डॉ.वी.एस .भाटिया
Dr. V.S. Bhatia
निदेशक /Director

भा.कृ.अनु.प.-सोयाबीन अनुसंधान निदेशालय
(आई.एस.ओ. ९००१:२००८ प्रमाणित संस्थान)
ICAR - Directorate of Soybean Research
(ISO 9001:2008 Certified Organization)
खण्डवा रोड, इन्दौर 452001 (म.प्र.) भारत
Khandwa Road, Indore 452 001 (M.P.) India

दूरभाष / Phone: 2476188 (ऑ. / O) 2566277 (नि. / R),
फैक्स / Fax : 91 0731 2470520
ई–मेल / E-mail: dsrdirector@gmail.com;
वेबसाईट / Website : www.nrcsoya.nic.in

F.No.Tech..14-27/2016/270 Date: 10.05.2016

Subject: Review of CRP-AB – reg.

Dear Sir,

With reference to your email dated 6th May 2016 regarding review of CRP-AB, please find attached herewith required information in the given format.

With best wishes.

Yours sincerely,

V.S.Bhatia

(V.S. Bhatia)

Encls: 1. Progress report for Component – I during 2014-15 and 2015-16,
2. Consolidated SOE for the year 2015-16 and
3. Technical programme for 2016-17

To,
Dr. R.K. Tyagi,
Principal Scientist and Head,
Lead Centre Platform Coordinator (CRP-AB)
Division of Germplasm Conservation,
ICAR-National Bureau of Plant Genetic Resources,
Pusa Campus, New Delhi – 110012
Email: rishi.tyagi@icar.gov.in; tyaginbpgr@gmail.com

PGR Management and Use – COMPONENT I

Annual Progress Report for the year 2014-15

1. **Name of the Crop**: Soybean
2. **Name of the Lead Centre**: ICAR-Indian Institute of Soybean Research, Indore
3. Name of the Nodal person with designation: Dr. G.K. Satpute, Senior Scientist
4. **Name of the collaborating centres**: AICRP on Soybean at GBPU&T, Pantnagar
5. Name of Nodal person with designation: Dr. Pushpendra, Professor
6. **Number of accessions received from ICAR-NBPGR**: 1000
7. **Number of accessions sown for characterization/multiplication**: 1000
8. **Number of accessions germinated as data were recorded**: 844
9. **Experimental design**: Augmented Design
10. **Checks used**: JS 335, JS 95-60, JS 93-05
11. **Details of the characterization**:

Sl. No.	Name of the Centre	No. of accessions characterized / multiplied	Date of sowing (From – to)	No. of descriptors*	Date of harvesting (From – to)	Date of dispatch of data and seed material to NBPGR	
						Seed	Data
1	ICAR-DSR, Indore	844	09.07.2014	29	24.09.2014-13.11.2014	06.10.2015	27.10.2015

*Please attach the list of descriptors/descriptor status

12. **Same descriptors were used at all the locations**: Nil
13. **Detailed report on salient achievements of characterization with details of promising lines identified for important characters**:

- Seeds of 115 accessions which satisfied the multiplication standards *i.e.* a minimum of 2000 seeds were sent to NBPGR. Seed of 787 accessions, which could not met multiplication standards, was dispatch to ICAR-NBPGR to ensure the physical security of the germplasm.
- Qualitative data explained very good early plant vigour was more frequent than good or poor vigour. Purple hypocotyl colour was predominant over green. Determinate growth habit was more frequent than indeterminate and semi-determinate. Purple flower predominated over white, light purple and dark purple colours. Broad and intermediate leaf shapes were equally frequent. Most of the accessions had three numbers of leaflets. Green leaflet colour was more frequent than light green and dark green colours. Presence of pubescence was predominant with high frequency of tawny pubescence. Most of the accessions had normal density of pubescence. Erect type pubescence was more frequent than semi-appressed type. Slight lodging was

predominant over none, moderate, severe and very severe lodging scores. Brown pod colour was more frequent than dark brown, light brown and black colours. Most of the accessions had yellow seed coat colour and yellow cotyledon colour. Brown hilum colour and black colour were predominant over yellow, gray and green hilum colours. Light hilum and dark hilum seed coat patterns were equally prevalent. Presence of strophiole at hilum was frequent. There was high frequency of dull seed coat surface luster. No shattering types were more prevalent than high shattering types.

- Considerable variability was observed in quantitative traits. Days to 50% flowering ranged from 24-73 (mean=41), days to 80% maturity from 73-128 (mean=100.2), number of pods per plant 1.4-228.0 (mean=40.7), number of seeds per pod 0.0-3.8 (mean=2.4), 100 seed weight 0.7-22.8 gm (mean=10.3 gm) and seed yield per plant 0.1-25.5 (mean=5.8g).
- Based on these observations several promising accessions with optimum combination of seed size, maturity and seed yield were identified. Accessions with high seed yield per plant EC127502 (14.0g), EC113776 (12.1g), EC37105 (10.2g) and EC170656 (9.6g) matured in less than 80 days. Accessions EC171194 and EC30209 matured in less than 95 days with seed yield of more than 15 g per plant.

14. **Details of monitoring:**

Sl. No.	Name of the Centre	Date of monitoring	Crop stage at the time of monitoring	Monitoring team members
1				

15. **Papers Published:**

(i) Papers published in peer reviewed journal (NAAS rating may be given)

(ii) Papers presented at scientific meetings:

(iii) Manuscripts under preparation:

16. **Patents/varieties and products developed or in pipeline:**

Signature:

Name: G.K. Satpute
Designation: Senior Scientist

Principal Investigator: G.K. Satpute

Date: 10.05.2016

V S Bhatia

Director/Project Director/Project Coordinator

*** List of descriptors:**

S.No.	Descriptor
1.	Early plant vigour
2.	Hypocotyl colour
3.	Stem determination
4.	Days to 50% flowering
5.	Flower colour
6.	Leaf shape
7.	Leaflet colour
8.	No. of leaflets
9.	Pubescence
10.	Pubescence colour
11.	Pubescence density
12.	Pubescence type
13.	Plant height (cm)
14.	No. of primary branches
15.	No. of secondary branches
16.	Lodging score
17.	Pod colour
18.	No. of pod/ plant
19.	Days to 80% maturity
20.	Seed coat colour
21.	Cotyledon colour
22.	Hillum colour
23.	Seed coat pattern
24.	Strophiole at the hillum
25.	Seed coat surface lustre
26.	No. of seed /pod
27.	Shattering score
28.	100-seed weight (g)
29.	Seed yield/ plant (g)

PGR Management and Use – COMPONENT I

Annual Progress Report for the year 2015-16

1. **Name of the Crop**: Soybean
2. **Name of the Lead Centre**: ICAR- Indian Institute of Soybean Research, Indore
3. Name of the Nodal person with designation: Dr. G.K. Satpute, Senior Scientist
4. **Name of the collaborating centres**: AICRP on Soybean, GBPUA&T, Pantnagar
5. Name of Nodal person with designation: Dr. Pushpendra, Professor
6. **Number of accessions received from ICAR-NBPGR**: 1000
7. **Number of accessions sown for characterization/multiplication**: 1000
8. **Number of accessions germinated as data were recorded**: 570
9. **Experimental design**: Augmented Design
10. **Checks used**: JS 95-60, NRC 86, JS 20-34, NRC 37
11. **Details of the characterization**:

Sl. No.	Name of the Centre	No. of accessions characterized / multiplied	Date of sowing (From – to)	No. of descriptors*	Date of harvesting (From – to)	Date of dispatch of data and seed material to NBPGR	
						Seed	Data
1	ICAR- IISR, Indore	570	26.06.2015	29	12.09.2015-31.10.2015	02.04.2016	08.03.2016

*Please attach the list of descriptors/descriptor status

12. **Same descriptors were used at all the locations**: Nil
13. **Detailed report on salient achievements of characterization with details of promising lines identified for important characters**:

- During Kharif 2015 the weather remained unusual throughout the season. A long dry spell of 23 days after sowing followed by heavy down pour was managed with timely irrigation in the experiment for proper crop growth. However, the multiplication standard of gene bank for these accessions could not be met and to ensure the physical security of the germplasm, seed of 500 accessions was dispatch to ICAR-NBPGR.
- The data on qualitative traits revealed that the frequency of good early vigour was predominated over poor and very good vigour. Purple hypocotyl colour was more frequent than green. Semi-determinate growth habit was more predominant than determinate. Purple flower predominated over white, light purple and dark purple colours. Most of the accession had intermediate leaf shape with three, green leaflets. Presence of pubescence was prominent with high frequency of tawny pubescence. Most of the accessions had normal density of pubescence with equal frequency of erect and semi-appressed pubescence. Accessions with slight lodging score were

frequent. Brown pod colour was more frequent than dark brown, light brown and black colours. Most of the accessions had yellow seed coat colour and yellow cotyledon colour. Brown hilum colour was predominant over black, yellow and green. Presence of dark hilum seed coat pattern and strophiole at hilum were prominent.

- Substantial variability was present in the quantitative traits. Days to 50% flowering ranged from 28-89 (mean=53), days to 80% maturity from 74-120 (mean=105.5), number of pods per plant 1-155 (mean=14.4), number of seeds per pod 1-3 (mean=2.1), 100 seed weight 0.3-13.2 g (mean=3.7 g) and seed yield per plant 0.1-7.8 (mean=0.4 g).
- Promising accessions with optimum combination of seed size, maturity and seed yield were identified. An accession with high seed yield per plant EC117902 (7.8g) matured in less than 95 days. Accessions with high 100 seed weight ($\geq$ 13 g) EC242099 (13.2g) and EC39179 (13.0g) matured in less than 95 days. Accessions EC39097, EC39142 and EC37081 matured in less than 80 days.
- A three day "Germplasm Day and Hands on Training on Conventional and Molecular Soybean Breeding" was organized for AICRP on Soybean Breeders at ICAR-Indian Institute of Soybean Research, Indore from September 1 – 3, 2015. Thirty five scientists including soybean breeders from AICRPS Centers across the country and Scientist from ICAR-IISR, Indore participated in the event at the directorate. Dr. A.N. Sharma, Principal Investigator, AICRPS & Head, Crop Protection, ICAR- IISR delivered the welcome address. Hon'ble chief guest of this programme, Dr. S.P. Tiwari, Ex-DDG (Edn.) urged soybean breeders to exploit the available useful genetic resource at ICAR-DSR, Indore. Dr. V.S. Bhatia Director, ICAR-DSR, Indore outlined the different research activities being taken up under various research projects to the chief guest and emphasized the need of germplasm collection under climate change scenario to the participating breeders and ICAR-DSR scientists. Dr. S.M. Husain, Principal Scientist & Head, Crop Improvement elaborated on the importance training programme. Dr. G.K. Satpute, Sr. Scientist and Principal Investigator, Germplasm Project facilitated the field visit and also apprised the guests and visiting scientist with soybean germplasm holdings, PGR activities and its utilization status in the country.

Fig. "Germplasm Day and Hands on Training on Conventional and Molecular Soybean Breeding" for AICRP on Soybean Breeders at ICAR-Indian Institute of Soybean Research, Indore from September 1 – 3, 2015.

14. **Details of monitoring:**

Sl. No.	Name of the Centre	Date of monitoring	Crop stage at the time of monitoring	Monitoring team members
1				

15. **Papers Published:**

(i) Papers published in peer reviewed journal (NAAS rating may be given)

- C. Gireesh, S. M. Husain, M. Shivakumar, G. K. Satpute, Giriraj Kumawat, Mamta Arya, D. K. Agarwal and V. S. Bhatia (2015). Integrating principal component score strategy with power core method for the development of core collection in Indian soybean germplasm. Plant Genetic Resources: Characterization and Utilization; 1–9, available on CJO2015. doi:10.1017/S1479262115000556. [NAAS rating: 6.58]

(ii) Papers presented at scientific meetings:

(iii) Manuscripts under preparation:

16. **Patents/varieties and products developed or in pipeline:**

Signature:

Name: G.K. Satpute
Designation: Senior Scientist

Principal Investigator: G.K. Satpute

Date: 10.05.2016.

V S Bhatia

Director/Project Director/Project Coordinator

*** List of descriptors:**

S.No.	Descriptor
1.	Early plant vigour
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13.	Plant height (cm)
14.	No. of primary branches
15.	No. of secondary branches
16.	Lodging score
17.	Pod colour
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23.	Seed coat pattern
24.	Strophiole at the hillum
25.	Seed coat surface lustre
26.	No. of seed /pod
27.	Shattering score
28.	100-seed weight (g)
29.	Seed yield/ plant (g)

ICAR INDIAN INSTITUTE OF SOYBEAN RESEARCH, INDORE

Annexure VI

BUDGET AND STATE OF EXPENDITURE OF CONSORTIUM RESEARCH PLATFORM (CRP) ON AGROBIODIVERSITY DURING 2015-16 (Rs)

Sl. No.	Heads	Budget for the year	Opening balance as on 01.04.2015	Release made during the year	Expenditure incurred during the year	Closing balance
I)	**GRANT-IN-AID FOR CREATION OF CAPITAL ASSETS (1-7)**					
1	Works (i) office building	-	-	-	-	-
	(ii) minor works					
2	Equipments	-	-	-	-	-
3	Information technology	-	-	-	-	-
4	Library books & journals	-	-	-	-	-
5	Livestock	-	-	-	-	-
6	Furniture & fixture	-	-	-	-	-
7	Others (specify)	-	-	-	-	-
	Total	-	-	-	-	-
II)	**GRANT-IN-AID GENERAL (1-5)**					
1	Traveling expenses	50,000.00	-	50,000.00	38,727.00	11,273.00
2	Research & operational expenses					
	i) Chemical & glassware, etc.					
	ii) Unskilled/semi-skilled labour					
	iii) Outsourcing of lab work	650,000.00	198,597.00	650,000.00	624,944.00	223,653.00
	iv) Contractual manpower					
	v) Vehicle hiring for surveys etc.					
3	Administrative expenses (A) Infrastructure	-	-	-	-	-
	(B) communication	-	-	-	-	-
	(C) repair &maintenance of (i)	-	-	-	-	-
	(D) others	-	-	-	-	-
4	Miscellaneous expenses (i) HRD	-	-	-	-	-
	(ii) Review workshops/meetings	-	-	-	-	-
5	Institutional charges	-	-	-	-	-
Total		700,000.00	198,597.00	700,000.00	663,671.00	234,926.00
III) Total GRANT-IN-AID-SALARY		-	-	0	0	-
GRAND TOTAL (I+II++III)		700,000.00	198,597.00	700,000.00	663,671.00	234,926.00

Traveling expenses, Research & operational expenses (Chemical & glassware, etc., Unskilled/semi-skilled labour, Outsourcing of lab work, Contractual manpower, Vehicle hiring for surveys etc.), Administrative expenses (communication, repairs & maintenance of equipments etc.)

Principal Investigator
(C. K. Satyanarayana)

Finance & Accounts Officer
वित्त एवं लेखा अधिकारी
Finance & Accounts Officer
सोयाबीन अनुसंधान निदेशालय
Directorate of Soyabean Research
खण्डवा रोड, इन्दौर-452 017 (म. प्र.)
Khandwa Road, Indore-452 017 (M.P.)

Director

निदेशक/Director
भा.कृ.अनु.प.-भारतीय सोयाबीन अनुसंधान संस्थान
ICAR-Indian Institute of Soybean Research
खण्डवा रोड, इन्दौर (म.प्र.)
Khandwa Road, Indore (M.P.), INDIA

Technical Programme for 2016-17:

- 1000 (Carry over) +1000 (New) +500 (MTS) accessions by ICAR-NBPGR will be characterized. A reasonably good quantity of seed suitable for sowing 2 rows of 3 meter length is expected to be supplied by NBPGR to meet the multiplication standard at the end of the *kharif* 2016 season.