CAPP-5

Format for Application for Agri-CRP Projects

1. Title of Platform: **Consortium Research Platform (CRP) on Conservation Agriculture (CA)**

2. Title of the Platform Project: Adoption/development agriculture machinery for conservation agriculture

3. Location
   Instituteôs Name: ICAR- Central Institute of Agricultural Engineering
   Place: Nabibagh, Berasia Road
   District: Bhopal
   State: Madhya Pradesh

4. **Principal Investigator (PI)**
   Name: Dr. R. C. Singh
   Designation: Principal Scientist (FM&P) and Head, Agricultural Energy and Power Division
   Date of Birth: 10/11/1956
   Experience: (Years): 25 years

5. **Co-Principal Investigator (PI)**
   Name: Dushyant Singh
   Designation: Senior Scientist (Mech. Engg.)
   Date of Birth: 28 July 1970
   Experience: (Years) 15 Years
   Number of Scheme handled: projects 18 Nos.
   Number of important research publications: 22
   Number of other Research Schemes (being carried out by PI): PI -1 Co-PI -1
   Title of Scheme (s) PI, AICRP on Energy in Agriculture and Agro-based Industries (EAAI)
   Name of the funding Agency: ICAR)
   Period 2011 to continue Grant:

6. *Collaborative Investigator (s) (separate set for each)
   Name: K. P. Saha
   Designation: Senior Scientist (Agril. Economics)
   Date of Birth: October 01, 1973
   Experience: 16 (Sixteen) Years
   Number of research publications: 18 Nos.
   Number of other Research Schemes (being carried out by PI)
   Title of Scheme (S) _____Nil_____ (30 Chrs)
   Name of the funding Agency: _____ (30 Chrs)
   Period from_____ to _____Grant: _____Rs.

7. *Objectives (in brief):

- Adaptation/ development and validation of location specific CA machinery for different cropping systems.
- Capacity building and knowledge management for accelerated adoption of conservation agriculture machinery.

8. *Practical/Scientific Utility:

As conservation technologies are useful for breakthrough for sustaining productivity, natural resource conservation, energy productivity with economic growth of the farmers. These practices enhanced the productivity and improve the soil health at lower input cost by reducing the use of seed and fertilizer by 20-30% and saving in use of chemicals by 20-30% with timeliness in operation, reduction in compaction of soil, fuel usage, and energy demand by 20-40 %, production cost and GHG emission. They are also helpful in improvement in water productivity by saving in irrigation water by 30-40 %, soil drainage and avoiding the sponge effect created by normal cultivation. It is estimated that total saving in cultivation cost is Rs. 1500-2000 per ha in CA as compared to conventional agriculture. Most of the equipments and technologies required for conservation agriculture are available and the need is only to develop a few new or fine tune the existing machine as per requirement and their promotion for specific situations and cropping systems such as an improvement upon zero-tillage can come if crops are grown on ridge-and-furrow planting configuration: farmers shift to a permanent bed system, i.e., zero/minimum-tilled crops on bed condition and package of equipment and technology for seeding/planting under crop residues (mulching and incorporated condition). Studied carried out by various researchers at different places for various crops has indicated that use of conservation agricultural machines like laser guided land leveler, no till drill, permanent bed former cum seeder/planter, rotary slit drill and happy seeder has enhanced the soil health, water and energy productivity, profitability with sustained productivity of crops.

9. *Research work conducted

i. At sponsoring institutions:

- Adaptation/development of zero till drill for sowing in heavy residue condition
- Adaptation of no till planter cum herbicide applicator
- Adaptation/development of bed shaper cum no till seed cum fertilizer drill
- Adaptation/development of stubble saver for mulching of crop residue.
- Operational demonstration of conservation agricultural machinery
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ii. In other institution of the country:

- Fine tuning of location specific existing CA machinery based on cropping system.

iii. Other countries: NA

iv. Technical Programme:

Items of Investigation:

- Identify promising CA machineries from existing experiments.
- Fine-tuning the existing CA machinery and developing need based CA machinery
- Validation and refinement of developed machinery/equipment if required.
- Identify training needs and conduct the training on CA machinery system for project staffs and stakeholders.
- Centre of excellence on CA machinery system for training.

10. Facilities Available:

Equipments/instruments/apparatus:

- TD Rotary slit no till drill
- TD No till drill
- TD Variable depth fertilizer applicator
- TD Rotary broad bed former cum seeder/planter
- TD Planter cum pre-emergence herbicide strip applicator
- TD Aero blast sprayer
- TD Vertical conveyer reaper
- TD Straw reaper with trailer
- Animal drawn single row no till drill
- Bio-char production system

Laboratory:

(1) Seeding planting laboratory.
(2) Plant protection laboratory.
(3) Soil-bin testing facilities
(4) Tillage: soil engineering properties
5) Farm machinery testing centre
(6) Farm power testing laboratory

Other facilities:

- Workshop and Prototype Production Centre
- TOC analyzer

11. Additional facilities required:

Equipment & apparatus:

(1) CA Machineries and tractor
(2) Sensors and video Camera

Office facilities: Information technology, computers, printer and furniture

12. Duration: 2 years

*Detailed information with regard to Sr. No. 6, 7, 8 and 9 may be furnished separately as supplementary annexure.

13. Estimation of Costs:

i) Sr. Research Fellows: 3 Nos.
ii) JRF (Sr. Mechanic) 2 Nos.
iii) Office /computer assistant 1 No
i) Other contractual services: As per requirement

14. Recurring and Non-recurring contingencies: Rs. 25 lakhs (details given below)

Recurring and Non-recurring contingencies	Year-I (2015-16)#
Capital	
Equipment/ Machinery/ Apparatus/ Misc. items[@]	5.0
Revenue	
Contractual service (SRF 3 & other contractual services)	11.0
TA	1.0
Other recurring contingencies (Miscellaneous) including Institutional charges*	8.0
Total	**25.0**

***Institutional charges @10% of RC for lead institute and 5%of RC for cooperating institutes**
 # As per the new BE (2015-16). Original sanctioned total project budget is 63 crore.
[@]Computer/Air Conditioner/ Furniture as per absolute requirement of the budget.

15. Receipts anticipated

Need based CA machinery

- Location specific CA machinery for different cropping systems
- Zero till drill cum pre-emergence herbicide applicator.
- Bed shaper cum planter with herbicide applicator.
- Awareness among stake holders about CA machinery

Centre of excellence on CA machinery system.

UNDERTAKING

16. Certified that:

i. The research work proposed in the Platform Project (**Platform Project on Conservation Agriculture**) does not in any way duplicate the research work already done and being carried out elsewhere on the subject.
ii. The present scheme cannot be combined with any scheme financed by the Council, Central and State Governments, Universities or Private Institution of their own funds.
iii. Necessary financial provision for the platform project will be made in the Institution/ University/ State budget in anticipation of the sanction to the scheme by the council.
iv. We undertake to abide by the guidelines provided by the Council for the implementation of the Platform Project.

Principal Investigator **Signature**
Name

Certified that:

i. Project is in line with the approved mandate of the implanting institute.
ii. Platform Project Investigator/ Co-investigators are competent technically to undertake the project.
iii. Research work will not amount to duplication of efforts and In-house projects, handled by me will not suffer.
iv. Equipment and other infrastructure proposed under the project are either not available with the institute or the available facility cannot be extended to the project activities.
v. Basic facilities such as Telephone/ Fax/ photocopies/Generators etc. will be provided by the implementing agency. However, operational cost for these activities will be met from the institutional charges sanctioned under the scheme.
vi. The cost of equipment and other infrastructure requested for under the project is realistic and based on the prevailing market rates.
vii. Justifications and clear specifications for the equipment and other infrastructure asked for are reflected in the proposal.
viii. For collaborative projects with other institutions, the administrative/ financial/ technical issues related to implementation of the project shall be addressed between the two implementing agencies.
ix. The institutions has already furnished to the ICAR, full accounts and Utilization Certificates in respect of the grants received by it previously, as per the following details: NA

ICAR's amount	UC & Accounts furnished

Communication of Grant by the Institution and date of (Please indicate the Sanctioning Grant number and date of the communication with which ASAs, etc. are sent)
(1)_____(2)_____(3)

It is certified that the Institution has not received any grant from the ICAR previously.

Date: **Executive Authority of the Institution**