Progress Report
April – September 2016

Pearl millet hybrids for increasing the productivity of Western Rajasthan

Submitted to
National Food Security Mission, Ministry of Agriculture
Government of India
Site of pearl millet hybrid trials in Western Rajasthan, India conducted by different centers under NFSM project.
Project monitoring by Dr. J. S. Sandhu, DDG (Crop Science), ICAR, Krishi Bhawan, New Delhi along with Dr. Om Vir Singh, Project Coordinator (Acting), PC Unit AICPMIP, Mandor during rainy season on 14th September 2016 in Gangana Boranada near Jodhpur
Half-yearly progress report

1. **Project title:** Pearl millet hybrids for increasing the productivity of Western Rajasthan

2. **Name, designation and address of Principal Investigator (PI):**
   
a. **ICRISAT, Patancheru:**
   
   **PI:** Dr. S. K. Gupta, Principal Scientist (Pearl Millet Breeding), Asia-Crop Improvement, ICRISAT, Patancheru-502324, Telangana.

b. **AICPMIP, Mandor:**
   
   **Co-PI:** Dr. Om Vir Singh, Project Coordinator - Pearl Millet (Acting), All India Coordinated Research Project on Pearl Millet (ICAR), Mandor, Jodhpur-342304, Rajasthan.

   **Co-PI:** Manoj Kumar, Assistant Prof. (Agronomy), PC Unit AICPMIP, Mandor, Jodhpur-342304, Rajasthan

c. **SKRAU, Bikaner:**
   
   **Co-PI:** Dr. P. S. Shekhawat, Associate Professor, Agronomy, A.R.S., S.K.R.A.U., Beechwal, Bikaner-334006, Rajasthan.

d. **SKNAU, Durgapura:**
   
   **Co-PI:** Dr. L. D. Sharma Professor & Incharge, A.I.C.R.P. on Millet (Plant Breeding and Genetics), RARI, Durgapura-302018, Jobner, Rajasthan.

3. **Contact Phone Nos. and e-mail id of PI:**
   
a. **ICRISAT, Patancheru:**
   
   Phone No.: 09949003066; Email: s.gupta@cgiar.org

b. **AICPMIP, Mandor:**
   
   Phone No.: 02912571408; Email: aicpmip@gmail.com; mkagro86@gmail.com

c. **SKRAU, Bikaner:**
   
   Phone No.: 09414604614; Email: pssbkn@yahoo.co.in

d. **SKNAU, Durgapura:**
   
   Phone No.: 09413100245;

   Email: ldsharma.pbg.rari@sknau.ac.in

4. **Name and address of Institution/Organization:**
   
a. **ICRISAT, Patancheru:**
   
   International Crops Research Institute for the Semi-Arid Tropics, Patancheru – 502324, Telangana

b. **AICPMIP, Mandor:**
   
   All India Coordinated Research Project on Pearl Millet, (Indian Council of Agricultural Research), Mandor, Jodhpur-342304, Rajasthan.

c. **SKRAU, Bikaner:**
   
   Agricultural Research Station, Swami Keshwanand Rajasthan Agricultural University, Beechwal, Bikaner-334006, Rajasthan.

d. **SKNAU, Durgapura:**
   
   All India Coordinated Research Project on Millet (Plant Breeding and Genetics), Rajasthan Agricultural Research Institute, Durgapura - 302018, Jobner, Rajasthan.
5. **No. and date of Project sanction order:** F.No. CPS18-17/2014-NFSM dated 31.07.2015 and revised administrative approval dated 23.11.15.

6. **Total amount approved:** INR 72,28,500.

7. **Date of inception and duration of the Project:** 1st April, 2016 till 31st March, 2017 (One year: 2016-2017) (Initial sanction order: 31.7.2015; Revised order: 23.11.2015)

8. **Objectives of the project:**

1. To identify and popularize pearl millet hybrids having high yield and adaptation to drought prone environments of Western Rajasthan.

9. **Activities and targets approved by DAC under each objective:**

   a. **ICRISAT, Patancheru:**
   
   - To carry out pearl millet hybrid (RHB 177 and MPMH 17) seed production with the help of Telangana State Seed Corporation Ltd. at Khammam during summer 2016 (January – May, 2016).
   - To coordinate timely arrangement of seeds and inputs for conducting trials by the partners at AICPMIP, Mandor, Jodhpur; SKRAU, Bikaner and SKNAU, Durgapura.
   - To organize and attend project meetings.
   - To monitor the trials during the crop-season at farmer’s field.
   - To organize Farmer Field Day at all the three centres in Rajasthan.

   b. **AICPMIP, Mandor; c. SKRAU, Bikaner; and d. SKNAU, Durgapura:**
   
   - To select farmers’ field under drought prone environments for conducting the project trials, based on information as available from pro forma (Annexure 1).
   - To make timely availability of seed of pearl millet hybrids and inputs to all the farmers.
   - To conduct trials on 265 ha area with INR 5000/trial at the center.
   - To organize training programs before sowing operation on the farmers field.
   - To monitor project trials and organize Farmers Field Day.
   - To record data (Annexure 2) from the farmers field at harvesting time.

10. **Activity-wise achievements made and deviations from the targets, if any, with justification:**

The first technical meeting of NFSM project was held at AICPMIP, Mandor on 31st May, 2016. Minutes of the meeting attached as Annexure 3.
1. Centre wise seed distribution:

1. **ICRISAT, Patancheru**: Seed was produced by ICRISAT in collaboration with Telangana State Seed Corporation (TSSC) during **summer 2016** (January – May, 2016). Seed of parental lines of hybrids was supplied to TSSC (pollinators from Bikaner and Mandor) and seed parents from ICRISAT in the month of January, 2016. ICRISAT scientists conducted two monitoring visits to seed production in Khammam district of Telangana along with TSSC officials to ensure quality seed production. 37.41 Qtls. seed of RHB 177 and 15.09 Qtls. seed of MPMH 17 was produced. The seed was transported from Telangana to Rajasthan for further distribution to partners (AICPMIP, Mandor; SKRAU, Bikaner and SKNAU, Durgapura).

![Field inspection on seed production plots at Khammam by ICRISAT during summer 2016](image.jpg)

2. **AICPMIP, Mandor**: During rainy season of 2016, 265 hectares demonstrations of hybrid pearl millet were planted successfully. Trials were planted in Jodhpur, Barmer, Nagaur and Pali district well in time. Trials were planted in villages of following districts.
   A. Jodhpur: Osian, Bawri, Luni, Balesar, Bhopalgarh, Pipar, Bapini and Shergarh.
   B. Barmer: Pachbhadra, Sindhari, Gudamalani and Gira.
   C. Nagaur: Gotan and Nagaur area were selected and trials were distributed in different villages.
   D. Pali: Moria (Rohit).

3. **SKRAU, Bikaner**: During rainy season 2016, 265 hectares demonstrations of hybrid pearl millet were allotted to this center and all demonstrations were planted successfully. Trials were planted in Bikaner, Churu and Jaisalmer district. Seed and other inputs were distributed well in time before 30th June 2016. Trials were planted in villages of following districts.
   A. Bikaner: Nokha area was selected and 100 trials were distributed in three villages: Charkarda, Kakku and Sinjguru.
   B. Churu: Sardarsahar area was selected and 100 trials were distributed in three villages: Kalyanpura, Jeevandesa and Udasar.
   C. Jaisalmer: 65 trials were distributed in two villages: Nokhada and Pokaran.

4. **SKNAU, Jobner**: During rainy season 2016, 265 hectares demonstrations were planted successfully in seven different districts (Jaipur, Dausa, Tonk, Karauli, Ajmer, Sikar and
Nagaur). All trials were distributed well in time before 5th July, 2016 to all the centers. Trials were planted in villages of following district.

A. Jaipur: Govindgarh, Bobas, Gopalpura, Idan Ka Bas, Kalwad and Dhani Boraj.
B. Sikar: Alfasar, Bathod, Gangiyasar, Besawa, Godia and Kochor.
C. Ajmer: Kesarpura, Naulakha, Ludpura, Makarwali, Lohagal, Mayapur, Naharpura and Arain
D. Nagaur: Singhana, Kantya and Indawad
E. Tonk: Alexenderpura and Gopalpura
F. Dausa: Dwarapura, Amiya, Mitarwadi and Dhachawadi
G. Karauli: Baada Baajidpur.

2. Seed distribution and other inputs:

1. **AICPMIP, Mandor:**  
   Distribution of 4.5 kg seeds for one hectare area (for each demonstration) to every farmer at each location was done for the pearl millet hybrids (RHB 177 and MPMH 17). Later, trial inputs (micronutrients, insecticides and herbicides) were provided to the farmers.

   Seed distribution by Dr. Ishwar Singh, Director, DEE, AU, Jodhpur and Dr. Vaibhav P. Chaudhary, SRF, ICRISAT at Newra Road, adopted village of Agriculture University, Jodhpur

2. **SKRAU, Bikaner:**  
   Pearl millet 4.5 kg seeds of RHB 177 and MPMH 17 pearl millet hybrids for one hectare area (for each demonstration). Later supply of 5 kg ZnSO₄, 2 liter chloropyriphos, 1 kg NPK (Soluble) and 0.5 kg Daithane M-45 was made to the farmers at each center.

3. **SKNAU, Jobner:**  
   Pearl millet hybrids RHB 177 and MPMH 17 were supplied at 4.5 kg/ hybrid seeds for one hectare area and 2.0 kg/ hybrid for 0.5 hectare area was distributed. Later on Imida Chlorpid, Chloropyriphos, Dantasu and Ekalux were distributed to the farmers.
Pearl millet seed distribution by Dr. L. D. Sharma, Prof. & Incharge (Pearl Millet Project), RARI, Durgapura along with Dr. Vaibhav P. Chaudhary, SRF, ICRISAT and Dr. S. L. Sharma, Prof. Agronomy (Retd.), RARI, Durgapura to the farmers of Gopalpura village (Dist. Jaipur).

3. Training, crop situation, field day, farmer’s response and field visit:

A. AICPMIP, Mandor:

Training: One preliminary training (Farmers field school) was organized before sowing of pearl millet to make aware farmers about the objective of conducting trials in this project. Farmers were briefed on latest management practices for pearl millet like on sowing time, depth of sowing, line sowing, seed rate, application of fertilizer and seed treatment with bio-fertilizers and other chemicals.
Farmers field school

Crop situation:

All 265 trials in these areas were in good condition except at Barmer and Luni of Jodhpur, where about 10-12 trials failed due to severe moisture stress owing to late onset of monsoon.
Field Day:

Farmers’ field day was organized by ICAR-AICRP on Pearl Millet, Mandor at Kiramsariya village on 22.09.2016 under ICRISAT- NFSM project. Dr. Om Vir Singh, Project Coordinator ICAR-AICRP on Pearl Millet, Dr. S. K. Gupta, Principal Scientist (Pearl Millet Breeding) ICRISAT-Hyderabad, Dr. P. P. Rohilla, Pr. Scientist, ATARI, Jodhpur, Sh. J. N. Swami, Regional Manager, RSSC - Mandor, Dr. G. Ram Kherwa, Professor PC unit AICPMIP, Mandor and other staff of ICAR-AICRP on Pearl Millet, Mandor, State Agriculture department and local body representatives were present on this occasion. The main objective of the program was to take feedback about the performance of pearl millet hybrids viz. MPMH 17 & RHB 177 on farmers’ field. Farmers were briefed about the advanced production technology of pearl millet cultivation, hybrid seed production technique, cropping system, identification of weeds, moisture conservation technology, weed management and nutrient management etc. The program was attended by 250 farmers from the village and nearby villages Newra Road, Khudiyala, Ummed Nagar and Mathaniya.

Farmers’ response:

Farmers were satisfied with the performance of both the pearl millet hybrids. They expressed that they were expecting higher grain and fodder yield from these newly tested hybrids under rainfed conditions or in fields having limited irrigation facilities. **Farmers requested RSSC to provide seeds of RHB 177 and MPMH 17 hybrids in the next cropping season.** They were very excited to share that there was no bird damage in these hybrids as these hybrids possess bristles on panicles.
View of field day at Kiramsariya
View of field day at Kiramsariya

Field Visit:
- During the crop season Dr. J. S. Sandhu, Hon’ble DDG (Crop Science), ICAR, New Delhi, visited the project trials along with Dr. Om Vir Singh (PC, AICPMIP)
Project monitoring by Dr. J. S. Sandhu, DDG (Crop Science), ICAR, Krishi Bhawan, New Delhi along with Dr. Om Vir Singh, Project Coordinator, PC Unit AICPMIP, Mandor during rainy season on 14th September, 2016 in Gangana Boranada near Jodhpur

- Dr. S. K. Gupta, Principal Scientist, (Pearl Millet Breeding) ICRISAT, Hyderabad along with Project Scientist, SRF’s and Project Coordinator (Pearl millet) visited the project trials on 22.09.2016.
- Dr. P. P. Rohilla, Principal Scientist, ATARI, Jodhpur, State Department of Agriculture, CAZRI, Jodhpur and other PC unit staff visited the project trials and instructed the farmers for improving the yield of pearl millet in this area.
- Dr. Subhash Chandra Director, Directorate of Millet Development, Jaipur (Rajasthan) visited the farmers' field during 5th October, 2016 in Osian area of Jodhpur.

Field visit of Joint Director, Directorate of Millet, Jaipur (Rajasthan) on 5th October, 2016

B. SKRAU, Bikaner:
Training:

One preliminary training was organized at each center before sowing of pearl millet to make farmers aware about sowing time, depth of sowing, line sowing, seed rate, application of fertilizer and seed treatment with bio-fertilizers and other chemicals.
Crop Situation:
Almost all of 265 trials in these areas were in good condition while 8 – 10 trials in Churu and Jaisalmer failed due to severe moisture stress.

Field Day:
One field day was organized at Kalyanpura, Sardarsahar, Churu on 23-09-2016 with participation of about 80 farmers. Other organisations which actively participated in the event were: ICRISAT, Hyderabad; AICPMIP, Mandor; SKRAU, Bikaner and Department of Agriculture. Scientists and officers participated and visited the fields of farmer of nearby village (Kalyanpura, Jeevandesar and Udasar). Farmers were happy to see the good performance of these pearl millet hybrids in this area.

Farmers’ response:
Farmers from Nokha, Bikaner, Nokhada, Bap, Jodhpur, Pokran and Jaisalmer mentioned that pearl millet hybrid- RHB 177 was performing better than MPMH 17. They observed that RHB 177 is more suitable for this area due to its better drought resistance, short duration, high yielding, better fodder quality, low bird damage and good quality grain.
At Sardarshahar and Churu both hybrids performed better. Though, MPMH 17 was expected to perform better at places where lifesaving irrigation was applied, while RHB 177 was expected to perform better under rain fed situation. Farmers also observed that both the hybrids escaped bird damage due to presence of bristles/awns.

Field day at SKRAU, Bikaner (23-09-2016)

View on farmer’s field at Kalyanpura during visit of Dr. P. S. Shekhawat, Dr. S. K. Gupta, Manoj Kumar and Sh. Raj Kumar Kulhari, AD, DOA, Churu.

Field Visit:

During the season project scientists and SRF-s of project visited the field 5 times and instructed the farmers for carrying out proper agronomic practices throughout the crop season.

Field view of RHB 177 and MPMH 17 by Dr. Subhash Chandra and team in rainfed area of Jaisalmer
Field visit to Jaisalmer area by Joint Director, Directorate of Millet, Jaipur (Rajasthan) during 3-4th October 2016 and observing the produce of RHB-177

SKNAU, Jobner:

Training:

One preliminary training was organized at the time of seed distribution in most of the villages before sowing of pearl millet to make farmers aware about the sowing time, depth of sowing, line sowing, seed rate, application of fertilizer and seed treatment with bio-fertilizers and other chemicals.

Crop situation:

Almost all of 265 trials in these areas are in good condition, except at Karauli where some FLDs (10-15) failed due to heavy rainfall.

Field day:

One field day was organized at Naulakha, Ajmer on 24-09-2016 in which about 110 farmers participated. Scientist and officers from ICRISAT, Hyderabad, PC unit AICPMIP, Mandor, SKNAU, Jobner and NGO also participated and visited farmers’ field.

Farmer’s response:

Most of the farmers were satisfied with the performance of the project hybrids. They mentioned that they were expecting higher grain and fodder yield from these newly tested hybrids on fields under rainfed conditions or fields having limited irrigation facilities. They
were excited to share that there was no bird damage in these hybrids as these hybrids possess bristles on panicles.

Field visit:
During the season project scientists and SRF of the project visited the field 3 times and guided farmers about improved management practices to increase pearl millet production.
View of farmers’ field at Kantya (Nagaur) and Bobas (Jaipur) during visit of Dr. L.D. Sharma, Dr. Vaibhav P. Chaudhary and Sh. Shravan Kumar Sharma visited the fields.

4. Data recording on pearl millet trials:

Participating centers discussed and finalized the forms for data collection from the project trials (Annexure 2). Data collection is underway and will be submitted in final report.
5. Scientists/Officers visited the area during the season center wise:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Partners</th>
<th>Scientist/Officers</th>
<th>Scientist/Officers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>AICPMIP, Mandor, Jodhpur</td>
<td>Dr. J.S. Sandhu, DG (Crop Science), ICAR, Krishi Bhawan, New Delhi.</td>
<td>Dr. Om Vir Singh, Project Coordinator – Pearl Millet Breeder, ICRISAT</td>
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<tr>
<td></td>
<td></td>
<td>Dr. S. K. Gupta, Principal Scientist (Pearl Millet Breeder), ICRISAT</td>
<td>Dr. Subhash Chandra, Director, DMD, Jaipur</td>
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<td></td>
<td></td>
<td>Dr. G. Ram Kherwa, Professor (Stat.) PC Unit AICPMIP, Mandor.</td>
<td>Dr. B. S. Rajpurohit, Professor (Pathology) PC Unit AICPMIP, Mandor.</td>
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<td></td>
<td>Dr. H. R. Bishnoi, Assoc. Professor (Pathology) PC Unit AICPMIP, Mandor.</td>
<td>Dr. P. P. Rohilla, Pr. Scientist. ATARI, Jodhpur</td>
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<tr>
<td></td>
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<td>Dr. R. C. Meena, Assistant Prof. (Pl. Physiology) PC Unit AICPMIP, Mandor</td>
<td>Dr. R. C. Meena, Assistant Prof. (Pl. Physiology) PC Unit AICPMIP, Mandor</td>
</tr>
<tr>
<td>2.</td>
<td>SKRAU, Bikaner</td>
<td>Dr. P.S. Shekhawat, Prof. (Agronomy), SKRAU, Bikaner</td>
<td>Dr. S.K. Gupta, Principal Scientist (Pearl Millet Breeder), ICRISAT</td>
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<td></td>
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<td>Dr. S.K. Gupta, Principal Scientist (Pearl Millet Breeder), ICRISAT</td>
<td>Dr. S. Chandra Joint Director DMD, Jaipur</td>
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<td></td>
<td>Dr. P.C. Gupta, Prof. (PBG), SKRAU, Bikaner</td>
<td>Dr. Manoj Kumar, Assistant Prof. (Agronomy) PC Unit AICPMIP Mandor</td>
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<td></td>
<td></td>
<td>Sh. S. S. Takar, SRF, NFSM, PC Unit, Mandor</td>
<td>Sh. Raj Kumar Kulhari, AD, (Dept. of Agri.), Churu</td>
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<td></td>
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<td>Sh. S. L. Yadav, SRF, NFSM, PC Unit, Mandor</td>
<td>Sh. Raju Ram, AO, (Department of Agriculture), Churu.</td>
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<td></td>
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<td>Sh. M. C. Kumawat, SRF, NFSM, PC Unit, Mandor</td>
<td>Dr. Vaibhav P. Chaudhary, SRF, ICRISAT, Hyderabad</td>
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<td></td>
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<td>Sh. Shripal Singh, SRF, NFSM, PC Unit, Mandor</td>
<td>Sh. Rupa Ram Jakhar, SRF, NFSM, ARS, Bikaner</td>
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<tr>
<td>3.</td>
<td>SKNAU, Jobner</td>
<td>Dr. L.D. Sharma, Prof &amp; Incharge (Pearl Millet Project), RARI, SKNAU, Jobner</td>
<td>Dr. S.K. Gupta, Principal Scientist (Pearl Millet Breeder), ICRISAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dr. S.K. Gupta, Principal Scientist (Pearl Millet Breeder), ICRISAT</td>
<td>Mr. Abhay Singh RCDSS (NGO), Ajmer.</td>
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<td></td>
<td></td>
<td>Dr. S. J. Singh, Director, RARI, Durgapura.</td>
<td>Dr. Dinesh Arora, Incharge, KVK, Ajmer.</td>
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<td></td>
<td></td>
<td>Dr. B. L. Sharma, ZDR, ARS, Fatehpur.</td>
<td>Dr. R. N. Sharma, Incharge, KVK, Dausa.</td>
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<td></td>
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<td>Sh. Shravan Kumar Sharma SRF, NFSM, RARI, Jaipur</td>
<td>Manoj Kumar, Assistant Prof. (Agro.) PC Unit AICPMIP Mandor.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Miss. Ankita Sharma SRF, NFSM, RARI, Jaipur</td>
<td>Dr. Vaibhav P. Chaudhary SRF, ICRISAT, Hyderabad</td>
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</tbody>
</table>
11. Statement of expenditure against allocation under each sub-head:

The project partners has submitted the statement of expenditure as annexed below:

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Project partners</th>
<th>Expenditure amount (Rs.)</th>
<th>Annexed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>AICPMIP, Mandor</td>
<td>4,10,000</td>
<td>Annexure 4</td>
</tr>
<tr>
<td>2.</td>
<td>SKRAU, Bikaner</td>
<td>7,02,970</td>
<td>Annexure 5</td>
</tr>
<tr>
<td>3.</td>
<td>SKNAU, Durgapura</td>
<td>9,77,000</td>
<td>Annexure 6</td>
</tr>
<tr>
<td>4.</td>
<td>ICRISAT, Patancheru</td>
<td>7,36,083</td>
<td>Annexure 7</td>
</tr>
</tbody>
</table>

12. Constraints, if any:

Name and Signature of Principal Investigator

[Signature]
7/12/2016
Annexure 1

Data to be collected from the villages targeted for NFSM pearl millet project to know the existing level of adoption of pearl millet cultivars and their productivity (at least 10 forms to be filled for each village with different farmers): 2016

Name of farmer providing the feedback:
Mobile no of farmer:

1. Name of the village:
2. Tehsil/Taluka:
3. Population in the village:
4. Total number of households:
5. No. of households growing the crop of interest (Rainy season pearl millet):
6. Percentage area under the pearl millet crop covered by full/supplemental irrigation in the village:
7. Percentage area under the pearl millet crop under rainfed system in the village:
8. The distribution of soil types in pearl millet fields (in %)
   (a) Light:              (b) Medium:                (c) Heavy:
9. Name of major cultivars of the pearl millet crop and their area shares.
   (a) Cultivar A ( )      (b) Cultivar B ( )
   (c) Cultivar C ( )      (d) Cultivar D ( )
   (e) Local  ( )
10. Percentage of production consumed by the growers
    (a) Main product  ( )      (b) By product  ( )
11. Package of practices (seeds, fertilizers, chemicals, machinery) followed by farmers in rainy season pearl millet crop under rainfed system
    a.
    b.
    c.
    d.
12. Average grain yield (per acre) of rainy season pearl millet in rainfed fields:
    (a) Best yield:          (b) Normal yield:  (c) Worst possible yield:

    Average fodder yield (per acre) of rainy season pearl millet in rainfed fields:
    (a) Best yield:          (b) Normal yield:  (c) Worst possible yield:
13. Area under HHB-67-Improved in the village:
14. Average grain yield of HHB-67-Improved in previous years (per acre):
15. Average fodder yield of HHB-67 Improved in previous years (per acre):
16. Any new cultivars are grown in the fields where HHB-67-Improved was grown earlier? If yes, which cultivar and their yield level:
17. Major constraints faced by farmers in rainy season pearl millet under rainfed system:
Annexure 2

DATA COLLECTION – NFSM Pearl Millet Project – 2016

(Please fill the data in bold letters)

Name of the Farmer: ________________________________________________________________

Village: ___________________________ District: ___________________________

Name of the Project Hybrid grown: _____________________________________________

Area of Project Hybrid grown: ___________________________

Grain Yield of Project Hybrid grown (kg/ha): ___________________________

Fodder Yield of Project Hybrid grown (kg/ha): ___________________________

Name of the Control/ Cultivar: _____________________________________________

Area of the Control/ Cultivar: ___________________________

Grain Yield of Control/ Cultivar (kg/ha): ___________________________

Fodder Yield of Control/ Cultivar (kg/ha): ___________________________

Chapatti quality from Project Hybrid grown: Good / Average / Bad / Not Available

(Please tick the appropriate option)
Annexure 3

Minutes of the first technical meeting at AICPMIP, Mandor, Rajasthan on 31st May, 2016

The first technical meeting of NFSM project was held at AICPMIP, Mandor on 31st May, 2016. It was informed that agreements between ICRISAT and the 3 partner institutions have already been finalized and first instalment of the funding is already released to all the partners.

Following project scientists from different centers attended the meeting:

1. SK Gupta  
   ICRISAT (PI of the project)
2. Om Vir Singh  
   PC, AICPMIP, Mandor
3. Manoj Kumar  
   AICPMIP, Mandor
4. P S Shekhawat  
   SKRAU, Bikaner
5. LD Sharma  
   RARI, Durgapura

Also, some other scientists from AICPMIP attended the meeting

Dr. S.K. Gupta (PI of the project) briefed the group about the objectives and activities of the project. He also informed in the technical meeting that ICRISAT produced seed of these identified hybrids with Telangana State Seed Corporation (TSSC) in Telangana during summer 2016. The seed of these identified hybrids (packed in 1.5 kg seed for one acre) reached AICPMIP, Mandor on 27th May, 2016. The partners were requested to collect pearl millet hybrid seed as per their allocation from AICPMIP, Mandor center.

Following main points emanated from the meeting:

- The project targeted rainfed areas of Western Rajasthan to demonstrate the potential of identified pearl millet hybrids. Each of the three partners suggested the target areas where trials would be conducted in rainy 2016.
  - AICPMIP, Mandor: Ocean, Shergarh, Phillodi
  - RAU, Bikaner: Churu, Nokha, Pokhran (near Jaisalmer)
  - SKRAU, Durgapura: Sikar, Nagaur, near Ajmer

- The group decided that trial sites should be selected which can have large attraction to farmers for more impact, easy monitoring and feedback.
- It was decided that one demonstration should not be less than 0.4 ha and should not be more than 1 ha.
- The group decided to plant project hybrids in nearby cluster of villages in a particular area. A particular hybrid will be planted in a particular village for precise tracking of the cultivar.
- Later, equal size of the plot with the same or neighboring farmer planting pearl millet in same ecology will be considered as control plot in the project.
- It was also discussed that some farmers will be given only seed of improved cultivars (without inputs). Their results will be used for estimating the effect of cultivars over cultivars + management trials.
• Inputs to farmers should be given for Rs 5000/trial as mentioned in the NFSM letter. It was also discussed that cash can be produced to farmers for operations, and for purchase of inputs. The decision of no supply of chemical fertilizers to farmers from the project side was made but the supply of micronutrients and other chemicals to farmers can be made from the project side. Possibilities of direct deposition of the cash in the farmers account was also discussed.

• Following NFSM guidelines, socio-economic survey will be conducted in the targeted areas to generate benchmark information to identify right ecology and right farmers. Each of the three partner centers was instructed to conduct this survey (survey questionnaire attached Annexure I) in the above mentioned identified areas.

• The group decided to finalize trial site selection by 10th June, 2016 and complete distribution of inputs to farmers by 25th June, 2016.

• The participating centers were suggested to send AUC for the first instalment as soon a possible, preferably by end-June, so that second installment can be released from ICRISAT, and funding can be fully utilized in the project.
Utilization Certificate for “Pearl Millet hybrid for increasing the productivity in Western Rajasthan” for the year 2016-17
Name of the Organization and
Address: ICRISAT-NFSM, AICRP-PM, Jodhpur

GENERAL FINANCIAL RULES

FORM GFR 19-A
[See Rule 212(1)]

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Sanction order No. and date</th>
<th>Amount (Rs)</th>
<th>Certified that out of Rs. 8,90,000/- of grants-in-aid sanctioned during the year 2016-17 for Pearl Millet hybrid for increasing the productivity in Western Rajasthan in favour of “The Comptroller, Agriculture University, Jodhpur” under AICRP-PM, Mandor, Jodhpur letter No. ICRISAT dated 17.05.2016 through RTGS. A sum of Rs.4,10,000/- has been utilized for which it was sanctioned and that the balance of Rs. 4,80,000/- remaining unutilized at the end of the year will be adjusted towards the grants-in-aid payable during the current financial year 2016-17.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>ICRISAT dated 17.05.2016 through RTGS</td>
<td>8,90,000/-</td>
<td></td>
</tr>
</tbody>
</table>

2. Certified that I have satisfied myself that the conditions on which the grants-in-aid was sanctioned have been duly fulfilled, are being fulfilled and that I have exercised the following checks to see that the money was actually utilized for the purpose for which it was sanctioned.

Kinds of checks exercised
1. Expenditure incurred is a proper charge against the grant/ appropriation concerned.
2. The expenditure has been incurred by the officer competent to incur it.
3. That any certificate required under the financial rules of the Council has been provided.
4. That the rates are apparently not extravagant and that the bill is in proper form and the classification is correctly recorded thereon.
5. Through checking of all purchases for asserting that the purchases are made as per the University Purchase Manual/ Purchase procedure.
6. To get the financial checking of all utilization by Annual Audit done by the Govt. Auditors/ Chartered Accountant.

Signature
Designation (with office seal)

PROJECT COORDINATOR
AICAMP PC Unit
ARS, Mandor, Jodhpur
Sir,

In reference to above subject I am enlisting the expenditure incurred till date in NFSM project on PM. Detail is as under:

1. Salary and other expenditure on inputs (SRF Salary) Rs. 12,975
2. Institutional charges Rs. 90,000
   Total Rs. 70,2970

We receive only 1st installment and out of 9,88,000 we spent Rs. 70,2970 and we are planning to distribute the remaining amount which was spent by farmers in cultural operation as per our mandate. We require remaining amount so the other expenses as well as salary of SRF may distributed timely.

Thank you

Yours faithfully,

P.S. Shekhawat
Professor (Agronomy)
In-Charge AICRP on Pearl Millet
ARS, SKRAU, Bikaner
M.9414604614

Dated: 17.11.2016
Annexure 6

RAJASTHAN AGRICULTURAL RESEARCH INSTITUTE
(SRI KARAN NARENDRA AGRICULTURE UNIVERSITY)
ALL INDIA COORDINATED RESEARCH PROJECT ON PEARL MILLET
DURGAPURA, JAIPUR
Phone & Fax No. 0141-2722160
Email : ldsharma.pgb.rari@sknau.ac.in

No. F. Millets/RARI/2016/5D2

Sr Manager - Grants & Contracts
ICRISAT | Patancheru 502 324, Telangana State, India
Phone: +91-40-29713258 (Mobile: +91-9889193258
Fax: +91-40-30713074
Email: r.narsing@icrisat.org | www.icrisat.org

Date: 29.11.2016

Ref: Partner Sub-Agreement between ICRISAT and SKNAU.

Please find below the table showing funds utilization status for all the disbursements made in 2016 under the purview of our agreement.

<table>
<thead>
<tr>
<th>Project Title</th>
<th>ICRISAT Principal Investigator</th>
<th>Currency</th>
<th>Amount Disbursed</th>
<th>Funds Utilization Certificate/Liquidation Received</th>
<th>Balance Outstanding</th>
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</thead>
<tbody>
<tr>
<td>Pearl millet hybrids for increasing the productivity of Western Rajasthan</td>
<td>Dr SK Gupta</td>
<td>INR</td>
<td>9,79,000</td>
<td>9,77,000</td>
<td>2000</td>
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</tbody>
</table>

Thanking you,

Yours faithfully,

[Signature]

Dr. L. D. Sharma,
Professor & Incharge,
Pearl Millet Project
Annexure 7

Separate sheets attached.