

## PROFORMA FOR SUBMISSION OF REASERCH PROJECTS

## Part -1: General Information

200	<b>Project code</b>	
2001	Institute code no.	CI 8.20
2002	ICAR code no.	
201	<b>Name of the Institute and Division</b>	
2011	Name and address of the institute:	Indian Grassland and Fodder Research Institute, Jhansi -284003
2012	Name of division an/section	Crop Improvement Division
2013	Location of the project	Plant Protection section
202	<b>Project Title</b>	<b>Integrated disease management for root rot &amp; dry root rot in cowpea (<i>Vigna unguiculata</i> (L) Walp.</b>
203	<b>Priority areas</b>	<i>Pathology</i>
2031	Research approach	<b>Basic Res. √</b> <b>Applied Res. √</b> Process or Technology Development / Transfer of Technology
204	<b>Specific area</b>	<b>Cowpea Rots</b>
2041	Previous project/projects in this specific areas: (Year, type of funding, cost etc.)	NA
205	<b>Duration</b>	<b>Five Years</b>
2051	Date of start	July 2008
2052	Likely date of completion	July 2013
206	<b>Total cost of the project</b>	
2061	Foreign exchange component (if any)	NA
207	<b>Project profile summary</b>	Cowpea ( <i>Vigna unguiculata</i> (L) Walp.) is a warm season annual leguminous fodder crop. It is rich in protein and forms an excellent mixture with maize, sorghum, pearl millet and teosinte for increasing the milk production. The productivity of green fodder cowpea is approximately 25-45 t/ha in India. Pests and diseases hampers crop establishment, impair forage quality and reduces green fodder and seed yield. Besides causing direct yield losses they also suppress nodulation and consequently negating the maximum nitrogen fixation. The losses in green fodder yield were estimated to be about 30 per cent (Ram and Gupta, 1989). Sometimes the insect pests are responsible for crop failure. The concept of Green Revolution,

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brought self-sufficiency in food production with the introduction of high yielding varieties, inorganic fertilizers, pesticides, modern implements etc. But these Green Revolution techniques made farmers poor and debt ridden and spoilt the whole Indian agriculture ecosystem by the principle of monoculture resulted in the rapid erosion of crop and livestock diversity, natural soil fertility and biological pest regulation, enhanced the soil erosion, salinity. Possibly in future the modern agriculture may not be able to meet the requirements of the ever-increasing population. Hence, it is right time to opt the integrated approaches which have special advantages over modern agricultural practices. The goal of this Project is to develop and improve ways to reduce crop losses caused by sclerotial fungi causing stem or dry rot and root rot in cowpea. Present studies focus on developing effective disease control strategies that are environment friendly, safe to our livestock's, and are compatible with sustainable crop production. Information generated under this project will provide a base for developing sustainable Integrated Disease Management (IDM) program.

208 **Key words**

Cowpea, Rot, *R solani*, *M. phaseolina*, Bio-control, Pesticides, Integrated Disease Management.

## Part II: Investigator profile

<b>210</b>	<b>Principal investigator</b>	
2101	Name	Dr. Pradeep Saxena
2102	Designation	Principal Scientist
2103	Division/section	CI Division
2104	Location	CI Division
2105	Institute address	IGFRI, Jhansi
<b>211</b>	<b>Co-investigator</b>	
2111	Name	Mr. R B Bhasker
2112	Designation	Senior Scientist
2113	Division/section	CI Division
2114	Location	CI Division
2115	Institute address	IGFRI, Jhansi
<b>212</b>	<b>Co-investigator</b>	
2121	Name	Mr. (Mrs) S Roy
2122	Designation	Senior Scientist
2123	Division/section	CI Division
2124	Location	CI Division
2125	Institute address	IGFRI, Jhansi
<b>213</b>	<b>Co-investigator</b>	
2131	Name	Dr S K Nag
2132	Designation	Senior Scientist
2133	Division/section	PAR Division
2134	Location	PAR Division
2135	Institute address	IGFRI, Jhansi



**221 Project technical profile:**

**2211** Organization of work elements (for each objectives and participating investigator giving man-months involved)

Pathological aspects – Dr Pradeep Saxena and Mr R B Bhaskar (20 & 2 man months, respectively)

Entomological aspects – Dr S Roy (2 man months)

Residue aspect Dr S K Nag (2 man months)

**2212** Methodology

1. *In vitro* screening

2. Field screening

**2213** Plan of action:

**2214** Time schedule of activities (Milestones):

SN	Activity	1 year	2 year	3 year	4 year	5 year
	<b>Part I – Laboratory studies</b>					
1	Exp 1: Isolation and Characterization of pathogens	√	√			
2	Exp 2: factors affecting on sclerotium formation and germination	√	√			
3	Exp 3: Biological Control		√	√		
4	Exp 4: Chemical control		√	√		
	<b>Part II – Field studies</b>					
5	Exp 5: Integration of effective mgmt practices in Field				√	√
6	Exp 5: Residue analysis				√	√

**2215** Annual target for each activity:

In first three years Isolation, characterization of pathogens, *In vitro* efficacies of bio-control agents, fungicides and their interactions (Bio-agents verses fungicides) will be done. Selected doses of bio-agents and fungicides will be evaluated in the field conditions in last two years in order to develop an IDM model.

**2216** Estimated man months

a. Scientific - 26 months

b. Technical - 16

c. Supporting – nil

**222 Proposed research details**

**2221** Importance of the proposed project (gaps in knowledge/ products/process technology) to the institute mandate

Pathogens are known to be the cause of yield losses. These losses can be minimized by the timely detection. Any eradication and control measures of invasive pathogens can be taken up by early detection, by their taxonomic and other knowledge obtained before the problem become serious. Interactions between pathogens, host plants, and environment will be characterized, and disease management strategies will be developed by exploiting points where the disease cycle can be disrupted. Identification new effective bio-control agents/strains which can be applied alone or with other control methods.

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**Part V: Declaration**

This is to certify that

The research work proposed in the scheme/project does not in any way duplicate the work already done or being carried out in the Institute on the subject.

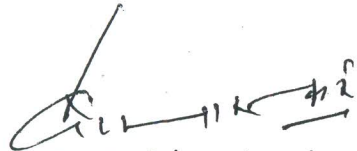
The same project has been/has not been submitted to any other agency for financial support (if already submitted identify projects and agency).

The investigator/co investigator has been fully consulted in the developments of the project and has fully undertaken the responsibility to carry out the program as per the technical program.

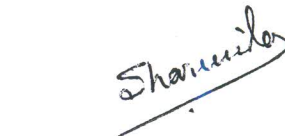


- (Pradeep Saxena)

Signature of the Project Investigator



( R. B. Bhasker )



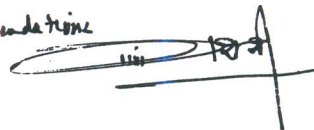
( Mrs. S. Roy )



( S. K. Nag )

Signature and comments of the Head of the Division /section

It's OK . Follows IRB Recommendation



Forwarded  
Sanjay Kumar  
21.12.2020

Signature and comments of the Director

