

**Format for Application for
Agri-CRP Projects**

1. **Title of Platform:** Consortia research platform on conservation agriculture
2. **Title of the Platform Project:** "Conservation agriculture for enhancing the productivity and profitability of wheat based system"
3. **Location**
Institute's Name: ICAR-Indian Institute of Wheat and Barley Research
Place: : Karnal
District: : Karnal
State: : Haryana
4. **Principal Investigator (PI)**
Name: Dr R. S Chhokar
Designation: PS (Agronomy)
Date of Birth: 17-11-1969
Experience: (Years): 17 years
Number of Scheme handled: More than 30 contract research projects on herbicide evaluation
Number of important research publications: 50
Number of other Research Schemes (being carried out by PI)
Title of Scheme (S): Evaluation of herbicides
Name of the funding Agency: Various herbicide Development Agencies
Period from: 1999 to 2015 Grant: > Rs. 100 Lakhs
5. **Co-Principal Investigator (Co-PI)**
Name: Dr R. K. Sharma
Designation: PS & PI (Resource Management)
Date of Birth: 20-03-1958
Experience: (Years): 31 Years
Number of research publications: 50
Number of other Research Schemes (being carried out by PI):
 - i. Title of Scheme (s): Crop simulation studies to understand the effect of moisture and temperature stress on growth and yield of wheat
Name of the funding Agency: ICAR- National Fund for Basic, Strategic, and Frontier Application Research in Agriculture
Period from **2012 to 2015** Grant: Rs 178.9506 lakhs (52.15 Lakhs)
 - ii. Title of Scheme (s): Increasing the productivity of wheat crop under conditions of rising temperature and water scarcity in south Asia 2013-2016
Name of the funding Agency: BMZ

Period from **2012 to 2016** Grant: Euro 69285

6. *Collaborative Investigator (s) (separate set for each)

1. Name: Dr S. C. Gill

Designation: PS (Agronomy)

Date of Birth: 8-03-1969

Experience: 19 Years

Number of research publications: 36

Number of other Research Schemes (being carried out by PI): Contract research projects on fertilizer molecule evaluation and two Institute Projects on nutrient management in rice-wheat cropping system.

Title of Scheme (S): Evaluation of fertilizer molecules

Name of the funding Agency: Various Fertilizer Development Agencies

2. Name: Dr Gyanendra Singh

Designation: PS (Plant Breeding)

Date of Birth: 05-05-1962

Experience: 29 Years

Number of research publications: 80

Number of other Research Schemes (being carried out by PI): Accomplished 19 internal, 5 external funded and two foreign collaborative research projects.

Title of Scheme (S) _____

Name of the funding Agency: _____

Period from _____ to _____ Grant: _____ Rs.

7. *Objectives (in brief):

- 1 Development and validation of CA technologies for sustainable intensification of wheat based cropping systems
- 2 Quantifying the impact of CA on soil health, weed dynamics, input use efficiency and carbon sequestration.
- 3 Identifying the suitable wheat genotypes for CA system
- 4 To test and fine-tune the machines for seeding into loose crop residues including sugarcane ratoon.
- 5 To evaluate the role of CA practices in tackling the abiotic stresses.

8. *Practical/Scientific Utility:

The indiscriminate use, rather misuse, of natural resources has degraded the natural resource base. Depleting soil organic carbon status and under ground water table, decreasing soil fertility and reduced factor productivity are major issues of concern. In future the crop productivity and

sustainability is bound to suffer due to over exploitation of natural resources. Therefore, in order to meet the aim of sustainable yields over time it is the need of the hour to avoid further degradation of the natural resources. Rather efforts must be focused on reversing the trend in natural resource degradation, which is possible only if we adopt conservation agriculture practices in systems perspective. Conservation tillage systems particularly direct seeding offer some potential for carbon sequestration and reducing agriculture's impact on green house gases and also moderates the soil temperature. Widespread adoption of conservation tillage could result in C sequestration in agricultural lands as increased tillage intensity increases C losses. Moreover, to mitigate the effect of changing climatic conditions in the country, adopting conservation agriculture is a must. To address the effect of conservation agriculture, a research-for-development agenda should follow a holistic approach that brings together genetic improvement, crop management, product quality, capacity building and knowledge sharing.

9. *Research work conducted

- i. At sponsoring institutions: Long term experiments on various tillage options in rice-wheat system, Water usage under CA and residue and nitrogen levels under CA are in progress at the Indian Institute of Wheat and Barley research, Karnal.
- ii. In other institution of the country: Some of the ICAR and SAUs are also working on CA aspects to address the region specific problems. However, more holistic studies are needed in the CA in systems perspectives.
- iii. Other countries: No-tillage/Conservation Agriculture (CA) has developed as cost effective, technical viable and sustainable alternative to intensive tilled crop production practices. While intensive till crop production systems have resulted in soil degradation and in extreme cases desertification, the adoption of the CA technology has led to a reversion of this process with improvement of organic matter content, soil biological processes and soil fertility which enhances the soil moisture conservation and yields improvement with time. Data presented ten years ago at the 10th ISCO Conference in West Lafayette, Indiana, showed a world wide adoption of the No-tillage technology of about 45 million ha (Derpsch, 2001). Since then the adoption of the system has continued to grow steadily. World wide the maximum area in conservation agriculture is in USA followed by Brazil and Argentina.

10. Technical Programme:

- 1 Establish long term wheat based CA trials to evaluate the effect on soil health, weed dynamics, input use efficiency and carbon sequestration.
- 2 Evaluating the performance of wheat genotypes and/or recently released varieties under CA practices to identify suitable cultivars
- 3 To evaluate the performance of machines for seeding in to surface retained residues including fine-tuning the existing CA machinery
- 4 To evaluate the role of CA practices in tackling the abiotic stresses like moisture, waterlogging and heat *etc.*
- 5 To develop the effective weed management practices for CA systems.
- 6 Participatory adaptation and out-scaling of CA based BMPs
- 7

11. Items of Investigation:

1. Soil health
2. Weed dynamics
3. Cultivars/genotypes
4. CA machines
5. Use efficiencies of various inputs

12. Facilities Available:

Equipments/instruments/ apparatus:

- (1) Rotary Disc Drill for seeding in loose crop residue
- (2) Precision drill
- (3) Other field and Lab equipments needed for project running

Area of experimental fields (hectares): One hectare at IIWBR, Karnal and 2 hectares at Hisar
Research farm of IIWBR

Laboratory: A well equipped Lab facility available at IIWBR Karnal

Other facilities: (1) Germplasm facility
(2) Salt affected soil at Hisar farm

13. Additional facilities required:

Equipment & apparatus:

- (1) Turbo seeder
- (2) Power till drill

Area of land for Experimentation (hectares): Nil

Laboratory: Renovation of Lab

Office facilities: Renovation of office chambers

14. Duration: Two years and the long term study established will be carried further

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

15. Staff Requirements (Scientific, Technical etc.): Already available for the project

Designation of Post: _____

Number of Post: _____

Scale of Pay: _____

Qualification Prescribed: _____

16. Estimation of Costs:

Recurring and Non-recurring contingencies	Year-I (2015-16) Rs Lakhs
Capital	
Equipment/ Machinery	2.0
Revenue	
Contractual service (SRF 2 & other contractual services)	10.0
TA	1.0
Other recurring contingencies including institutional charges @ 5% of recurring contingency	7.0
Total	20.0

17. Recurring and Non-recurring contingencies: Rs 20 lakhs for first year

18. Receipts anticipated : Rs 20 lakhs for first year

UNDERTAKING

19. Certified that:

- i. The research work proposed in the Platform Project (**Consortia research platform 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

(R. S. Chhokar)

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:

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