

• ICRISAT – technical recommendations, reports and climate studies
• KSNMDC – climate studies
• KSSC – seed production
• Universities – guidance for kiosks, crop research and recommendations, capacity building through KVK’s
• DoA – guidance for crop cutting experiments.

14. The innovative extension system established by the DoA in Karnataka need to be nurtured properly and made sustainable through ensuring quality, close monitoring, taking precautions that this cadre remains as honorary cadre and does not proliferate. There is an urgent need to converge FFs of various departments to avoid over populating the FFs in villages. There is need to internalize that FFs are paid honorarium and not the salary as they are not full time service providers. Also there
is need to build their capacity and ensure quality support delivery for the farmers.

15. Joint Directors of Agriculture (JDAs) of Mysore, Bidar, and Bellary districts and Assistant Director of Agriculture, Hassan highlighted best practices adopted in their districts for Bhoochetana.

- In Mysore district Bhoochetana rally during Dassera festival proved quite effective for dissemination along with seed treatment campaigns and farmers’ field schools. Crop diversification with maize in place of paddy covered 5,446 ha with 3,630 farmers resulted in additional income of ₹ 12,000 ha⁻¹. Similarly, introduction of maize in tribal area (538 ha) of Hunsur taluk have generated net profit of ₹ 32,000 ha⁻¹. For rice farmers, mechanical rice transplanter was introduced to address the problem of labor shortage.

- JDA Bidar indicated well distributed rainfall during 2012 resulted in good agricultural productivity with increase of 30%. He told that farmers have realized the importance of soil-test based fertilizer application and following integrated nutrient management method. Sugarcane farmers have adapted drip irrigation system to improve water use efficiency. Krishi Raths showed greater reach and impact on the information sharing among farmers. Need for increased involvement of KVK Scientist & Watershed Department with effective Convergence of different dept Schemes with Bhoochetana was highlighted.

- JDA Bellary highlighted the need for timely actions for CB, inputs delivery. A big achievement during 2012 kharif season was that the crop yield increased in the range of 17 to 45%.

- Assistant Director of Agriculture, Hassan shared experiences of Bhoochetana initiative in the district and pointed out that regular capacity building training programs helped FFs and lead farmers to act as effective extension agents. The regular awareness programs and publicity strategies worked well in spreading the awareness and information about the program.

16. In the Technical session V, Suhas Wani highlighted the vision of Bhoochetana Mission Program (BCMP) and mentioned that the focus is on sustainable improvement of livelihoods of small and marginal farmers in the state by developing farmers’ centric, science-led inclusive market-oriented integrated farming systems participatory development approach. The objectives of Bhoochetana II Mission Program are:
• Strengthening the Bhoochetana consortium for increasing the crops (irrigated and rain-fed) yields by 20 per cent in five years in 30 districts of Karnataka through science-led development and new innovation systems;

• Strengthening the institutional mechanisms such as seed villages, village seed banks, participatory research for development (PR4D), inputs supply, agricultural machinery hiring centers, farm extension through farm facilitators and communication systems for small and marginal farmers in the state for the DoA through capacity development, convergence, collective action, and partnerships;

• To assess the impact of climate change in different agro-eco regions of the state in terms of anticipated shifts in the crop growing periods, water availability, major crop yields, and evaluate adaptation strategies for developing climate resilient farming systems; and

• To document the process of consortium functioning, learning, and impact of BCMP in terms of increased crop yields, institutional development and capacity building of different stakeholders in the state.

17. He urged all the stakeholders and policy makers to make this initiative a grand success, by harnessing the positive energy generated in the DoA and to adopt and institutionalize the science-led development approach in the state. Strengthen the consortium and linkages with SAUs e.g. India-EU Project, Indo-US, special projects etc. He also felt that small farm holders should be treated as equal partners through inclusive growth and there is an urgent need to develop sustainable agricultural practices considering the vulnerability of the fragile rain-fed agro-ecosystems while intensifying the systems. Similarly, he stressed that we need to enhance not only the productivity but also should focus on enhancing incomes, linking farmers to markets, improving nitrogen use efficiency (NUE) and water use efficiency (WUE) besides better soil health management.

18. The new initiatives in the second phase of Bhoochetana are to assess the impact of climate change in different agro-eco regions of the state in terms of anticipated shifts in the crop growing periods, water availability, major crop yields, and evaluate adaptation strategies for developing climate resilient farming systems. He also expressed that we need to identify and train suitable team members from the SAUs and form a Climate Change Team (CCT) at state level to handle assessment of impacts of climate change at micro level in a coordinated manner. He also highlighted that Climate Change Network will assess the
impacts in the state through collating the historical weather data sets, soils information and quality checking and assessing the impacts of climate change on changes in the agro-eco regions in the state, crop growing period, crop yields, and identify suitable crops as adaptation strategy to cope with the impacts of climate change. He stressed need for climate resilient agriculture and evaluation of suitable strategies in the benchmark locations of the target agro-eco regions in the state and develop awareness amongst the farmers in the state about the potential impacts of climate change on their crops and livelihoods and potential adaptation strategies based on the results of the participatory evaluation of adaptation strategies in the bench mark locations. He emphasized better convergence among all the stakeholders and need for strengthening of new extension system through farmer facilitators. Piloting of innovative Tablet-based as well as farmer to farmer videos using Pico projectors are also proposed as new interventions.

19. Mr. Rikin Gandhi from Digital Green described the role of ‘Social Networks for Agricultural Development’. He shared his experience of shooting 5-10 minutes videos of the farmers, basically to share their views and experiences about agriculture for the (other) farmers. This 5-10 minutes shoot will be useful in showcasing through battery operated small Pico projector to other farmers about getting practical information about any particular technology besides giving them a chance of having ownership in the project. He informed that they have plan to train 4-6 people in each group (either SHGs or others) about its handling and usage.

20. Improved new cultivars – seed introduction strategies in state was described in detail by Dr Ananda Krishna K, Managing Director, Karnataka State Seeds Corporation. He elaborated the concept of introducing and promoting new varieties and hybrids in the market and also highlighted strategies/steps involved in introducing new cultivars. He discussed existing situation in public sector and in today’s context he pointed out that there is need to have i) varietal replacement perspective plan – for a period of 5/10 years, ii) planning for product development strategies. iii) monitoring for new variety development and replacement, iv) institutional mechanisms and working together by DOA, SAUs and SSCS.

21. During presentation by the group leaders the difficulties in pre-positioning of new crop varieties like paddy, groundnut, soybean,
red gram and green manuring crop seeds, lack of storage in Hassan, Dakshina Kannada and Yadgir were highlighted. Cooperative societies could be rolled in to reduce the burden on DoA.

22. As regards to capacity building, group leader told to effectively use video conferencing for experience sharing; to have satellite-based training program; establish electronic display boards at GPs; farm schools; issue regular press releases; services of local TV channels; video shows; street plays; Krishi Melas; distribute CDs on crop and farm enterprises; effective extension literature and acknowledge achievers.

23. The group leader on documentation and dissemination suggested having one handicam per taluk. Group suggested using radio, TV local channels, mobile messages, etc., for effective dissemination. The group also pointed the idea of having a slot in online farmers’ query call centers. The Convergence group leader suggested to have district and taluk level committees to plug issues in convergence. The areas targeted for convergence included seed production, fodder production, capacity building, farm mechanization, micro irrigation, post-harvest technologies, market linkages, and credit linkages.

24. The group leader on climate change suggested adaptive strategies and group leader on seed production expressed need to replace absolute varieties and suggested to have SAU’s concerned breeder to inspect seed production farms. There was a need to subsidize regulation and inspection charges and provide incentives to popular and new varieties.

25. During the centenary year of the DoA it was suggested to provide Tablets for ICT-based dissemination and collection of data up to ADAs for BC II. Dr Sarvesh also stressed the need to enhance the efficiency and effectiveness in implementing Bhoochetana during the second phase.

**Concluding Session**

26. During the concluding session, in order to bring competitiveness and efficiency in Bhoochetana, Dr. Wani announced awards from ICRISAT side for the leading blocks/taluks in respect of developing 1,000 ha as climate smart benchmark site and develop suitable interventions. Some of the interventions proposed are:

- Glyricidia plantation
- Soil water conservation (*In-situ*, Land form treatment, contour farming)
• Convergence (MGNREGA)
• Vermicomposting
• New cultivars
• New extension system
• Documentation
• Conduct of Farmers day
• Crop replacement
• SRI, Direct seeding
• Market linkages
• Value addition
• Seed production/Seed bank
• Crop cutting experiment
• Fodder production
• Micro-irrigation
• Bio-fertilizer
• Any other climate change interventions

The program ended with vote of thanks by Drs Sarvesh (DoA, Bengaluru) and Anantha (ICRISAT).
Workshop Deliberations through Lens

Inaugural Session

Sri SV Ranganath, Chief Secretary, GoK, delivering the Inaugural address.

Dr William D Dar addressing the participants and highlighting the hard work of Bhoochetana team.
Participants at the planning and review workshop
Suhas P Wani presenting the brief progress of the Bhoochetana during the last four years.

Sri KV Sarvesh, Director, DoA addressing the participants.

WD Dar presenting the memento to Chief Secretary Sri SV Ranganath.
Dignitaries releasing the BC Success Stories book and Directory of BC team.

Technical Session

Drs Kaushik Mukherji, Suhas P Wani and KV Sarvesh clarifying the doubts for the team members
Sri V Chandrasekhar, Commissioner, DoA, addressing the participants.

Dr GVK, Rao addressing the participants on market linkages.
Dr. Kaushik Mukherji addressing the participants.

Dr KV Raju addressing the participants
KV Raju presenting the award to Mr CM Patgar, AAO Mirjan RSK.

Dr Suhas P Wani along with Mr. Kemparaju, JDA, Uttara Kannada clarifying doubts.
Participants listening to the presentation.

Group Discussion
Participants discussing in group as part of group activity.
Field Visit
Participants visiting the watershed development at ICRISAT campus
Approved Proceedings
Proceedings of the Bhoochetana State Level Co-ordination Committee Meeting
Held on 19th March 2013

Members present: List Enclosed

At the outset, Additional Chief Secretary and Development Commissioner welcomed the participants. Detailed discussions were held regarding converging activities of Departments of Horticulture, Watershed Development Department, Sericulture, and Animal husbandry and Veterinary Services for integrated development of farmers.

Director of Agriculture presented the proposed implementation guidelines for the year 2013-14 in detail with modifications in some components and some new components.

After detailed deliberations, the guidelines for implementing Bhoochetana during the year 2013-14 were approved as below.

• Utilizing the services of farmer facilitators for a period of maximum of 180 days in Kharif season predominant districts in dry land area and for irrigated paddy. In districts with both Kharif and Rabi seasons predominant District sugarcane area, duration of work will be max of 270 days @ Rs 175 per working day.
• Two lead farmers per farmer facilitator @ Rs. 100 per day for 15 days.
• One Science graduate/Diploma holder in Agriculture or allied fields with computer knowledge per hobli @Rs 8000 per month for six months in kharif season predominant districts and Paddy areas, Nine months for kharif+Rabi crop season districts & Sugarcane crop area.
• Two days training to all extension officers on Farmer Field School and climate change studies in addition to existing trainings/workshops.
• In addition to wall writings, captions can also be written on tractors and other hitech machineries about Bhoochetana Programme.
• Formation of District level Technical Core Committee with Joint Director of Agriculture Department as convener and members will be DRCS, DSO, DWDO, DDH, JD (Sericulture), DD (A&H), DDA (DATC), ADA (SMS/HQ), KVK Head/ICRISAT Scientist/Any one Taluk ADA and other co-opted
members to be decided at district level. The committees to scrutinize and approve the district action plan, Review and recommend modifications based on local problems/recommend innovative technologies for adoption. Action plan should be prepared how to converge the extension officers in Bhoochetana and their role.

- To form a similar committee at Taluka level with concerned Departments.
- To layout a model 5 ha Bhoochetana technology demonstration per hobli @ Rs.2000/ha. Under the supervision of KVK Scientist. Field days to be conducted in these demonstration plots on priority.
- Two days exposure visit to other districts for a batch of 50 comprising of extension officers, farmer facilitators and farmers @ Rs 25000 per visit.
- 10. Seed production plan with specific action plan for introduction of new varieties to be drafted by KSSC in consultation with other major seed producing agencies like KOF, NSC, and also district technical core committee
- To finalize action plan for climate change resilient studies in consultation with KSNDMC and State Agriculture and related Universities and also to design the lesson plans for training programmes on climate change studies. (Action: ICRISAT)
- ICT Tablets will be distributed to all 747 Rsks, talukas and districts for ICT Tablet based extension networking. ICRISAT to monitor this pilot extension and procurement of these ICT Tablets will be through ICRISAT. Pico Projectors will also be distributed.
- To Set up of information Kiosks in Tumkur, Raichur, Bijapur and Chickmagalur districts in remote taluka headquarters and these Kiosks to be run and monitored by the Universities.
- Incentives/Awards for best performing farmers/farmer facilitators/Extension officers/Farmer Field Schools.
- Creative component: To conduct competitions for farmers from village level to state level.
- Introduction of other innovative components like formation of commodity groups for market linkages in the model of SFAC, Providing pico projectors and other AV aids to RSK’s for documentation and message dissemination.
- Purchase of T-shirts, Bags and caps for Farmer facilitators under publicity component.
- To continue other components as per 2012-13 guidelines.
• Budget Requirement will be met out of funds under Integrated Agriculture Extension System, Soil Enrichment Programme, Rashtriya Krishi Vikas Yojane and also by converging funds under other ongoing schemes.

• Roles and Responsibilities: Annexure-1.

Other decisions/suggestions in the meeting are;

• In the identified IWMP areas, Bhoochetana action plan to be prepared based on watershed areas.

• Extension personnel of Watershed Development department, Horticulture department etc., including NGOs or farmer representatives associated with activities of various agri related departments to be involved for all Bhoochetana activities. Concerned Departments to issue necessary orders in this direction.

• A note on possible convergence of various activities of watershed development department to be submitted to Additional Chief Secretary and Development Commissioner. (Action: Commissioner for WDD).

• Net planning of taluk Water shed development department to be finalized in consultation with the Dept of Agriculture.

• Micronutrient requirements of horticulture crops and supply programme by the Department of Horticulture to be prepared and communicated to the committee

• To take Bhoochetana beneficiaries list and link fertigation benefits and also sapling distribution. (Action: Director, Horticulture Department)

• Specific roles of allied departments to be elaborated in consultation with the concerned departments (Action: ICRISAT).

• RSK’s to function as single extension point at Hobli level for departments of Horticulture, Watershed Development Department, Animal Husbandry &Veterinary Services, Sericulture, Fisheries, Agriculture Marketing, Social Forestry and other agri related departments.

• Concerned Departments to issue necessary orders so that on a particular day all extension officials sit in RSKs, atleast once in a week and are available to farmers at RSK.

• Universities to attach students for a period of two months to all RSKs. Universities to communicate names and contact numbers of all students attached to RSK’s to all agri & allied departments.
• One Scientist to be nominated for 10 RSK’s and their names with contact numbers to be communicated to all agri allied departments.
• A common multi department extension training curriculum to be developed by ICRISAT in consultation with SAU’s by 15th April 2013. This manual will be circulated to extension personnel of agri & allied departments and an online test will be conducted on 31st May 2013. (Action: Director of Agriculture)
• Thousand good performing societies/farmer groups to be selected across all the talukas. (Action: Secretary, Co-Operation)
• These society/groups to be linked to nearby RSKs. These society/groups trained on farmer extension services and would be expected to deliver extension and related services like custom hiring, input distribution etc.,
• These society/groups should also function as local produce procurement centres which would take the responsibility of providing further forward market linkages.
• Selected society/groups to be trained on grading, sorting and value addition (both agri and horticulture produce) at gross root level to help farmers to fetch better price for their produce.
• Quality standards for grading of four to five important fruits and vegetables to be drafted in consultation with AVRDC.
• A notification to be issued in this regard at the earliest (Action: Director, Horticulture Department.)
• Good performing Farmer Field School group may be converted into commodity groups and these may also be considered to perform procurement, grading and processing activities.
• All agriculture related departments may give their publicity messages for display on hoardings at RSK.

Meeting was concluded with vote of thanks.

Sd/-

Additional Chief Secretary &
Development Commissioner,
Govt. of Karnataka
List of Members Present in Bhoochetana State Level Coordination Committee Meeting held on 19-03-2012

Additional Chief Secretary & Development Commissioner, GoK- In Chair

1. Shri Krishna Rao, IAS, Principal Secretary, Co-operation Dept.
2. Shri Bharatlal Meena, IAS, Principal Secretary, Agriculture.
3. Shri Shankar Ling Gowda, IAS, Principal Secretary, Horticulture.
4. Dr KV Raju, Economic Advisor to Hon’ble Chief Minister
5. Dr V Chandrashekar, IAS, Commissioner for Agriculture.
7. Dr KV Sarvesh, Director of Agriculture.
8. Shri Jagadish, IAS, Director of Horticulture.
9. Smt. Deepa Cholan, IAS, Director of SEP RDP
10. Dr SP Wani, Project Coordinator, ICRISAT, Hyderabad.
11. Dr K Krishnappa, Resident Project Scientist for Bhoochetana, ICRISAT
12. Dr BK Dharmarajan, Additional Director of Agriculture (Crop Dev. & Planning).
13. Dr H Subbayya, Additional Director of Agriculture (organic Planning)
14. Dr K Nagaraj Shetty, Additional Director Animal Husbandry.
15. Dr Anand Krishnan. K. Managing Director, KSSC.
16. Dr Anil Kumar S. University of Horticulture, Bagalkote.
17. Dr ST Hundekar, SMS Soil Scientist, UAS Dharwad.
18. Dr MB Ravi, Liason Officer, Bhoochetana, UAS Raichur.
19. Dr T Sheshadri, Professor, UAS Bangalore, Director of Research.
20. Dr K Naga Bhooshanam, Director of Extension, UAS Bangalore.
21. Dr A Satish, GKV, UAS Bangalore.
22. Dr BS Janagondar, Director of Research, UAS Raichur.
23. Shri Subramanyam K.V. Joint Director, Director of Economics & Statistics.
24. Shri K. Hanumanth Reddy, Joint Director of agriculture (Development).
25. Shri Sidaraju, Joint Director of agriculture (Inputs).
26. Smt SM Deepaja, Deputy Director of Agriculture (Food Crops).
27. Smt Poornima G.C. Deputy Director of Agriculture (Seeds).
28. Shri SR Nagaraj, Assistant Director of Fisheries.
29. Shri GM Bommai, KSSC.
30. Smt KN Shrmila, Agriculture officer (Food Crops).
Annexure-1: Roles and Responsibilities

A. Karnataka State Department of Agriculture:

- Director, Agriculture is the nodal officer and Department of Agriculture will implement the project in all the districts
- Department of Agriculture will prepare detailed action plans and organize timely availability of necessary quality inputs.
- Department will provide day-to-day supervision, timely supply of nutrients and ensure required target to be made to cover planned areas in the district.
- Department staff along with other consortium partners will undertake crop cutting experiments to record yield data.

B. ICRISAT:

- To give technical recommendations.
- Participation in district level technical committee meetings.
- To appoint and monitor the activities of research technicians.
- To monitor crop cutting experiments and documentation.
- To submit half yearly and annual reports inclusive of all activities of Bhoochetana.
- To pilot run Tablet based extension in four districts.
- To come out with action plan for climate resilient studies and give suitable recommendations.

C. Karnataka State Natural Disaster Management Center:

- Provide guidance for action plan climate resilient studies and give suitable recommendations.

D. Karnataka State Seed Corporation:

- To monitor seed production programme.
- To introduce new varieties.
- Provide guidance for setting up of Seed banks.
E. Universities:

- Provide guidance and monitor the functioning of KIOSKS.
- To guide Climate resilient studies and give suitable recommendations.
- Capacity building activities.
- To make action plan for multiplication of new varieties.

F. Department of Economics and Statistics:

- To utilize the services of farmer facilitators for crop cutting experiments in the selected villages.
- Provide guidance for crop cutting experiments in the Bhoochetana plots.

G. Watershed Development Department:

- Watershed Development Department would converge IWMP’s productivity enhancement activities with BCM program.
- The AGs, SHGs and WCs of IWMP would actively participate in village seed banks, nursery raising and other collective action activities.
- IWMP watersheds would undertake Gliricidia plantation to cover 100% areas of field bunds as a model for other farmers.
- WDD staff’s active participation in training, development and M & E activities is critical.

H. Department of Horticulture:

- Coverage of their Extension Officers and Schemes in Bhoochetana Blocks.
List of Participants

**Dignitaries**

**Anandakrishna K**  
Managing Director  
Karnataka State Seeds Corporation Ltd (KSSC)  
Beej Bhavan  
Bellarly Road, Hebbal  
Bengaluru  
Phone: 094483 58006  
Email: ksscmd@gmail.com

**Chandrasekhar V**  
Commissioner  
Department of Agriculture  
Commissionerate of Agriculture  
Government of Karnataka  
Bengaluru  
Phone: (080) 22212804  
Email: agricommr@kar.nic.in

**Govindaraju**  
CEO ZP  
Tumkur  
Karnataka

**Jambunath Guthi**  
CEO ZP, Bijapur, Karnataka  
Phone: 9480857000  
Email: jmpvguthi@gmail.com

**Krishna Rau V**  
Principal Secretary  
Co-operation Department  
Government of Karnataka  
Bengaluru  
Email: prs-coop@karnataka.gov.in

**Patil SA**  
Chairman  
Karnataka Krishi Mission  
Department of Agriculture Premises  
# 1, Seshadri Road  
Bengaluru  
Phone: (080) 22115496  
Email: drpatilsa5@gmail.com

**Prakash VS**  
Director  
Karnataka State Natural Disaster Monitoring Centre (KSNMDC)  
Major Sandeep Unnikrishnan Road  
Bengaluru  
Email: dmc.kar@nic.in

**Raju KV**  
Economic Advisor to Hon’ble  
CM of Karnataka,  
Govt. of Karnataka  
Vidhan Soudha  
Bengaluru  
Phone: (080) 22353120  
Email: kvraju2008@gmail.com

**Ranganath SV**  
Chief Secretary  
Govt. of Karnataka  
Bengaluru  
Karnataka  
Phone: (080) 22252442  
Email: cs@karnataka.gov.in
Sarvesh KV  
Director of Agriculture  
Commissionerate of Agriculture  
Govt. of Karnataka  
Bengaluru  
Phone: (080) 22242746  
Email: agridir@kar.nic.in  

Shankarlinge Gowda  
Principal Secretary  
Dept. of Agriculture  
Govt. of Karnataka  
Bengaluru 560 009  
Email: prs-ah@karnataka.gov.in  

State Agricultural Universities (SAUs)  

Hundekar ST  
Subject Matter Specialist  
(Soil Science) KVK  
Saidapur Farm  
Dharwad  
Karnataka  
Phone : 9448495342  
Email: pc_kvkdharwad@rediffmail.com  

Mahantesh M Nekar  
Asst. Prof Agronomy  
Veterinary College  
KVA & FSU  
Bidar  
Karnataka  
Phone: 94485 15257  
Email: dr.m.m.nekar@gmail.com  

Ravi MV  
Liaison Officer (Bhoochetana)  
University of Agricultural Sciences  
Raichur  
Karnataka  
Email: mvravi1972@gmail.com  

Satyanarayana Reddy  
Director of Research  
University of Agricultural Sciences  
Shimoga  
Karnataka  

Shankar MA  
Director of Research  
University of Agricultural Sciences (UAS)  
Bengaluru  
Email: drmashankar191212@gmail.com  

DoA Office, Bengaluru  

Ambika N  
Deputy Director of Agriculture  
(Field Trials)  
Department of Agriculture  
Government of Karnataka  
Seshadri Road  
Bengaluru  
Phone: 9845861210  
Email: agrift@nic.in  

Amrutavalli  
Personal Assistant Commissioner of Agriculture  
Department of Agriculture  
Government of Karnataka  
Bengaluru  

Antony ME  
Deputy Director of Agriculture  
(Planning)  
Department of Agriculture  
Government of Karnataka  
Bengaluru  
Phone: 09448412935  
Email: agrifm@nic.in
Bommaiah GM  
General Manager  
Karnataka State Seeds Corporation Ltd (KSSC)  
Beej Bhavan, Bellary Road  
Hebbal  
Bengaluru  
Email: ksscmd@gmail.com

Deepaja SM  
Deputy Director of Agriculture (FC)  
Department of Agriculture  
Government of Karnataka  
Seshadri Road  
Bengaluru  
Phone: 9448033386  
Email: agrifood@kar.nic.in

Dharmarajan BK  
Additional Director of Agriculture  
(Crop Development & Planning)  
Government of Karnataka  
Seshadri Road  
Bengaluru  
Phone: 9886321240  
Email: agrifood@kar.nic.in

Girish MA  
Deputy Director of Agriculture  
(ISOPOM)  
Commissionerate of Agriculture  
Bengaluru  
Email: agrirsk@nic.in

Govind Raju  
Chief Accounts Officer  
Commissionerate of Agriculture  
Seshadri Road Bengaluru  
Karnataka  
Phone: 9945071880  
Email: cao@nic.in

Javeeda Naseema Khan  
Deputy Director of Agriculture (Project)  
Commissionerate of Agriculture  
Seshadri Road  
Bengaluru  
Phone: 9980226870  
Email: agrifm@nic.in

Jagadeesh Sunkad  
Karnataka Krishi Mission  
Department of Agriculture Premises,  
Bengaluru

Kalavathi B  
Deputy Director of Agriculture  
(State Agri Area)  
Commissionerate of Agriculture  
Seshadri Road  
Bengaluru  
Phone: 9480366922  
Email: agroforms@nic.in

Lalitha Reddy SS  
Deputy Director of Agriculture  
(Soil Health)  
Commissionerate of Agriculture  
Government of Karnataka  
Karnataka  
Phone: 9448323699  
Email: agrish@nic.in

Maddurappa M  
Assistant General Manager  
Karnataka State Seeds Corporation Ltd  
Beej Bhavan  
Bellary Road  
Hebbal  
Bengaluru  
Phone: 094483 58099  
Email: ksscmd@gmail.com
Mathura Pai  
Agricultural Officer  
Commissionerate of Agriculture  
Bengaluru  
Karnataka  

Poornima  
Deputy Director of Agriculture  
(Seed Development)  
Department of Agriculture  
Bengaluru  
Email: rkvykar@gmail.com  

Prabhakara Setty TK  
Coordinator  
RKVY Cell, Department of Agriculture  
Karnataka  
Email: rkvykar@gmail.com  

Rajasulochana MN  
Deputy Director of Agri.  
(Manures & Fertilizers)  
Department of Agriculture  
Bengaluru  
Phone: 9448892586  
Email: rkvykar@gmail.com  

Ramesh N  
Deputy Director of Agriculture (RSK)  
Commissionerate of Agriculture  
Bengaluru  
Karnataka  
Email: agrirsk@nic.in  

Roopa L  
Deputy Director of Agri. (Pathology)  
Department of Agriculture  
Karnataka  
Email: rkvykar@gmail.com  

Sathya Prakash S  
Consultant RKVY Cell  
Bengaluru  
Karnataka  
Email: rkvykar@gmail.com  

Shankarappa AN  
Joint Director of Agriculture  
(Trg & Extn)  
Commissionerate of Agriculture  
Seshadri Road  
Bengaluru  
Email: agrijdr@nic.in  

Shobha HB  
Deputy Director of Agriculture  
(Plant Protection)  
Commissionerate of Agriculture  
Bengaluru  
Phone: 9448882405  
Email: agripp@nic.in  

Siddaraju  
Joint Director of Agriculture (Inputs)  
Department of Agriculture  
Bengaluru  
Karnataka  
Phone: 9880850741  
Email: agrijdinputs@kar.nic.in  

Subbaiah H  
Addl. Director of Agriculture  
(Organic Farming)  
Govt. of Karnataka  
Bengaluru  
Email: agriadvqc@nic.in  

Subbaiah Venkata Ramu  
Joint Director of Agriculture  
Govt. of Karnataka  
Bengaluru  
Email: agriadvqc@nic.in
Suma MR
Deputy Director of Agriculture (Fertilizer Control Laboratory)
Government of Karnataka
Bengaluru
Email: agrifcl@nic.in

Vidyananda C
Deputy Director of Agriculture (Soil Survey)
Department of Agriculture
Bengaluru
Email: rkvykar@gmail.com

Bagalkot

Anand Goudar
Agricultural Officer
RSK Badami
Badami Tq
Bagalkot District
Karnataka

Chetana Patil
Deputy Director of Agriculture
District Agriculture Training Centre (DATC) Bagalkot
Karnataka
Email: ddadatcbgk@rediffmail.com

Gopya Naik
Assistant Director of Agriculture
RSK Badami
Hungund Tq
Bagalkot District
Karnataka

Parshuram S Ganni
Agricultural Officer (TO)
ADA Office, Bilagi Tq
Bagalkot District
Karnataka

Prakash Adavi
Assistant Agricultural Officer
RSK-Bagalkot
Bagalkot District
Karnataka

Srinivas Patil
Agricultural Officer (TO)
ADA office, Jamakhandi
Bagalkot District
Karnataka

Tattimani Shreeshail Shankarappa
Agricultural Officer (TO)
RSK-Terdal
Bagalkot Tq
Karnataka

Belgaum

Agasinal KS
Assistant Director of Agriculture
Belgaum
Karnataka

Altaf Husain
Agricultural Officer
Belgaum
Karnataka

Belavatagi SF
Assistant Director of Agriculture
Belgaum
Karnataka

Bujrukh MS
Agricultural Officer
Belgaum
Karnataka
Chavan DB  
Assistant Director of Agriculture  
Government of Karnataka  
Belgaum  
Karnataka  
Phone: 9663045222/ (0831) 2466645  
Email: ada.bgm@rediffmail.com

Deepa G Wader  
Agricultural Officer  
Belgaum  
Karnataka

Jeelani Mokashi  
Deputy Director of Agriculture  
Belgaum  
Karnataka

Indudar Hiremath  
Agricultural Officer  
Hukkeri  
Belgaum  
Karnataka

Nanashebgoud Patil  
Assistant Agricultural Officer  
O/o ADA  
Belgaum District  
Karnataka

Maharaddi KN  
Agricultural Officer  
ADA Office  
Saundatti  
Belgaum District  
Karnataka

Manjunath Janamatti  
Agricultural Officer  
Belgaum  
Karnataka

Paragouda Patil  
Technical Officer  
JDA Office  
Belgaum  
Karnataka

Ranugol SS  
Assistant Agricultural Officer  
Belgaum  
Karnataka

Salim Sangatras  
Assistant Director of Agriculture  
Belgaum  
Karnataka

Bellary

Hussain Saheb B  
Agricultural Officer (TO)  
Bellery  
Karnataka  
Phone: 9480268818

Jayanna  
Farm Facilitator  
Hulikeri  
Karnataka

Manjunath Kannari  
Assistant Director of Agriculture  
Hospet  
Karnataka

Manjunath Kannari  
Assistant Director of Agriculture  
Hospet  
Karnataka

Nisar Ahmed  
Assistant Agricultural Officer  
O/o ADA  
Siruguppa  
Bellary
Raghavendra
Assistant Director of Agriculture
Sandur
Bellar
Karnataka

Ramappa K
Joint Director of Agriculture
Bellar
Karnataka
Phone: 9880273944/ (08392) 276224
Email: jdably@gmail.com

Ramesh Naik
Assistant Director of Agriculture
H.B. Halli
Bellar
Karnataka

Shivamurthy Naik
Assistant Agricultural Officer
Hosahalli
Bellar
Karnataka

Bengaluru Rural

Anusuya Devi
Agricultural Officer
Bengaluru Rural
Karnataka

Kavita J
Agricultural Officer
Bengaluru Rural
Karnataka
Email: ada10hoskote@gmail.com

Lingareddy Lakshmana Reddy G
Assistant Director of Agriculture
Bengaluru Rural
Karnataka

Narayana ML
Assistant Director of Agriculture
Government of Karnataka
Nelamangala
Bengaluru Rural
Karnataka
Phone: 9448443587/ (080) 7722168
Email: adanela@tatanova.com

Narayanareddy H
Joint Director of Agriculture
Government of Karnataka
Bengaluru Rural
Karnataka
Phone: 9448536412/ (080) 26711594
Email: dagrbrur2002@yahoo.com

Venkateshayya
Agricultural Officer
Bengaluru Rural
Karnataka

Bengaluru Urban

Laxman Reddy GL
Assistant Director of Agriculture
Government of Karnataka
Bengaluru North
Karnataka
Phone: 9448385851/ (080) 28461675
Email: adabngnorth@gmail.com

Nagaraja S
Assistant Director of Agriculture
Government of Karnataka
Anekal
Bengaluru Urban
Karnataka
Phone: 9480019765/ (080) 78592805
Email: adaanekal@yahoo.com
Narayana Reddy
Joint Director of Agriculture
Government of Karnataka
Bengaluru North
Karnataka
Email: jdbngnorth@gmail.com

Parmesh
Assistant Director of Agriculture
Government of Karnataka
Bengaluru
Karnataka

Sadananda M
Assistant Director of Agriculture
Government of Karnataka
Bengaluru
Karnataka

Bidar

Katagi MS
Assistant Director of Agriculture
Bidar
Karnataka
Email: adabidar@gmail.com

Puthra GT
Joint Director of Agriculture
Bidar
Karnataka
Email: jdbabidar@gmail.com

Rajendra Namdev Mali
Facilitator
Bidar District
Karnataka

Sharanappa Mudgal
Deputy Director of Agriculture
Bidar
Karnataka

Shetkar SV
Agricultural officer
ADA Office
Bidar
Karnataka

Somshekar Biradar
Assistant Director of Agriculture
Aurad
Bidar
Karnataka

Venkatramreddy Patil
District Watershed Development Officer
Bidar
Karnataka

Vishal Kumar
Agricultural officer
ADA Office
Bhalki
Karnataka

Vishwanath Chanashetty
Assistant Director of Agriculture
Agriculture Department
B.Kalyan
Bidar
Karnataka
Phone: 9448579756/ (08481) 250523
Email: adabk2009@yahoo.in

Bijapur

Bajanthri D
Assistant Director of Agriculture
Bijapur
Karnataka
Basavraj Siddalingesh Dodamani
Agricultural Officer
Bijapur
Karnataka

Biradahr AP
Agricultural Officer
Bijapur
Karnataka

Devaraj MB
Deputy Director
Dept. of Animal Husbandry & Veterinary
Bijapur
Karnataka

Hanamantagouda Patil
Assistant Horticulture Officer
Bijapur
Karnataka

Hosakoti Eurura Muthappa
Computer Operator
O/o JDA Office
Bijapur
Karnataka

Kaman SB
Assistant Director of Agriculture
Bijapur
Karnataka

Kenchappa Ningappa Uppar
Agriculture Office
Bijapur
Karnataka

Lingamurthy
Joint Director of Agriculture
JDA Office
Bijapur
Karnataka

Prathiba Hugar
Assistant Director of Agriculture
Bijapur
Karnataka

Ramakrishna
Sr. Assistant Director of Fisheries
Bijapur
Karnataka

Sangappa Havappa Yadahalli
Assistant Director of Agriculture (TO)
Bijapur
Karnataka

Tharaprashantah RA
Assistant Conservator of Forests
Forest Quarter
Afzalpur Takke
Bijapur
Karnataka

Chamrajnagar

Mahadeva BS
Agricultural Officer
Kollegal
Karnataka

Prasad MC
Assistant Agricultural Officer
Chamrajnagar
Karnataka

Somashekar
Assistant Director of Agriculture
Gundlupet Tq
Karnataka

Sundramma
Assistant Director of Agriculture
Yalandur Tq
Karnataka
Chikkballapur

Abid SS
Deputy Director of Agriculture
Kagathi
Chikkaballapura
Karnataka

Keshava Reddy A
Agricultural Officer
Gowribidanur Tq
Chikkaballapura
Karnataka

Narasaraj MA
Assistant Director of Agriculture
Gudibande Tq
Chikkaballapura
Karnataka

Obaleshappa N
Assistant Director of Agriculture
Chikkaballapura Tq
Karnataka

Raghavendra N
Assistant Director of Agriculture
Sidlaghatta
Chikkaballapura
Karnataka

Shivanagappa
Assistant Director of Agriculture
Bagepalli Tq
Chikkaballapura
Karnataka

Srinivas S
Assistant Director of Agriculture
Chintamani Tq
Chikkaballapura
Karnataka

Venkataramu S
Joint Director of Agriculture
Chikkaballapura Tq
Chikkaballapur, Karnataka

Chikmanglur

Mallikarjuna KJ
Agricultural Officer
O/o ADA
Chikmanglur
Karnataka

Lokesh KR
Assistant Director of Agriculture
Government of Karnataka
Chikmanglur
Karnataka
Phone: 9483814996/ (08262) 220138
Email: adachikmagalur@gmail.com

Lokeshappa SM
Assistant Director of Agriculture
Government of Karnataka
Narasihmarajapura
Chikmanglur
Karnataka

Raju M
Joint Director of Agriculture
Department of Agriculture
Government of Karnataka
Chikmanglur
Karnataka
Phone: (08262) 220494
Email: jdagrickm@gmail.com

Sathyanarayana Rao
Assistant Director of Agriculture
Government of Karnataka
Koppa, Chikmanglur
Karnataka
Phone: 9480067497/ (08265) 221217
Email: akoppa3@gmail.com
Shivanna
Assistant Director of Agriculture
Government of Karnataka
Kadur
Chikmagalur
Karnataka

Shivakumar
Assistant Director of Agriculture
Government of Karnataka
Tarikere
Chikmagalur
Karnataka

Siddappa BH
Assistant Director of Agriculture
Government of Karnataka
Mudigere
Chikmagalur
Karnataka
Phone: 9448120681
Email: adamudigere@gmail.com

Vinay Kumar
Assistant Director of Agriculture
Government of Karnataka
Sringeri
Chikmagalur
Karnataka

Chitradurga

Ashok J
Agricultural Officer
HiriyurTq
Chitradurga
Karnataka
Email: adahyr123@gmail.com

Chandrakumar
Agricultural Officer
ChitradurgaTq
Karnataka
Email: adahyr123@gmail.com

Hamsaveni MR
Assistant Director of Agriculture
Hosadurga Tq
Chitradurga
Karnataka
Phone: 9448944744/ (08199) 230446
Email: adahsd@rediffmail.com

Krishnamurthy R
Joint Director of Agriculture
Chitradurga Dist
Karnataka
Email: adably@gmail.com

Praveen Choudri NA
Technical Officer
JDA office
Chitradurga
Karnataka

Spurthi GS
Assistant Director of Agriculture
Challakere Tq
Chitradurga
Karnataka
Email: ada_hlk@yahoo.in

Sreedhar Y
Assistant Director of Agriculture
Holalkere Tq
Chitradurga
Karnataka
Phone: 9880101651/ 275341
Email: da_hlk@yahoo.in

Dakshina Kannada

Mohan P
Joint Director of Agriculture
Dakshina Kannada
Karnataka
Email: jdagrimng@dataone.in
Nandana P Shenoy
Assistant Agricultural Officer
Bantwal Raitu Samparka Kendra
Jodumarga Post
Dakshina Kannada
Karnataka

Maruthi Sannakki
Assistant Director of Agriculture
Jagaluru
Davangere
Karnataka
Phone: 9901645054/ (08196) 227152
Email: jagalurada@gmail.com

Narayana Shetty K
Assistant Director of Agriculture
Mangalore, Dakshina Kannada
Karnataka
Email: jdagrimng@dataone.in

Prakash
Assistant Director of Agriculture
RMC Road
Davangere
Karnataka

Shivashankar Danegondar
Assistant Director of Agriculture
Bantwal
Dakshina Kannada
Karnataka
Email: jdagrimng@dataone.in

Rajashekarappa SB
Assistant Director of Agriculture
Davangere
Karnataka
Phone: 9448415557/ (08192) 250084
Email: adadvg@gmail.com

Tilak Prasadji
Assistant Director of Agriculture
Belthangady Tq.
Karnataka
Phone: 7259005007
Email: aaadabelt8@gmail.com

Revanasiddana Gowda HK
Assistant Director of Agriculture
Honnali Davangere
Karnataka
Phone: 9845083401/ (08188) 251387
Email: adahonnali@gmail.com

Davangere

Gollar G
Joint Director of Agriculture
Government of Karnataka
Davangere
Karnataka
Phone: 9449082829/ (08192) 230311
Email: agridvg@gmail.com

Sridharamurthi
Agricultural Officer
Davangere
Karnataka

Kamala Naik R
Assistant Director of Agriculture
Channagiri
Davangere
Karnataka
Phone: 9481054409/ (08189) 228260
Email: adacng@gmail.com

Srinivas Chintal V
Deputy Director of Agriculture
D.A.T.C.Kadajji
Davangere
Karnataka
Phone : 9886624039/ (08192) 292322,
Email: datckdj@gmail.com
Suresh CT
Agricultural
Davangere
Karnataka

Thippeswmay Revannappa
Assistant Director of Agriculture
Harapanahalli
Davangere
Karnataka
Phone: 9945301345/ (08398) 280435
Email: adahrpnl@gmail.com

Vijayakumar JH
Assistant Director of Agriculture
Harihara
Davangere
Karnataka
Phone: 9448336520/ (08192) 242170
Email: adaharihara@gmail.com

Dharwad

Gadad SM
Joint Director of Agriculture
Dharwad
Karnataka
Email: jdadwd@gmail.com

Hosamani
Assistant Agricultural Officer
RSK - Kalghatgi
Karnataka

Jayashri Patil Y
Agricultural Officer
RSK - Hubli
Karnataka

Malati Rachotappa
Agriculture Officer (Tech. Officer)
Dharwad
Karnataka

Murgod GD
Assistant Director of Agriculture
Kundagol
Karnataka

Patil BS
Assistant Agricultural Officer
RSK-Shamshi
Karnataka

Patil PN
Assistant Director of Agriculture
Hubli & Kalaghatagi
Karnataka

Vandana Pujari
Agricultural Officer
RSK-Dharwad
Karnataka

Veeranna KP
Assistant Director of Agriculture
Dharwad
Karnataka

Gadag

Manjunatha SN
Assistant Director of Agriculture
Gadag
Karnataka

Narasinga Murthy
Joint Director of Agriculture
Gadag
Karnataka
Phone: 9481692305/ 7259005226
Email: jdagadag@gmail.com

Prahalad Rao
Assistant Director of Agriculture
Gadag
Karnataka
Ranga Swamy
Assistant Director of Agriculture
Gadag
Karnataka

Seddesh Kodihalli
Assistant Director of Agriculture
Gadag
Karnataka

**Gulbarga**

Arvind Rathod
Agricultural Officer
Gulbarga
Karnataka

Balraj Rangrao
Assistant Director of Agriculture
Gulbarga
Karnataka

Imamsahed Jatth
Agricultural Officer
O/o ADA
Chittapur
Gulbarga
Karnataka

Jalindar G
Joint Director of Agriculture
Gulbarga
Karnataka

Janaki Bai
Assistant Director of Agriculture
Gulbarga
Karnataka

Naveed Afzal
Assistant Director of Agriculture
Gulbarga
Karnataka

Shasank sha
Assistant Director of Agriculture
Gulbarga
Karnataka

Shridevi Hajare
Assistant Director of Agriculture
Gulbarga
Karnataka

Somalingayya
Farm Facilitator
Gulbarga
Karnataka

Vijaylakshmi
Assistant Director of Agriculture
Gulbarga
Karnataka

Zulfequar Ahmed
Assistant Director of Agriculture
Gulbarga
Karnataka

**Hasan**

Bhanuprakash UP
Assistant Director of Agriculture
Department of Agriculture
Hassan District
Karnataka
Phone: 9611133356/ (08175) 273231
Email: adahnpura@gmail.com

Cheluuarangappa TG
Agricultural Officer
Department of Agriculture
Hassan District
Karnataka

Harish Kumar
Agricultural Officer
Department of Agriculture
Hassan District
Karnataka
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Department of Agriculture</th>
<th>Government of Karnataka</th>
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<tbody>
<tr>
<td>Kempegowda</td>
<td>Deputy Director of Agriculture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9448229808/ (08172) 267158</td>
<td><a href="mailto:jdahassan@yahoo.com">jdahassan@yahoo.com</a></td>
</tr>
<tr>
<td>Kokila AS</td>
<td>Assistant Director of Agriculture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9916458968/ (08172) 269288</td>
<td><a href="mailto:adahsn49@yahoo.in">adahsn49@yahoo.in</a></td>
</tr>
<tr>
<td>Nagendra Prasad BG</td>
<td>Assistant Director of Agriculture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9449427979/ (08177) 222318</td>
<td><a href="mailto:adabelur@ymail.com">adabelur@ymail.com</a></td>
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<tr>
<td>Paramesha D</td>
<td>Assistant Director of Agriculture</td>
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<td>Rama Hanumaiah</td>
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<td></td>
<td>9986736528/ (08176) 252263</td>
<td><a href="mailto:adacrp@yahoo.com">adacrp@yahoo.com</a></td>
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<tr>
<td>Sivaraju B</td>
<td>Joint Director of Agriculture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9448417940/ (08172) 267158</td>
<td><a href="mailto:jdahassan@yahoo.com">jdahassan@yahoo.com</a></td>
</tr>
<tr>
<td>Devika R</td>
<td>Deputy Director of Agriculture</td>
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<td>Dileep Kumar D Masuti</td>
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<tr>
<td>Ganesh Naik S</td>
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<tr>
<td>Kotresh G</td>
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<tr>
<td>Madalageri</td>
<td>Assistant Director of Agriculture</td>
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<tr>
<td>Naganagowda Reddy</td>
<td>Assistant Director of Agriculture</td>
<td></td>
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</tr>
</tbody>
</table>
Sangamesh S Haklappanavar
Technical Officer
Hangal
Haveri District
Karnataka

Seva P Naik
Assistant Director of Agriculture
Hirekerur
Haveri District
Karnataka
Phone: 9972975085/ (958376) 282343
Email: adahkr@gmail.com

Shivanand Chanabasappa
Agricultural Officer
O/o ADA
Ranebennur
Haveri
Karnataka

Halappa Shantappa Baligar
Farm Facilitator
Haveri District
Karnataka

Vijayakumar M Kunkur
Technical Officer
Shiggao
Haveri Karnataka

Kodagu

Mahamud Mizamil
Assistant Agricultural Officer
Virajpete Tq
Kodagu District
Karnataka

Rajashekkhar HS
Assistant Director of Agriculture
Somavarpete Tq
Kodagu District
Karnataka

Shivamullu BM
Joint Director of Agriculture
Madikeri
Kodagu District
Karnataka

Subramanya KB
Assistant Director of Agriculture
Madikeri
Kodagu District
Karnataka

Kolar

Huchheraiah H
Assistant Director of Agriculture
HQA, Karnataka

Krishnappa K
Assistant Director of Agriculture
Bangarpet
Karnataka

Manjunatha K
Agricultural Officer
Kolar Tq
Karnataka

Murali
Agricultural Officer
Mulbagal Tq
Karnataka

Nagarjun Babu
Agricultural Officer
Srinivasapur Tq
Karnataka

Satish
Agricultural Officer
Malur Tq
Karnataka
Sudarshan
Agricultural Officer
Srinivaspur (Tq)
Kolar District
Karnataka

Koppal

Amaresh M Madivalar
Agriculture Officer
Kustagi Taluk
Koppal
Karnataka

Balappa Rangappa Jalageri
Assistant Agricultural Officer
Kushtagi
Koppal
Karnataka

Basavaraddi BR
Assistant Director of Agriculture
Kustagi Taluk
Koppal
Karnataka

Gungadi Sharanappa
Agriculture Officer
Yalburga Taluk
Koppal
Karnataka

Malagar SS
Agriculture Officer
Gangavathi Taluk
Koppal
Karnataka

Manjula Basavareddi
Assistant Director of Agriculture
Koppal Taluk
Karnataka

Padmaya Naik A
Joint Director of Agriculture
Koppal Taluk
Karnataka

Sharanappa K Hakari
Farm Facilitator
Koppal Taluk
Karnataka

Mandya

Channaiah C
Assistant Director of Agriculture
K.R.Pet Taluk
Mandya
Karnataka

Jayaswamy GS
Deputy Director of Agriculture
DATC
Mandya
Karnataka

Mahadevaiah GM
Assistant Director of Agriculture
Pandavapura Taluk
Mandya
Karnataka

Phone: 9900934871/ (08232) 255171
Email: adappv1@yahoo.co.in

Mahadevaiah N
Assistant Director of Agriculture
Malavalli Taluk
Mandya
Karnataka

Phone: 9740509048/ (08232) 242048
Email: adamalavally@rediffmail.com

Manju HC
Assistant Agricultural Officer
Srirangapatna Taluk
Mandya
Karnataka
Manjunath S
Assistant Director of Agriculture
Nagamangala Taluk
Mandya
Karnataka
Phone: (08232) 286141
Email: adanagamangala@gmail.com

Shambhugowda
Technical Officer
O/o ADA
Mandya
Karnataka

Shreeharsha
Technical Officer
O/o JDA
Mandya
Karnataka

Suresh R
Assistant Director of Agriculture
Srirangapatna Taluk
Mandya
Karnataka

Mysore

Kenchegowda K
Assistant Director of Agriculture
Hunsur Taluk
Mysore
Karnataka

Krishna Murthy
Agricultural Officer
Nanjangud Taluk
Mysore
Karnataka

Krishnamurthy
Assistant Director of Agriculture
T.Narasipura Taluk
Mysore
Karnataka

Praveen
Agricultural Officer
K.R.Nagar Taluk
Mysore
Karnataka

Somashekar S
Assistant Director of Agriculture
Mysore Taluk
Mysore
Karnataka

Venkatesh J
Assistant Director of Agriculture
Heggadadevanakote Taluk
Mysore
Karnataka

Raichur

Srinivas BY
Joint Director of Agriculture
Raichur
Karnataka
Email: jdaraiichur@rediffmail.com

Kadiwal Chanamallapa R
Assistant Director of Agriculture
Watershed Development Dept
Raichur
Karnataka
Kashinath Onddekar
Agricultural Officer
Raichur
Karnataka

Madhukant
Assistant Agricultural Officer
Raichur
Karnataka

Mahadevappa
Assistant Director of Agriculture
Devadurga
Raichur District
Karnataka

Rehimansab L Jalihal
Agricultural Officer
Manvi
Raichur District
Karnataka

Rupa AN
Deputy Director of Agriculture
DATC
Dadesugur
Raichur District
Karnataka
Email: jdaraichur@rediffmail.com

Narasing Rao Saraswathi
Assistant Director of Agriculture
Lingasagur, Raichur District,
Karnataka

Ramnagar

Annaiah
Joint Director of Agriculture
Ramnagar
Karnataka

Ashoka H
Assistant Director of Agriculture
Ramnagar
Karnataka

Girish Gowda
Assistant Director of Agriculture
Ramnagar
Karnataka

Harishnakar K
Assistant Director of Agriculture
Ramnagar
Karnataka

Nagarajaiah SL
Assistant Director of Agriculture
Office of the Joint Director of Agriculture
Department of Agriculture
Ramanagara District
Karnataka
Email: dir.agriculture@dataone.in

Radhakrishna KR
Assistant Director of Agriculture
Ramnagar
Karnataka

Shimoga

Ashoka S
Assistant Director of Agriculture
Hosanagar
Karnataka
Phone: 9886989078/ (08185) 221509
Email: adahsn@rediffmail.com

Basavaraj DM
Assistant Director of Agriculture
Shimoga
Karnataka
Phone: 9448537463/ (08181) 223536
Email: adashimog@gmail.com
Kumar KG
Agricultural Officer
Shimoga
Karnataka

Manjula G
Assistant Director of Agriculture
Shimoga
Karnataka

Mohan Kumar
Agricultural Officer
Shimoga
Karnataka

Noor Samad AS
Agricultural Officer
Shimoga
Karnataka

Pandu KH
Assistant Director of Agriculture
Thirthahalli
Karnataka
Phone: 9916370047/ (08181) 229225
Email: adatth@gmail.com

Shivprakash
Agricultural Officer
Shimoga
Karnataka

Sumithramma
Farm Facilitator
Shimoga
Karnataka

Tumkur

Anup KG
Joint Director of Agriculture
Department of Agriculture
Karnataka

Ashok TN
Assistant Director of Agriculture
Office of the Joint Director of Agriculture
Koratagere
Tumkur District
Karnataka
Phone: 9448659596/ (08138) 232133
Email: adakoratagere@gmail.com

Chamarajappa
Assistant Director of Agriculture
Office of the Joint Director of Agriculture
Department of Agriculture
Gubbi, Tumkur District
Karnataka
Email: ada_gubbi@yahoo.com

Chandrakala
Deputy Director of Agriculture
Department of Agriculture
Tumkur District
Karnataka

Chandrakumar
Assistant Director of Agriculture
Tumkur
Karnataka

Dinesh B
Agricultural Officer (TO)
Office of the Joint Director of Agriculture
Tumkur
Karnataka

Jogikalmath Murali Basaiah
Assistant Director of Sericulture
Tumkur
Karnataka

Jogikalma th Murali Basaiah
Assistant Director of Sericulture
Tumkur
Karnataka
Kiran Gowda
Assistant Agricultural Officer
Department of Agriculture Kunigal
Tumkur District
Karnataka

Krishnappa HS
Assistant Director of Agriculture
O/o Joint Director of Agriculture
Department of Agriculture
C.N.Halli Tumkur District
Karnataka
Email: ada_cnhalli@yahoo.com

Kubendra Naik D
Sr. Assistant Director of Fisheries
Tumkur District
Karnataka

Lingarajappa BV
Assistant Director of Agriculture
O/o Joint Director of Agriculture
Department of Agriculture
Turuvekere, Tumkur District
Karnataka
Phone: 9448836876/ (08139) 287467
Email: adatumkur@yahoo.com

Mallikarjunappa
Assistant Agricultural Officer
Department of Agriculture
Pavagada
Tumkur District
Karnataka

Nagaraja H
Assistant Director of Agriculture
O/o Joint Director of Agriculture
Department of Agriculture
Madhugiri, Tumkur District
Karnataka
Email: adamadhugiri@gmail.com

Nataraju KS
Assistant Agricultural Officer
Department of Agriculture Sira
Tumkur District
Karnataka

Prasad BN
Deputy Director of Horticulture
Tumkur
Karnataka

Puttalingaiah
Deputy Director of Sericulture
Tumkur
Karnataka

Ramakrishnaiah
Assistant Director of Fisheries
(Grade II)
Department of Agriculture Pavagada
Tumkur District
Karnataka

Renuka Prasanna NS
Sr. Assistant Director of Horticulture
Tumkur
Karnataka

Sreenivas PT
Deputy Director
Animal Husbandry and Veterinary Services
Tumkur 572101
Karnataka
Phone: 9448360350
Email: tmkddahvs@gmail.com

Umesha D
Assistant Director of Agriculture
O/o Joint Director of Agriculture
Tumkur District
Karnataka
Phone: 9480330480/ (08134) 252969
Email: adatiptur@rediffmail.com
Uttar Kannada

Aravind Kumar
Agricultural Officer
Mundagod
Uttara Kannada
Karnataka

Kemparaju SK
Joint Director of Agriculture
Government of Karnataka
Uttara Kannada
Karnataka
Email: jdarmgm@gmail.com

Patgar CM
Assistant Agricultural Officer
Kumta, Uttar Kannada District, Karnataka

Prakash Patil
Assistant Agricultural Officer
Joida
Uttara Kannada
Karnataka

Radha Krishna SG
Assistant Director of Agriculture (HQ)
Uttara Kannada
Karnataka

Shankar Hegde
Assistant Director of Agriculture
Siddapur
Uttar Kannada
Karnataka
Phone: 9449207088/ (08389) 230105
Email: adasiddapur@gmail.com

Udupi

Jagadeesha Naik
Assistant Agricultural Officer
Udupi
Karnataka

Sateesha B
Agricultural Officer
Udupi
Karnataka

Sudhakar Shetty
Assistant Agricultural Officer
Udupi
Karnataka

Yadgir

Banthanal
Joint Director of Agriculture
O/o Joint Director of Agriculture
Yadgir
Karnataka

Katnalli DS
Agricultural Officer
O/o Assistant Director of Agriculture
Shorapur
Yadgir
Karnataka

Narendra Nadoni
Assistant Agricultural Officer
O/o Assistant Director of Agriculture
Shorapur
Yadgir
Karnataka

Rajkumar
Agricultural Officer
O/o Joint Director of Agriculture
Yadgir
Karnataka

Siddu Teggi
Assistant Agricultural Officer
O/o Joint Director of Agriculture
Yadgir
Karnataka
FFS Team

Alavanddi
Agricultural Officer (FCL)
Belgaum
Karnataka

Basavraj B
Farm Facilitator
Shorapur
Yadgir
Karnataka

Channappa Angadi
Agricultural Officer
(FFs resources person)
Dharwad
Karnataka

Hiremath RB
Assistant Director of Agriculture
DATC
Karnataka

Hoogar Chidambar
Agricultural Officer
(FFs resources person)
Dharwad
Karnataka

Krishnegowda
Farm Facilitator
Hassan
Karnataka

Praneesh Rao
Assistant Secretary
Zilla Panchayat
Raichur
Karnataka

Shabhana Sheikh
Deputy Director of Agriculture
DATC
Karnataka

Suresh
Farmer Facilitator
O/o Assistant Director of Agriculture
Raichur
Karnataka

Corporates

Adusumilli Narayana Rao
Consultant Scientist
Jubilee Hills
Hyderabad
Phone: (040) 23323004
Email: anraojaya@hotmail.com

Anirban Ghosh
Vice President, strategic Planning
Mahindra & Mahindra Ltd.,
5th Floor, West Wing
EPU Building, Gate No. 4
Akurit Road Kandvir (East)
Mumbai 400 101
Email: ghosh.anirban@mahindra.com

Ashok P Reddy
General Manager
United Phosphorus Limited
Bengaluru

Dushyant Mullur
Associate
ESP
Phone : 9819388748

Giri JVNS
Deputy General Manager-Retail
Coromandel International Limited
Coromandel House
Sardar Patel House
Secunderabad 500 003
Phone: (040) 27842034/(040) 27844117

Jitendran K
Deepak Fertilizer
Joshi CA
Dy. Manager (Team Support)
Jain Irrigation Systems Ltd.,
CTS No. 7737/24/B, Sector 12
Khushro Nagar, MM Extension
Belgaum 590 016
Phone: (0831) 2450022
Email: joshi.chidambar@jains.com

Kaushal Jaiswal
CEO
Zuari Rotem Speciality Fertiliser Limited
Pune

Krishna Kumar
Manager
ITC Limited
31 Sarojini Devi Road
Secunderabad 500 003
Phone: (040) 2780 0875

Natesh BV
Director - Emerging Markets Services
Nokia, India
Bengaluru

Natesh YK
GM-Crop Health & Services
Zuari Global Limited
Jai kisaan Bhawan
Zuarinagar
Goa 403 726
Email: y.natesh@zuary.adventz.com

Prabhakar Babu G
Deputy General Manager
Advanta India Limited
Hyderabad
Phone: 9000002334

Raghulal VB
Sr General Manager
United Phosphorus Limited
No 3/158, Sarada Mill Road
Coimbatore 641029
Email: raghulalvb@uniphos.com

Ranganathan
Deputy General Manager
(South Zone Sales)
Nuziveedu Seeds
Survey no-69, Kandlakoya
Medchal Mandal,
Gundlapochampally Village
Rangareddy District, Andhra Pradesh
Email: info@nuziveeduseeds.com

Seshadri BT
Executive Director
Syngenta Foundation India
1 Garstin Place, 2F
Kolkata 700 001
Email: b.seshadri@syngenta.com

Shirisha Gopu
Manager-SND
Coromandel International Limited
Sardar Patel House
Secunderabad 500 003
Phone: (040) 27842034/(040) 27844117
Email: shirishag@coromandel.murugappa.com

Soman P
Vice President – Projects
Jain Irrigation Systems Limited
Jain Plastic Park
Jalgaon 425 001
Maharashtra
Phone: (0257) 2258011/(0257) 2258111
Email: dr.soman@jains.com
Subit Chowdhury  
Vice President (SA & IB)  
United Phosphorus Limited  
No 3/158, Sarada Mill Road  
Gnanambika Mills  
Coimbatore 641029

Umesh Sarangi  
Depak Fertilizers

Vijay Singh Patel  
Deputy General Manager (Special Projects)  
Nuziveedu Seeds  
Survey no-69, Kandlakoya  
Medchal Mandal  
Gundlapochampally Village  
Rangareddy District, AP  
Email: info@nuziveeduseeds.com

Virendra Goswami  
Agriculture Market Development Manager  
Rio Tinto India  
3rd Floor, The Olof Palme Marg  
Munirka  
New Delhi 110 067  
Phone: (011) 2271 9071  
Email: virendra.goswami@riotinto.com

CGIAR Partners

Amare Haileslassie  
Scientist  
ILRI  
C/o ICRISAT  
Patancheru  
Phone: (040) 30713074, 30713075  
Email: a.haileslassie@cgiar.org

Ashutosh Sarker  
Regional Coordinator & Food Legume Breeder  
ICARDA South Asia & China Regional Program  
2nd Floor, Office Block-C  
NASC Complex, DPS Marg  
New Delhi 110 012  
Phone: (011) 25847500  
Email: a.sarker@cgiar.org

Avinash Kishore  
International Food Policy Research Institute (IFPRI)  
Pusa, New Delhi  
Phone: (011) 2584 6565/66/67  
Email: a.kishore@cgiar.org

Hemant Nitturkar  
Project Development Officer  
AVRDC- The World Vegetable Center  
C/o ICRISAT, Patancheru  
Phone: (040) 30713074, 30713075

Michael Blummel  
Team Leader  
ILRI  
C/o ICRISAT, Patancheru  
Phone: (040) 30713653  
Email: m.blummel@cgiar.org

Palanisami K  
Principal Researcher  
IWMI  
C/o ICRISAT, Patancheru  
Phone: (040) 30713732  
Email: k.palanisami@cgiar.org

Ramakrishnan M Nair  
Vegetable Breeder – Legumes  
AVRDC - The World Vegetable Center  
C/o ICRISAT, Patancheru  
Email: ramakrishnan.nair@worldveg.org
Ramana Reddy
Sr Visiting Scientist
ILRI
C/o ICRISAT
Patancheru, Medak Dist, AP
Phone: (040) 30713074

Ramesha
Scientist, IRRI
C/o ICRISAT
Patancheru, Medak Dist, AP
Phone: (040) 30713092/(040) 30713074, 30713075
Email: m.ramesha@irri.org

Tek Sapkota
Mitigation Agronomist Global Conservation Agriculture Program
CIMMYT
NASC Complex, DPS Marg, Pusa
New Delhi
Phone: 7838411221
Email: t.sapkota@cgiar.org

Yogesh Kumar
CIMMYT CG Block
National Agricultural Science Center
DPS Marg, Pusa
New Delhi
Email: yogeshkumar.singh@yahoo.co.in

ICRISAT

Alina Paul Bossuet
11 Les Villes Morvues
22690 Pleudihen sur Rance, France
Phone: +33 296271406
Email: alinapaul@gmail.com

Anantha KH
Scientist (Watersheds)
Resilient Dryland Systems
Phone: (040) 30713616
Email: k.anantha@cgiar.org

Dar WD
Director General
Phone: (040) 30713222
Email: w.dar@cgiar.org

Dileepkumar G
Global Leader
Knowledge Sharing and Innovation
Phone: (040) 30713205
Email: g.dileepkumar@cgiar.org

Girish Chander
Scientist (Soil Science)
Resilient Dryland Systems
Phone: (040) 30713173
Email: g.chander@cgiar.org

Gowda CLL
Research Program Director
Grain Legumes
Phone: (040) 30713354
Email: c.gowda@cgiar.org

Jerome Bossuet
11 Les Villes Morvues
22690 Pleudihen sur Rance
France
Phone: +33 296271406
Email: alinapaul@gmail.com

Joanna Kane-Potaka
Director
Strategic Marketing & Communication Office
Phone: (040) 30713277
Email: j.kane-potaka@cgiar.org

Junel Soriano
Visiting Scientist
Resilient Dryland Systems
Phone: (040) 30713473
Email: j.soraino@cgiar.org
Kaushal K Garg  
Scientist (Watersheds)  
Resilient Dryland Systems  
Phone: (040) 30713464  
Email: k.garg@cgiar.org  

Kesavarao AVR  
Scientist, Agroclimatology  
Resilient Dryland Systems  
Phone: (040) 30713506  
Email: k.rao@cgiar.org  

Krishnappa K  
Resident Project Scientist-Karnataka  
Resilient Dryland Systems  
#408, 10th block  
Heritage Estate Apartments  
Yelahanka New Town  
Bengaluru  
Phone: 09448489494  
Email: k.kamma@cgiar.org  

Mukund D Patil  
Visiting Scientist  
Resilient Dryland Systems  
Phone: (040) 30713465  
Email: m.patil@cgiar.org  

Pardhasaradhi G  
Manager (Soil & Plant Analytical Laboratory)  
Resilient Dryland Systems  
Phone: (040) 30713378  
Email: g.pardhasaradhi@cgiar.org  

Pathak P  
Principal Scientist  
(Soil and Water Mgmt)  
Resilient Dryland Systems  
Phone: (040) 30713337  
Email: p.pathak@cgiar.org  

Peter Q Craufurd  
Research Program Director  
Resilient Dryland Systems  
Phone: (040) 30713691  
Email: p.craufurd@cgiar.org  

Raghavendra Rao S  
Manager (Watersheds)  
Resilient Dryland Systems  
Phone: (040) 30713376  
Email: s.r.rao@cgiar.org  

Rajesh Nune  
Visiting Scientist  
Resilient Dryland Systems  
Phone: (040) 30713358  
Email: r.nune@cgiar.org  

Rajneet Kaur Uppal  
Visiting Scientist  
Resilient Dryland Systems  
Phone: (040) 30713309  
Email: r.uppal@cgiar.org  

Sahrawat KL  
Consultant  
Resilient Dryland Systems  
Phone: (040) 30713529  
Email: k.sahrawat@cgiar.org  

Sawargaonkar Gajanan L  
Special Project Scientist  
Resilient Dryland Systems  
Phone: (040) 30713438  
Email: g.sawargaonkar@cgiar.org  

Wani SP  
Assistant Research Program Director  
and Principal Scientist (Watersheds)  
Resilient Dryland Systems  
Phone: (040) 30713466  
Email: s.wani@cgiar.org
PowerPoint Presentations
Objectives

1. To review the progress of Bhoochetana during last four years, assess the strengths and weaknesses based on the lessons learnt.

2. To plan for strengthening gains of Bhoochetana thru a Bhoochetana Mission Program (BCMP) for maintaining increased agricultural production in the state and building climate resilient and inclusive market oriented development (IMOD) in the state.

3. To prepare detailed operational plans for GoK-CGIAR initiative to establish an evidence-based and science-led scaling-up model for integrated rural development at four benchmark sites thru IMOD strategy with partnership and empowerment for sustainable development.
What We Need to Address in BC II Phase

- Sustainable growth in agriculture thru taking science at farmers’ doorstep and reduce poverty thru enabling institutions and policies by linking farmers to markets
- Climate change adaptive and resilient agriculture for small farmers
- Institutionalise the process of science-led development and Research4Development (Impact)
- Strengthen innovation platform and decentralized coordinated extension system
- Evaluate spectral analysis method for soil samples
- Institutional learnings and share with other states

System-level Outcomes

- Improving livelihoods
- Ensuring ecosystem services
- Sustainability (Production – Profits – Sustainability)
- Building Resilience (ability to cope with shocks or variations)

Pilot and Innovations

Four Revenue Divisions & Pilot Districts
1. Bengaluru
   Tumkur
2. Mysore
   Chikamangluru
3. Raichur
   Raichur
4. Belgaum
   Bijapur
Synergy

- Convergence of CG and GoK – which is unique on its own for scaling up PR4D research
- Drought proofing of the state through innovative techniques, policies and institutions for impact
- Enabling drivers for Research for Development (R4D)
- It will be a model in Asia and the world
- Win-win situation as the platform also build capacity of State Agricultural Universities (SAUs) to emerging challenges of climate change and poverty reduction

Ex-ante Impact:
Additional Benefits from GoK-CGIAR Initiative in Karnataka (Rs in crore)

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income from agriculture</td>
<td>80</td>
<td>167</td>
<td>250</td>
<td>333</td>
<td>333</td>
</tr>
<tr>
<td>Income from livestock development &amp; allied livelihood activities</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Total benefit</td>
<td>81</td>
<td>170</td>
<td>255</td>
<td>342</td>
<td>342</td>
</tr>
<tr>
<td>B/C ratio with full cost 1:8.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Partners

Nine CG and International Centres
- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
- International Water Management Institute (IWMI)
- International Livestock Research Institute (ILRI)
- International Rice Research Institute (IRRI)
- Center for International Maize and Wheat Improvement Center (CIMMYT)
- International Food Policy Research Institute (IFPRI)
- International Center for Agricultural Research in the Dry Areas (ICARDA)
- International Center for Research in Agroforestry (ICRAF)
- The World Vegetable Center (AVRDC)

Partners (Contd.)
- University of Agricultural Sciences, Bengaluru (UASB)
- University of Agricultural Sciences, Dharwad (UASD)
- University of Agricultural Sciences, Raichur (UASR)
- University of Agricultural Sciences, Bagalkote (UASB)
- University of Horticultural Sciences, Bagalkote (UHSB)
- Department of Agriculture (DoA), Government of Karnataka
- Department of Horticulture (DoH), Government of Karnataka
- Department of Water Resources (WRD)
- Department of Animal Husbandry
- Department of Rural Development
MILESTONES OF BHOOCHETANA – 1ST PHASE

- Bringing out Soil Atlas for Karnataka State
- Awareness on integrated nutrient management
- Special emphasis on deficit micro nutrients like zinc, boron, gypsum.
- Convergence of different schemes in department
- Increase in yield by 25-40% in rainfed crops through improved management

Challenges Ahead

- To cover entire dryland area with improved technology
- To sustain productivity and production
- Establish market linkages
- Promote group activities
- Adoption of innovative information communication technologies

Vision of Bhoochetana - Phase 2

To sustainably improve the livelihoods of all categories of farmers in the state by developing farmers' centric, science-led inclusive market-oriented integrated farming systems participatory development approach.
BACKGROUND

- The Department of Agriculture is closely working with International Corps Research Institute for the Semi-Arid Tropics (ICRISAT) in the implementation of Biochetana, for increasing productivity of rained crops in 30 districts.
- The impact of Biochetana during the last three years has clearly demonstrated that farmers are better with increased crop productivity ranging from 33 to 66% in different districts with different crops.
- Realising high impacts in terms of increased agricultural productivity, the State Government desired to partner with the ICRISAT institutions working in India in a consortium approach, led by ICRISAT for improving rural livelihoods in Karnataka.

OBJECTIVES

- To increase the productivity of agricultural systems by 20%.
- To enhance average family income by 25%.
- To establish pilots and innovation platforms for farmers - line departments - researchers - policymakers.
- To reduce vulnerability of farmers to changes due to climate variability and market forces.
- To develop strategy for sustainable eco-friendly production systems using selected system-level interventions.
Pilot Sites Selected

- Bangalore
- Mysore
- Belgaum
- Gulbarga
- Tumkur
- Chikmagalur
- Bijapur
- Raichur

Operational Details

The GoK-CAVAR initiative will be implemented for four years (2013-14 to 2016-17) in a phased manner.

In the first phase, four pilot districts selected are Tumkur, Chikmagalur, Bijapur and Raichur, representing four revenue divisions: Bangalore, Mysore, Belgaum and Gulbarga, of the State.

Department of Agriculture shall be the nodal department and ICRISAT as the nodal institute for the consortium group of CSIR institutions.

To implement and monitor the initiative, at the State Level, Co-ordination Committee and at the District Level, implementation committees will be constituted.

The sites of learning will be established in the four selected pilot districts.

Four sites in the pilot districts will cover 10,000 ha area in each site during the first year and progressively will increase to cover 80,000 ha (by the end of fourth year) in each of the four districts as mentioned below.

The size of the pilot site in a district may vary depending on the area covered by the selected villages and will adopt the cluster approach.

BUDGET REQUIREMENT

PART A

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>2013-14</th>
<th>2014-15</th>
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<th>Total</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Area (ha) in all four pilot districts</td>
<td>100,000</td>
<td>200,000</td>
<td>300,000</td>
<td>600,000</td>
</tr>
<tr>
<td>2</td>
<td>Budget proposed for implementing deep/ intensive scheme</td>
<td>100.00</td>
<td>200.00</td>
<td>300.00</td>
<td>600.00</td>
</tr>
<tr>
<td>3</td>
<td>Expenditure out of these taking the provisions under the ongoing scheme</td>
<td>50.00</td>
<td>100.00</td>
<td>150.00</td>
<td>300.00</td>
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<tr>
<td>4</td>
<td>Budget requirement for implementing the project by dopt/ Universities (2.1)</td>
<td>100.00</td>
<td>200.00</td>
<td>300.00</td>
<td>600.00</td>
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PART B

<table>
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<td>12.00</td>
</tr>
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<td>2</td>
<td>Travel</td>
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<td>0.50</td>
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<tr>
<td>3</td>
<td>FORS - Operational costs</td>
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<td>1.70</td>
<td>1.70</td>
<td>1.70</td>
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<td>4</td>
<td>Capacity Building and Team Building</td>
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<td>2.00</td>
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<tr>
<td>5</td>
<td>Communications and Publications</td>
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<td>0.20</td>
<td>0.20</td>
<td>0.20</td>
<td>0.80</td>
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<td>6</td>
<td>Administrative and contingencies</td>
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<td>0.60</td>
<td>0.60</td>
<td>0.60</td>
<td>2.40</td>
</tr>
</tbody>
</table>

- The budget provision of Rs.206 crores for four years has to be earmarked exclusively for GoK-CAVAR initiative by providing new head of account and allocate the amount to the nodal department.
- An amount of Rs.100 crores to be earmarked for the year 2012-13 and to be released to the nodal department for implementation of the initiative.
STATUS OF THE INITIATIVE

As per the decision taken in the meeting of SLCC held on 21-09-2012, the ICRISAT has been requested vide GoK letter no. Do.No.AD/PRS/2012-13/753 dated 17-10-2012 to implement the initiative during the rabi season 2012-13 in the selected pilot sites pending approval of the State Cabinet.

The revised proposal is submitted to Government for seeking the approval of the State Cabinet.

STATUS OF THE INITIATIVE

Two day brain storming workshop was held on 3rd and 4th January 2013, in the department of Agriculture, inviting the District Collectors, CEOs of Zilla Panchayath, District Implementing officers of Agriculture Dept. and line departments of the four pilot districts to draw the action plan for implementing the GoK-CGIAR initiative in Kharif-2013.

STATUS OF THE INITIATIVE

The Hon’ble Chief Minister of Karnataka, in his agriculture budget speech 2013-14, Pursuance has announced “New MoU for improvement of life in farmers: With a view to improve the economic condition of the farmers along with agricultural wealth, Farmers Income commission will be set up as per the recommendations of Dr.Swaminathan. In order to formulate a programme to protect the farmers of Karnataka from the effect of frequent droughts, the State Government has entered into a MoU with 9 International CGIAR organisations. Basis status survey and activities on per the action plan is under progress in one district each in the four revenue divisions (Tumkur, Chikmagalur, Bijapur and Raichur) for implementation of the said programme. Rs.50.00 crore will be provided as funding to extend this programme to all the districts in the coming years in a phased manner.

CONSULTATIVE GROUP OF INTERNATIONAL AGRICULTURE RESEARCH INSTITUTES ARE:

- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
- International Water Management Institute (IWMI)
- International Livestock Research Institute (ILRI)
- International Rice Research Institute (IRRI)
- Center for International milling and Wheat Improvement Center (CIIMIT)
- International Food Policy Research Institute (IFPRI)
- International Center for Agricultural Research in the Dry Areas (ICARDA)
- The World Agroforestry Centre (ICRAF)
- The World Vegetable Centre (WIVAC)
STATUS OF THE INITIATIVE

• The pilot districts have identified 10000 hectares in each district.

• The Scientist from the CGIAR institutions have visited the identified pilot sites of the districts and have interacted with the farmers, and conducted bench mark survey.

• Based on the SWOT analysis of the districts the district officers of agriculture and line departments have formulated sector wise Detailed Project Report for the GoK-CGIAR initiative.

STATUS OF THE INITIATIVE

The pilot districts – Tumkur, Chikkamagalur, Bijapur and Raichur will make the detailed sector wise action plan presentation inclusive of:

• Area of operation of selected 10000 hectares
• Constraints in increasing the productivity
• Strategies drawn to enhance productivity
• Sector wise fund requirement for the GoK-CGIAR initiative
• Fund available by dovetail existing schemes of the respective departments
• Expected outcome of the initiative.
Government of Karnataka-CGIAR Initiative

Objectives of the Proposed Approach

- To form action oriented consortium of CGIAR institutions to operationalize action research scaling-up model in partnership with line departments in the State of Karnataka to increase crop yields by 20 per cent and farmers’ incomes by 25% in four years
- To establish sites of learning of integrated participatory research for development to benefit small and marginal farmers in irrigated and rainfed agriculture areas
- To develop the capacity of the agricultural related development agencies in the state for enhancing the impact of the development programs through science-led support systems

System-level Outcomes

- Improving livelihoods
- Ensuring ecosystem services
- Sustainability (Production – Profits – Sustainability)
- Building Resilience (ability to cope with shocks or variations)

Pilot and Innovations

Four Revenue Divisions & Pilot Districts
1. Bengaluru
   Tumkur
2. Mysore
   Chikamangluru
3. Raichur
   Raichur
4. Belgaum
   Bijapur
Strategy (Contd.)

- The science-led systems approach will ensure that we build the capacity of the farmers
- The pilot sites will become the "Stress of Learning"
- The consortium will adopt the principle of "Seeing is Believing"
- Strengthening Capacity Building of human resources
- By adopting the principle of 4 Cs we will address the consortium goal through 4 Es, i.e., Efficiency, Economic gain, Equity and Environment protection

Area Coverage under Pilot

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>10000</td>
<td>20000</td>
<td>40000</td>
<td>80000</td>
</tr>
</tbody>
</table>
### CGIAR Center-wise Interventions

#### ICRISAT
- Soil test based fertilizer recommendations
- Introduction of stress tolerant short duration legumes and cereals
- Climate change impacts and adaptation strategies
- In-situ and ex-situ soil and water conservation for enhancing WUE
- Building system resilience through crop diversification
- Enhancing WUE thru waste water treatment and reuse in agriculture
- Intensification of micro-irrigation methods in irrigated and dryland areas
- Enabling policies

#### IRRI
- Direct seeded rice for dryland and irrigated areas
- Participatory evaluation of improved rice cultivars
- Mechanization of rice planting and crop intensification
- Enhancing seed, fodder quality thru PPP model
- Mapping and characterization of feed and fodder resources

#### CIAT
- Establishing edible cacti nursery and propagation at benchmark sites
- Wasteland rehabilitation using edible cacti to be used for animal feed
- Screening of lentil cultivars for introduction in the systems
CGIAR Center-wise Interventions

<table>
<thead>
<tr>
<th>CG centers</th>
<th>Tumkur</th>
<th>Bijapur</th>
<th>Raichur</th>
<th>Chikmagaluru</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICRAF</td>
<td></td>
<td></td>
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<td>IFPRI</td>
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</tr>
<tr>
<td>AVRDC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Fodder and tree species
- Agro-forestry
- Wasteland rehabilitation
- Baseline characterization and impact monitoring
- Policy interventions
- Capacity building (knowledge integration)
- Expand/improved vegetable cultivation including IPM in dryland and irrigated areas
- High value vegetables – greengram, veg. soybean
- Micro-entrepreneurship thru value chain
- Capacity building and awareness raising

Project Outputs

- Established pilots and innovation platforms for farmers – line departments – researchers – policymakers
- Increasing productivity of agricultural systems at pilot sites by 20% in four years
- Increasing average family incomes by 25% in four years
- Reduced vulnerability to changes due to climate change, climate variability and market forces
- Strategy for sustainable intensification using selected system-level interventions
- Build capacity of the stakeholders to operationalize science-led development approach taking holistic system-level interventions

Additional benefits from GoK-CGIAR initiative in Karnataka (Rs in crore)

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income from sagitation</td>
<td>80</td>
<td>19.7</td>
<td>25.4</td>
<td>33.2</td>
<td>33.2</td>
<td>118.3</td>
</tr>
<tr>
<td>Income from livestock development &amp; allied livelihood activities</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>9</td>
<td>6</td>
<td>27</td>
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<tr>
<td>Total benefit</td>
<td>81</td>
<td>198</td>
<td>155</td>
<td>342</td>
<td>342</td>
<td>1180</td>
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</tbody>
</table>

Partners

- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
- International Water Management Institute (IWMI)
- International Livestock Research Institute (ILRI)
- International Rice Research Institute (IRRI)
- Center for International Maize and Wheat Improvement Center (CIMMYT)
- International Food Policy Research Institute (IFPRI)
- International Center for Agricultural Research in the Dry Areas (ICARDA)
- International Center for Research in Agroforestry (ICRAF)
- The World Vegetable Center (AVRDC)
Group 1: Input Mobilization including machineries for benchmark sites
Facilitator: Siddaraju
Joint Director of Agriculture

Issues
- Seeds
- Micro nutrient
- Biofertilizers
- Balanced application of NPK
- Organic manures
- Soil amendments
- Water

Suggestions
- Assessment of requirement
- Rate contract is being finalised
- Timely placement of indents by implementing officers
- Supply of required qty and variety
- Ensuring quality
- Timely payment to supply agencies

Seeds
- Inadequate godowns
- Timely supply of seeds and inputs
Suggestions
- Encouraging organic fertilizers through
- Green manure
- Vermicompost
- Bio fertilizers, Etc.,

Farm machinaries
- Assessment of required machinery as per the needs
- Issue of RC in time
- Monitoring the supply and quality
- CHC numbers and in service condition

Fertilizers
- Requirement assessment
- Buffer stocking and preposition at societies
- Severe problem of godowns (Chikmagalure)
- Supply regulation

Micro nutrients
- Assessments
- Issue rate contract
- Timely placing indents
- Storage facility
- Ensure quality
- Timely payment for regular supply and usage
Credit
- Review the scale of finances for crop loan
- Liaison with Bankers and timely loan sanctions

Horticulture Sector
- In Adequate supply of Seedlings and nurseries
- Crop diversification
- Input requirement
- Inadequate storage facilities
- Logistic support
- Providing marketing facilities

Micro irrigation
- Exploring community sprinkler and rain gun on pilot basis system
- Sprinkler, rain gun, and drip irrigation on individual community basis

Labour Problem
- Use of farm equipment to solve labour problem
- Better convergence with MGNREGA
animal husbandry
- Supply of sufficient feed/fodder and seed material
- Enhancing the feed and fodder quality
- Encourage more poultry units

forestry/agro forestry
- Supply of suitable forest seedlings
- Tree fodder species

sericulture
- Supply of improved HYV planting material
- Supply of shoot rearing equipments
- Timely supply of soil treatment chemicals

fisheries
- Timely supply of fast growing fingerlings

bio fertilizers
- One month before commencement of the season

farm machineries and agro processing units
- One month before commencement of the season

sowing equipments
- One month before commencement of the season

preposition of all inputs
- 15 days before commencement of the season

seeds
- One month before commencement of the season

fertilizers
- One month before commencement of the season
Output

- With better adoption of all practices/techniques we can anticipate in enhancement of 25-30% farmers income

Thanks
### Project Launching

The Bhoochetana project was launched on 21st May 2006 by the Hon'ble Chief Minister of Karnataka, Sri R. Y. S. Ramakrishna Reddy. ICRIAT is working on producing high-yielding varieties of rice and improving soil fertility in the state.

### What We have Achieved

<table>
<thead>
<tr>
<th>Year</th>
<th>Season</th>
<th>Cultivars Consumed (T)</th>
<th>Cultivars Grown (T)</th>
<th>Cultivars Consumed (kg ha⁻¹)</th>
<th>Cultivars Grown (kg ha⁻¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>April</td>
<td>2.25</td>
<td>307</td>
<td>0.53</td>
<td>1.65</td>
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<tr>
<td></td>
<td>April</td>
<td>0.59</td>
<td>-</td>
<td>-</td>
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<tr>
<td>2010</td>
<td>April</td>
<td>12.07</td>
<td>272</td>
<td>255</td>
<td>369</td>
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<tr>
<td>2011</td>
<td>April</td>
<td>4.54</td>
<td>1875</td>
<td>5555</td>
<td>113</td>
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<td>2013</td>
<td>April</td>
<td>5.74</td>
<td>1975</td>
<td>2555</td>
<td>432</td>
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<td>2013</td>
<td>April</td>
<td>4.60</td>
<td>1895</td>
<td>5555</td>
<td>113</td>
</tr>
</tbody>
</table>
Percentage departure of cumulative rainfall as on 15th July 2012 is -43%, which is the lowest in the corresponding period of last 42 years.

Enhancing Family Incomes and State’s Gross Production, Rainy Season 2011

<table>
<thead>
<tr>
<th>Crop</th>
<th>Production with FM (Million t)</th>
<th>Production Increase with FM (Million t)</th>
<th>Price (Rs t⁻¹)</th>
<th>Increase economic value with FM (Rs in crores)</th>
<th>Total production (Million t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand Total (Cereals)</td>
<td>4.05</td>
<td>0.45</td>
<td>9,700</td>
<td>463.56</td>
<td>4.52</td>
</tr>
<tr>
<td>Grand Total (Cotton)</td>
<td>0.25</td>
<td>0.05</td>
<td>13,967</td>
<td>1,109.80</td>
<td>0.40</td>
</tr>
<tr>
<td>Grand Total (Pulses)</td>
<td>0.22</td>
<td>0.02</td>
<td>23,000</td>
<td>71.34</td>
<td>0.29</td>
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<tr>
<td>Total</td>
<td>4.52</td>
<td>0.55</td>
<td>9,700</td>
<td>644.71</td>
<td>5.27</td>
</tr>
</tbody>
</table>

Source: ICAR/MC, Anantnag

Bhoochetana in the Limelight

National Level
- MoA
- ICAR

International Level
- BBC
- Alertnet
- What ICRISAT thinks
- Philippines
- The Guardian
- World Water Week
Awards and Recognitions
- Krishi Karman Award for the highest productivity of Coarse Cereals thru Bhoochetana. This award was instituted to recognize states' contribution to increase the food production in the country.
- Agriculture Leadership Award – 2001 as a best performing State by Agriculture Today

Drivers of Success
- Converge – Collective action – Capacity building – Consortium
- Efficient M&E mechanisms
- Holistic and integrated approach
- Galvanized and transformed DoA
- Innovative and empowered extension and delivery system
- Champions at higher policy level

Drivers of Success
- Translated rhetoric of inclusiveness and enhancing input use efficiency into action thru science-led R4D scaling-up – holistic inclusive approach
- Working passionately and persistently for productivity enhancement by bringing all stakeholders on the same page – Good team work
- Tangible economic benefits to small and marginal farmers in rainfed areas
- Broke vicious cycle of supply driven approach and established demand driven mindset—Change of mindset of actors
- Strengthened innovative extension and knowledge sharing systems – Effective dissemination

Thank you!
Group 2: Convergence and district coordination

Facilitator: Dr. B Y. Dharmeswaran
(Addl. Dir. Agrl.)

Departments / Partners
- Agriculture
- Watershed
- Horticulture
- Animal Husbandry
- Sericulture
- Fisheries
- Cooperation
- Forest (Social)
- Ag. Marketing
- KVIC
- RDPR
- Irrigation
- Geology
- SAUs
- NGOs
- Credit institutes
- DES

Committees
- **State level committee**
  - Once in month
- **District level committee**
  - CEO (chairperson)
  - JDA (Member Sec)
  - All district officers of line departments (Members)
  - Once in Month
- **Taluk level committee**
  - EO (chairperson)
  - ADA (Member Sec.)
  - All taluk level officers of line departments (Members)
  - Once in 15 days
  - Sensitization of activities at project site
Thank You

Convergence

- Technologies and demonstration
- Supply of inputs
- Credit linkage
- Integrated farming system
- Training and capacity building
- Farm mechanization and micro-irrigation (uniform pattern)
- Schemes of different departments
- Flow of information
- Post harvest technology—value addition and market linkage
- Single window delivery system
Capacity building and awareness enhancement
Group III
Shankarappa and Team

Improving Rural Livelihoods through
Innovative Scaling-up of Science-led Participatory Research for Development
Gok-CGIAR Initiative

Constraints
- Poor mechanization
- Lack of access to information
- Lack of convergence of sciences
- Low yield of crops and poor conservation
- Lack of improved seeds
- Main constraint (Yellow leaf disease)
- Infrastructure – Connectivity, Agriculture
- Indiscriminate use of fertilizer and water
- Forest degradation
- Shrinkage of forest
- Unavailability of credit or finance
- Water scarcity
- Labour scarcity
- Lack of access to market
- High cost of cultivation
- Lack of storage facility and proper networking
- Post-harvest losses – lack of processing units – minimum support price – exploitation of middleman
- Food scarcity
Thank you
Interventions and Demonstration

Group-4

Major issues

- Varietal's replacement/Poor productivity
- Poor soil fertility
- Water scarcity/Poor WUE
- Mono cropping
- Labour shortage
- Marketing linkages issues
- Excess use of pesticide
- Fodder scarcity

Major issues

- Processing and value chain
- Fish seed production: shortage
- Livestock breed
- Sericulture in dryland areas
- Capacity building
- Sericulture in dryland areas
- Agro-forestry
- Land reclamation of problematic soils

Soil-Water conservation and management

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Output</th>
<th>Indicators and monitoring mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-situ moisture conservation</td>
<td>Reduce water stress</td>
<td>i) Cropping intensity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) green coverage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>iii) GW quality and duration</td>
</tr>
<tr>
<td>Reclamation of problematic soil</td>
<td>Enhanced cultivable area</td>
<td></td>
</tr>
<tr>
<td>Promotion of fish culture</td>
<td>Food security and income/ Nutritional security</td>
<td></td>
</tr>
<tr>
<td>Labour shortages</td>
<td>Nutritional insecurity</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Interventions</strong></td>
<td><strong>Indications and monitoring mechanism</strong></td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>Reduced diversity, less post-harvesting losses, timely operation</td>
<td></td>
</tr>
<tr>
<td>Soil fertility</td>
<td>Level of mechanization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Capacity building</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Custom hiring centers</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poor productivity</th>
<th>Livestock</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interventions</strong></td>
<td><strong>Indications and monitoring mechanism</strong></td>
</tr>
<tr>
<td>Output</td>
<td>Increased income, employment, generation, nutritional security</td>
</tr>
<tr>
<td>Soil fertility</td>
<td>Milk and meat production</td>
</tr>
<tr>
<td></td>
<td>Organic meat production</td>
</tr>
<tr>
<td></td>
<td>Stall feeding and sheep and goats</td>
</tr>
<tr>
<td></td>
<td>Animal health camps</td>
</tr>
<tr>
<td></td>
<td>Fodder production and fertilization</td>
</tr>
<tr>
<td></td>
<td>Back yard poultry</td>
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<tr>
<td></td>
<td>Breed improvement</td>
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</table>
### Shortage of power

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Output</th>
<th>Solar energy</th>
<th>Effective use of renewable energy resources</th>
<th>Biogas</th>
<th>Biofuel plantation in waste land</th>
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</table>

### Sericulture

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Output</th>
<th>Silk production and income</th>
<th>Employment and income</th>
<th>Cattle fodder</th>
</tr>
</thead>
</table>

### Market linkages and value addition

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Output</th>
<th>Reduction in wastage, income</th>
<th>Better price</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Capacity building</th>
<th>IT enabled information system</th>
</tr>
</thead>
</table>

### Pests and diseases

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Output</th>
<th>Reduction in pest incidence</th>
<th>Healthy</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Reduced cost of cultivation</th>
<th>Pests and GM</th>
</tr>
</thead>
</table>
THANK YOU

COLLABORATING TO CHANGE

Zuari Agro Chemicals Ltd
The vision of Bhoochetana Mission Program (BCMP) is to sustainably improve the livelihoods of small and marginal farmers in the state by developing farmers’ centric, science-led inclusive market-oriented integrated farming systems participatory development approach.

The goal of the Bhoochetana Mission Program (BCMP) is to operationalise an integrated and participatory farming systems development approach for increasing agricultural productivity by 20 per cent in five years through convergence and better coordination amongst different agriculture research-extension and development sectors in the state for sustainably improving the livelihoods of the farmers through empowerment, capacity development with knowledge-based and market-oriented farmers’ centric partnership approach.

Objectives:
1. To strengthen the Bhoochetana consortium for increasing the crops (irrigated and rain-fed) yields by 20 per cent in five years in 30 districts of Karnataka through science-led development and new innovation systems.
2. To strengthen the institutional mechanisms such as seed villages, village seed banks, participatory research for development (PR4D), inputs supply, agricultural machinery hiring centres, farm extension through farm facilitators and communication systems for small and marginal farmers in the state for the DoA through capacity development, convergence, collective action, and partnerships.
3. To assess the impact of climate change in different agro-eco regions of the state in terms of anticipated shifts in the crop growing periods, water availability, major crop yields, and evaluate adaptation strategies for developing climate resilient farming systems.
4. To document the process of consortium functioning, learning, and impact of BCMP in terms of increased crop yields, institutional development, and capacity building of different stakeholders in the state.
What is Needed

- Opportune time to harness the positive energy generated in the DoA and to adopt and institutionalise the science-led development approach in the state.
- Strengthen the consortium and linkages with SAUs e.g. India-EU Project, Indo-US, special projects etc.
- Urgent need to develop sustainable agricultural practices considering the vulnerability of the fragile rain-fed agro-ecosystems while intensifying the systems.
- To enhance not only the productivity but also to enhance the nitrogen use efficiency (NUE) and water use efficiency (WUE).
- Efficient soil health assessment methods.
- Make small farm holders equal partners thru inclusive growth.

What is New?

- To assess the impact of climate change in different agro-eco regions of the state in terms of anticipated shifts in the crop growing periods, water availability, major crop yields, and evaluate adaptation strategies for developing climate resilient farming systems.
- Identify suitable team members from the SAUs and form a Climate Change Team (CCT) at state level to handle assessment of impacts of climate change at micro level in a coordinated manner.
- Train the CCT members and identify suitable simulation models to assess the impacts of climate change on the selected crops in the different districts and agro-eco regions in the state.

Impacts of Climate Change: Increased Dryland Areas

- Collate the historical weather data sets, soils information and put them in suitable format after quality check for use in the CC models.
- Assess the impacts of climate change on changes in the agro-eco regions in the state, crop growing period, crop yields, and identify suitable crops as adaptation strategy to cope with the impacts of climate change.
- Evaluate selected adaptation strategies in the benchmark locations of the target agro-eco regions in the state.
- Develop awareness amongst the farmers in the state about the potential impacts of climate change on their crops and livelihoods and potential adaptation strategies based on the results of the participatory evaluation of adaptation strategies in the bench mark locations.

Climate Change Network in the State
New Extension System to be Strengthened thru FFSs

Thank you!

Expected Outputs

- Increased awareness amongst the development department staff, farmers and policy makers about the anticipated impacts of climate change
- Tested interventions as adaptation strategy for the farmers to cope with the impacts of climate change
- Trained climate ready human resource and inventory of good success stories from the BOiEP
- Sustainability intensification of agriculture for improving livelihoods of farmers thru innovative science-fed and farmers centric BOiEP

• Tablet-based knowledge sharing
<table>
<thead>
<tr>
<th>Variety</th>
<th>YS-203</th>
<th>YS-201</th>
<th>YS-202</th>
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<tbody>
<tr>
<td>UAS, Dharmar</td>
<td>10.31</td>
<td>10.33</td>
<td>10.28</td>
<td>10.25</td>
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<tr>
<td>UAS, Raichur</td>
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### Cereals

<table>
<thead>
<tr>
<th>Crop</th>
<th>Variety</th>
<th>Progress</th>
<th>Balance Stock</th>
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### Oil Seeds

<table>
<thead>
<tr>
<th>Variety</th>
<th>Sales Target</th>
<th>Availability</th>
<th>Total</th>
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<tbody>
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### Pulses

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<tr>
<th>Variety</th>
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**UAS, Raichur**

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<th>Variety</th>
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**Remarks**

- Data not included in the report.

**Pulses**

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<tr>
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<th>Availability</th>
<th>Total</th>
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</table>
### DETAILS OF VARIETAL NOTIFICATION

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<thead>
<tr>
<th>NO</th>
<th>CROP</th>
<th>VARIETY</th>
<th>YEAR OF NOTIFICATION</th>
<th>AGE AS ON 2012</th>
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### 4RAGI

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### SPADDY

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Thank you!
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<thead>
<tr>
<th>Crops</th>
<th>SI No.</th>
<th>Yield in Bhoochetana block Qntls/ha.</th>
<th>Average Yield</th>
<th>Lowest Yield</th>
<th>Highest Yield</th>
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<td>5</td>
<td>2</td>
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<td>15</td>
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<td>5</td>
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<td>Cotton</td>
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<td>9.75</td>
<td>4</td>
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Average Yield in non-Bhoochetana block Qntls/ha.

% Difference in Yield

Yield Analysis Data of Bhoochetana Blocks in Mysore District
SHOOGHETANA SECOND PHASE
WORKSHOP:
DATE 1-3-2013 to 2-3-2013
PLACE: ICRISAT, HYDERABAD

Joint Director of Agriculture
Bihar

GENERAL INFORMATION ON AGRICULTURE SCENARIO IN BIDAR DISTRICT

- Total Geographical Area: 541765 ha
- Total Cultivable Area: 453180 ha
- Total Kharif sown Area: 344600 ha
- Total Rabi sown Area: 108500 ha
- Irrigated Area: 46420 ha
- No. of Small and Marginal farmers: 159624
- Small and Marginal farmers area: 169666 ha
- No. of Big farmers: 78785
- Big farmers area: 297853 ha
- Total no. of Rainta Sanksha Kendras: 30
- Total no. of Govt. co-operative societies: No. of PKPS- 41
  for fertilizer sale: KSDA- 17
- Total no. of Private fertilizer dealers: 141

RAINFALL PATTERN IN BIDAR DISTRICT
**Main Objectives of Bhoochetana**

1. Increase the food production in rainfed areas.
2. Recommendation of macro and micro nutrients on basis of soil analysis.
3. To maintain the soil fertility.
4. Increase the yield potential up to 20% from average yield.
5. Upliftment of socio-economic condition of farmers of rainfed area.

### Taluka Wise Bhoochetana Kharif Target Area & Sown Area 2012-13

<table>
<thead>
<tr>
<th>Season</th>
<th>Crop</th>
<th>Target (ha)</th>
<th>Area covered (ha)</th>
<th>Target</th>
<th>Area covered</th>
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### Taluka Wise Bhoochetana Rabi Target Area & Sown Area 2012-13

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<th>Target (ha)</th>
<th>Area covered (ha)</th>
<th>Target</th>
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### Success Stories Under Bhoochetana in Bidar District 2012-13

<table>
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<tr>
<th>No.</th>
<th>Farmer Name</th>
<th>Age</th>
<th>Address</th>
<th>Crop and Water Source</th>
<th>Sowing Date</th>
<th>Harvesting Date</th>
<th>The Facility / Scheme</th>
<th>Farmers Received Inputs Such as</th>
<th>The Yield Levels Before Adoption of the Improved Technologies</th>
<th>The Yield Levels After Adoption of the Improved Technologies</th>
<th>Percentage Improvement</th>
<th>Financial Benefits by Adopting Bhoochetana Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sh. Devendra S/o. Madhuk Pradhe</td>
<td>58 years</td>
<td>Village: Javvala, P.O.: Javvala, Taluk: Bidar, Dist: Bidar, Karnataka</td>
<td>Green Gram, Rainfed farming</td>
<td>25-09-2012</td>
<td>24-08-2012</td>
<td>Rio Boro</td>
<td>i. DAP(10 kg/acre) ii. Gypsum (60 kg/acre) iii. Zinc sulphate (5 kg/acre) iv. Borax (1 kg/acre) v. Trichoderma (100 ml/acre) vi. Neem oil (1.5 ltr/acre)</td>
<td>Check plot: 3.50 quintals per acre</td>
<td>Improved Practice: 4.00 quintals per acre</td>
<td>15% increase</td>
<td>The present market rate of Green gram was Rs. 12.00 per kg. After adoption of Bhoochetana technologies, farmers get Rs. 17.00 per kg addition</td>
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### SUCCESS STORIES UNDER BHOOCHETNA IN BIDAR DISTRICT 2012-13

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Farmer name</th>
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<th>Address</th>
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<th>Variety</th>
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<td>Green Gram</td>
<td>Rawat Hedding</td>
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### TALUKA WISE DRYLAND KHARIF AREA TO BE COVERED UNDER BHOOCHETNA FOR THE YEAR 2013-14

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<th>Crop</th>
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<th>Bhari</th>
<th>Rasinahapin</th>
<th>Hummohobin</th>
<th>Arad</th>
<th>Total</th>
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<td>9000</td>
<td>7000</td>
<td>7000</td>
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<td>40000</td>
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<td>Green gram</td>
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<td>9000</td>
<td>6000</td>
<td>6000</td>
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<td>Hy Jowar</td>
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### TALUKA WISE DRYLAND RABI AREA TO BE COVERED UNDER BHOOCHETNA FOR THE YEAR 2013-14

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<td>20000</td>
<td>20000</td>
<td>111000</td>
</tr>
</tbody>
</table>
### TALUKA WISE TOTAL DRYLAND AREA TO BE COVERED UNDER BHOOCHETNA FOR THE YEAR 2013-14

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Taluka</th>
<th>Total Dryland area (ha)</th>
<th>No. of Villages</th>
<th>Total no of Facilitator</th>
<th>Total lead farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bidar</td>
<td>60350</td>
<td>124</td>
<td>60</td>
<td>300</td>
</tr>
<tr>
<td>2</td>
<td>Bhalki</td>
<td>95000</td>
<td>130</td>
<td>95</td>
<td>475</td>
</tr>
<tr>
<td>3</td>
<td>B.Kalyan</td>
<td>78500</td>
<td>112</td>
<td>78</td>
<td>390</td>
</tr>
<tr>
<td>4</td>
<td>Humnabad</td>
<td>69100</td>
<td>82</td>
<td>69</td>
<td>345</td>
</tr>
<tr>
<td>5</td>
<td>Aurad</td>
<td>100550</td>
<td>151</td>
<td>100</td>
<td>500</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>403500</td>
<td>599</td>
<td>402</td>
<td>2010</td>
</tr>
</tbody>
</table>

### BHOOCHETANA ACTION PLAN 2013-14

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of the Taluka</th>
<th>Name of the Crop</th>
<th>Target area on Hact.</th>
<th>No of Facilitator Required</th>
<th>No of lead farmers required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BIDAR</td>
<td>SUGARCANE</td>
<td>3000</td>
<td>12</td>
<td>80</td>
</tr>
<tr>
<td>2</td>
<td>BHALKI</td>
<td>SUGARCANE</td>
<td>2000</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>3</td>
<td>BAVNALKALAN</td>
<td>SUGARCANE</td>
<td>3000</td>
<td>12</td>
<td>80</td>
</tr>
<tr>
<td>4</td>
<td>HUMNABAD</td>
<td>SUGARCANE</td>
<td>3000</td>
<td>12</td>
<td>80</td>
</tr>
<tr>
<td>5</td>
<td>AURAD</td>
<td>SUGARCANE</td>
<td>1500</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>12500</td>
<td>80</td>
<td>290</td>
</tr>
</tbody>
</table>

### Requirement of Inputs for 2013 - 14 of Bidar District

<table>
<thead>
<tr>
<th>Taluka</th>
<th>Requirement of micro nutrients (MT)</th>
<th>50% Requirement of micronutrient (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gypsum</td>
<td>Zinc</td>
</tr>
<tr>
<td>Bidar</td>
<td>9502</td>
<td>633</td>
</tr>
<tr>
<td>Bhalki</td>
<td>14550</td>
<td>1455</td>
</tr>
<tr>
<td>Basav Kalyan</td>
<td>12225</td>
<td>815</td>
</tr>
<tr>
<td>Humnabad</td>
<td>10815</td>
<td>721</td>
</tr>
<tr>
<td>Aurad</td>
<td>15307</td>
<td>1530</td>
</tr>
<tr>
<td>Total</td>
<td>62389</td>
<td>5154</td>
</tr>
</tbody>
</table>

### Bhoochetana action plan for inputs 2013-14 of Bidar District

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Taluka</th>
<th>Quantity Requirement of Biofertilizer (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Micobium</td>
</tr>
<tr>
<td>1</td>
<td>Bidar</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>Bhalki</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>Basav Kalyan</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Humnabad</td>
<td>17</td>
</tr>
<tr>
<td>5</td>
<td>Aurad</td>
<td>22</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>94</td>
</tr>
</tbody>
</table>
**MAJOR ACHIEVEMENTS:**

- Improvement in Soil fertility & Health Status of Soil.
- Farmers have realized the beneficial effect of Micronutrients

**BEST PRACTICES**

- Use of Micronutrients coupled with organic manures like FYM, Vermicompost, Agrigold etc.
- Application of Micronutrients before sowing.

**BEST PRACTICES Contd...**

Adoption of Drip irrigation System in sugarcane Crop.

**BEST PRACTICES Contd...**

- Transplanting & dibbling method in Redgram
LUXURIOUS GROWTH OF TRANSPLANTED REDGRAM

BEST PRACTICES Contd...

- Timely Sowing, Fertilizer application, Intercultural Operations and harvesting.

BEST PRACTICES Contd...

- Regular training of extension staff & farm facilitators regarding crop yield estimation by DSD and others.

BEST PRACTICES Contd...

- CC experiments were conducted under the supervision of senior staff ADA(SMS) & ICRISAT Technician.
BEST PRACTICES Contd...

CC experiments were conducted under the supervision of senior staff JDA & ICRISAT Technician.

BEST PRACTICES Contd...

Regular pest surveillance of different crops by rapid roving involving KSDA officials and UAS Scientist.

PEST SURVEILLANCE LEAFLETS
**CONSTRAINTS**

- Timely inputs prepositioning in RSX’s & cluster village points.
- Poor packaging material of Gypsum, Zinc Sulphate, lead to damage of bags & creating problem for handling.
- Awareness of the programme to farming community.

**SUGGESTIONS**

- Providing Technical Staff at RSX levels.
- Wide publicity of programme through famous personalities.

**BEST PRACTICES**

- Adoptions of IPM package in Bhoochotana plots through convergence of different schemes (A3P Kits).
- Providing market linkage for small farmer groups through SFAC Group in some areas.

**SUGGESTIONS**

- Standardising the packaging material of Gypsum & Zinc Sulphate.
- More involvement of KVK Scientist & water shed Department (Ex: Bidar INMP treated - 32000 ha in B-I & B-II)
- Effective convergence of different dept Schemes with Bhoochotana.
- TRAINING TO FARMER FACILITATORS WELL IN ADVANCE
- CAMPAIGNING ABOUT TECHNOLOGY
- INPUT PREPOSITIONING
- ENSURE TIMELY INPUT AVAILABILITY
- FARMER FIELD SCHOOLS
- Soil fertility testing and card distribution
- Wall writing, village jathas, processions
- Hobli level, cluster level and village level meetings
- Timely planning for requirement of inputs
- Prepositioning of inputs at strategic locations for distribution
- Convergence with ongoing schemes for effective and dynamic contingent plan and continues input requirement re-assessment

TRAINING TO FARMER FACILITATORS

CAMPAIGNING ABOUT TECHNOLOGY

INPUT PREPOSITIONING

ENSURE TIMELY INPUT AVAILABILITY

FARMER FIELD SCHOOLS
• TRAINING TO FARMER FACILITATORS
  • WELL IN ADVANCE
  • CAMPAIGNING ABOUT TECHNOLOGY
  • INPUT PREPOSITIONING
  • ENSURE TIMELY INPUT AVAILABILITY

FARMER FIELD SCHOOLS

• Farmers are facilitators (trainers)
• Supplement/compliment in formation of CNG/PG making

• Crop management decision by agro-ecosystem analysis (AESAnA)
• Skill in crops per contingent plan to suit rainfall pattern (jowar to bajra & maize)
• Seed treatment campaign
• Maintaining optimum plant population
• Gap for every 2 mts in paddy
• Adoption of WM and IPM techniques
• Inter cropping and mixed cropping
• Conduct short studies (e.g., Compensation studies)
• Experiments (Varied trials in cotton & paddy)
CONSTRAINTS

- Timely input supply.
- Storage and handling of bulk inputs and its distribution
- Financial risks
- Farmer facilitator conducting 2 FFS.

CROP CUTTING EXPERIMENT
RESULTS OF KHARIF 2012

COTTON CROP CUTTING – SIRUGUPPA TALUK

CROP CUTTING EXPERIMENTS RESULTS OF DIFFERENT CROPS, KHARIF 2012

<table>
<thead>
<tr>
<th>Crop</th>
<th>Plot</th>
<th>Estimated Final yield (kg/ha)</th>
<th>% increase in yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy</td>
<td>Check</td>
<td>16.48 2634 6584</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Treated</td>
<td>19.31 3090 7724</td>
<td></td>
</tr>
<tr>
<td>Bajra</td>
<td>Check</td>
<td>2.89  462  1156</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Treated</td>
<td>3.52  565  1408</td>
<td></td>
</tr>
<tr>
<td>Maize</td>
<td>Check</td>
<td>6.81  1089 2723</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Treated</td>
<td>8.28  1325 3313</td>
<td></td>
</tr>
<tr>
<td>Groundnut</td>
<td>Check</td>
<td>2.18  349  874</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Treated</td>
<td>2.62  419  1047</td>
<td></td>
</tr>
<tr>
<td>Sunflower</td>
<td>Check</td>
<td>2.09  167  419</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Treated</td>
<td>2.49  199  498</td>
<td></td>
</tr>
<tr>
<td>Tur</td>
<td>Check</td>
<td>1.02  163  408</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Treated</td>
<td>1.48  236  591</td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>Check</td>
<td>7.095 1135 2838</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Treated</td>
<td>9.645 1543 3858</td>
<td></td>
</tr>
</tbody>
</table>
**Soil Health Status**

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Deficit (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic Carbon</td>
<td>69</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>12</td>
</tr>
<tr>
<td>Potash</td>
<td>1</td>
</tr>
<tr>
<td>Sulphur</td>
<td>13</td>
</tr>
<tr>
<td>Zinc</td>
<td>26</td>
</tr>
<tr>
<td>Boron</td>
<td>60</td>
</tr>
<tr>
<td>Iron</td>
<td>19</td>
</tr>
<tr>
<td>Copper</td>
<td>29</td>
</tr>
<tr>
<td>Manganese</td>
<td>11</td>
</tr>
</tbody>
</table>

**Soil Analysis Maps**

- Nitrogen (OC)
- P2O5
- K2O
- Zinc
- Boron
- Iron

**Institutional Bhoochethana Workshop**

Venue: DATC, Rangasamudra, Mysore

Venue: KVK Suttur
STOCKING OF INPUTS

<table>
<thead>
<tr>
<th>Number of Cluster godowns</th>
<th>224</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Indented</th>
<th>Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gypsum</td>
<td>12150</td>
</tr>
<tr>
<td>2</td>
<td>Zinc</td>
<td>350</td>
</tr>
<tr>
<td>3</td>
<td>Borax</td>
<td>150</td>
</tr>
</tbody>
</table>

BEST PRACTICES

1. Seed Treatment campaign
2. Farmers Field School
3. Introduction of Maize in irrigated paddy Area
4. Introduction of Maize in tribal area
5. Popularisation of rice planter
Popularisation of Rice transplanter

- No of farmers adopted: 1024
- Total Area: 824ha
- Average Yield: 50qtl/ha
- Increase in Yield against normal practice: 5qtl/ha

YIELD ANALYSIS DATA OF BHOOCHETANA BLOCKS IN MYSORE DISTRICT

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Crops</th>
<th>Yield in Bhoochetana block Qntls/ha</th>
<th>Average Yield</th>
<th>Highest Yield</th>
<th>Lowest Yield</th>
<th>Difference</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Paddy</td>
<td>55</td>
<td>49</td>
<td>65</td>
<td>40</td>
<td>15</td>
<td>27</td>
</tr>
<tr>
<td>2</td>
<td>Ragi</td>
<td>25</td>
<td>15</td>
<td>34</td>
<td>15</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>Maize</td>
<td>50</td>
<td>25</td>
<td>75</td>
<td>20</td>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>4</td>
<td>Cowpea</td>
<td>5</td>
<td>7</td>
<td>7</td>
<td>2</td>
<td>4.23</td>
<td>0.75</td>
</tr>
<tr>
<td>5</td>
<td>Avare</td>
<td>5</td>
<td>15</td>
<td>25</td>
<td>3</td>
<td>1.3</td>
<td>1.5</td>
</tr>
<tr>
<td>6</td>
<td>Groundnut</td>
<td>10</td>
<td>16</td>
<td>15</td>
<td>3</td>
<td>11.25</td>
<td>12.5</td>
</tr>
<tr>
<td>7</td>
<td>Cotton</td>
<td>9.75</td>
<td>9.75</td>
<td>22</td>
<td>4</td>
<td>7.25</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Constraints

1. Deficit in rainfall
2. Shortage of staff to supervise FF's work
Talukwise rainfall for the year 2012

<table>
<thead>
<tr>
<th>Sino</th>
<th>Taluk</th>
<th>Annual Rainfall</th>
<th>2012 rainfall</th>
<th>% deficit</th>
<th>deficit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hdkote</td>
<td>925</td>
<td>555.2</td>
<td>-370</td>
<td>40</td>
</tr>
<tr>
<td>2</td>
<td>Hunsur</td>
<td>788.1</td>
<td>408.6</td>
<td>-380</td>
<td>48</td>
</tr>
<tr>
<td>3</td>
<td>KR nagar</td>
<td>759.4</td>
<td>368.4</td>
<td>-391</td>
<td>51</td>
</tr>
<tr>
<td>4</td>
<td>Mysore</td>
<td>755.6</td>
<td>517.5</td>
<td>-238</td>
<td>32</td>
</tr>
<tr>
<td>5</td>
<td>Nanjangud</td>
<td>738.7</td>
<td>477.4</td>
<td>-261</td>
<td>35</td>
</tr>
<tr>
<td>6</td>
<td>Periyapatna</td>
<td>875.7</td>
<td>530.1</td>
<td>-346</td>
<td>39</td>
</tr>
<tr>
<td>7</td>
<td>T.Marsipura</td>
<td>759.6</td>
<td>385.3</td>
<td>-374</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>District</td>
<td>800.3</td>
<td>463.2</td>
<td>-337</td>
<td>42</td>
</tr>
</tbody>
</table>

Success Story of Rice Transplanter

1. Farmer Name: Sri Sudhir Nayak
2. Village: Horalvadi
3. Taluk: Nanjangud
4. Area: 3 Acre
5. Variety: BR2655
6. Yield: 36.6 qtls/Acre
7. Net Profit: Rs 28500/-

Success Story of Groundnut crop in rainfed area in Banalli hundi village

<table>
<thead>
<tr>
<th>2012-13</th>
<th>Area</th>
<th>1225ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area under bhoocheth area</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>2012-13 distrg yield</td>
<td>6.25 qtls/ha</td>
<td></td>
</tr>
<tr>
<td>Bhoocheth area plot yield</td>
<td>8.7 qtls/ha</td>
<td></td>
</tr>
</tbody>
</table>

One protective irrigation with micronutrients application – satisfactory yield
Success Story of maize in conventional paddy area

<table>
<thead>
<tr>
<th>Normal Area</th>
<th>2500ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13 area</td>
<td>2000ha</td>
</tr>
<tr>
<td>Area under bhoochethana</td>
<td>500ha</td>
</tr>
<tr>
<td>Normal yield</td>
<td>40qts/ha</td>
</tr>
<tr>
<td>Bhoochethana plot yield</td>
<td>48qts/ha</td>
</tr>
</tbody>
</table>

Under moisture deficit conditions Successful maize crop instead of paddy

2013-14 proposed area under bhoochethana

<table>
<thead>
<tr>
<th>Crop</th>
<th>Area(ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy</td>
<td>90000</td>
</tr>
<tr>
<td>Sugarcane</td>
<td>7000</td>
</tr>
<tr>
<td>Total</td>
<td>97000</td>
</tr>
</tbody>
</table>

2013-14 Bhoochethana

| Area(he) | 292000 |
| Farm Facilitators | 584 |
| Lead farmers | 2920 |
| number of villages | 1138 |
| FFS | 584 |
| Number of cluster godowns | 292 |

Grand Total | 292000
<table>
<thead>
<tr>
<th>Activities</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>District &amp; Taluk level Workshop</td>
<td>March 2013</td>
</tr>
<tr>
<td>Selection of villages Workshop</td>
<td>April 2013</td>
</tr>
<tr>
<td>Selection of Farm Facilitators</td>
<td>April 2013 1st fortnight</td>
</tr>
<tr>
<td>Farm Facilitators Training</td>
<td>May 2013</td>
</tr>
<tr>
<td>Region of farmers and Market survey</td>
<td>April 2013 2nd fortnight</td>
</tr>
<tr>
<td>Hobli level Training</td>
<td>April 2013 and May 2013</td>
</tr>
<tr>
<td>Cluster Village Training</td>
<td>April 2013 to August 2013</td>
</tr>
</tbody>
</table>

**Input Requirement**

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Quantity Quantity Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gypsum (100 kg/ha)</td>
<td>29200</td>
</tr>
<tr>
<td>Zinc Sulphate (5 kg/ha)</td>
<td>1460</td>
</tr>
<tr>
<td>Borax (2 kg/ha)</td>
<td>584</td>
</tr>
<tr>
<td>Bio fertilizer (0.5 kg/ha)</td>
<td>146</td>
</tr>
</tbody>
</table>
To document the process of consortium functioning, learning, and impact of BIMAP in terms of increased crop yields, institutional development and capacity building of different stakeholders in the State.

### ACTION PLAN FOR 2013

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>RAISED (AREA TARGET)</th>
<th>(in hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>97,500</td>
<td>147,500</td>
</tr>
<tr>
<td>Bangalore</td>
<td>34,000</td>
<td>54,000</td>
</tr>
<tr>
<td>Bangalore Urban</td>
<td>38,000</td>
<td>26,000</td>
</tr>
<tr>
<td>Belgaum</td>
<td>35,000</td>
<td>41,000</td>
</tr>
<tr>
<td>Belthangady</td>
<td>34,000</td>
<td>28,000</td>
</tr>
<tr>
<td>Bidar</td>
<td>29,000</td>
<td>40,000</td>
</tr>
<tr>
<td>Bijapur</td>
<td>28,000</td>
<td>38,000</td>
</tr>
</tbody>
</table>

### Objectives

To strengthen the institutional mechanisms such as seed development, village technology, joint action research for rainfed agriculture, intensification of inputs supply, agricultural machinery, training and extension, training and extension, for all categories of farmers and the State for the Department of Agriculture through capacity development, collective action and partnerships.
<table>
<thead>
<tr>
<th>District</th>
<th>Rainfed Area</th>
<th>Irrigated Paddy</th>
<th>Irrigated Sugarcane</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chittagong</td>
<td>123,000</td>
<td>1,200,000</td>
<td>4,000</td>
<td>1,327,000</td>
</tr>
<tr>
<td>Chittagong</td>
<td>123,000</td>
<td>1,200,000</td>
<td>4,000</td>
<td>1,327,000</td>
</tr>
<tr>
<td>Chittagong</td>
<td>123,000</td>
<td>1,200,000</td>
<td>4,000</td>
<td>1,327,000</td>
</tr>
<tr>
<td>Chittagong</td>
<td>123,000</td>
<td>1,200,000</td>
<td>4,000</td>
<td>1,327,000</td>
</tr>
</tbody>
</table>

**TOTAL:**

<table>
<thead>
<tr>
<th>Rainfed Area</th>
<th>Irrigated Paddy</th>
<th>Irrigated Sugarcane</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,327,000</td>
<td>4,000</td>
<td>1,327,000</td>
<td>5,00000</td>
</tr>
</tbody>
</table>

**PROGRAMME IMPLEMENTATION GUIDELINES FOR 2013-14**
### GUIDELINES

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Component</th>
<th>Existing</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Selection of farmer facilitators</td>
<td>Educational qualification not specified</td>
<td>Minimum SSLC</td>
</tr>
<tr>
<td>2</td>
<td>Duration of Farmer facilitators</td>
<td>120-180 days per season</td>
<td>180 days for kharif season predominant districts, 270 days for kharif+Rabi crop season districts and sugarcane</td>
</tr>
<tr>
<td>3</td>
<td>Area per Farmer facilitators</td>
<td>500 ha in dry land area, 250 ha in coastal areas and paddy &amp; sugarcane crops</td>
<td>500 ha for all dry land, paddy and sugarcane crops, 250 ha in coastal area</td>
</tr>
</tbody>
</table>

### GUIDELINES

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Component</th>
<th>Existing</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Honorarium to farmer facilitators</td>
<td>Rs 150 per working day</td>
<td>Rs 200 per working day</td>
</tr>
<tr>
<td>5</td>
<td>Lead farmer</td>
<td>Five lead farmers per farmer facilitator</td>
<td>Two lead farmers per farmer facilitator @ Rs. 100 per day for 15 days. <strong>Or</strong> Engaging one science graduate per hobi @Rs. 8000 per month for six months in kharif season predominant districts, nine months for kharif+Rabi crop season districts and Paddy &amp; sugarcane</td>
</tr>
</tbody>
</table>

### GUIDELINES

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Component</th>
<th>Existing</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Trainings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Institutional training</td>
<td>Additional trainings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>District level (Two workshops)</td>
<td>Two days training to all extension officers on FFS and climate change studies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Taluk level (Two workshops)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Habi and cluster trainings (Two trainings per season)</td>
<td>Streamlining bimonthly workshops</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Field days</td>
<td>Priority to be given for New variety and innovative components</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Purchase of T-shirts, Bags and caps for Farmer facilitators under publicity component</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Writings</td>
<td>Wall writings in villages</td>
<td>In addition to wall writings, captions to be written on tractors and other hi-tech machineries</td>
</tr>
</tbody>
</table>
ROLES AND RESPONSIBILITIES OF CONSORTIUM PARTNERS

ICRISAT
- To give technical recommendations
- Participation in district level technical committee meetings
- To appoint and monitor the activities of research technicians
- To monitor crop cutting experiments and documentation
- To submit half yearly and annual reports inclusive of all activities of Bhoochetana
- To pilot run Tablet based extension in four districts
- To come out with action plan for climate resilient studies and give suitable recommendations

KSNMDC
- Provide guidance for action plan, climate resilient studies and give suitable recommendations

KSSC
- To monitor seed production programme
- To introduce new varieties
- Provide guidance for setting up of Seed banks

UNIVERSITIES
- Provide guidance and monitor the functioning of KIOSKS
- To guide Climate resilient studies and give suitable recommendations
- Capacity building activities
- To make action plan for multiplication of new varieties

EXPECTED OUTPUTS

Increased yields of major crops by 20 per cent over average yields recorded in the state during first phase of four years of BC mission project.

Through village seed banks, seeds of improved crops will be available for the farmers.

Ready inventory of the tested interventions as adaptation strategy for the farmers to cope with the impacts of climate change and climate resilient farming systems for the farmers.
**CGIAR; Consortium initiative & Mission mode “Bhoochetana-II”**

**“INPUT MANAGEMENT - STRATEGIES & CHALLENGES”**

Presented by:

Dr. H. Subbaiah
Addl. Director of agriculture (Organic Farming)

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**Input Management – Challenges**

- Study of Soil Health analysis since 2008 to 2012
- Diagnosing of macro & micro nutrient status – gave a big headway.
- Nutrient status mapping and fertility status for all the 30 districts.
- Taluk wise, crop wise nutrient recommendations and fertilizer dosages for major crops were finalized zone wise.
- INM & NRM’s - most important
- Raichur (Sindanoor Tq) & Bijapur (Bijapur Tq) – Alkalinity problem; Gypsum application, Drainage, Green manure & Salt tolerant crops

---

**Distribution of Micronutrients in Bhoochetana Programme**

<table>
<thead>
<tr>
<th>Year</th>
<th>Season</th>
<th>Area covered</th>
<th>Qty. consumed (MT)</th>
<th>Nutrients (Kg./Ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZnO#</td>
<td>Gypsum</td>
</tr>
<tr>
<td>2009</td>
<td>K</td>
<td>2.25</td>
<td>372</td>
<td>4309</td>
</tr>
<tr>
<td></td>
<td>R</td>
<td>0.59</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2010</td>
<td>K</td>
<td>12.72</td>
<td>2723</td>
<td>35376</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>3.70</td>
<td>362</td>
<td>5395</td>
</tr>
<tr>
<td>2011</td>
<td>K</td>
<td>2844</td>
<td>9775</td>
<td>96234</td>
</tr>
<tr>
<td></td>
<td>R</td>
<td>6.60</td>
<td>1678</td>
<td>12475</td>
</tr>
</tbody>
</table>

- Steady increase in consumption of micronutrients- Reanalyse and revise the recommendation.
- Farmers responded as results are highly encouraging.
- Large scope for coming projects.

---

**Soil Health analysis and Input Management - location specific science led initiative**

- 6.95 lakhs soil samples analysed (2008-09 to 2012-13)
- Soils are poor in N, P and deficient in Boron, Zinc and Sulphur.
- Use of Micronutrients-encouraging results.
- Large quantities of soil amendments.
- Application of Bio-fertilizers
- Incorporation of huge quantities of Organic manures, Vermi compost, City compost, Green manures etc- *Emphasizing INM*
Gypsum application from 4309 MT to 1,12,270 MT (Requirement for Kharif 2013 - 5.88 lakh MT)

ZnSO4 372 MT to 14,422 MT (Kharif 2013-29,000MT)

Borax 53 MT to 4092 MT (Kharif 2013 - 14,500 MT)

Soil Health Cards (individual), Wall painting on soil fertility status.

Internalization of Soil Health Management has to be a continuous process.

### Soil Fertility Status-2008-12

<table>
<thead>
<tr>
<th>Micronutrients</th>
<th>% Deficiency</th>
<th>% Adequate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>67.34</td>
<td>32.66</td>
</tr>
<tr>
<td>Iron</td>
<td>32.95</td>
<td>67.05</td>
</tr>
<tr>
<td>Manganese</td>
<td>8.28</td>
<td>91.71</td>
</tr>
<tr>
<td>Copper</td>
<td>6.10</td>
<td>93.90</td>
</tr>
<tr>
<td>Boron</td>
<td>58.22</td>
<td>41.78</td>
</tr>
<tr>
<td>Sulphur</td>
<td>52.00</td>
<td>48.00</td>
</tr>
</tbody>
</table>

### Soil Fertility Status Of Tumkur

<table>
<thead>
<tr>
<th>% Normal</th>
<th>% Critical</th>
<th>% Injurious</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td>99.16</td>
<td>0.37</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Acidic</th>
<th>% Neutral</th>
<th>% Alkaline</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>23.29</td>
<td>73.49</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Low</th>
<th>% Medium</th>
<th>% High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>91.13</td>
<td>7.88</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>17.78</td>
<td>55.22</td>
</tr>
<tr>
<td>Potash</td>
<td>8.21</td>
<td>44.40</td>
</tr>
</tbody>
</table>

Application of FYM and bio-fertilizers to improve soil organic carbon status and soil microbial growth.
**Soil Fertility Status Of Chikmagalur**

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>% Normal</th>
<th>% Critical</th>
<th>% Intolerant</th>
<th>% Low</th>
<th>% Medium</th>
<th>% High</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>36.41</td>
<td>29.44</td>
<td>5.45</td>
<td>6.26</td>
<td>33.22</td>
<td>60.92</td>
</tr>
</tbody>
</table>

Nitrogen: 38.07% Low, 34.13% Medium, 27.79% High
Phosphorus: 14.74% Low, 29.44% Medium, 55.82% High
Potash: 6.26% Low, 33.22% Medium, 60.92% High

- Acidity can be overcome by application of agricultural lime or dolomite
- Application of rock phosphate in heavy rainfall areas to improve fertilizer use efficiency.

**Soil Fertility Status Of Raichur**

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>% Normal</th>
<th>% Critical</th>
<th>% Intolerant</th>
<th>% Low</th>
<th>% Medium</th>
<th>% High</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td>99.92</td>
<td>0.08</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>0.03</td>
<td>96.93</td>
<td>2.09</td>
<td>0.47</td>
<td>48.86</td>
<td>50.67</td>
</tr>
</tbody>
</table>

Nitrogen: 2.21% Low, 93.66% Medium, 4.32% High
Phosphorus: 1.81% Low, 92.56% Medium, 5.64% High
Potash: 0.47% Low, 48.86% Medium, 50.67% High

- Application of Gypsum to reclaim alkali soils followed by good drainage.
- Green manuring in-situ to improve soil health.
- Application of FYM atleast once in two years.
- Growing salt tolerant crops like paddy, sugarcane, maize etc.

**Soil Fertility Status Of Bijapur**

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>% Normal</th>
<th>% Critical</th>
<th>% Intolerant</th>
<th>% Low</th>
<th>% Medium</th>
<th>% High</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td>92</td>
<td>6</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>2</td>
<td>94</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Application of Gypsum to reclaim alkali soils followed by good drainage.
- Green manuring in-situ once in a year to improve soil health.
- Application of FYM atleast once in two years.
- Growing salt tolerant crops like paddy, sugarcane, maize etc.

**SEED DISTRIBUTION**

Seed distribution during 2012-13 (As on January 2013)
(Quantity in quintals)

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Kharif 2012</th>
<th>Rabi/Summer 2012-13</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Target</td>
<td>Achievement</td>
<td>Target</td>
</tr>
<tr>
<td>Cereals</td>
<td>515115</td>
<td>462347</td>
<td>192446</td>
</tr>
<tr>
<td>Pulses</td>
<td>61448</td>
<td>48377</td>
<td>231400</td>
</tr>
<tr>
<td>Gobberes</td>
<td>389146</td>
<td>389146</td>
<td>95133</td>
</tr>
<tr>
<td>Cottan</td>
<td>84320</td>
<td>8894</td>
<td>2432</td>
</tr>
<tr>
<td>TOTAL</td>
<td>887123</td>
<td>829196</td>
<td>521419</td>
</tr>
</tbody>
</table>

175
Reduce seed rate usage by following methods:

Paddy: Encourage drill sowing. Adoption of SRI method Extensively.

Ragi: Encourage drill sowing. Follow Transplantation method.

Sugarcane: Usage of One eyed disease free cane. Sowing in pair rows with wider spacing.


Effective implementation of Seed treatment campaigns.

- Draw service Seed samples from farmer saved seeds and subject them for analysis to confirm germination and ensure seed treatment is done.
- Seeds produced by purchase through department, publicity should be given to use such seeds for forth coming 3 seasons.

Measures taken to overcome Seed shortage:

- Seed producers meetings are conducted to discuss shortage of seeds and informed them to meet shortage of seeds.
- Seed producers are advised to give priority for recently released varieties (< 10 year old varieties).
- Seed producing agencies to concentrate on increasing area under Certified seed production.
- Seed producers should supply treated seeds to farmers with treated chemicals and biofertilizers.
New varieties that need to be popularised

<table>
<thead>
<tr>
<th>Rank</th>
<th>Crops</th>
<th>Variety</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Paddy</td>
<td>Uma</td>
</tr>
<tr>
<td></td>
<td>Paddy</td>
<td>JGL-1788</td>
</tr>
<tr>
<td></td>
<td>Paddy</td>
<td>Athira</td>
</tr>
<tr>
<td></td>
<td>Paddy</td>
<td>Mi-Triveni</td>
</tr>
<tr>
<td></td>
<td>Paddy</td>
<td>IET-13901</td>
</tr>
<tr>
<td>2</td>
<td>Ragil</td>
<td>MR-1</td>
</tr>
<tr>
<td></td>
<td>Ragil</td>
<td>MR-2</td>
</tr>
<tr>
<td></td>
<td>Ragil</td>
<td>VLM-324</td>
</tr>
<tr>
<td></td>
<td>Ragil</td>
<td>MR-6</td>
</tr>
<tr>
<td></td>
<td>Ragil</td>
<td>GPU-48/34</td>
</tr>
<tr>
<td></td>
<td>Ragil</td>
<td>ML-365</td>
</tr>
<tr>
<td>3</td>
<td>Jowar</td>
<td>CSV-22</td>
</tr>
<tr>
<td></td>
<td>Jowar</td>
<td>Vasudha</td>
</tr>
<tr>
<td></td>
<td>Jowar</td>
<td>CSV-23</td>
</tr>
<tr>
<td></td>
<td>Jowar</td>
<td>AKMS-14A</td>
</tr>
<tr>
<td></td>
<td>Jowar</td>
<td>AKR-150</td>
</tr>
<tr>
<td></td>
<td>Jowar</td>
<td>5-4-2</td>
</tr>
<tr>
<td></td>
<td>Jowar</td>
<td>Multani</td>
</tr>
<tr>
<td>4</td>
<td>Maize</td>
<td>EN-434042</td>
</tr>
<tr>
<td></td>
<td>Maize</td>
<td>Dh-1</td>
</tr>
<tr>
<td></td>
<td>Maize</td>
<td>NAH-2048</td>
</tr>
<tr>
<td></td>
<td>Maize</td>
<td>Arjun</td>
</tr>
<tr>
<td></td>
<td>Maize</td>
<td>KDM-18</td>
</tr>
<tr>
<td></td>
<td>Maize</td>
<td>CJK-15</td>
</tr>
</tbody>
</table>

Swabeejabhivruddhi Yojane

- To motivate the farmers and to increase the area under seed production, the scheme Swabeejabhivruddhi Yojane is being implemented in the state from 2013-14.

- This scheme is being implemented in coordination with the State Seed Producing Organisations like KSSC, KKD, NSC & State Agriculture Universities.

- This scheme is implemented at field level in the cluster villages.

- Under Swabeejabhivruddhi yojane following components are facilitated to seed producing farmers:
  1. Seed Certification charges.
  2. Seed storage Godowns.
  3. Grading equipments.
  4. Spiral separator.
  5. Digital Moisture meters.
  6. Threshing points.
  7. Tarpaulin Distribution.

Fertilizer Requirement for Kharif 2013

<table>
<thead>
<tr>
<th>Fertilizer Grade</th>
<th>QUANTITY (lakh tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAP</td>
<td>5.00</td>
</tr>
<tr>
<td>MOP</td>
<td>2.90</td>
</tr>
<tr>
<td>NPK</td>
<td>7.50</td>
</tr>
<tr>
<td>UREA</td>
<td>8.00</td>
</tr>
<tr>
<td>SSP</td>
<td>0.25</td>
</tr>
<tr>
<td>TOTAL</td>
<td>23.65</td>
</tr>
</tbody>
</table>
### Inputs Required during Kharif 2013

<table>
<thead>
<tr>
<th>Component</th>
<th>Total Qty. Req. (As per recommendation)</th>
<th>50% of the requirement</th>
<th>Total Amt. Req. for 50% of the requirement</th>
<th>50% Subsidy</th>
<th>Subsidy amount</th>
<th>Total Amt. Req. (including subsidy)</th>
<th>50% Subsidy</th>
<th>Subsidy amount</th>
<th>Total Amt. Req. (including subsidy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZnSO4</td>
<td>40.00 kg</td>
<td>20.00 kg</td>
<td>20.00 kg</td>
<td>12.50</td>
<td>12.50</td>
<td>22.50 kg</td>
<td>12.50</td>
<td>12.50</td>
<td>22.50 kg</td>
</tr>
<tr>
<td>Borax</td>
<td>0.50</td>
<td>0.25</td>
<td>0.25</td>
<td>0.25</td>
<td>0.25</td>
<td>0.50 kg</td>
<td>0.25</td>
<td>0.25</td>
<td>0.50 kg</td>
</tr>
</tbody>
</table>

### Enhancement in Key Inputs Consumption during Kharif Season from 2009 to 2012

<table>
<thead>
<tr>
<th>Component</th>
<th>Input distribution (mt)</th>
<th>Input consumption (Kg/ha)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gypsum</td>
<td>4309</td>
<td>30.75</td>
<td></td>
</tr>
<tr>
<td>ZnSO4</td>
<td>312</td>
<td>20.00</td>
<td></td>
</tr>
<tr>
<td>Borax</td>
<td>53</td>
<td>3.33</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4674</td>
<td>26.08</td>
<td></td>
</tr>
</tbody>
</table>

### Probable Funds available under different schemes (Rs. in lakhs)

<table>
<thead>
<tr>
<th>Scheme total outlay</th>
<th>Amount available for inputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrichment of soil Fertility</td>
<td>75.00</td>
</tr>
<tr>
<td>ESOPDM (paddy)</td>
<td>62.00</td>
</tr>
<tr>
<td>NPSM - Rice</td>
<td>137.1</td>
</tr>
<tr>
<td>NPSM - Paddy</td>
<td>57.4</td>
</tr>
<tr>
<td>APPS (Tentative)</td>
<td>42.0</td>
</tr>
<tr>
<td>RXY (Boro-thetana)</td>
<td>52.0</td>
</tr>
<tr>
<td>Grand TOTAL</td>
<td>301.16</td>
</tr>
</tbody>
</table>

Steps need to be taken by the implementing officers for procurement of inputs:

- Give wide publicity to the soil fertility status.
- Assign specific responsibilities to farmer facilitators and lead farmers.
- Keep close vigil on working of farmer facilitators.
- Conduct periodical review regarding working of farmer facilitators.
Steps need to be taken by the implementing officers for procurement of inputs:

- Organize campaigns to create awareness and to motivate the farmers for use of these inputs.
- Avoid procurement of inputs having short validity period.
- Arrange for timely payment to the suppliers.
- Arrange wide publicity through leaflets, posters and other mass media.

Plant Protection

- Seed Treatment and demonstrations on campaign basis.
- Adoption of IPM techniques
- Bio control Agents
- Conducting Farmers Field Schools
- Use of Bio-pesticides, Neem based products and resistant cultivars
- Need based P.P. measures only.

Bhoochetana - Input management in paddy and sugarcane crops

- Irrigated crops responded better to input application compared to rainfed crops.
- Input management, irrigation use efficiency achieved higher returns.
- Paddy: timely supply of inputs transplanters and other equipment, custom hiring center. SRI methodology successful. SIP: semi irrigated paddy needs efforts of field level functionaries in few districts.

Bhoochetana - Input management in paddy and sugarcane crops

- Sugarcane: input supply, SRI (Sugar cane Renewed Intensification)
  - minimizes seed rate and vital water input. Planting and harvesting equipment and custom hiring centers.
Pest Surveillance and Advisory Unit

- Pest surveillance and advisory units have been constituted both at State and District levels.
- Pest surveillance and advisory unit meetings are conducted pertaining to occurrence and incidence of pests and diseases in different crops and their management practices are being conducted on monthly basis with the active participation of Agriculture Department, selected District Joint Directors of Agriculture (DJDAs), CPME and Scientists from Agriculture Universities.

Input Management in Khair - most challenging

- Involvement of FMs, LSIs and Field level functionaries of KSDA, WDD etc.
- Cluster villages and godowns facilities
- Transportation and handling problems
- Timely availability of inputs and smooth distribution at peak sowing season
- Demonstration on lead farmers and innovative farmers fields
- Use of Tropicultures, Seed-cum-fertilizer drill, MFO’s, Rice Transplanters and other improved machinery.
- Critical inputs by SF/IMF, SC/ST farmers very crucial.

Quality Seed distribution

- District Seed Production Plan & 2nd Stage C/S prints at RS level
- Seed grades: RIIST/RIEST/GSH and farmers seed
- Seed distribution in per seed replacement norms
- Seed distribution in per seed replacement norms with new cultivars
- Seed distribution in per seed replacement norms with new cultivars
- Hybridisation
- Farmers preferred varieties
- Quality control and seed law enforcement
- Use of Tropicultures, Seed-cum-fertilizer drill, MFO’s, Rice Transplanters and other improved machinery
Learnings

- Soil Health is crucial for crop productivity
- Farmers convinced about the application of Micronutrients, Soil Amendments, Bio fertilizers, IPM, INM & FFs
- Judicious use of fertilizers is economical & sustainable, even under unfavorable conditions
- Involvement of KSDA's staff, line depts, FFs, LF's and CBOs (SHGs, UGs & AGs)

Affordability of the farmers to purchase Inputs
- Food security and yield improvement - through participatory Research, Capacity building, State policy and close monitoring at State level. And INPUT management.
- Rural livelihood i.e; Agriculture + Animal Husbandry is essential
  - Bhoochethana (II) “Plus Programmes” are important in CGIAR districts

THANK YOU
Graph showing the comparison between actual rainfall and normal rainfall during 2012-13 and 2013-14.

<table>
<thead>
<tr>
<th>Month</th>
<th>Actual Rainfall (mm)</th>
<th>Normal Rainfall (mm)</th>
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<tr>
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<tr>
<td>Feb</td>
<td>70.4</td>
<td>62.5</td>
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<tr>
<td>Mar</td>
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<td>95.7</td>
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<td>80.9</td>
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<td>79.5</td>
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<td>88.5</td>
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<td>95.7</td>
</tr>
<tr>
<td>Dec</td>
<td>95.7</td>
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Total: Actual Rainfall: 892.2 mm, Normal Rainfall: 892.2 mm.
Dept. Extension personnel guiding farmers regarding usage of Gypsum And Zn Sulfate in Ragi.

Usage of Gypsum and Zinc sulphate by Farmers during Ragi planting.

Dept Extension personnel guiding farmers regarding seed treatment under Bhoochetana.

Seed Treatment Campaign at village level.
Timely Input pre-positioning at cluster godowns

Information dissemination in weekly meetings under FFS
Improving rural livelihoods

* Understanding prevailing local problems based on their local needs:
  - Data collection
  - Survey
  - Conducting visual checks
  - Collection existing data from different sources
  - Participatory rural appraisal

* Gathering the problems:
  - Social
  - Economic
  - Environmental
  - Technological

Planning and implementation:
- Setting short, medium, long term
- Target individual group
- Type of RPS, technology

Training and development:
- Group approach: institutional, behavioral, leadership
- Renewed: New information
- Development skills: communication, technological
- Capabilities
- Capacity building activities

Tiptur-Totur input requirement-Month wise-2013-14

<table>
<thead>
<tr>
<th>Month</th>
<th>Total</th>
<th>2012-13</th>
<th>2013-14</th>
</tr>
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<td>Mar</td>
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<td>Apr</td>
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<td>50</td>
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<td>May</td>
<td>34</td>
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<td>Jun</td>
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<tr>
<td>Dec</td>
<td>34</td>
<td>50</td>
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</tr>
</tbody>
</table>
IMPROVED NEW CULTIVARS – SEED INTRODUCTION STRATEGIES

BY
Ananda Krishna.K
Managing Director
Karnataka State Seeds Corporation

NEED FOR NEW CULTIVARS

- Farmers requirements
- Cultivar deterioration/Decline in stability, yield
- Need to improve yield/Quality of production
- Value addition through new traits
- Susceptibility to pests and diseases
- Governmental Policies such as subsidies to new varieties

NEED FOR NEW CULTIVARS

- Grain cum fodder options
- Processing requirements
- To arrest stagnation in yields
- New consumption, industrial requirements
- Varietal obsolescence
- Competition
  Introduction of new cultivars is a continuous task for enabling productivity, production and quality for resilient economy

HOW DO WE GET NEW VARIETIES AND HYBRIDS

- ICAR and SAU plant breeding efforts (NARS)
- Breeding efforts by private sector seed companies
- By own Breeding/Research efforts
- Buy New hybrids/varieties/germplasm
- Adoptive trials
WE ARE DIFFERENT THE WAY WE ARE ORGANIZED

PRIVATE SEED CO
BOD
MD/CEO

BREEDING PRODN MARKETING HRD FINANCE
R&D

ALL ARE INTEGRATED

PUBLIC SEED SECTOR

ICAR EXTENSION SEED PRODN VARIETAL NOTIFICATION
R&D & QC & SAU
DOAs SSCs/SFCI GOI
SAU EXTN NSC/KOF MOA

ALL ARE DISINTEGRATED

>3000 varieties notified. Only 15% in multiplication chain

STRATEGIES/STEPS INVOLVED IN INTRODUCING NEW CULTIVARS

1. IDENTIFICATION OF THE NEED FOR INTRODUCTION
   • Replacement
   • Me too
   • Speciality production
   • Unique selling propositions

2. MARKET SEGMENTATION
   • Geographical
   • Duration with
   • Product Quality
   • Price Sensitivity

STRATEGIES/STEPS INVOLVED IN INTRODUCING NEW CULTIVARS

3. MULTI LOCATION TRIALS & DEMONSTRATIONS
4. COMMERCIAL CONSIDERATIONS
   • Channels
   • Remuneration
   • Logistics and Warehousing
   • Prepositioning strategies
5. SCALING UP OF SEED PRODUCTION
6. PRODUCT LAUNCHING WITH FAIRLY LARGE QUANTITIES
199

SITUATION IN PUBLIC SECTOR

1. SALs are our product developers and product managers.
2. Onus of breeding for new varieties and adoption trials rests with SALs.
3. In today’s context it is required to have a viable replacement plan.
5. Monitoring for new variety development and work together by BDA, SALs and SSSS.
Technology magnifies human intent and capability.

Successful technology interventions require support from well-intentioned, competent people or organizations.
Bhoochetana Workshop

Group II
Capacity Building: Innovative extension and awareness building

1. Extension Workers including FFs
2. Farmers

- Pre-season campaigns with tableaux depicting
  Success stories
- Availing Information Dept. facilities for campaigns,
  slide shows in cinema halls
- Arranging participatory, on hand training at village level

Extension Workers
- Pre-season, mid-term and post season training for Ews
- Effective use of video conference facility through
  sharing of experiences
- Innovative subventions
- Mobile alerts - voice calls, text SMS

- At DATC and KVKs
Wall Paintings

- Highlight in bold letters on bus stops, use small letters on GP and school walls.
- Media Alerts.
- Press field visits.
- Always use e-mails backed by sms alerts.
- Acknowledge achievements' details on walls, media.

NGOs:
- Arranging subject-wise trainings at DATCs, KVKs.
- Arranging night trainings, video shows, street plays.
- Visit to Krishi metas, interaction with scientists.
- Providing CDs on crops (Seed to Seed), farm enterprises concerned with value addition.
Thank You
Group-3

DOCUMENTATION

- Existing basic records to be updated and supervised in fortnightly reviews.
- All farmer facilitators to be revised by AOA of Taluka through prescribed format.
- Palm tops for each RSK for regular data upload.
- Video recordings - success stories to be uploaded in future.

DISSEMINATION

- TV advertisements - involving facilitator on hand.
- Exclusive slot for Kissan call center.
- Scrolling miss in local TV season.
- Selected farmer facilitators for Wise technologies.
- Publicity coordination with Information Department through community radio.

ONE FARMER FACILITATOR PER TALUKA TO BE ASSIGNED EXCLUSIVELY FOR DOCUMENTATION.

ONE HANDY-CAM PER TALUKA SHOULDN'T BE PROVIDE TO RECORD ACTUALS.

INVOVING LINE DEPT SCIENTISTS ON PARTICULAR DAY TO VILLAGES DURING SEASON TO ADDRESS FARMERS FIELD PROBLEMS.
CONSORTIUM PARTNERS
- KSDA
- SAUs/UHS/ICAR
- KSDMC
- KSSC/NSC/KOF/State supply agencies
- WDD/DOHS/DOF/DOF/Cooperation (Social Forestry/RDP/DES
- Agriculture Marketing
- NRSA
- NGOs

Taluka level Technical Committee
- ADA: Chairman
- Members: ADA, WDD, AO (SMHS), KVK, KVK

District level Technical Committee
- JOG Chair
- Members: DIO/DIO, DSS, DSS, DSS, District level Technical Committee

JOG CHART: To approve the taluka action plan. Review public
and recommend modifications based on local
publicity. Recommend innovative technologies for
adoption.
CONVERGENCE OF ACTIVITIES

- Seed production activities - Varietal replacement
- Fodder production
- Technology & demonstrations
- Supply of inputs

Training and Capacity Building
- Farm Mechanization and Micro Irrigation (Uniform pattern of subsidy)
- Information dissemination
- PHT - Value addition and market linkages
- Credit linkage

Demonstration & FFS
- New Varieties
- Innovative Technology
- Bridging Production Gap in Major Crops
- ONE FFS PER Farmer Facilitator

DATA RECORDING

- DATA Collection
- Compilation & Reporting
- Computerization of Farmers Data Base
- Computerization of Farmer Facilitators Data Base
- Compilation of details Farmerwise input consumption
- Compilation of Crop Cutting Experiment.
Group 5: Climate Change Network

Topic of discussion:

Assess the impacts of climate change in different agro-eco regions of the state in terms of anticipated shifts in the crop growing periods, water availability, major crop yields, and evaluate adaptation strategies for developing climate resilient farming systems.

Networking of various institutions on climate change

Climate change: Mega concerns

- Increase in temp by 1°C increases the sea level by 1 foot due to dissolution of polar ice caps, GHGs (CO₂, CFC, CH₄, H₂S)
- Increase in temperature increases the productivity of C₄ plants: maize, sugarcane
- In Karnataka, past 10 years rainfall trend signifies 6/10 years being drought affected
- Neighboring districts have opposite trends!

Group 5: Climate Change Network

Leader: Dr. Prabhakara Setty, DoA, GoK
Assistance: Dr. AVR Kesava Rao, ICRISAT

- Group consisted of more than 50 participants including a good number of women
- Participation from all organizations: DoA-GoK, SAUs and ICRISAT
- Dr. Prabhakara Setty introduced the topic, explained about global warming, present climate change scenario, drivers and impacts on agriculture and society, advantages & disadvantages
- Dr. Kesava Rao explained the methods of collection of weather and soil data and development of databases, climate variability and change analysis at micro-level, climate change impacts assessment, development of suitable adaptation strategies and enhancing climate awareness among various stakeholders
- Active participation by majority of members has resulted in many good suggestions and a clear road map
Some impacts of weather aberrations

**Higher humidity:**
- Causes sheath blight in paddy
- Flower dropping in Pigeonpea
- Reddening of cotton

**Higher temperature:**
- Increased bee activity
- High evapotranspiration demands

**Lower temperature:**
- Better tuberisation in potato
- Increased sugar content in sugarcane
- Increased oil content in oilseeds

**Strong winds:**
- High evapotranspiration demands
- Lodging of many crops

Suggestions by group

- Appropriate crop varieties to suit the change in climate zone wise need to be developed by universities
- Intermediary and contingent crop planning / alternate crop planning system to be developed
  - In-situ moisture conservation, Mulching / application of FYM to increase soil organic matter content
  - Hydrogel technique
  - Conservation tillage
  - Repeated inter-cultivations
  - Dead furrow opening
  - Sowing across the slope
  - Water harvesting & application of micro irrigation system

Suggestions by group

- Seed hardening with CaCl₂
- Intercropping in horticultural and plantation crops
- Introduction of Silvi-Agriculture, Agri-Horticulture, Pastoral systems based on land capability classification
- Rehabilitation of wastelands through biofuel plantations
- Maintaining optimum plant population with suitable crop geometry
- Adoption of drought tolerant varieties
- Foliar nutrition, Growth promoting hormones, Anti-transpirants
- Protective / Life saving/irrigation at critical stages
- Reducing agricultural GHG emissions
- Post-harvest management
- Emphasis on carbon sequestration and initiate carbon trading

Suggestions by group

- Climate and soil data collection
- Sources: IMD, KSNDMC, SAUs, Directorate of Economics & Statistics
- Quality check, database development, software for analysis
- Climate change analysis with respect to
  - Trends in major weather parameters
  - Changes in “begin and end” of rained crop-growing period
  - Changes in LGP, intra-seasonal dry and wet spells
  - Water balance and water availability for crops
  - Identification of areas with great changes in climate (hot spots)
Group 5: Climate Change Network

- Assessment of climate change impacts on major crops through crop growth simulation models
- Development of suitable climate resilient adaptation strategies
- Organizing climate awareness programmes on wider scale

Road map

- Establish AWIS to be done by ICRA/IISAT in collaboration with Deps of Agriculture, KSN&D and SAUs
- Monitor weather, crop parameters in details
- Monitoring occurrence / outbreak of pests and diseases
- Strengthen the weather forecasting system for the target
- sites and extend it to the entire division in due course
- Awareness building programmes on climate and its impact

Road map

- Collaborations from other institutions
- SAUs (each university to nominate one scientist exclusively to assist the team)
- Tumkur - UAS, Bangalore
- Chikkamagalur - UAS, Shimoga
- Raichur - UAS, Raichur
- Bijapur - UAS, Dharward
- KSN&D
- ICRA/IISAT
- Departments of Agriculture, Horticulture, Animal Husbandry, Fishery, Forestry, Agricultural Marketing and Cooperation
GROUP 6
SEED PRODUCTION ACTION PLAN WITH SPECIAL REFERENCE TO NEW CULTIVARS

Stakeholders:
- KSDA
- SAU's
- KSSC
- KOF
- NSC
- SFCI
- Private seed co.

Need
- Required to assess the seed requirement of the block/dist./state based on SRR.
- To replace the old/obsolete varieties where the yield potentiality is either reduced/stagnated.
- To promote the cultivars which have been developed by res. Station for insect and disease resistance/tolerance.
- To encourage the adoption of new varieties developed for draught tolerance etc.
- To take adv. Of the financial assistance of GOI/GOK schemes.

Strategies
- Identification of the varieties suitable for the area.
- Prepare the seed req. plan based on SRR for each block/Dist. as per need.
- Prepare the breeder/foundation/certified seed req. well in advance.
- Place the indents in time with GOI.
- Lift the seeds as per allocation.
- Breeders have to supply the allotted qty. to the concerned agencies.
Organization of demo’s in all schemes consisting new varieties
Timely supply of new varieties as minikits
All seed farms of KSDA and seed production agencies should maintain the SMR
All SAU’s, KSSC, NSC, KOF & other seed producing agencies etc. should take up new cultivar production as per need.
Declaration of seed procurement prices in advance

Identify the suitable farmers having protective irrigation facilities for seed prodn.
District Seed prodn. Monitoring team should inspect seed prodn plan invariably.
Nominate one farm facilitator to each seed prodn block for proper supervision along with dept. staff.

Proper co-ordination among all stake holders of seed production
Seed producing agencies should concentrate on area expansion
Training of all stake holders involved in seed production

SUGGESTIONS
SAU’s to nominate the concerned breeder to inspect the seed prodn block and advise suitably.
A separate workshop should be organized for all stake holders regarding preparation of seed prodn action plan.
Necessary funds to be made available for necessary infrastructure to seed farms by ZP/SS.
To allow the subsidy for old and popular var. atlesat fund from state funds.
Thanks

- All India recommended varieties
- Registration and inspection charges to be subsidized
- Compulsory seed certification for all class of seeds
Presentation on Inputs Requirement

GROUP-I

Requirement of Seeds For Kharif 2013

Total Cereals - 478486 Qtls
Total Pulses - 104296 Qtls
Total Oilseeds - 479086 Qtls

Requirement and availability of seeds for distribution during Kharif 2013 (Departmental programmes/ General Distri.) (In qtls)

<table>
<thead>
<tr>
<th>SI No.</th>
<th>CROP</th>
<th>Requirements (In Qtls)</th>
<th>Agency wise supply programme</th>
<th>TOTAL</th>
<th>SURPLUS/ DEFICIT</th>
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NOTE: 1. State requirement: as per the Seed Replacement Rates for 2013
2. Seed suppliers will be informed to meet the shortfall.
Gaps in Seeds supply

- Shortage of seeds like green gram, Black gram,
- Prepositioning of seeds
- Demand for green manure seeds like Diancha & Sunhemp
- Request for allowing Fodder seeds through subsidy distribution - convergence with animal husbandry Dept

Quality Seed distribution

- Hyv, Hybrids, C/S, T/L and farmer seed
- Improved New cultivars
- Farmer preferred varieties
- Seed village and village seed bank concept
- Swabeejabhivruddhi yojane
- Quality control and seed law enforcement

Quality Seed distribution

- District Seed Production Plan & 2nd Stage C/S production, Seed plan.
- Seed prodn. Plots in Bhoochethana blocks with new cultivars
- Seed distribution as per seed replacement norms

- Effective implementation of Seed treatment campaigns.
- Draw service Seed samples from farmer saved seeds and subject them for analysis to confirm germination and ensure seed treatment is done.
Fertilizer Requirement for Kharif 2013

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<th>Fertilizer Grade</th>
<th>QUANTITY (lakh tonnes)</th>
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<td>MOP</td>
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<tr>
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<tr>
<td>UREA</td>
<td>8.00</td>
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<tr>
<td>SSP</td>
<td>0.25</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>23.65</strong></td>
</tr>
</tbody>
</table>

Fertilizer Buffer stocking & other issues:
- Lack of storage facility in dists like Hassan, Dakshana kannada, Yadagiri
- Manufacturers / suppliers should inform concerned dist. JDA's about qty of fertilizer supplied to that dist. as soon as the supplies
- Demand for neem coated Urea & water soluble fertilizers
- Dist JDA's, TalukADA's and vigilence team officials should monitor the movement of fert from dist. to the taluks

SCHEMES:-
Enrichment of soil Fertility
- ISOPOM (oilseeds)
- NFSM - Rice
- NFSM - Pulses
- APPP (Tentative)
- RKVY (Bhoo-chetana)
Arrangements made by the Department

Rate contract for Green manure seeds, Vermi Compost, City Compost, Borax, Zinc Sulphate, Gypsum, Ferrum Sulphate, Micro nutrient Mixtures, Bio-fertilizers. Agriculture Lime & Dolomite is in force at present.

Tenders have been invited for procurement of the above products during the year 2013-14. RC will be communicated before commencement of sowing season.

Constraints

- Lack of adequate and timely rainfall
- Lack of adequate storage facilities at Raitha Samparka Kendras
- Delay in payments to the suppliers
- Lack Of Proper bagging of inputs

Strategies for inputs supply

- Finalize the quantity required under different Agricultural Inputs in consultation with ADA’s, AO’s and Other field staff.
- Arrange for suitable storage facilities for proper storage of inputs.

Steps need to be taken by the implementing officers for procurement of inputs

- Give wide publicity to the soil fertility status
- Link up the nutrient deficiency, consumption of different plant nutrients
- Assign specific responsibilities to farmer facilitators and Lead farmers.
- Keep close vigil on working of farmer facilitators.
- Conduct periodical review regarding working of farmer facilitators.
Steps need to be taken by the implementing officers for procurement of inputs during Rabi 2013

- Convene the meeting of Input suppliers and finalize the time schedule for supply.
- Timely indenting.
- Advance stocking

Steps need to be taken by the implementing officers for procurement of inputs

- Arrange to supply micronutrients in package form.
- Procure the inputs on consignment basis
- Ensure the quality of inputs before distribution

TIMELY DISTRIBUTION OF INPUTS

- Allocation of 3-4 suppliers for each district per product
- Suppliers should arrange for signed bill books to issue to the farmers like in seeds distribution
- Suppliers should mention quantity, approved rates and scheme name in the delivery challen
- Enhancement of godown charges

Organize campaigns to create awareness and to motivate the farmers for use of these inputs.

- Avoid procurement of inputs having short validity period.
- Arrange for timely payment to the suppliers
- Arrange wide Publicity through leaflets, posters and other mass media.
Plant Protection

- Seed Treatment and demonstrations on campaign basis.
- Adoption of IPM techniques
- Bio control Agents
- Conducting Farmers Field Schools
- Use of Bio-pesticides, Neem based products and resistant cultivars
- Need based P.P. measures only

PESTICIDES REQUIRED FOR SEED TREATMENT

<table>
<thead>
<tr>
<th>Chemicals</th>
<th>Total chem. Req</th>
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<tr>
<td>Carbendizium</td>
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<tr>
<td>Streptocyclin</td>
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<td>Chloropyriphos</td>
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<td>T.viridae</td>
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<td>Total</td>
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PEST SURVEILLANCE AND ADVISORY UNIT

- Pest Surveillance and Advisory Units have been constituted both at State and District levels.

- Pest Surveillance and Advisory Unit meetings are conducted pertaining to occurrence/incidence of pests and diseases in different crops and their management practices are being conducted on monthly basis with the active participation of Agriculture Department, Scientists from Agriculture Universities, Selected District Joint Directors of Agriculture (JDA’s), CIPMC officers, KVK extension staff and NGOs.

Input Management in Khairf – most challenging

- Involvement of FFs, LF’s and Field level functionaries of KSDA, WDD etc;
- Cluster villages and godowns facilities
- Transportation and handling problems
- Timely availability of Inputs and smooth distribution at peak sowing season
- Field application of inputs - supervision
- Demonstration on Lead farmers and innovative farmers fields
Use of Inputs by SF/MF, SC/ST farmers very crucial

- Use of Tropicultures, Seed-cum-fertilizer drill, MFO’s, Rice Transplanters and other improved machinery through CHC
The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that conducts agricultural research for development in Asia and sub-Saharan Africa with a wide array of partners throughout the world. Covering 5.3 million square kilometers of land in 55 countries, the semi-arid tropics have over 2 billion people, of whom 644 million are the poorest of the poor. ICRISAT innovations help the dryland poor move from poverty to prosperity by harnessing markets while managing risks – a strategy called Inclusive Market-Oriented Development (IMOD).

ICRISAT is headquartered in Patancheru near Hyderabad, Andhra Pradesh, India, with two regional hubs and five country offices in sub-Saharan Africa. It is a member of the CGIAR Consortium. CGIAR is a global research partnership for a food secure future.