

Taking Pigeonpea Hybrids to the Doorsteps of Farmers

Half-Yearly Progress Report

2010-2011



A hybrid pigeonpea farmer Mr G Janardhan receiving 'Best Farmer Award' from honorable Chief Minister of Andhra Pradesh Shri K. Roshaiah, for harvesting a bumper crop of hybrid ICPH 2671.

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CONTENTS

1. Introduction.....	1
2. Research Back-up Program.....	1
3. Large Scale Seed Production of Hybrids and their Parents	3
4. On-Farm Trials Sown in 2010	5
5. Crop Monitoring Plans.....	6
6. Training Programs	6
7. Present Status.....	7
8. Publications in 2010	8
9. Tables and Figures.....	10
10. Proceedings.....	30

Annexure 1

1. Introduction

Hybrid technology, based on the cytoplasmic nuclear male-sterility (CMS) system, has provided an opportunity to achieve the long-cherished goal of breaking the yield barrier in pigeonpea. In the last few years ICRISAT and ICAR have tested over 1500 experimental hybrid combinations; and among these GTH 1, ICPH 2671, and ICPH 2740 were found to be the most outstanding. GTH-1 yielded 32% more than the best local variety GT 101. Hybrids ICPH 2671 and ICPH 2740 were highly resistant to *fusarium* wilt and sterility mosaic (SM) diseases. ICPH 2671 produced 42% more yield over the popular Maruti variety in multi-location trials conducted for more than four years, while ICPH 2740 produced 38% more yield over Asha variety. In the on-farm trials conducted in the states of Maharashtra, Karnataka, Andhra Pradesh, Madhya Pradesh, and Jharkhand during 2007, 2008, and 2009, hybrid ICPH 2671 demonstrated a 30% yield advantage over the local check. So far, the progress in the mission of enhancing the productivity of pigeonpea has been encouraging and the reality of commercial hybrids is just around the corner. The new hybrid pigeonpea technology will serve as a platform for tremendous expansion of pigeonpea production in India. To achieve this target, the National Food Security Mission started a project entitled 'Taking Pigeonpea Hybrids to the Doorsteps of Farmers' in collaboration with ICRISAT and four ICAR partners in Gujarat, Akola, Parbhani, and Gulbarga. Highlights of the research and development work done at the five locations are given below.

2. Research Back-up Program

2.1. PDKV, Akola (Maharashtra)

- The analysis of multi-location data revealed that ten hybrids during kharif 2008-09 and 21 hybrids during 2009-10 showed 40 % yield advantage over the control.
- A total of 12-A lines, 12-B lines and 29-R lines of pigeonpea were screened for their reaction to *fusarium* wilt and sterility mosaic (SM) diseases in sick plots during kharif 2009-10. Of these, two A-lines, one B-line, and 16-R lines exhibited high levels of resistance against *fusarium* wilt. Five A-lines, six B-lines, and seven R-lines showed resistance reaction against SM disease.

2.2. SDAU, SK Nagar (Gujarat)

- The station has converted all the available genetic stocks worth using as females in the heterosis breeding program by developing 98 stable CMS lines and 81 restorer lines. Eighteen lines representing different maturity groups were advanced to BC₇ generation in the conversion program.
- Further, from a study conducted on Indo-African derivatives, it was found that African males and Indian females complimented each other very well in realizing high levels of heterosis. Hence, 64 individual plants were isolated from F₆ of crosses involving six African and four Indian pigeonpea lines, of which 60 lines were advanced to BC₂ generation under the CMS conversion program.
- Individual plants were also isolated from F₆ populations of crosses involving six African and four Indian pigeonpea lines. These lines were crossed with three A-

lines GT 288A, GT 311A, and GT 501A for ascertaining their fertility restoration.

- Thirty-four restorers were identified for crossing with two A-lines (GT 288A and GT 505A).
- Three hybrids SKNPCH 0818, SKNPCH 0808, and SKNPCH 0859 were identified as promising and performed well in multi-locational testing.
- Eighty-eight different hybrid combinations with existing male-sterile lines and restorers were evaluated.

2.3. MAU, Parbhani (Maharashtra)

- Six male sterile lines – ICPA 2043, ICPA 2047, ICPA 2092, BSMR 736 A, BSMR 2004-4 A, and GT-288A – were maintained and evaluated at M.A.U., Parbhani and ARS, Badnapur.
- A total of 10 new restorers, received from ICRISAT, were screened against wilt and SM diseases in the disease nursery at Badnapur. All the lines were found to be resistant to wilt disease while six lines were resistant to SM disease.
- For developing new A-lines, four BC₁ and five BC₂ plants were back-crossed using recurrent parents.
- A set of 12 known medium-duration restorers were crossed to ICPB 2043 to develop (B x R) breeding populations.
- Forty-eight F₁ hybrids were evaluated for identification of restorers and maintainers. It was observed that the male parent ICP 10934 was a perfect restorer and ICPR 3514 was found to be a partial restorer against all the four (ICPA 2043, ICPA 2047, ICPA 2048, and ICPA 2092) CMS lines.
- A total of 165 new hybrids were developed. Of these, 102 combinations were made at Parbhani and the remaining 63 combinations were made at ARS, Badnapur.
- A total of 38 hybrids were evaluated in three trials: MD-MLT-1 and MD-MLT-2 (ICRISAT) and SMHT-(LS) at Akola. Of these, two hybrids ICPH 3477 (2437 kg ha⁻¹) and ICPH 3464 (2481 kg ha⁻¹) were found to be superior over Asha (1893 kg ha⁻¹) by 29% and 31%, respectively.
- In order to finalize the row ratio of male and female parents in hybrid seed production, six different row ratios were tested, 3:2 (EW) ratio recorded highest pod set and yield, followed by 4:1, and 3:2 (SN).

2.4. ARS, Gulbarga (Karnataka)

- A total of five CMS lines – ICPA 2101, ICPA 2161, ICPA 2078, ICPA 2043, and GT 288A – were maintained under net and evaluated for stability at ARS, Gulbarga. ICPA 2078, ICPA 2043, and GT 288A were found to be 100% male-sterile at Gulbarga. Therefore, these lines were crossed with locally adapted pigeonpea lines to produce 42 experimental hybrids.
- At ARS Gulbarga, the three CMS lines used in crosses were also tested for resistance to wilt. Among these GT-288A was found to be susceptible, while the

others confirmed their resistance to wilt and SM diseases. No wilt was noticed in ICPA 2078 and ICPA 2043 under natural conditions.

- This centre is mainly concentrating on the development of hybrids having 140-150 days maturity. As most of these areas come under rainfed farmers demand hybrids or varieties of pigeonpea with only 140-150 day duration. Therefore, to identify new A- and B- lines of 150 days duration with good agronomic base and genetic diversity, a total of 28 plant-to-plant crosses were made to identify new stable A-lines.

2.5. ICRISAT, Patancheru (Andhra Pradesh)

- Thirty-two hybrids were tested in multi-location trials. Of these, 14 were found superior to control Asha by margins of 20-56%.
- In general, hybrids with A₄ CMS system were fully fertile. In the new segregating lines some plant-to-plant crosses were made to develop uniform CMS lines.
- A total of 42 medium duration and 14 long duration R-lines were characterized and data on yield and other traits were recorded. These lines were also screened in the disease nursery and 17 lines were found to be resistant to sterility mosaic disease and none was found resistant to wilt. Twenty-nine lines had combined resistance to both these diseases. These lines were used in the crossing program to develop disease resistant hybrid combinations. A total of 22 medium-duration A/B lines were also characterized. Of these, five were resistant to both the diseases and eight lines were resistant only to sterility mosaic disease.
- A total of 719 breeding lines were screened in the disease nursery under high disease inoculum conditions at ICRISAT. This consisted of 40 A/B lines, 198 short- and medium-duration hybrids and 481 R-lines. A total of 116 lines exhibited combined resistance to wilt and SM diseases. Twenty-seven lines were resistant to wilt disease; and 187 lines showed resistance to SM disease only. The remaining 387 lines were susceptible.
- A total of 185 new hybrid combinations were made using 19 male-sterile lines and 57 restorers. Of these, 25 were of short-duration and 160 belonged to medium-duration maturity group.

3. Large Scale Seed Production of Hybrids and their Parents

3.1. PDKV, Akola (Maharashtra)

During kharif 2010-11, seed production of 15 promising hybrids and five male-sterile lines (MS-01A, MS-04A, MS-05A, MS-06A, and MS-13A) was undertaken at different isolated locations using a row ratio of 1 male: 4 females (see Table 1). The crop is at the pre-flowering stage.

3.2. SDAU, SK Nagar (Gujarat)

Seed production program of hybrid GTH 1 was undertaken in isolation at Ladol in 10 ha of land. The seed production of GTH 1 was also undertaken in collaboration with public and private organizations as well as on farmers' fields under the PPP mode (see Table 2).

The program for parental seed multiplication of GTH 1 (CMS GT 288A and GTR 11) was not taken up this year, as the parental seed of GTH 1 (2500 kg, 700 kg, and 900 kg of GT 288A, GT 288B, and GTR 11, respectively) was in surplus with the university. This seed will be used during the next season for large scale seed production of hybrid and multiplication of parental lines in the university farm as well as by public and private seed companies as per their demand, and also on progressive farmers' fields under the PPP mode so that the demand can be met for testing the hybrid in target agro-ecological regions.

3.3. MAU, Parbhani (Maharashtra)

Maintenance of male-sterile lines and production of hybrid on a large scale is being done during this year. Details are given below.

A-line and hybrid	Date of sowing	Stage
Hybrid seed production of ICPH 2740	05/07/2010	Crop is in the vegetative stage
Maintenance breeding of ICPA 2047	30/06/2010	Crop is in the vegetative stage
Hybrid seed production of ICPH 2671	06/07/2010	Crop is in the vegetative stage
Maintenance breeding of ICPA 2043	07/07/2010	Crop is in the vegetative stage
Hybrid seed production of ICPH 3762	02/08/2010	Crop is in the vegetative stage
Maintenance breeding of ICPA 2092	14/07/2010	Crop is in the vegetative stage

At the Agricultural Research Station, Badnapur, hybrids ICPA 2043 x BSMR 853, ICPA 2043 x R-284, ICPA 2043 x BDN 2004-4, and BDN 2004-4A x BSMR 736 were evaluated in multi-location trials.

3.4. ARS, Gulbarga (Karnataka)

It was difficult to find isolated areas in ARS Gulbarga, hence the hybrid seed production of ICPH 2671 (one acre) and ICPH 2740 (two acres) was taken up at Siraguppa and Dharwad locations.

3.5. ICRISAT, Patancheru (Andhra Pradesh)

The seed production of CMS lines was undertaken in isolation conditions at ICRISAT farm. This included ICPA 2043, ICPA 2047, and ICPA 2092. These were grown in Alfisol isolations. A special experiment was planned to assess the pod set of parental

seed of CMS (A X B) line under controlled (Fig. 1) conditions by introducing bee-hives to enhance cross-pollination. The A x R seed production of promising medium-duration hybrids was taken in ICRISAT and in farmers' fields. This includes ICPH 2671, ICPH 2740, and ICPH 3762 (Table 3).

4. On-Farm Trials Sown in 2010

A total of 1903 on-farm trials of ICPH 2671, ICPH 2740, and ICPH 3762 were conducted in different locations in India. The area covered by these hybrids was 904 ha (Table 4). About 2200 kg GTH 1 seed was distributed by SK Nagar to farmers.

4.1. PDKV, Akola (Maharashtra)

In kharif 2010-11, a total of 150 on-farm trials (1kg each) of pigeonpea hybrid ICPH 2671 were conducted in 31 villages and 60 on-farm trials (0.5 kg each) of ICPH 2740 were conducted in 28 villages of five districts (Akola, Washim, Amravati, Buldana, and Yavatmal) of Vidarbha region of Maharashtra (Tables 5 & 6).

4.2. SDAU, SK Nagar (Gujarat)

The seed of GTH 1 was produced under the project during kharif 2009 on the university farms and 2200 kg of seed was distributed among the farmers free of cost in four districts of Gujarat. In addition, 25 field demonstrations (10 ha) under AICRP on pigeonpea were also conducted in north Gujarat in the current season.

4.3. MAU, Parbhani (Maharashtra)

Hybrid seed of ICPH 2740, ICPH 2671, and ICPH 3762 was distributed to 92 farmers (approx 40 ha) of Marathwada division during 2010-11 (Table 7) for OFTs.

4.4. ARS, Gulbarga (Karnataka)

A total of 137 on-farm trials were grown during this season. Of these, 54 were of ICPH 2671, while 83 were of ICPH 2740 which were grown in six districts (Gulbarga, Bellary, Gadag, Bidar, Raichur, and Yadagir) of Karnataka (Table 8).

4.5. ICRISAT, Patancheru (Andhra Pradesh)

The on-farm trials of hybrids ICPH 2671, ICPH 2740, and ICPH 3762 with appropriate check (Maruti or Asha) were distributed to a total of 363 farmers in Andhra Pradesh, Maharashtra, and Madhya Pradesh. Over one ton of hybrid seed was supplied to Jharkhand during kharif 2010 rainy season (Table 9a & 9b).

5. Crop Monitoring Plans

5.1. PDKV, Akola (Maharashtra)

The pre-flowering monitoring of hybrid pigeonpea on-farm demonstration plots and seed production program is in progress. These plots will be visited again at flowering, pod formation, and pod development stages.

5.2. SDAU, SK Nagar (Gujarat)

On-farm demonstrations were visited at the vegetative stage; and pre-flowering, podding stages visits are planned.

5.3. MAU, Parbhani (Maharashtra)

This work has been going on since 2007 and there are regular visits to the seed production area by farmers, students, scientists and extension workers. Up to now 15 on-farm trials were visited while the crop was in pre-flowering stage. The remaining plots will be visited during the crop season.

5.4. ARS, Gulbarga (Karnataka)

From time to time visits were made of on-farm trials from sowing till flowering stages. Further visits will be planned at important stages.

5.5. ICRISAT, Patancheru (Andhra Pradesh)

A team consisting of ICRISAT scientists and staff made several visits to the seed production plots at ICRISAT and farmers' fields, and thorough roguing of off-type plants (if any) was done, and advice given to farmers to take up this activity, if required. Now crop is in the flowering stage and roguing operations will be done based on pod color at the time of podding. All efforts are being made to produce high quality hybrid seed in these plots. Monitoring of on-farm trials was also undertaken and the crop was uniform, comparable differences were observed between control variety and hybrids. The monitoring details are provided in Table 10.

6. Training Programs

6.1. PDKV, Akola (Maharashtra)

Five Farmer Field Days will be organized during kharif 2010-11 from pod formation to pod development stages in different villages.

6.2. SDAU, SK Nagar (Gujarat)

Hybrid Pigeonpea Day will be organized at farmers' fields (Thuravas, Dist: Sabarkantha) in the month of December, 2010.

6.3. MAU, Parbhani (Maharashtra)

This work has been going on from 2007 and there are regular visits to the seed production area by farmers, students, scientists, and extension workers. One training program will be undertaken during this year.

6.4. ARS, Gulbarga (Karnataka)

One off-campus training on hybrid seed production technology, hybrid pigeonpea cultivation and parental line maintenance was conducted at Kamalapur, Gulbarga on 22 June 2010.

6.5. ICRISAT, Patancheru (Andhra Pradesh)

During this season, ten scientists, 30 Agriculture Officers from APSSDC, and 72 farmers were trained at ICRISAT on hybrid seed production aspects. Moreover, 58 farmers were given training at the time of sowings in Jharkhand (Fig. 2).

7. Present Status

7.1 PDKV, Akola (Maharashtra)

During kharif 2010-11, good rains were received in the region. The pigeonpea crop was in satisfactory condition.

7.2. SDAU, SK Nagar (Gujarat)

The crop is in the vegetative stage.

7.3. MAU, Parbhani (Maharashtra)

Up to October 2010, a total of 1229.4 mm rain was received at Parbhani with 60 rainy days as compared to 800 mm of annual average rainfall. Due to onset of monsoon at the right time sowing was taken up from the first week of July to 25 July. Germination and crop growth were normal. However, due to heavy rains during August-September intercultural operations could not be done properly. Due to stagnation of water plant mortality was observed and in many fields stunted growth was reported. Same is the situation in eight districts of Marathwada region.

7.4. ARS, Gulbarga (Karnataka)

Till August 2010 a total rainfall of 800 mm of rain was received with 34 rainy days as compared to 759 mm of annual average rainfall at Gulbarga. Due to onset of monsoon at the right time, sowing was taken up in the first week of July and crop is in a vegetative stage with normal growth. However, rainfall during July and August was higher than the normal, which resulted in yellowing and death of plants in low lying areas.

7.5. ICRISAT, Patancheru (Andhra Pradesh)

In this season, 40% more rainfall was recorded but due to good drainage damage to the crop was restricted. At present the crop is in a vegetative stage with good, uniform and vigorous growth.

8. Publications in 2010

Journal Articles

Saxena KB, Sultana R, Mallikarjuna N, Saxena RK, Kumar RV, Sawargaonkar SL, and Varshney RK. (2010). Male sterility systems in pigeonpea and their role in enhancing yield. *Plant Breeding* 129:125-134.

Saxena KB, and Kumar RV. (2010). Insect-aided natural out-crossing in four wild relatives of pigeonpea. *Euphytica* 173:329-335.

Saxena KB, and Nadarajan N. (2010). Prospects of pigeonpea hybrids in Indian Agriculture. *Electronic Journal of Plant Breeding* 1:1107-1117.

Saxena KB, Kumar RV, Dalvi VA, Pandey LB, and Gaddikeri G. (2010). Development of cytoplasmic-nuclear male sterility, its inheritance, and potential use in hybrid pigeonpea breeding. *Journal of Heredity* 101:497-503.

Saxena KB, Sultana R, Saxena RK, Kumar RV, Sandhu JS, Rathore A, and Varshney RK. (2010) Genetics of fertility restoration in A₄ based diverse maturing hybrids in pigeonpea [*Cajanus cajan* (L.) Millsp.]. *Crop Science* (In press).

Saxena RK, Saxena KB, and Varshney RK. (2010). Application of SSR markers for molecular characterization of hybrid parents and purity assessment of ICPH 2438 hybrid of pigeonpea [*Cajanus cajan* (L.) Millspaugh]. *Molecular Breeding* 26:371-380.

Dalvi VA, Saxena KB, Luo RH, and Li YR. (2010). An overview of male-sterility systems in pigeonpea [*Cajanus cajan* (L.) Millsp.]. *Euphytica* 173:397-407.

Mula MG, Saxena KB, Kumar RV, and Rathore A. (2010). Effect of spacing and irrigation on seed production of a CMS-based pigeonpea hybrid. *Green Farming* 1:221-227.

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Saxena RK, Prathima C, Saxena KB, Hoisington DA, Singh NK, and Varshney RK. (2010). Novel SSR markers for polymorphism detection in pigeonpea (*Cajanus* spp.). *Plant Breeding* 129:142-148.

Varshney RK, Penmetsa RV, Dutta S, Kulwal PL, Saxena RK, Datta S, Sharma TR, Rosen B, Carrasquilla-Garcia N, Farmer AD, Dubey A, Saxena KB, Gao J, Fakrudin B, Singh MN, Singh BP, Wanjari KB, Yuan M, Srivastava RK, Kilian A, Upadhyaya HD, Mallikarjuna N, Town CD, Bruening GE, He G, May GD, McCombie R, Jackson SA, Singh NK and Cook DR. (2010). Pigeonpea genomics initiative (PGI): an international

effort to improve crop productivity of pigeonpea (*Cajanus cajan* L.). Molecular Breeding doi: 10.1007/s11032-009-9327-2.

Conference Papers

Dubey A, Bohra A, Kumar N, Saxena RK, Penmetsa R, Cheung F, Saxena KB, Gothwal R, Singh D, Kavi Kishor PB, Upadhyaya HD, Cook DR, and Varshney RK. (2010). Large scale development of BAC-End associated SSR markers in pigeonpea [*Cajanus cajan* (L.) Millspaugh]. Plant and Animal Genome XVII Conference, San Diego, 9-13 January 2010.

Varshney RK, Saxena RK, Saxena KB, Cui X, Walter B, Close TJ, and Varshney RK. (2010). Discovery of single feature polymorphisms in pigeonpea using soybean genome arrays. Plant and Animal Genome XVII Conference, San Diego, 9-13 January 2010.

Saxena RK, Saxena KB, Kumar RV, Kavi Kishor PB, Xio Y, Cook DR, Town CD, and Varshney RK. (2010) Integrating genomics in pigeonpea hybrid breeding. Plant and Animal Genome XVII Conference, San Diego, 9-13 January 2010.

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Mallikarjuna N, Jadhav D, Sharma HC, Senthilvel S, Kaur L, Byregowda M, Varshney RK, Upadhyaya HD, Srivastava RK, and Saxena KB. (2010). *Cajanus platycarpus* as the donor of useful traits for pigeonpea (*Cajanus cajan* L.) improvement. Fifth International Food Legumes Research Conference and Seventh European Conference on Grain Legumes, Turkey, 26-30 April, 2010.

9. Tables and Figures

Table 1. List of hybrid and CMS lines sown in isolations, Akola, 2010-11

Sl. No.	Female	Date of sowing	Place
A. Hybrid seed of pigeonpea			
1	AKPHE-02002	17.07.10	Dept. of Horticulture, Akola
2	AKPHE-02178	28.06.10	ATS, Buldana
3	AKPHE-02402	28.06.10	ZARS, Yavatmal
4	AKPHE-04012	30.06.10	ARS, Washim
5	AKPHE-04295-1	--	KVK, Selsura Dist: Wardha
6	AKPHE-05002	17.07.10	Dept. of Horticulture, Akola
7	AKPHE-05012	30.06.10	ARS, Washim
8	AKPHM-05178	28.06.10	ATS, Buldana
9	AKPHM-06344	30.06.10	EAD, COA, Nagpur
10	AKPHM-10178	28.06.10	ATS, Buldana
11	AKPHM-10402	28.06.10	ZARS, Yavatmal
12	AKPHM-10008	30.06.10	RRC, Amravati
13	AKPHM-11260	03.07.10	AHDS, Akola
14	AKPHM-11324	21.07.10	KVK, Kutki Dist: Wardha
15	ICPH-2740	03.07.10	Karanja Dist: Washim
16	ICPH-2740	12.07.10	CDF, Wani (R), Akola
B. Male sterile lines (A x B Maintenance)			
17	MS-01A x MS-01B	06.07.10	Sorghum Research Unit, Akola
18	MS-04A x MS-04B	09.07.10	Cotton Research Unit, Akola
19	MS-05A x MS-05B	08.07.10	Cotton Research Unit, Akola
20	MS-06A x MS-06B	13.07.10	Oilseeds Research Unit, Akola
21	MS-13A x MS-13B	13.07.10	ANCA, Warora

Table 2. Total seed production program of GTH 1 in Gujarat

Sl. No.	Address	Area (ha)	Parent	Quantity (kg)
1	Modern Agro centre, Gondal	2	CMS GT 288 A GTR 11	24 6
2	Pravinbhai Gadhvi, Gavasi, Godhra	2	CMS GT 288 A GTR 11	24 6
3	Thuravas Ta:Vadali, Dist.: Sabarkantha	2	CMS GT 288 A GTR 11	24 6
4	RS, NARP, Bharuch	2	CMS GT 288 A GTR 11	24 6
5	Agricultural Research Station, Ladol	10	CMS GT 288 A GTR 11	140 40
6	Gujarat State Seed Corporation, Gandhinagar	4	CMS GT 288 A GTR 11	48 12
7	Director Farms, Directorate of Farms, JNKVV, Jabalpur	4	CMS GT 288 A GTR 11	60 15
8	Raza Ulla, Vigyanagar, Kota (Rajasthan)	2	CMS GT 288 A GTR 11	24 6
9	Danta, Dist: Banaskantha	1.25	CMS GT 288 A GTR 11	16 4
10	Sanali Ashram, Sanali, ta: Sabarkantha	0.75	CMS GT 288 A GTR 11	8 2
11	Ronak Seed, Ahmedabad	1.25	CMS GT 288 A GTR 11	16 4
12	Western Agri Seeds, Gandhinagar	1.00	CMS GT 288 A GTR 11	8 2
13	KRIBHCO, Himatnagar	2	CMS GT 288 A GTR 11	24 6
14	GUJCOMASOL, Ahmedabad	2	CMS GT 288 A GTR 11	24 6
Total		36.25		

Table 3. Large scale seed production of CMS lines, hybrids and R- lines, at ICRISAT

Sl. No.	Hybrid No.	Area (ha)		
		ICRISAT	Farmers	Total
(A x R) Hybrids				
1	ICPH 2671	0.61	5.4 (6)*	6.01
2	ICPH 2740	0.32	4.4 (6)	4.72
3	ICPH 3762	0.30	*	0.30
(A x B) CMS lines				
4	ICPA 2043	0.30	Nil	0.3
5	ICPA 2047	1.54	Nil	1.54
6	ICPA 2092	0.40	Nil	0,40
R- line				
7	ICPR 2671	0.22	4.40	4.62

* - Number of farmers mentioned in parenthesis

Table 4. List of on-farm hybrid trials conducted in India, 2010-2011 seasons

Location	No of farmers	Area (ha)
AKOLA	210	75
PARBHANI	112	45
GULBARGA	128	80
ICRISAT	1453	707
SK NAGAR	220	450
Total	2123	1357

Gujarat distributed 2200 kg hybrid seed to farmers

Table 5. On-farm trials of pigeonpea hybrid ICPH 2671, conducted in Maharashtra by PDKV, Akola during 2010-11

Sl. No.	Name	Address				Seed (kg) ICPH-2671
		Place	Post	Taluka	Dist	
1	Ajay Ganeshrao Lande	Nimbhora	Akola	Akola	Akola	1.0
2	Shrikant Bhuibhar	Nimbhora	Akola	Akola	Akola	1.0
3	Yuvraj Kisanrao Raut	Rahit	Barshitakli	Akola	Akola	1.0
4	Ashish Yuvraj Raut	Rahit	Barshitakli	Akola	Akola	1.0
5	Subhash Madhavrao Kosare	Gudadi	Gudadi	Akola	Akola	1.0
6	Sunanda Nagorao Deshmukh	Sangalud	Sangalud	Akola	Akola	1.0
7	Nagorao Dyandevrao Deshmukh	Sangalud(A.)	Sangalud	Akola	Akola	1.0
8	Trambak Ramchandra Jayale	Akoli (Jah.)	Akoli (Jah.)	Akot	Akola	1.0
9	Sau. Kastura Trambak Jayale	Akoli (Jah.)	Akoli (Jah.)	Akot	Akola	1.0
10	Mohanrao Janrao Jayale	Akoli (Jah.)	Akoli (Jah.)	Akot	Akola	1.0
11	Gopalrao Janrao Jayale	Akoli (Jah.)	Akoli (Jah.)	Akot	Akola	1.0
12	Smt Droupadabai Pawar	Akot	Akot	Akot	Akola	1.0
13	Smt Lilabai Vishwanath Pawar	Akot	Akot	Akot	Akola	1.0
14	Sau. Mangalabai Anilrao Kadu	Akot	Akot	Akot	Akola	1.0
15	Ankush Anilrao Kadu	Akot	Akot	Akot	Akola	1.0
16	Yogesh Ashokrao Khajone	Akot	Akot	Akot	Akola	1.0
17	Pintu Ashokrao Khajone	Akot	Akot	Akot	Akola	1.0
18	Gaurav Madhukarrao Kandalkar	Akot	Akot	Akot	Akola	1.0
19	Ashish Madhukarrao Kandalkar	Akot	Akot	Akot	Akola	1.0
20	Shaligarmji Motiramji Khajone	Akot	Akot	Akot	Akola	1.0
21	Amol Shaligram Khajone	Akot	Akot	Akot	Akola	1.0
22	Rahul Sukhchand Bansod	Akot	Akot	Akot	Akola	1.0
23	Vivek Shaligram Belokar	Akot	Akot	Akot	Akola	1.0
24	Narayan Shriram Chimote	Akot	Akot	Akot	Akola	1.0
25	Manoj Narayan Chmote	Akot	Akot	Akot	Akola	1.0
26	Pravin Rameshpant Belokar	Akot	Akot	Akot	Akola	1.0
27	Rameshpant Rambhau Belokar	Akot	Akot	Akot	Akola	1.0
28	Mangesh Laxman Dudhalkar	Akot	Akot	Akot	Akola	1.0
29	Sau Seema Magesh Dudhalkar	Akot	Akot	Akot	Akola	1.0
30	Kailas V Pawar	Akot	Akot	Akot	Akola	1.0
31	Madhukar L. Kandalkar	Akot	Akot	Akot	Akola	1.0
32	Shriram Pandurang Revaskar	Akot	Akot	Akot	Akola	1.0
33	Vinod Tulshiram Hadole	Akot	Akot	Akot	Akola	1.0
34	Rajesh Tulshiram Hadole	Akot	Akot	Akot	Akola	1.0
35	Haridas Tulshiram Hadole	Akot	Akot	Akot	Akola	1.0
36	Anil Bhanudas Revaskar	Akot	Akot	Akot	Akola	1.0

Sl. No.	Name	Address				Seed (kg) ICPH-2671
		Place	Post	Taluka	Dist	
37	Mohan Vishwanathrao Pawar	Akot	Akot	Akot	Akola	1.0
38	Atul Vishwanathrao Pawar	Akot	Akot	Akot	Akola	1.0
39	Pravin Vishnupant Pawar	Akot	Akot	Akot	Akola	1.0
40	Anil Vishnupant Kadu	Akot	Akot	Akot	Akola	1.0
41	Rajendra Dinkar Bansod	Akot	Akot	Akot	Akola	1.0
42	Prakash Shriram Revaskar	Akot	Akot	Akot	Akola	1.0
43	Sharad Dinkarrao Bansod	Akot	Akot	Akot	Akola	1.0
44	Ishwardas V. Pawar	Akot	Akot	Akot	Akola	1.0
45	Kishor Dinkarrao Bansod	Akot	Akot	Akot	Akola	1.0
46	Vilas Dinkar Bansod	Akot	Akot	Akot	Akola	1.0
47	Roshan Sunil Bahadure	Akot	Akot	Akot	Akola	1.0
48	Vandanatai sunil Bahadure	Akot	Akot	Akot	Akola	1.0
49	Ajay Shankar Belsare	Akot	Akot	Akot	Akola	1.0
50	Kamalabai Purushottam Belsare	Akot	Akot	Akot	Akola	1.0
51	Pawan Gajanan Supase	Akot	Akot	Akot	Akola	1.0
52	Sunil Bahadure	Akot	Akot	Akot	Akola	1.0
53	Praful Omprakash Savarkar	Akot	Akot	Akot	Akola	1.0
54	Shankarrao Narayanrao Belsare	Akot	Akot	Akot	Akola	1.0
55	Devidas Hade	Akot	Akot	Akot	Akola	1.0
56	Gajanan Supase	Akot	Akot	Akot	Akola	1.0
57	Omprakash A. Savarkar	Akot	Akot	Akot	Akola	1.0
58	Jyotitai Omprakash Savarkar	Akot	Akot	Akot	Akola	1.0
59	Shobhatai Laxman Abalkar	Akot	Akot	Akot	Akola	1.0
60	Rahul Ramesh Bahadure	Akot	Akot	Akot	Akola	1.0
61	Ashok Ambalkar	Akot	Akot	Akot	Akola	1.0
62	Pramod Ramkrishna Bahadure	Akot	Akot	Akot	Akola	1.0
63	Rameshrao Bahadure	Akot	Akot	Akot	Akola	1.0
64	Prashant Ashokrao Ambalkar	Akot	Akot	Akot	Akola	1.0
65	Vinod Ramkrishna Bahadure	Akot	Akot	Akot	Akola	1.0
66	Sharad Kale	Akot	Akot	Akot	Akola	1.0
67	Muralidhar Khanduji Khandare	Devari	Akot	Akot	Akola	1.0
68	Anil Jaydeorao Borode	Nandipeth	Akot	Akot	Akola	1.0
69	Dnyaneshwar Jaydeorao Borode	Nandipeth	Akot	Akot	Akola	1.0
70	Jaydeorao Jayram Borode	Nandipeth	Akot	Akot	Akola	1.0
71	Sunil Jaydeorao Borode	Nandipeth	Akot	Akot	Akola	1.0
72	Rahul Ramdas Jungare	Nandipeth	Akot	Akot	Akola	1.0
73	Panjabrao Motiramji Bale	Nandipeth	Akot	Akot	Akola	1.0
74	Sunilbhau Panjabrao Bale	Nandipeth	Akot	Akot	Akola	1.0
75	Ramdas Dnyandeorao Junghare	Nandipeth	Akot	Akot	Akola	1.0
76	Sau Mangalatai Vivek Ganorkar	Nandipeth	Akot	Akot	Akola	1.0
77	Purushottam Narayan Belsare	Nandipeth	Akot	Akot	Akola	1.0
78	Mahadeo Sukhdeo Lokhande	Nandipeth	Akot	Akot	Akola	1.0
79	Sau Lilabai Purushottam Lande	Nandipeth	Akot	Akot	Akola	1.0
80	Milind Purushottam Lande	Nandipeth	Akot	Akot	Akola	1.0
81	Jayhind Sukhdeo Lokhande	Nandipeth	Akot	Akot	Akola	1.0
82	Purushottam Lande	Nandipeth	Akot	Akot	Akola	1.0
83	Dadarao Tukarm Ganorkar	Nandipeth	Akot	Akot	Akola	1.0
84	Sachin Dadarao Ganorkar	Nandipeth	Akot	Akot	Akola	1.0
85	Mamata Sunipant Bale	Nandipeth	Akot	Akot	Akola	1.0

Sl. No.	Name	Address				Seed (kg) ICPH-2671
		Place	Post	Taluka	Dist	
86	Vivek Dadarao Ganorkar	Nandipeth	Akot	Akot	Akola	1.0
87	Nilesh Sudhakar Bahadure	Nandipeth	Akot	Akot	Akola	1.0
88	Sau Ushatai Sudhakar Bahadure	Nandipeth	Akot	Akot	Akola	1.0
89	Sudhakar Tulshiram Bahadure	Nandipeth	Akot	Akot	Akola	1.0
90	Sarikatai Nilesh Bahadure	Nandipeth	Akot	Akot	Akola	1.0
91	Narsigrao Ambadkar	Nandipeth	Akot	Akot	Akola	1.0
92	Kashiram Ambadkar	Nandipeth	Akot	Akot	Akola	1.0
93	Dyaneshwar Khaparkar	Devari	Devari	Akot	Akola	1.0
94	Bhimrao Gayakwad	Devari	Devari	Akot	Akola	1.0
95	Santosh Narayanrao Dikkar	Roundala	Roundala	Akot	Akola	1.0
96	Kishor Madhavrao Deshmukh	Roundala	Roundala	Akot	Akola	1.0
97	Govindrao Vasudevrao Dikkar	Roundala	Roundala	Akot	Akola	1.0
98	Manikrao Pralhadrao Dikkar	Roundala	Roundala	Akot	Akola	1.0
99	Shankarrao Vidyadhar Dikkar	Roundala	Roundala	Akot	Akola	1.0
100	Gajanan Konikrao Deshmukh	Roundala	Roundala	Akot	Akola	1.0
101	Prakash Shriramji Doiphode	Varur Jaulka	Varur Jaulka	Akot	Akola	1.0
102	Rajesh Baburao Patil	Gorvha	Vizora	Barshitakli	Akola	1.0
103	Suresh Khambalkar	Gorvha	Vizora	Barshitakli	Akola	1.0
104	Tukaram Harnaji Savale	Khaparwada	Durgawada	Murtizapur	Akola	1.0
105	Vishnu Tukaram Savale	Khaparwada	Durgawada	Murtizapur	Akola	1.0
106	Vishnu Bhimrao Telmore	Unkhed	Murtizapur	Murtizapur	Akola	1.0
107	Sunil U. Mesare	Alegaon	Alegaon	Patur	Akola	1.0
108	Balasaheb Trambakrao Gavande	Sangalud	Sangalud	Amravati	Amravati	1.0
109	Ashish Pandurang Gavande	Sangalud	Sangalud	Amravati	Amravati	1.0
110	Abhay Arun Gavande	Sangalud	Sangalud	Amravati	Amravati	1.0
111	Bebitai Pandurang Gavande	Sangalud	Sangalud	Amravati	Amravati	1.0
112	Sagar Arunrao Gavande	Sangalud	Sangalud	Amravati	Amravati	1.0
113	Virendra Pundlikrao Virkhare	Daryapur	Daryapur	Daryapur	Amravati	1.0
114	Ashatai P. Virkhare	Daryapur	Daryapur	Daryapur	Amravati	1.0
115	Amar P. Gavande	Daryapur	Daryapur	Daryapur	Amravati	1.0
116	Pappu Ghele	Daryapur	Daryapur	Daryapur	Amravati	1.0
117	Rajesh Keshavrao Hage	Daryapur	Daryapur	Daryapur	Amravati	1.0
118	Yuvraj Prakash Tayade	Ganeshpur	Daryapur	Daryapur	Amravati	1.0
119	Manish Yogesh Bonde	Ganeshpur	Daryapur	Daryapur	Amravati	1.0
120	Keshavrao Hage	Ganeshpur	Daryapur	Daryapur	Amravati	1.0
121	Shivraj Shelke	Ramtirth	Ramtirth	Daryapur	Amravati	1.0
122	Shivraj Shelke	Ramtirth	Ramtirth	Daryapur	Amravati	1.0
123	Sameer B. Patil	Savargaon (D)	Savargaon	Chikhali	Buldana	1.0
124	Bhaskarrao R. Patil	Savargaon (D)	Savargaon	Chikhali	Buldana	1.0
125	Anil Dnyaneshwar Mahore	Khubgaon	Khubgaon	Arvi	Wardha	1.0
126	Dyaneshwar Mule	Amani	Amani	Malegaon	Washim	1.0
127	Vitthal Narayan Landkar	Borgaon	Borgaon	Malegaon	Washim	1.0
128	Narayan Sakharam Landkar	Borgaon	Borgaon	Malegaon	Washim	1.0
129	Akanta Ashruji Landkar	Borgaon	Borgaon	Malegaon	Washim	1.0
130	Sadashiv Sakharam Landkar	Borgaon	Borgaon	Malegaon	Washim	1.0
131	Radhesham M. Kshirsagar	Chiwra	Chiwra	Malegaon	Washim	1.0
132	Shalil Shriram Sarkate	Chiwra	Chiwra	Malegaon	Washim	1.0
133	Pandhari Mahadev Kavhar	Chiwra	Chiwra	Malegaon	Washim	1.0
134	Radhedham Undal	Chiwra	Chiwra	Malegaon	Washim	1.0

Sl. No.	Name	Address				Seed (kg) ICPH-2671
		Place	Post	Taluka	Dist	
135	Ramprasad Madhukar Kshirsagar	Chiwra	Chiwra	Malegaon	Washim	1.0
136	Subhash Kisan Muthal	Chiwra	Chiwra	Malegaon	Washim	1.0
137	Rambhau Gyanaba Undal	Chiwra	Chiwra	Malegaon	Washim	1.0
138	Dadarao Lodji Ghode	Kinhi Godmod	Kinhi Godmod	Malegaon	Washim	1.0
139	Vishnu Shridhar Borkar	Nandana	Nandana	Malegaon	Washim	1.0
140	Sanjay Shridhar Borkar	Nandana	Nandana	Malegaon	Washim	1.0
141	Anil Damodar Tale	Nandana	Nandana	Malegaon	Washim	1.0
142	Kishor Ganpat Borkar	Nandana	Nandana	Malegaon	Washim	1.0
143	Vitthal Devba Wazulkar	Shelgaon (O)	Shelgaon (O)	Malegaon	Washim	1.0
144	Narayan Shankar Wazulkar	Shelgaon (O)	Shelgaon (O)	Malegaon	Washim	1.0
145	Umesh Keshavrao Wazulkar	Shelgaon (O)	Shelgaon (O)	Malegaon	Washim	1.0
146	Datta Ramdev Ingole	Shelgaon (O)	Shelgaon (O)	Malegaon	Washim	1.0
147	Suresh Chandrakant Wazulkar	Shelgaon (O)	Shelgaon (O)	Malegaon	Washim	1.0
148	Rajesh Narayanrao More	Ghota	Haral	Risod	Washim	1.0
149	Bhausahab Mane	Bhamhangaon	Bhamhangaon	Umardhed	Yavatmal	1.0
150	Pramod Jangam	Gajegaon	Gajegaon	Umardhed	Yavatmal	1.0
Total seed distributed (kg)						150.0

Table 6. On farm Trials of pigeonpea hybrid ICPH 2740 conducted in Maharashtra by PDKV, Akola, during Kharif 2010-11

Sl. No.	Name	Address				Seed (kg) ICPH-2740
		Place	Post	Taluka	Dist	
1	Laxmanrao Bhomaji Matre	Mhaispur	Mhaispur	Akola	Akola	0.5
2	Ajabrao Sakharam More	Mhaispur	Mhaispur	Akola	Akola	0.5
3	Manikrao Bhomaji Matre	Mhaispur	Mhaispur	Akola	Akola	0.5
4	Sahadevrao Kisan Pande	Mhaispur	Mhaispur	Akola	Akola	0.5
5	Vivek Krishnarao Bharane	Keliveli	Keliveli	Akot	Akola	0.5
6	Vilasrao Krishnarao Bharane	Keliveli	Keliveli	Akot	Akola	0.5
7	Gopal Ambadas Bhatkar	Keliveli	Keliveli	Akot	Akola	0.5
8	Rupesh Mahadev Kolhe	Palsod	Palsod	Akot	Akola	0.5
9	Devman Vamanrao Rahal	Takli Khureshi	Takli Khureshi	Balapur	Akola	0.5
10	Rameshwar Shamrao Nanote	Nimbhara	Mahan	Barshitakli	Akola	0.5
11	Sudhakar Devmanrao Nanote	Nimbhara	Mahan	Barshitakli	Akola	0.5
12	Avinash Harishchandra Nanote	Nimbhara	Mahan	Barshitakli	Akola	0.5
13	Dinkar Bhaurao Nanote	Nimbhara	Mahan	Barshitakli	Akola	0.5
14	Devman Vitthalrao Nanote	Nimbhara	Mahan	Barshitakli	Akola	0.5
15	Pramod Vishnupant Gavande	Titwa (G)	Titwa (G)	Barshitakli	Akola	0.5
16	Babanrao Narayanrao Gavande	Titwa (G)	Titwa (G)	Barshitakli	Akola	0.5
17	Prakash Yashavant Patil	Gorvha	Vizora	Barshitakli	Akola	0.5
18	Rajesh Baburao Khambalkar	Gorvha	Vizora	Barshitakli	Akola	0.5
19	Suresh Baburao Patil	Gorvha	Vizora	Barshitakli	Akola	0.5
20	Namdevrao Baburao Bothe	Gorvha	Vizora	Barshitakli	Akola	0.5
21	Amol Prabhakarrao Patil	Gorvha	Vizora	Barshitakli	Akola	0.5
22	Prabhakarrao Pandurang Patil	Gorvha	Vizora	Barshitakli	Akola	0.5
23	K.N. Pavitrakar	Ghungashi	Ghungashi	Murtizapur	Akola	0.5
24	Anandrao Pundalikrao Ganorkar	Hirpur	Hirpur	Murtizapur	Akola	0.5
25	Vamanrao Vishramji Khade	Hirpur	Hirpur	Murtizapur	Akola	0.5

Sl. No.	Name	Address				Seed (kg)
		Place	Post	Taluka	Dist	ICPH-2740
26	Shankarrao Vishnupant Abalkar	Hirpur	Hirpur	Murtizapur	Akola	0.5
27	Pramod Digambar Jogi	Hirpur	Hirpur	Murtizapur	Akola	0.5
28	Manakarnabai Mahadev Bomate	Chondhi	Chondhi	Patur	Akola	0.5
29	Saraswati Gajanan Bomate	Chondhi	Chondhi	Patur	Akola	0.5
30	Gajanan Mahadevappa Bhomate	Chondhi	Chondhi	Patur	Akola	0.5
31	M.R. Gavande	Hivarkhed	Hivarkhed	Telhara	Akola	0.5
32	Dipak Hiranmanji Naik	Rajna(purna)	Rajna(purna)	Chandur(B)	Amravati	0.5
33	Lileshwar Ajabrao Agale	Shivani(Ras)	Shivani(Ras)	Nandgaon (Kh)	Amravati	0.5
34	Bhaskarrao Balkrishna Gavande	Shivani(Ras)	Shivani(Ras)	Nandgaon (Kh)	Amravati	0.5
35	Madhukar Nimbaji Yelvande	Mangrul(N)	Mangrul(N)	Chikhali	Buldana	0.5
36	Sau. Shobhatai Vijay Ambhore	Mangrul(N)	Mangrul(N)	Chikhali	Buldana	0.5
37	Vijay Punjaji Ambhore	Mangrul(N)	Mangrul(N)	Chikhali	Buldana	0.5
38	Uddhavrao Nimbaji Yelvande	Mangrul(N)	Mangrul(N)	Chikhali	Buldana	0.5
39	Vitthal Madhukar Yelvande	Mangrul(N)	Mangrul(N)	Chikhali	Buldana	0.5
40	Bhaskarrao R. Patil	Savargaon (D)	Savargaon (D)	Chikhali	Buldana	0.5
41	Devanand Ramkrishna Chaware	Vairagad	Vairagad	Chikhali	Buldana	0.5
42	Bharat Vitthal Tayade	Paturda(Br)	Paturda(Br)	Sangrampur	Buldana	0.5
43	Shivshankar Ramkrishna Tayade	Paturda(Br)	Paturda(Br)	Sangrampur	Buldana	0.5
44	Bhanudas Kashiram Tayade	Paturda(Br)	Paturda(Br)	Sangrampur	Buldana	0.5
45	Santosh Tulshiram Devhade	Ghata	Ghata	Malegaon	Washim	0.5
46	Sunil Shridhar Susar	Shirpur	Shirpur	Malegaon	Washim	0.5
47	Rambhau Vyankati Jadhav	Vasari	Vasari	Malegaon	Washim	0.5
48	Haridwar sakharam Wankhede	Kuksa	Anchal	Risod	Washim	0.5
49	Shivaji Jayram Poul	Mangwadi	Bhar	Risod	Washim	0.5
50	Rajendra Ramchandra More	Mangwadi	Bhar	Risod	Washim	0.5
51	Sanjay Shriram Devhade	Belkheda	Asegaon(Pen)	Risod	Washim	0.5
52	Madan Tulshiram Devhade	Belkheda	Asegaon(Pen)	Risod	Washim	0.5
53	Madhukar Kashiram Kakade	Shelu	Ansing	Washim	Washim	0.5
54	Gajanan Jayram Bhimate	Phalegaon(T.)	Phalegaon	Washim	Washim	0.5
55	Mahadev Kisan Korade	Phalegaon(T.)	Phalegaon(T.)	Washim	Washim	0.5
56	Pundalik S. Matre	Nakhegaon	Nakhegaon	Darwaha	Yavatmal	0.5
57	Shrihari Dattatray Kadam	Tarnoli	Tarnoli	Darwaha	Yavatmal	0.5
58	Yashavant Kashinath Shrotri	Tarnoli	Tarnoli	Darwaha	Yavatmal	0.5
59	Satish Ramkrishna Trivedi	Lasina	Lasina	Yavatmal	Yavatmal	0.5
60	Dilip Ramkrishna Trivedi	Lasina	Lasina	Yavatmal	Yavatmal	0.5
Total seed distributed (kg)						30.5

Table 7. List of on-farm demonstrations in Marathwada region by MAU, Parbhani

Sl. No.	Name of farmers	Address	Contact No.
1	Salgar Swapnil Ramrao	Mahatpuri, Dist. Parbhani	9850645047
2	Thore Vijay	Devnandra, Dist. Parbhani	9403645070
3	Bhargav	Jam, Dist. Parbhani	9422875992
4	Dawre D.G.	Sorghum R. Center, Parbhani	-
5	Navghare	D.R. Office, Dist. Parbhani	9421461562
6	Rao N.R.	Krishi Sarthy Colony, Parbhani	-
7	Joshi R.D.	Murumba, Dist. Parbhani	9766067592
8	Jadhav Jayeshrao	Dharasur, Dist. Parbhani	9422877213
9	Jadhav Satish A.	Dharasur, Dist. Parbhani	9822089758
10	Dukre Gopal M.	Khedula, Pathari, Dharasur, Dist. Parbhani	9767621162
11	Dukre Dnyeshwar G.	Khedula, Pathari, Dharasur, Dist. Parbhani	9689710408
12	Prof. Chulwar		
13	Kadam Gajanan M.	At. Dharasur, Dist. Parbhani	9850740309
14	Magar Ajit Kumar Uttamrao	At. Alapur, Dist. Parbhani	94221 76025 9421459020
15	Dr. Magar Madhusudhan Uttamrao	At. Alapur, Dist. Parbhani	9422176025
16	Kale Sakharam Rohidas	At. Erandeshwar, Dist. Parbhani	9881730014
17	Dr. S.P. Mehtre	Parbhani	
18	Jawale Baburao Ramrao	Ujalamba, Parbhani	9922531283
19	Raske Bhagwan Laxman	Hatta	
20	Jadhav Vijaykumar B.	At. Dharasur, Tq. Gangakhed, Parbhani	9552825185
21	Jadhav Sureshrao S.	At. Dharasur, Tq. Gangakhed, Parbhani	9881522982
22	Deshmukh Vishal S.	Pedgaon, Parbahni	9766414662
23	Hinge Motiram B.	At. Majlapur, Tq. Purna, Parbhani	
24	Kadam Dnyanoba N.	At. Rametakli, Parbhani	9527313181
25	Kadam Vilas N.	At. Rametakli, Parbhani	02451-295220
26	Pawar Praladh M.	At. Wazur, Tq. Purna, Parbhani	9764980928
27	R.G. Kothekar	Kotahae, Tq. Jintur, Parbhani	9423877716
28	Bhambre Vitthal S.	Manwat, Parbhani	
29	Dr. Sugave Sir	MAU, Parbhani	
30	Dr. Pravin Kapse	Kottomwadi, Pokharni Phata, Parbahni	9923048212
31	Wattamwar Vikas G.	Nandkheda, Tq. Gangakhed, Parbhani	9822999333
32	Arbad Bhagwan K.	Vita, Tq. Pathri, Parbhani	9890859704
33	Badguger Anant G.	Jamb, Parbhani	9730948128
34	Arbad Munjaji D.	Vita, Tq. Pathri, Parbhani	9890859704
35	Lad Vinod Haribhau	Jamb, Parbhani	9604281878
36	KVK, Parbhani	Parbhani	02452-223045
37	Maske B.	Raipur, Parbhani	
38	Deshmukh Ramrao V.	Pimpran, Tq. Purna, Parbahni	9623223108
39	Shaikh Janith	Nandgaon, Tq. Parbhani	9850995476
40	Zade Kishor K.	At. Murumba, Parbhani	9921808138
41	Edke Ashok B.	Kolha, Tq. Manwat, Parbhani	9765764358
42	Vaidya Shripad D.	Nandkheda	9763050207

Sl. No.	Name of farmers	Address	Contact No.
43	Shinde Naresh G.	Sanpuri	9421386833
44	Bharad Bansidhar K.	Nandkheda	9822334004
45	Jadhav Omprakash L.	Dharasur, Tq. Gangakhed, Parbhani	9403063885
46	Bhise Rameshwar B.	Kolha, Tq. Manwat, Parbhani	9923442565
47	Kulkarni Rajabhau	Kausadi, Tq. Jintur	
48	Kachve Balasaheb T.	Indewadi, Parbhani	9421409640
49	Walke Patil Hanumanrao	Pingli, Parbhani	9923107999
50	Patil Baliram R.	Bhutan Hipparga, Tp. Deglur, Nanded	9673245996
51	Patil V.G.	Ebrahimpur, Tq. Deglur, Nanded	9960500909
52	Patil Madhukar B.	Sunegaon Dist. Nanded	9423437894
53	Patil Baliram R.	At.Bhuvan Hipperga, Tq. Deglur, Dist. Nanded	9673245996
54	Patil Nandabai B.	At.Bhuvan Hipperga, Tq. Deglur, Dist. Nanded	9673245996
55	Padamwar Laxmikant B.	Kandhar, Nanded	9226799308
56	Tidke Munjaji S.	At. Digras, Tq. Ardhapur, Nanded	
57	Madhav Ramchandra	At. Digras, Tq. Ardhapur, Nanded	
58	Dr. Deshmukh D.A.	KVK, Nanded	9423140598
59	Deshmukh S.A.	KVK, Nanded	9403328054
60	Destewad Ramchandra	KVK, Nanded	
61	Mali Patil Kishanrao	KVK, farm Nanded	
62	Dhulekar Baliram H.	Kolhe Borgaon, Tq. Biloli, Nanded	9766973137
63	Wakharde Baliram T.	Warul, Tq. Khandar, Nanded	9372790009
64	Wakharde Prakash B.	Warul, Tq. Khandar, Nanded	8805290009
65	Gitte B.D.	Kanerwadi, Tq. Parli, Beed	9011253273
66	Gitte C.A.	Nandagoul, Tq. Parli, Beed	9665322724
67	Gitte S.A.	Nandagoul, Tq. Parli, Beed	8805083588
68	Garge R.S.	Ambalwadi, Tq. Ambajogai, Beed	9975208571
69	Gitte S.S.	Nandagoul, Tq. Parli, Beed	9763645988
70	Patait Digambar	Vita, Tq. Kej, Beed	9860017050
71	Solenke Praptaprao	Sadhula, Tq. Majalgaon	9527313281
72	Shaikh Kadar Sh. Mohiyodin	Khandegaon, Dist. Hingoli	9970022219
73	Chavan Ganesh A.	Adgaon, Tq. Basmat, Dist. Hingole	9021403894
74	Bachewad Rambhau	Shiradshahpur, Tq. Aundha	9923044007
75	Bhalerao R.V.	Adgaon, Tq. Basmat	9421907641
76	Amar Ramkrishna Shinde	At. Niwli, Dist. Latur	9922565960
77	Dr. Ekshinge B.S.	Pangari, Tq. Mantha, Jalna	9422177700 9423141101
78	Bagal Dattarao	Badhan, Jalna	9421653704
79	Bagal Pandurang	Badhan, Jalna	9423457027
80	Sarate Sadanand L.	Wazar, Jalna	9766422416
81	S.K. Patil	Badnapur	
82	Toshniwal Onkarmal	Risod, Dist. Washim	9422921188
83	S. B. Chaulwar	Sonpeth, Parbhani	02452225843
84	P.B. Chaulwar	Shelgaon, Parbhani	02452225843

Sl. No.	Name of farmers	Address	Contact No.
85	S.P. Mehtre	Aurad, Latur	9421462282
86	B.S., Mehtre	Hulgara, Latur	9421462282
87	B.S. Mehtre	Aurad, Latur	9421462282
88	B.S. Mehtre	Chinchewadi, Latur	9421462282
89	R.B. Bhise	Kolha, Parbhani	9923442565
90	Rajabhau M. Kulkarni	Kausadi, Parbhani	-
91	B.T. Kachave	Indewadi, Parbhani	9421409640
92	H.V. Walke	Pingali, Parbhani	9923107999

Table 8. Details of Demonstrations on Hybrid Pigeonpea taken up at Gulbarga Center during 2010 - 2011

Sl. No.	Details	Demonstrations
01	Number of demonstrations with ICPH-2671	54
02	Number of demonstrations with ICPH-2740	83
	Total Number of demonstrations	137

Details of ICPH-2671 Pigeonpea Hybrid Demonstration given by ARS, Gulbarga during 2010-11

Sl No	Name of the Farmer and address	Village	Hybrid + Check	Quantity	Date of sowing
1	Sri. Ashok Addappa Pujari R/o. Islampur Tq. Basavakallyan Dist. Bidar Mob.No.9535402080 or 8105451079	Islampur	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	15.06.2010
2	Sri. Mallishetty. S/o Birappa Chinnalli R/o. Palegave Tq. & Dist. Glb Mob.No.9945304306	Palegao	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	Not Sown
3	Sri. Chandrakanth S/o Kalyanrao R/o. Belamgi Tq. Aland Dist. Glb Mob.No.9611314589	Belamgi	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	22.06.2010
4	Sri. Ropla S/o Devalu Paver R/o. Belamgi Tq. Aland Dist. Glb Mob.No 9611314589	Belamgi	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	23.06.2010
5	Sri. Krishana Kulkarni S/o Venkatarao R/o. Narona Tq. Aland Dist. Glb Mob.No.9591648317 or 9379588179	Narona	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	18.06.2010
6	Sri. Sidramappa S/o Mallappa R/o. Shankarwadi Tq. Chittapur Dist. Glb Mob.No.9880573066	Shankarwadi	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	28.06.2010
7	Sri. Manjunath S/o Guranna Kerur R/o. Herur B Tq. Dist. Glb Mob.No.9845641050	Herur B	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	17.07.2010
8	Sri. Sharanbasappa Erappa .Patil R/o. Tajsultanpur Tq. Dist. Glb Mob.No.9900438541	Tajsultanpur	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	23.06.2010
9	Sri. Baburao S. Gobbur R/o. Bhusnoor Tq. Aland Dist. Glb	Bhusnoor	ICPH- 2671	1.5 kg 1.5 kg	02.07.2010

Sl No	Name of the Farmer and address	Village	Hybrid + Check	Quantity	Date of sowing
	Mob.No.9972352526		Maruti (c)		
10	Sri.Gurushanth N. Kodlur R/o. Bhusnoor Tq.Aland Dist.Glb Mob.No.9972352547	Bhusnoor	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	03.07.2010
11	Sri.Shivasharanappa Gobbur, R/o.Bhusnoor, Tq.Aland Dist.Glb Mob.No. 9972352526	Bhusnoor	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	04.07.2010
12	Sri.Mahantesh.S. Gobbur R/o. Bhusnoor Tq.Aland Dist.Glb Mob.No. 9972352526	Bhusnoor	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	02.07.2010
13	Sri.Basawaraj patil R/o. Tajsultanpur Tq. Dist.Glb. Mob.No.9901095442	Tajsultanpur	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	28.06.2010
14	Sri.Basawaraj S/o Sharanappa R/o. Tajsultanpur Tq. Dist.Glb. Mob.No.9448001150 or 8105587277	Tajsultanpur	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	06.07.2010
15	Sri.Mahadevappa S/o Yamanappa R/o.Mullur Tq.Sindanoor Dist.Raichur, Mob.No.9844371335	Mullur	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	06.07.2010
16	Sri.Maheboob S/o Gulamhusai R/o.Bandarawad Tq.Afzalpur Dist.Glb Mob.No.9972389720	Bandarawad	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	02.07.2010
17	Sri. Amruthappa Nagappa Awasi R/o Dotaragav Tq. Aland Dist: Gulbarga Mob. No. 9972689832	Dotaragao	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	02.07.2010
18	Sri. Shivasharanappa Upalav R/o Kapanoor Tq : Dist: Glb Mob No. 8123189791 or 9686190649	Kapanoor	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	17.07.2010
19	Sri.Mahesh kumar Mathapathi R/o.Hagaraga Tq. Dist.Glb Mob.No. 9901741970	Hagaraga	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	29.06.2010
20	Sri.Younus Tengali R/o. Tengali Tq. Chittapur Dist.Glb Mob.No.9611913785	Tengali	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	15.07.2010
21	Sri. Gurudeva Prabhurao Hugar R/o Juguru Tq. Dist Gulbarga Mob No. 9342733379 or 9036562287	Joguru	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	07.07.2010
22	Sri. Kashinath pujari R/o Kamalapur Tq. Dist : Gulbarga Mob. No 9535913677 or 9341945729	Kamalapur	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	04.07.2010
23	Sri. Veershetty S/o Channappa Kalyan R/o. Kamalapur Tq. Dist : Gulbarga Mob. No. 9482634575	Kamalapur	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	08.07.2010
24	Sri.Lalahamad Ibrahim R/o.Kamalapur Tq. Dist : Gulbarga Mob. No 9482634575	Kamalapur	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	06.07.2010
25	Sri.H.M. Pujari R/o. Kotanoor Tq.	Kotanoor	ICPH-	3.0 kg	13.07.2010

Sl No	Name of the Farmer and address	Village	Hybrid + Check	Quantity	Date of sowing
	Jewargi Dist.Glb Mob.No. 9741731655		2671 Maruti (c)	3.0 kg	
26	Sri.Shivakuamr Ambrappa Seri R/o. Nellur Tq. Aland Dist.Glb Mob.No.9901956971	Nellur	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	13.07.2010
27	Sri.Kishor pawar S/o Noornaik R/o Khadal Tq. Dist.Glb Mob.No.998077815	Kadadal	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	21.07.2010
28	Sri. Laximan T. Rathod R/o.Khadal Tq. Dist.Glb Mob.No.9686639956	Kadadal	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	20.07.2010
29	Sri. Rajashekhar S/o Shivaputrappa Biradar R/o.Kanchinal Tq.Chincholi Dist.Glb Mob.No.7760662242 or 9880574275	Kanchinal	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	20.07.2010
30	Sri.Lankappa Devaramani R/o.Singapur Tq. Sindanoor Dist.Raichur Mob.No.9886510873 or 9480444942	Singapur	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	24.07.2010
31	Sri.Rayappa R/o.Kachapur Tq. Jewargi Dist.Glb Mob.No.9902455834	Kachapur	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	30.07.2010
32	Sri.Mallikarjun Kallappa Yarnalle R/o.Markhal Dist; Bidar Mob.No.9241495378	Markhal	ICPH- 2671 Maruti (c)	3.0 kg 3.0 kg	9.07.2010
33	Sri.Gurunath Baburao Selake R/o.Pashapur Dist.Bidar Mob.No.9901202734	Pashapur	ICPH- 2671 Maruti (c)	3.0 kg 3.0 kg	10.07.2010
34	Sri.Vittalrao Yadavarao R/o.Hajjaragi Tq. Dist.Bidar Mob.No.9686899287	Hajjaragi	ICPH- 2671 Maruti (c)	3.0 kg 3.0 kg	11.07.2010
35	Sri.Krishnakumar Gadegappa Buyya R/o.Pashapur Dist.Bidar Mob.No.9449138978	Pashapur	ICPH- 2671 Maruti (c)	3.0 kg 3.0 kg	12.07.2010
36	Sri.Md Asif R/o. Gadagi Dist.Bidar , Mob.No.9916201376	Gadagi	ICPH- 2671 Maruti (c)	3.0 kg 3.0 kg	09.07.2010
37	Sri. Sharangouda R/o. Kanchelkavi Tq. Shahapur Dist.Yadgir ,	Kanchelkavi	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	30.07.2010
38	Sri. Chandrashekar R/o. Wadgera Tq. Shahapur Dist.Yadgir ,	Wadgera	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	25.07.2010
39	Sri. Mallinath R/o. Dornalli Tq. Shahapur Dist.Yadgir , Mob.No.	Dornalli	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	25.07.2010
40	Sri Rayappa Sidbassappa Pujar R/o Kachapur Tq; Jewargi Dist; glb	Kachapur	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	Not sown
41	Sri. Somanath Vittalrao Biradar R/o.Hippalgoan Tq. Dist.Bidar	Hippalgoan	ICPH- 2671	1.5 kg 1.5 kg	07.07.2010

SI No	Name of the Farmer and address	Village	Hybrid + Check	Quantity	Date of sowing
			Maruti (c)		
42	Sri. Ashok Kulkarni Gagendragad Dist. Gadag	Gajendragad	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	28.07.2010
43	Sri. Promode Kulkarni Gagendragad Dist. Gadag	Gajendragad	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	28.07.2010
44	Sri.Y.Maremma R/o Amarpur Tq.Dist.Bellary	Amarapur	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	21.07.2010
45	Sri. Anand. Reedy R/o Bailur Tq.Dist.Bellary	Bailur	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	23.07.2010
46	Sri. M.Mallikarjun R/o Amarpur Tq.Dist.Bellary	Amarapur	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	24.07.2010
47	Sri. B. Kumargouda R/o Amarpur Tq and Dist. Bellary	Amarapur	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	22.07.2010
48	Sri. D. Shivappa R/o Shankarbandi Tq and Dist. Bellary	Shankarbandi	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	26.07.2010
49	Sri. B.Nagappa R/o Shankarbandi Tq and Dist. Bellary	Shankarbandi	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	28.07.2010
50	Sri. K. Mohandhi R/o B. Gonal Tq and Dist. Bellary	B. Gonal	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	23.07.2010
51	Sri. K. Pampanna R/o Shankarbandi Tq and Dist. Bellary	Shankarbandi	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	25.07.2010
52	Sri. Honnur Swamy R/o Shankarbandi Tq and Dist. Bellary	Shankarbandi	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	27.07.2010
53	Sri. Hullimanappa R/o B. Gonal Tq and Dist. Bellary 9902490187	B. Gonal	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	22.07.2010
54	Sri. P. Gousteer R/o Shankarbandi Tq and Dist. Bellary 8971003613	Shankarbandi	ICPH- 2671 Maruti (c)	1.5 kg 1.5 kg	30.07.2010

Details of ICPH-2740 Pigeonpea Hybrid demonstration given by ARS, Gulbarga during 2010 – 11

Sl No	Name of the Farmer and address	Village	Hybrid + Check	Quantity	Date of sowing
1	Sri. Gurulingappa S. Biradar R/o.Bali Tq. Aland Dist.Glb Mob.No.9980241555	Bali	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	22.06.2010
2	Sri. Gurushantappa. Biradar. R/o.Bali Tq. Aland Dist.Glb Mob.No.9900634255	Bali	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	10.06.2010
3	Sri.Amruth.S. Houshetty R/o.Dharga Sirur Tq.Aland Dist.Glb Mob.No.9880628839	Belamgi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	11.06.2010
4	Sri. Bhimashankar Vibhuti R/o. Nelogi Tq. Jewargi Dist.Glb Mob.No 9448830050	Nelogi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	18.07.2010
5	Sri. Vithal S/o Shivasharanappa Mamadapur R/o Bhimalli, Tq: Dist.Glb Mob.No. 9900563628	Bheemalli	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	15.06.2010
6	Sri. Veerabadrappa S/o Malleshappa R/o.Bhimalli Tq. Dist.Glb Mob.No. 9900563628	Bheemalli	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	15.06.2010
7	Sri. Vijayakumar S/o Shivasharanappa Madaki R/o.Ladamugali Tq. Aland Dist.Glb Mob.No.9972780050	Ladamugali	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	21.06.2010
8	Sri.Ravikumar Jonnal R/o.Kallur Tq Chincholi Dist.Glb Mob.No.9972201079 or 08475200255	Kallur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	23.07.2010
9	Sri. Shivasharanappa S/o Bhimasha R/o.Kalaganoor Tq.Dist.Glb Mob.No.9731043078	Kalaganoor	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	11.06.2010
10	Sri.Ragavendra Reddy patil R/o.Kallur Road, Tq. Chincholi Dist.Glb Mob.No. 9741680734	Kallur Road	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	23.06.2010
11	Sri. Devindrappa S/o Prabhu R/o Hagaragundagi Tq: Dist: Gulbarga, Mob No. 9945747116	Haragagundagi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	26.06.2010
12	Sri.Revanasiddppa. Ganganna R/o. Hagaragundagi Tq: Dist: Gulbarga Mob.No. 9743477020 or 7760725615	Haragagundagi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	16.06.2010
13	Sri. Rudragouda Siddalingagouda R/o.Bairapur Tq.Siraguppa Dist. Bellary. Mob.No.9008461969	Bairapur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	16.06.2010
14	Sri.H.S. Ganji R/o Chinchansur Tq. Aland Dist.Glb. Mob.No.9900623831	Chinchansur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	Not sown
15	Sri.Malleshetty S/o Beerappa Chinnamalli R/o.Panegava Tq.Dist.Glb Mob.No. 9945304306	Panegao	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	Not sown
16	Sri.Sidramappa Mallappa R/o.shankarwada Tq. Chittapur Dist.Glb Mob.No.9880573066	Shankarwada	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	28.06.2010
17	Sri. Chandrakant Rudrappa Pagadi R/o Dannur Tq. Aland Dist: Gulbarga Mob. No. 9611850489 or 9242474959	Dannur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	21.06.2010
18	Sri. Nijalingappa Shantappa Biradar R/o Basawantawadi Tq : Aland Dist: Glb Mob No. 9686157582 or 9740722915	Basawantawadi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	19.06.2010
19	Sri. Vijay kumar Sharanabasappa R/o. Gandaked Tq. Dist.Glb, Mob.No. 9731882280	Gandaked	ICPH-2740 Asha (c)	1.5 Kg 1.5 kg	19.06.2010
20	Sri. Sharanabasappa S/o Shankarao R/o Badadal Tq: Afzalpur Dist: Glb Mob No. 9902278776 or 9901467157	Badadal	ICPH-2740 Asha (c)	1.5 Kg 1.5 kg	12.07.2010
21	Sri. Basavaraj patil R/o Tajsultanpur Tq. Dist Gulbarga. Mob No. 9901095442	Tajsultanpur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	29.06.2010
22	Sri. Shivasharanappa Biradar R/o wadi Tq. Chittapur : Gulbarga. Mob. No 9611485912	Wadi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	25.06.2010

SI No	Name of the Farmer and address	Village	Hybrid + Check	Quantity	Date of sowing
23	Sri. Laxman Biradar R/o. Shahapur Dist : Yadadigar Mob. No. 9902802056	Shahapur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	Not sown
24	Sri.Somayya H. R/o.Karajagi Tq Afzalpur. Dist : Gulbarga Mob. No 9740482264	Karajagi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	Not sown
25	Sri. Shreeshail Guggare R/o. Tadakalla Tq. Aland Dist.Glb. Mob.No. 9739939003	Tadakal	ICPH-2740 Asha(c)	3.0 Kg 3.0 kg	Not sown
26	Sri.Huchappa R/o Hilagaddi Tq. Manavi Dist. Raichur Mob.No.9902847547	Hiralgaddi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	10.07.2010
27	Sri. Sunil Shaiwale R/o Gunjoti Tq: Umarga Dist: Usamanabad Mob.No.09881176114 or 9972284538	Gunjoti	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	25.06.2010
28	Sri.Mahesh kumar Mathapathi R/o.Hagaraga Tq. Dist.Glb. Mob.No. 9901741970	Hagaraga	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	29.06.2010
29	Sri.Younus Tengali R/o. Tengali Tq. Chittapur Dist.Glb Mob.No.9611913785	Tengali	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	15.07.2010
30	Sri. Mantha rao Mallappa Patil R/o padasawalagi Tq: Aland Dist: Gulbarga Mob No. 9902425204 or 08477233531	Padasawalagi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	05.07.2010
31	Sri. Basanagouda Patil. R/o Bhosaga (K) Tq: Jewargi Dist: Glb, Mob No. 9449244365	Bhosaga	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	23.07.2010
32	Sri. Shankaragouda patil R/o Raddewadagi, Tq: Jewargi Dist: Glb. Mob No. 9902561148	Raddewadagi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	06.07.2010
33	Sri. Amruth Goudappagol R/o Raddewadagi Tq: Jewargi Dist: Glb. Mob No. 99025661148	Raddewadagi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	05.07.2010
34	Sri. Nagappa Ranappa R/o Srinivas saradagi Tq: Dist: Gulbarga. Mob No. 9379379155	Srinivas saradagi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	05.07.2010
35	Sri. Tippanna S/o Timmappa R/o Tumakur Tq: Shahapur Dist: Yadagir Mob No. 9741533411	Tumakur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	07.07.2010
36	Sri. Mallanna S/o Shankarappa R/o Bachanal Tq: Dist: Gulbarga Mob No. 9900702281	Bachanal	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	18.07.2010
37	Sri. Revayya S/o Revanasiddayya Math R/o Rajanal Tq: Dist: Glb. Mob No. 9343034446	Rajanal	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	08.07.2010
38	Sri. Kashinath Pujari R/o Kamalapur Tq:Dist: Glb. Mob No. 9535913677	Kamalapur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	04.07.2010
39	Sri. Ramalinga Chandrakanth Chikkegouda R/o Kamalapur Tq: Dist: Glb Mob No. 9482634575	Kamalapur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	05.07.2010
40	Sri. Vijakumar S. Uadari R/o Kamalapur Tq: Dist: Glb . Mob No. 9845704701	Kamalapur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	06.07.2010
41	Sri. Gurushanta S/o Dholappa Halamidi R/o R/o Kamalapur Tq: Dist Glb Mob No. 9663926063	Kamalapur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	04.07.2010
42	Smt. Kashimbai W/o Mallikarajun Kallyan R/o Kamalapur Tq: Dist Glb Mob No. 9740911591	Kamalapur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	07.07.2010
43	Sri. Ramesh R/o Bilagunda Tq: Dist: Glb Mob No. 9880863889	Bilagunda	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	06.07.2010
44	Sri. Shantaveer S/o Shivasharanappa R/o Jawali(D) Tq: Aland Dist: Glb Mob No. 997232961	Jawali (D)	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	08.07.2010
45	Smt. Sangeeta Lingali R/o S. Saradagi Tq:Dist: Gulbarga. Mob No. 9538092895	S.Saradagi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	08.07.2010
46	Sri. Anand Lingali /o S. Saradagi Tq:Dist: Gulbarga. Mob No. 9538092895	S.Saradagi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	08.07.2010
47	Sri. Gurusharana Malkappa Police patil R/o Jawali (D) Tq: Aland Dist: Glb Mob No. 9972083375	Jawali (D)	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	08.07.2010

Sl No	Name of the Farmer and address	Village	Hybrid + Check	Quantity	Date of sowing
48	Sri. Vijayakumar R/o Bilagundi Tq: Aland Dist: Glb. Mob No. 9845473519	Bilagundi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	Not sown
49	Sri. Sanganna gouda N. Patil R/o Birala (K) Tq: Jewargi Dist: Glb. Mob No. 9972015687	Birala (K)	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	14.07.2010
50	Sri. Veerapakshi Math R/o Hasaragundagi Tq: Afzalpur Dist: Glb. Mob No. 9731497960	Hasaragundagi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	11.07.2010
51	Sri. Shantayya math R/o R/o Hasaragundagi Tq: Afzalpur Dist: Glb. Mob No. 9164156344	Hasaragundagi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	26.07.2010
52	Sri Sharanagouda S/o Shamarao Mali patil R/o Venkatabennur Tq: Dist: Gulbarga Mob No. 9742908626	Venkatabennur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	18.07.2010
53	Sri. Basawaraj Ambarao Uppalaonkar R/o Kallahangaraga Tq: Dist: Glb Mob No. 9448252179	Kallahangaraga	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	20.07.2010
54	Sri. Bharath Talikoti R/o Ipparagi (SN) Tq: Jewargi Dist: Glb. Mob No. 9900854273	Ipparagi (SN)	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	20.07.2010
55	Sri. Ramanna Mukappa R/o Krishnapur Tq: Sorapur Dist: Yadagir, Mob No. 9740498214 or 9972358845	Krishnapur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	22.07.2010
56	Sri. Lankeppa Devaramani R/o Singapur Tq: Sindanoor Dist: Raichur Mob No. 9886510873 or 9480444942	Singapur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	24.07.2010
57	Sri Rayappa Sidbassappa Pujar R/o Kachapur Tq; Jewargi Dist. Glb	Kachapur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	Not sown
58	Sri. Somanath Vittalrao Biradar R/o.Hippalgoan Tq. Dist.Bidar.	Hippalgoan	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	07.07.2010
59	Sri.Devindradas Motilal Pande R/o. Janawad Tq. Dist.Bidar, Mob.No.9945909997	Janawad	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	05.07.2010
60	Sri.Hulleppa Nagashetty B R/o.Janawad Tq. Dist.Bidar, Mob.No.9901847452	Janawad	ICPH-2740 Asha(c)	3.0 Kg 3.0 kg	09.07.2010
61	Sri.Gurubasappa Shankreppa M R/o. Kouta (B) Tq. Dist.Bidar, Mob.No.9902585155	Kouta (B)	ICPH-2740 Asha(c)	3.0 Kg 3.0 kg	10.07.2010
62	Sri. Madhavrao Baburao Selake R/o. Kouta (B) Dist.Bidar, Ph.No.244221	Kouta (B)	ICPH-2740 Asha(c)	3.0 Kg 3.0 kg	06.07.2010
63	Sri. Ashok Ishwarappa Buyya R/o. Kouta (B) Dist.Bidar, Mob.No.9242322675	Kouta (B)	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	03.07.2010
64	Sri. Jaganathrao Dhulleppa R/o. Islampur Dist.Bidar, Mob.No.9241092545	Islampur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	04.07.2010
65	Sri. Narasingrao Ramrao V R/o. Markhal Dist.Bidar, Mob.No.9241474018	Markhal	ICPH-2740 Asha(c)	3.0 Kg 3.0 kg	14.07.2010
66	Sri. Vaijanath Sangappa D R/o. Kouta (B) Dist.Bidar, Mob.No.9241262953	Kouta (B)	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	13.07.2010
67	Sri. Ayub Patel R/o. Boragi Tq. Aourad Dist.Bidar, Mob.No.9449690712 or 8050953732	Boragi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	07.07.2010
68	Sri. Nagashettappa Dalapati R/o. Biri (K) Dist.Bidar, Mob.No.9845608382	Biri (K)	ICPH-2740 Asha(c)	3.0 Kg 3.0 kg	05.07.2010
69	Sri. Chandrashekar Basangouda R/o. Balched Tq. Dist.Yadgir	Balched	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	25.07.2010
70	Sri. Basavarajappa Rachangouda R/o. Balched Tq. Dist.Yadgir, Mob.No. 9986692597	Balched	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	25.07.2010
71	Sri. Sharanappa B R/o. Balched Tq. Dist.Yadgir. Mob.No. 9986692597	Balched	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	25.07.2010

Sl No	Name of the Farmer and address	Village	Hybrid + Check	Quantity	Date of sowing
72	Sri. Gurunath reddy R/o. Kanchelkavi Tq. Shahapur Dist.Yadgir, Mob.No. 9448830758	Kanchelkavi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	28.07.2010
73	Sri. Bheemarao Mallappa Ansur R/o. Vibutalli Tq. Shahapur Dist.Yadgir. Mob.No. 9448830758	Vibutalli	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	30.07.2010
74	Sri. Mannappa Valappa R/o. Rabbnalli tanda Tq. Shahapur Dist.Yadgir, Mob.No. 9663951655	Rabbnalli tanda	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	26.07.2010
75	Sri. Shankerwalnaik R/o. Rabbnalli tanda Tq. Shahapur Dist.Yadgir, Mob.No. 9663951655	Rabbnalli tanda	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	26.07.2010
76	Sri. Sharangouda R/o. Kanchelkavi Tq. Shahapur Dist.Yadgir	Kanchelkavi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	30.07.2010
77	Sri. Chandrashekar R/o. Wadgera Tq. Shahapur Dist.Yadgir	Wadgera	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	25.07.2010
78	Sri. Mallinath R/o. Dornalli Tq. Shahapur Dist.Yadgir	Dornalli	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	25.07.2010
79	Sri. K.Y.Lingareddy R/o Amarapur Tq and Dist. Bellary, Mob. No. 9980023068	Amarapur	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	15.07.2010
80	Sri. P.Dodabasavanagouda R/o Hargindoni Tq, Dist. Bellary	Hargindoni	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	14.07.2010
81	Sri. Ayyangouda R/o Shankarbandi Tq and Dist. Bellary	Shankarbandi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	16.07.2010
82	Sri. G. Karthik R/o Paraman devan halli Tq and Dist. Bellary	Paraman devan halli	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	14.07.2010
83	Sri. Yerremma R/o Shankarbandi Tq and Dist. Bellary	Shankarbandi	ICPH-2740 Asha(c)	1.5 Kg 1.5 kg	16.07.2010

Table 9 (a). Pigeonpea hybrid seed supply for OFTs in different districts of Andhra Pradesh, 2010.

District	Farmers (no)	ICPH 2671 Kg (farmers)	Maruti Kg (farmers)	ICPH 2740 Kg (farmers)	Asha Kg (farmers)
Adilabad	2	4(2)	2(2)	-	-
Ananthapur	9	4(3)	4(3)	6(6)	11(7)
Guntur	6	2(2)	2(2)	6(5)	7(5)
Karimnagar	5	9(4)	6(4)	1(1)	4(3)
Kadapa	8	10(2)	1(1)	10(7)	7(7)
Khammam	5	4(4)	3(2)	2(2)	2(2)
Kurnool	5	2(2)	1(1)	6(5)	6(5)
Mahaboobnagar	30	45(19)	17(17)	11(9)	24(12)
Medak	61	42.5(20)	15(15)	89(39)	170.5(45)
Nizamabad	7	12(6)	10(5)	1(1)	8(2)
Nalgonda	21	14.5(11)	10.5(7)	13(11)	44(13)
Prakasam	8	1(1)	1(1)	6(6)	9(6)
Rangareddy	17	6(7)	10(7)	17(12)	142(14)
Warangal	6	8(6)	7(5)	2(2)	7(4)
West Godavari	3	1(1)	1(1)	2(2)	6(2)
General	18	28(15)	19(7)	6(6)	61(13)
Total	211	193(103)	109.5(80)	178(114)	508.5(140)

Table 9 (b). District wise pigeonpea hybrid seed supply details among farmers in Maharashtra and Jabalpur, 2010

S.No	District	No. of farmers	ICPH 2671	Maruti	ICPH 2740	Asha	ICPH 3762
1	Ahmednagar	2	2	1	1	-	-
2	Akola	44	63	53	-	-	-
3	Amaravati	8	8	8	-	-	-
4	Beed	2	1	1	1	1	-
5	Buldana	1	2	2	-	-	-
6	Jalna	3	3	1	-	-	-
7	Jalgaon	5	5	5	-	-	-
8	Latur	1	-	-	1	1	-
9	Nanded	12	23	10	2	2	-
10	Nasik	1	1	1	2	1	-
11	Osmanabad	10	1	1	10	10	-
12	Parbhani	11	25	5	77	35	30
13	Solapur	2	2	1	-	-	-
14	Vardha	13	13	13	-	-	-
15	Wardha	15	15	15	-	-	-
Total		132	185	108	94	50	30
1	Jabalpur	20	1	1	12.5	12.5	

Table 10. ICRISAT scientists and staff made several visits to seed production plots in ICRISAT and farmers' fields and thorough roguing of off-type plants was done

Sl. No.	Date of travel	Farmer name	Location	Mobile No	Traveler	Purpose
1	26.04.10	G. Janardhan	Chetukur	9490449091	R Vijay Kumar	Identifying Fields
		B.Anjireddy	Baswapur	9440211342	Dr Mula	
		S,Ram Reddy	Paitara	9490447808	R Rama Rao	
2	27.04.10	Dr KGK Sastry	Enikapalli	9866286614	R Vijay Kumar	Identifying Fields
		N Baskar Rao	Narsapur	9440853260	Dr Mula R Rama Rao	
3	28.04.10		Buvanagiri		R Vijay Kumar & R Rama Rao	Identifying Fields
4	29.04.10	Mr Subba Raju	Gopanpalli	9989670379	R Vijay Kumar	Identifying Fields
		Mr Prabaker Reddy	Kalawakurthi	9440765923	R Rama Rao	
5	30.06.10	Dr Suneel	Kandi	9959319595	R Vijay Kumar Dr Mula, R Rama Rao & Srinu, Prasad	A X R Exp Planting
6	06.06.10	P Pratap Reddy	Rangampet	9948269233	R Rama Rao	R line Planting
7	06.06.10	Mr Subba Raju	Gopanpalli	9989670379	R Rama Rao	Preparation Field
8	13.07.10	Mr Subba Raju	Gopanpalli	9989670379	R Rama Rao	A X R Planting
9	14.07.10	Mr Subba Raju	Gopanpalli	9989670379	R Vijay Kumar	Planting
		P Pratap Reddy	Rangampet	9948269233	Dr Mula	
10	18.08.10	S Muraleedhar Rao	Chalimeda	9885312113	R Rama Rao	
		S Muraleedhar Rao	Chalimeda	9885312113	R Rama Rao Ms. Kyu, and Prasad	for Roguing & SM
11	20.09.10	Mr Chandra Mohanreddy	Amangal	9440563218	R Vijay Kumar	for Roguing & SM
		Mr Prabaker Reddy	Kalawakurthi	9440765923	Dr Mula, P S Rao	
		M Venkat Reddy	Dindi	9951837950	R Rama Rao	
12	27.09.10	Mr Balreddy	Mallepally	9490022529	Dr Isabel, Dr Mula R Vijay Kumar, Dr Rafat, R Rama Rao, & Chinese delegates	for Roguing & SM
13	28.09.10	G. Janardhan	Chetukur	9490449091	Dr Isabel	for Roguing & SM
		S,Ram Reddy	Paitara	9490447808	R Vijay Kumar, Dr Rafat, R Rama Rao, & Chinese delegates	
14	07.10.10	Dr Suneel	Kandi 2010	9959319595	Dr Mula R Rama Rao	for Roguing & SM
15	20.10.10	Mr Chandra Mohanreddy	Amangal	9440563218	Dr K B Saxena	for Roguing & SM
		Mr Prabaker Reddy	Kalawakurthi	9440765923	R Vijay Kumar	
		M Venkat Reddy	Dindi	9951837950	R Rama Rao	

Figure 1. Seed production of ICPA 2043 under controlled conditions with beehives



Figure 2. Training program at Jharkhand



10. Proceedings

Proceedings of the Review and Planning Meeting of National Food Security Mission (NFSM)-Supported Project on 15 & 16 April, 2010 at ICRISAT

Date: 15 & 16 April, 2010

Venue: The New Sahel Conference Room, 306 Bldg., ICRISAT Center, Patancheru

Prologue: The Review and Planning Meeting of the NFSM-supported project "Taking Pigeonpea Hybrids to the Doorsteps of Farmers" was held on 15-16 April, 2010. The objective of this meeting was to review the results of rainy season 2009 and to formulate work plans for 2010.

The meeting witnessed participation from research partner institutions including IIPR, Kanpur; ANGRAU, Hyderabad; JNKVV, Jabalpur; MAU, Parbhani; BHU, Varanasi; BAU, Ranchi; UAS, Bangalore, Dharwad, Gulbarga; ARS, Sehore, Khargone, Indore; and ICRISAT, Patancheru. The meeting was attended by scientists of the partner and host institutions along with the representatives from APSSDC, NSC, SFCI, and National Consultant (Seeds) of NFSM, Dr Shanker Lal. The list of the participants is given in Annexure I.

Review of work done and results during the 2009 rainy season were discussed on Day One (four sessions); and Day Two (two sessions) was devoted to getting feedback from the partners about implementation of the plan.

Day One 15 April, 2010

Presentations on the progress reports of hybrid pigeonpea research for the year 2009

The project deals with the promotion of pigeonpea and it is operational in seven states. ICRISAT, being the implementing institution, provides required backup research support in the states of Karnataka, Gujarat, A.P and Maharashtra. It also monitors effective implementation of the program and ensures coordination amongst the various functionaries and stakeholders in order to achieve the milestones.

Session I

Chair: Dr CLL Gowda

Rapporteur: Rafat Sultana

Dr CLL Gowda welcomed and introduced the participants. He laid emphasis on future planning for increasing production and productivity of pigeonpea in the backdrop of a pulse crisis in the country. Dr Rajesh Agrawal (Director & Head, Finance) welcomed participants on behalf of the Director General and talked briefly about ICRISAT and its mandate. Dr KB Saxena gave an over-view on the workshop's objectives. He also mentioned that partners from SK Nagar, Gujarat and PDKV, Akola could not attend the meeting due to unavoidable circumstances.

Session II

The second session was devoted to overview of hybrid breeding program, seed technology refinement, breeding hybrid parents and experiences of farmers. Dr. N Nadarajan gave a brief overview about the objectives, expected outputs of pigeonpea hybrid-parents research, importance of research and development of hybrid program, and the role of partnership with different institutes and farmers in research and development of hybrids. The scientists who had been actively involved in implementing this project made presentations on the progress made during 2009. The highlights of presentations and discussions are summarized below.

Chair: Dr Nadarajan

Rapporteur: Rafat Sultana and RK Saxena

Dr. KB Saxena
ICRISAT, Patancheru
Thursday, April 15, 2010
Time: 1030-1115 h

An over-view of the hybrid breeding program was presented by Dr KB Saxena. He highlighted ICRISAT's achievements as follows:

- ❖ Efficient CMS technology and four CMS sources, A1, A2, A3 and A4 were developed;
- ❖ *Cajanus cajanifoleus* based hybrids, ICPH 2671, 2740, and 3933 (> 30% increase in yield over check);
- ❖ SM and wilt resistant (ICPA 2043, ICPA2047, ICPA 2048, ICPA 2092) lines which can be used in future breeding program and discovery of lines with dominant gene for wilt resistance;
- ❖ Breeding A-line for different maturity group – extra early (100 days), early (120 days), medium (170 days), medium-late (180 days), and late (220 days); and
- ❖ Introduction of molecular and morphological marker to overcome seed production constraints. The materials are now in BC₃ F₁ generations.

Apart from achievements he gave equal importance to the issues arising in seed production plots, and strategies to overcome this problem by identifying seed producing areas and breeding environments specific to HY hybrids.

Dr. M Myer
ICRISAT, Patancheru
Thursday, April 15, 2010
Time: 1115-1145 h

The highlights of the progress of activities pertaining to hybrid pigeonpea seed production were presented by Dr Myer on the:

- ❖ Response of spacing and irrigation on the seed production of a CMS-line of pigeonpea (A x B);
- ❖ Effect of spacing and irrigation on seed production of a CMS-based pigeonpea hybrid (A x R); and
- ❖ Seed production cost of a CMS-based medium-duration pigeonpea hybrid.

For elucidating various aspects of crop management and seed production, he conducted a series of experiments with different row ratios and spacings and

recommended – 4:1 and 3:1 row ratio of A- x B/R-lines with spacing of 75cm x 30cm.

Dr. RK Srivastava and Dr Rafat Sultana
ICRISAT, Patancheru
Thursday, April 15, 2010
Time: 1145-1215 h

The progress report on the activities carried out at ICRISAT Center with regard to breeding parents for hybrid was presented by Drs. RK Srivastava and Rafat Sultana. Various activities under targeted breeding program at ICRISAT were discussed and presented. The highlights of the presentations were:

- ❖ Breeding SM and wilt resistant A-B lines
- ❖ Breeding parents of diverse maturity groups
- ❖ Breeding parents of seed traits such as seed size and color
- ❖ Breeding parents resistance to abiotic stress such as water-logging.

Session III

Chair: Dr Shankar Lal

Rapporteur: M Myer & R Sultana

MR SS Anwar
APSSDC
Thursday, April 15, 2010
Time: 1330-1345 h

The APSSDC official presented the program of production/ distribution of certified seeds of pigeonpea varieties in AP. He highlighted the constraints observed on a large scale in hybrid seed production.

- ❖ Presence of off types 10-12% in female line
- ❖ Low yields due to poor synchronization in male and female lines
- ❖ Seed production technology has to be standardized
- ❖ Standardization of electrophoresis methods for analyzing genetic purity in case of a hybrid and its parents.

He also recorded opinions of farmers at the field level. In Ranga Reddy district hybrid yield was 30% more as compared to LRG 30. Kadapa farmers received 20% more yield but due to dark seed color of hybrids farmers received Rs.100/quintal less in market than local varieties. He plans to distribute around 50 quintals of seeds to the different districts of AP in 2010.

Dr PS Dharmaraj
AICRP, Gulbarga
Thursday, April 15, 2010
Time: 1345-1400 h

Activity-wise progress in the districts of Gulbarga was presented by Dr. PS Dharmaraj. He reported that during the year rain was not distributed evenly. After initial rainfall in June, there was drought until the last fortnight of August. Thereafter, continuous rainfall was experienced till the last fortnight of September. The banks and low lying areas of Krishna and Tungabhadra command areas were

damaged. Furthermore, due to incidence of *Helicoverpa armigera* the pigeonpea crop was damaged to some extent. A total of 141 demonstrations were conducted and their performance is highlighted below:

- ❖ ICPH 2433 an early maturing hybrid had small seed size with 8% increase in yield over check;
- ❖ ICPH 2740 (hybrid was on par with the check variety);
- ❖ ICPH 2671 was found to be pure and high yielding in the research plot than in farmers' fields (15.2% increase over check);
- ❖ ICPA 2043 was found to be completely male-sterile, but after 145 days some of the plants set pods;
- ❖ He also reported 5-15% off types in seed production plots of hybrids;
- ❖ Limited number of hybrid seeds was supplied but it was not sufficient for trials.

ACTION PLAN-2010

- ❖ Demonstrations of hybrids in farmers fields
 - Training programs and Field Days will be organized
- ❖ Purification of parental lines of ICPH 2671
- ❖ Standardization of seed production tech. for hybrids using planting ratio of 1:4, 1:3 & 1:2
- ❖ Staggered sowing of CMS lines (4 dates of sowing) under net
- ❖ Development of new experimental hybrids
- ❖ Evaluation of 155 experimental hybrids
- ❖ Identification of new fertility restorers
- ❖ Continuation of backcross to transfer male-sterile gene to locally adapted cultivars.

DR IA Madrap
MAU, Parbhani
Thursday, April 15, 2010
Time: 1415-1430 h

Dr Madrap presented an activity-wise progress report, highlighting various breeding activities. His presentation also focused on the seed production of hybrid parents for different locations and also on making hybrid seeds available to farmers. In this context he made 102 hybrids using three CMS lines ICPA 2043, 2047 and 2092. He reported yield heterosis ranging from 18 - 48% over BSMR 736. He also evaluated 10 ICRISAT hybrids and found yield heterosis of 56-63% in ICPH 3491, 3464, 3341 and 3759 over Asha.

Dr Hanumanth Rao
NSC
Thursday, April 15, 2010
Time: 1430-1445 h

He made a brief presentation on the progress made and activities carried out in taking hybrids to the doorsteps of farmers. He identified suitable seed production areas in different states which includes,

Andhra Pradesh: Kurnool, Warangal, Nizamabad, Bhadrachalam, Khammam, and Medchal

Karnataka: Bellary

Madhya Pradesh: Sagar, Rewa, Seoni, Indore, Sehore, Khandwa, Mandour and Katni

Uttar Pradesh: Allahabad, Banda, Fatehpur, Kanpur dehat, Aligarh, Agra and Bulandshahar

Session IV

Chair: Dr PS Dharmaraj

Rapporteur: Vijay Kumar & R Sultana

This session was chaired by Dr. PS Dharmaraj, Project Director, ARS, Gulbarga. Out of seven presentations six were on pigeonpea hybrid breeding program by respective centers. Dr. GV Ranga Rao made presentation on honeybee behavior and its effect on seed setting on male-sterile plants.

Dr MN Singh
BHU, Varanasi
Thursday, April 15, 2010
Time: 1530-1545 h

Dr MN Singh, initially used *C. sericeus* cytoplasm to develop three CMS lines (CMS 25A, 26A and 32A). They have A₄ CMS lines from ICRISAT (ICPA 2043 and ICPA 2092) and A₁ (GT 288A) from Gujarat. He is multiplying ICPA lines further because of their resistance to wilt and sterility mosaic diseases. He is also converting the promising long-duration line MAL 13 into CMS background. At present BHU has three long-duration and four medium-duration CMS lines. Among the hybrids developed, they identified ICPA 2043 x Azad as the best combination. The university also has a strong breeding program on variety development.

Dr PK Singh
BAU, Ranchi
Thursday, April 15, 2010
Time: 1545-1600 h

Dr PK Singh, Senior Entomologist, BAU informed the group that the performance of hybrid ICPH 2671 was excellent since the last two (2008 & 2009) seasons in the state of Jharkhand. He felt the popularity and demand of hybrid in this region is forcing them to conduct a larger number of demonstrations in the farmers' fields in 2010.

Dr CV Sameer
ANGRAU, Hyderabad
Thursday, April 15, 2010
Time: 1600-1615h

Dr Sameer, Senior Scientist, ANGRAU, Tandur reported that based on the performance of pigeonpea elite lines in the TL II project, hybrid ICPH 2671 was at par with Asha. However, ICPH 2740 has performed well in this location. He felt Maruti and Asha are doing better in their zone because wilt is a major problem and these lines are resistant. He said that he would like to promote ICPH 2740 in larger areas during 2010.

Dr Byre Gowda
UAS, Bangalore
Thursday, April 15, 2010
Time: 1615-1630 h

Dr Byre Gowda developed CMS lines with *C. scarabaeoides* background using TTB7, HY 3C, BRG1 and BRG3. These lines are resistant to wilt and SM disease of Bangalore strains. Scale insect is a problem in their fields.

Dr K Madhusudan
UAS, Dharwad
Thursday, April 15, 2010
Time: 1630-1645 h

Dr K Madhusudhan and BR Patil represented UAS, Dharwad. Dr Madhusudhan informed the group that they had grown ICPH 2740 on one acre of land and did not notice any problems. They asked for short-duration hybrids and ICPL 88039 for paddy fallows. They felt that this new technology will become popular within a short time. Dr Patil presented his work on molecular markers at UAS, Dharwad.

Dr Muniswami,
ARS, Gulbarga
Thursday, April 15, 2010
Time: 1645-1700 h

Dr Muniswami, ARS, Gulbarga informed the group that the CMS lines ICPA 2078, ICPA 2043, and ICPA 2047 received from ICRISAT were found to be 100% male-sterile. Using these four CMS lines 155 new experimental hybrids were made for evaluation in the 2010 season. Five locally adapted cultivars were used in the CMS conversion program. In MLTs ICPH 2740 and ICPH 2671 emerged as superior hybrids compared to Asha and Maruti. The short-duration hybrid ICPH 2433 recorded yield at par with local check but seed size was smaller. In 2010 they plan to continue on-going activities. In addition they would like to take up purification of parental lines of ICPH 2671 and standardization of seed production technology.

Dr GV Ranga Rao
ICRISAT, Hyderabad
Thursday, April 15, 2010
Time: 1430-1445 h

Dr GV Ranga Rao informed the group that honey bees are effective pollinators and improvement in seed production can be witnessed. To confirm these observations, he is planning an experiment in 2010 inside a bee proof cage on one acre of land. This experiment will answer several queries regarding bee behavior, pollination and improvement in pod setting, etc.

Session V

Chair: IA Madrap

Rapporteur: R Sultana and R Saxena

Dr AN Tikle
ARS, Sehore
Friday, April 16, 2010
Time: 0830-0845 h

Dr Tikle informed the group that due to shortage of pulses in the country, the area under pigeonpea cultivation in MP has increased by 30% and they have great hopes for a hybrid that would create a breakthrough in yield stagnation. Apart from this, he also informed that at Sehore they got 90-92% pure seeds, and found Khandwa, Mandsour and Indore as best locations for the hybrid breeding program. They were maintaining 4:2 ratios in the seed production plot. He emphasized that ICRISAT should provide early duration hybrid (150 days) to use in place of soybean. Due to root rot problem in gram-soybean rotation, there is need for a change in crop rotation.

Dr VS Kandalkar
ARS, Khargone
Friday, April 16, 2010
Time: 0845-0900 h

Dr Kandalkar reported on the success of hybrid ICPH 2671 in MP. In farmer's field there was a 19 qtl/ha yield in rainfed and 37 qtl/ha under irrigated conditions. Overall 36% heterosis over check (K2) was reported. Farmers were quite satisfied with its performance. He also compared SK Nagar's hybrid with ICPH 2671 and found that in general the ICRISAT hybrids performed much better in terms of fertility restoration and yield and gave 17-87% superiority over best check.

Dr Mukesh Saxena
Indore
Friday, April 16, 2010
Time: 0900-0915 h

Dr Saxena worked on maintenance of the CMS-line at Indore. He preferred 4:2 ratio for seed production and got 22 qtl/ha seed. He also compared GTH1 with ICPH 2671 and said that GTH1 was not found promising in MP due to poor fertility restoration and susceptibility towards wilt, while ICPH 2671 excelled in overall performance during 2009.

Dr D Khare
JNKVV, MP
Friday, April 16, 2010
Time: 0915-0930 h

Dr Khare also expressed his satisfaction in carrying hybrid pigeonpea to the door steps of farmers and he agreed with other scientists working on it in MP that hybrid performed very well at all locations.

Mr Vijay Kumar
ICRISAT, Patancheru
Friday, April 16, 2010
Time: 0930-0945 h

The progress made at ICRISAT in on-farm evaluation of hybrids was presented by Vijay Kumar. His presentation covered the on-farm data of ICPH 2671, 2740 and 3762 over three years, i.e., 2007, 2008 and 2009 with farmer-participation as well as in AICRP trials. He also shared views of the farmers about hybrids. He informed

the group that farmers are quite satisfied with its performance and they would like to grow hybrids in larger plots in 2010; also they have least concern about its seed color as its slightly lower price is compensated by its high yield.

Session VI

Chair: Dr CLL Gowda

Rapporteur: RK Srivastava

This final session was chaired by Dr. Gowda. Work plan presentation was made by Dr SK Chaturvedi for all the participating centers. First, it is planned that during the 2010 rainy season, for pigeonpea a total of 750 demonstrations would be conducted in seven states covering 45 districts. One of the two hybrids (ICPH 2671 or ICPH 2740) will be part of the demonstration program for all the states except Maharashtra, which will have in addition to the two hybrids, one more hybrid (to be decided later) for testing. For seed production, Dr. Chaturvedi mentioned that a total of 116 ha of ICPH 2671 will be taken up, while ICPH 2740 will be grown in an area of 16 ha. Dr. Gowda added that all seed production activities should be taken care of by the respective nodal agencies.

The group discussed about possible release of ICPH 2671. Dr Nadarajan informed the house that ICPH 2671 was put down in the previous AICRP held at UAS Dharwad for lack of superiority over check. Also, there was insufficient AICRP data in the release proposal. Dr Gowda suggested that all data should be compiled together for putting up of the release proposal of ICPH 2671. In reply to this, Dr. Saxena mentioned that Dr Mangala Rai had stressed the need for on-farm data, hence the same was provided with the release proposal, and that the release guidelines were not clear. Dr Gowda cited an example of groundnut variety ICGV 91114, which was released without having to undergo the formal release process, and was purely driven by the demands of the farmers.

Making a generalized comment, Dr Gowda urged the group to work keeping in mind the welfare of farmers, and made it clear that ICRISAT has no professional interest in the release of ICPH 2671. He said that it makes little difference to ICRISAT about release or otherwise of the hybrid, but stressed that all must make sure that the farmer is not deprived of a good hybrid. The group also discussed the possibility of hybrid release at the state level, which can later be notified by CVRC. Dr Nadarajan added that in pigeonpea no variety has been released since the last 6-7 years, hence ICAR will be happy to release any promising variety. He suggested that ICRISAT again put up a release proposal for ICPH 2671 at the forthcoming All India Coordinated Research Project (AICRP) workshop on pigeonpea at Palampur. Dr. Gowda asked the pigeonpea group to collate all AICRP trials data, along with the on-farm data for release proposal. It was also decided to include ICPH 2740 in AICRP trials for testing in 5-6 zones.

In his concluding remarks, Dr Nadarajan expressed his satisfaction at the research work being done at ICRISAT. He, however, stressed the need to adhere to testing norms. Without check performance it will not be valid. On similar lines, he urged ICRISAT to carry out on-farm trials with the right check under similar management practices. He also added that the monitoring of such trials be done by the entire team. He said that NFSM project may be extended in association with ICRISAT. He suggested that research in pigeonpea should be extended outside the current five centers, and each center may take its locally adapted CMS conversion program.

Finally, Dr Gowda thanked Dr Nadarajan for his valuable contributions to the hybrid pigeonpea program in India, and for his important comments in the meeting. He also thanked NARS partners from different states, NSC, SFCI and farmers. He said

that the increase of pigeonpea productivity is a matter of concern to all – right from the Prime Minister of the country to all scientists – and with the help and assistance of all the partners it can become a reality. He added that for the sake of good communication, the work plan will be circulated to all the partners involved in hybrid pigeonpea research by 23 April, 2010.

The following suggestions / recommendations were made during the sessions:

- ❖ While considering the performance of hybrids, besides yield, resistance to various biotic and abiotic stresses should be given importance.
- ❖ Dr Lal put emphasis on marker assisted breeding, as it is essential for maintenance of purity of CMS-lines.
- ❖ Experimental hybrids with poor performance in comparison to checks in the on-station trials should not be promoted for next stage testing and on-farm trials.
- ❖ Dr Shanker Lal categorized the hybrid production zone in different maturity groups, e.g., Indo-Gangetic plains for early duration pigeonpea; Central India for medium duration, and the eastern part of the country for late duration pigeonpea.
- ❖ Dr Saxena gave prime importance to site selection for A x R, A x B as well as for hybrid production, and he stressed that seed production should be monitored properly.
- ❖ To determine the stability of hybrids (for fertility restoration) and A-lines it is essential that the performance be evaluated in diverse environments.
- ❖ All the hybrids selected for promotion should have a high level of wilt and SMD resistance. Emphasis should also be given to purification of hybrid parents for disease resistance.
- ❖ Dr Myer Mula presented his work on the agronomy of hybrid seed production and mentioned that a 4A:1R ratio gives good yield in both red and black soils. He also talked of various distances between rows and plants and recommended 70x30 as the best option.
- ❖ Dr Lal explained the procedure for purifying hybrid parents.
- ❖ An early maturing hybrid needs to be developed for both northern and central India.
- ❖ Dr Ranga Rao requested that honey bee population be monitored at all locations.
- ❖ Joint monitoring or visit will be arranged for all locations, including SFCI and APSSDC. Schedule will be prepared by Dr Saxena and circulated to all.
- ❖ Dr. Gowda asked the pigeonpea group to collect all AICRP trials data, along with the on-farm data for release proposal of ICPH 2671. It was also decided to include ICPH 2740 in AICRP trials for testing in 5-6 zones.

WORK PLAN

Proposed calendar of on-farm cultivation/demonstrations on hybrid seed to various stakeholders for year 2010 is as follows:

I. Institute: UAS, Dharwad, Karnataka

(a) Scientist: Dr BR Patil

Number of demonstrations: Four

Preferred hybrid: ICPH 2671
Seed availability: Available at UAS
Total expected area: 4 ha
Preferred districts: Dharwad, Haveri, Belgaum, Bagalkot

(b) Scientist : Dr K Madhusudan

Number of demonstrations: eight (one demo each in four districts with two varieties)

Preferred genotypes: ICPH 2671, ICPL 88039
Cropping system: pure (4 acre)
Seed availability: Available at UAS
Total expected area: 2 ha
Preferred districts: Dharwad, Haveri, Bijapur, Bagalkot
Seed distribution by: UAS, Dharwad

II. Institute: ANGRAU, Andhra Pradesh

Scientist: Dr CV Sameer

Number of demonstrations: ten in each district (total 60)

Preferred hybrids: ICPH 2671 and ICPH 2740
Seed availability: NIL (ICRISAT to arrange)
Seed required: 300 kg seeds each of ICPH 2740 and ASHA
Total expected area: 60 ha (30 ha each under pure and inter-crop)
Preferred districts: Rangareddy, Mahbubnagar, Nalgonda, Medak, Kadapa and Anantapur

Note: He also requested Dr Saxena to distribute 10-20 A, B, and R lines to ARS Tandur for initiating hybrid research during kharif 2010.

III. Institute: BAU, Ranchi

Scientist; Dr P K Singh

Number of demonstrations: 150

Preferred hybrid: ICPH 2671
Seed availability: 145 kg (remaining 1000 kg seeds will be provided by ICRISAT).

Seed required: 1000 kg seeds of ICPH 2671
Total expected area: 150 ha (50 ha under pure crop and 100 ha under inter-crop)
Preferred districts: nine districts
Seed distribution by: 1st week of June

IV. Institutes: Karnataka

Scientist: Dr Byre Gowda

Number of demonstrations: 10

Preferred hybrid: ICPH 2671 (Check BRG-2)

Seed required: 50 kg seeds of ICPH 2671 (seeds will be provided by UAS, Bangalore).

Total expected area: 4.0 ha (pure crop)

Preferred districts: Tumkur and Chitradurga

V. Institute: MAU, Maharashtra

Scientist: Dr IA Madrap

Number of demonstrations: 100 (50 of ICPH 2740; 25 each of ICPH 2671 and ICPH 3762)

Preferred hybrids: ICPH 2740, ICPH 2671 and ICPH 3762
Checks: BSMR 736 and BDN 708

Total expected area: 40 ha (under inter-crop)

Preferred districts: Parbhani, Nanded – ICPH 2740 and ICPH 2671
Jalna, Latur - ICPH 3762
Hingoli and Beed - ICPH 3762 and ICPH 2671

VI. Institute: RVSKVV, Gwalior

Scientists: Drs AN Tikle, VS Kandalkar, and Mukesh Saxena

Number of demonstrations: 60 (30 of ICPH 2740 and 30 of ICPH 2671)

Preferred hybrids: ICPH 2740 (check Asha) and 2671 (check JKM-60)

Seed availability: 50 kg seeds of ICPH 2740 will be provided by Dharwad).

Total expected area: 10 ha (9.8 ha under inter-crop and 0.2 under pure crop)
Preferred districts: Sehore, Khargone, Indore, Jhabua, Neemach and Dhar
Seed Distribution: 25th May

VII. Institute: JNKVV, Jabalpur

Scientists: Drs SK Rao and D Khare

Number of demonstrations: 50 (five demonstrations in each ten locations)

Preferred hybrids: ICPH 2740 (check Asha) and 2671(check JKM-189)

Seed availability: 100 kg seeds of ICPH 2740 will be provided by Dharwad.

Seed requirement: 0.2 ha per location with 2 kg seeds/ demonstration – 200 kg

Total expected area: 10 ha (under pure crop)

Preferred districts: Sagar, Seoni, Rewa, Tikamgarh, Jabalpur, Narsinghpur, Katni, Mandla, Betul and Raisen

Seed Distribution: 20th May

VIII. Institute: UAS, Gulbarga

Scientist: Dr PS Dharmaraj

Number of demonstrations: 300

Preferred hybrids: ICPH 2740 (check Asha) and 2671(check Maruti)

Seed availability: 40 kg seeds of ICPH 2671 and 160 kg seed of ICPH 2740

Seed requirement: ICPH 2671 – 250 kg

Total expected area: (under pure crop)

Preferred districts: Gulbarga and Bidar

Seed distribution: ARS, Gulbarga

Annexure I

List of participants in the Review and Planning Meeting (15-16 April 2010) of NFSM supported projects

NFSM, New Delhi

Dr Shankar Lal, National Consultant (Seeds) NFSM

Mob: 09968184142

Email: shankarlal72@gmail.com

IIPR, Kanpur

Dr N Nadarajan, Director

Tel: 0512 - 2570264, 2572011

Email: n.nadarajan@gmail.com

Dr SK Chaturvedi, Head (Crop Improvement)

Mob: 09336214977

Email: chatuvedi5463@yahoo.co.in

BHU, Varanasi

Mr MN Singh, Professor

Mob: 09450533445

Email: mnsbhu@yahoo.co.in

BAU, Jharkhand

Dr PK Singh, Chief Scientist & Professor

Mob: 09334735030

Email: psingbau@yahoo.co.in

MAU, Parbhani

Dr IA Madrap, Professor & Principal Investigator

Tel: 02452-223801-32/408; Res: 248660

Email: iamadrap@rediffmail.com

UAS, Karnataka

Dr M Byre Gowda, Principal Scientist (Plant Breeding)

Mob: 093412 51512

Email: mbyregowda@gmail.com

Dr BR Patil, Associate Professor

Mob: 09480027854

Dr K Madhusudhan, Associate Professor

Mob: 09972842642

Email: madhusudan_seeds@rediffmail.com

RVSKVV, Indore

Dr Mukesh Saxena, I/C (In charge Farm)

Mob: 09425082622

Email: umsax@rediffmail.com

ARS, Karnataka

Dr PS Dharmaraj, Project Director

Mobile: 09448359069

Email: psdharmaraj@yahoo.com

Dr S Muniswami, Scientist (GPB)

Mob: 08472 260422
Email: munis01@rediffmail.com

ARS, RAK, JNKVV, Madhya Pradesh

Dr VS Kandelkar, Senior Scientist (Plant Breeding)
Mob: 09425087311
Email: vsntkandalkar@gmail.com

Dr AN Tikle, Senior Scientist
Tel: 09826938613/09424468264
Email: antikle@rediffmail.com; antikle@yahoo.com

Dr Dharendra Khare, Senior Scientist
Mob: 09893276471
Email: dhirendrakhare@gmail.com

ARS, APSSDC, SFCI, NSC, Andhra Pradesh

Dr Sameer Kumar, Senior Scientist
Mobile: 09440939974
Email: cv.sameerkumar@yahoo.com

Dr CH Sreelakshmi, Scientist (Breeding)
Mobile: 09440939974
Email: cv.sameerkumar@yahoo.com

Mr SS Anwar, General Manager (Production)
Mob: 9000001882
Email: apseeds@rediffmail.com

Mr Ramachandra Reddy, Regional Manager
Mob: 09440284730
Email: mcreddy77@yahoo.in

Mr P Hanumantha Rao, Seed Officer
Tel: 040 2773 2276
Email: raoppodili@rediffmail.com

Farmers

Mr Suneel Deshmukh, Medak
Mob: 9959319595
Email: deshmukhsuneel@hotmail.com

Mr G Janardhan, Medak
Mob: 9490449091/92

ICRISAT, Patancheru

Dr CLL Gowda, Global Theme Leader, GT-CI
Dr KB Saxena, Principal Scientist
Dr RK Srivastava, Scientist
Dr Rafat Sultana, Visiting Scientist
Dr Mula Myer, Visiting Scientist
Dr GV Ranga Rao, Special Project Scientist
Mr R Vijay Kumar, Lead Scientific Officer
Mr HP Thanki, Scientific Officer
Mr Rachit Saxena, Research Scholar
Mr Shrikant, Research Scholar
Ms Khin Lay Kyu, Research Scholar



Review and planning meeting

Taking Pigeonpea Hybrids to the Door Steps of Farmers

on 15 – 16 April 2010

ICRISAT Center, Patancheru 502 324, Andhra Pradesh, India

