ANNUAL REPORT

2010 - 2011

RAJENDRA AGRICULTURAL UNIVERSITY

PUSA (SAMASTIPUR) , BIHAR – 848 125

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PUSA (SAMASTIPUR) – 848 125

Patron
Dr. R.K. Mittal
Vice-Chancellor

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FOREWORD

I am happy to place our Annual Report 2010-11 for the benefit of our distinguished stakeholders. The annual report is prepared by compiling the trifold activities of teaching, research and extension carried out during the year. The programmes undertaken and accomplishments made in the three mandated activities have increased many fold compared to the previous years. In fact, there is progressive increase over the last few years which has improved the visibility of the University in the country.

The progress in the academics has been very impressive during the period under report. A large number of teachers have updated their knowledge in their concerned subjects by attending summer/winter schools, training programmes, conferences, symposia, workshops etc. With this both staff and students have benefited tremendously. The teaching programmes have got a fillip with the improved lab and infrastructure facilities. The library facilities have also improved both qualitatively and quantitatively. As a result, the quality of students passing out from the University has improved and has been well acknowledged throughout the country.

Similarly, significant achievements were made in the field of research. Five new crop varieties viz. Rajendra Hybrid Makka, Deep Jwala of maize, BO-153 and COP-2061 of sugarcane and Rajendra Bhagwati, and Swarna Sub-1 of rice were developed. Also, useful farmers' friendly technologies were developed. A number of externally funded research projects were bagged by the scientists. The University's seed production programme continued with increased vigour in order to help the farmers by making them available quality seeds of crops.

The University is moving closer to the farmers by effective extension network. It has worked towards the livelihood security of the downtrodden farm families along with other categories. Various integrated farming system strategies have been developed considering the resources of the farm families. During the year, several field demonstrations of recent technologies developed by scientists were conducted to take the message to the farmers. Several Kisan Melas, field day, exhibitions and campaigns were organized in which several thousand farmers participated and benefited.

I would like to thank all the Deans, Directors, Associate Deans of the Colleges, Statutory Officers, Chairman of Departments, Programme Coordinators of KVKs for providing valuable information for the report.

I appreciate the efforts made by Dr. S.P. Singh, Dr. Dibyanshu Shekhar, Dr. Neeraj Kumar, Sri Uday Kumar and Sri Ajay Kumar of the Technical Cell for compiling the information and bringing out this document in an abridged form.

Pusa
May 7, 2013

(R.K. Mittal)
Vice-Chancellor

EXECUTIVE SUMMARY

Rajendra Agricultural University, Pusa named after the most illustrious son of the soil, Bharat Ratna Dr. Rajendra Prasad, the first President of India was established on December 3, 1970 to give the much needed impetus for agricultural development in the state through education, research and rapid transfer of improved technologies related to crop production and animal management. After bifurcation of the University on 5th August, 2010 Rajendra Agricultural University has now six faculties viz. Faculty of Agriculture, Faculty of Agricultural Engineering, Faculty of Home Science, Faculty of Basic Sciences & Humanities, Faculty of Veterinary & Animal Science and Faculty of Post-Graduate Studies; five colleges viz. Tirhut College of Agriculture, College of Agricultural Engineering, College of Home Science, College of Basic Sciences & Humanities, College of Fisheries; seven research institutes/stations and eleven Krishi Vigyan Kendras. The operational area of RAU falls under agro-climatic zone-I consisting of East and West Champaran, Siwan, Saran, Gopalganj, Vaishali, Muzaffarpur, Sheohar, Sitamarhi, Darbhanga, Madhubani, Begusarai and Samastipur districts. The Rajendra Agricultural University is poised to lay more emphasis on finding better ways and means to improve well being of people dependent on agriculture and allied sectors for their livelihood. The University has made significant contributions in the field of agricultural education, research and extension during the year 2010-11.

The University offered under-graduate programmes in the field of agriculture, agricultural engineering, biotechnology, home science and fisheries. 231 Students took admission in different disciplines. 427 Students were on roll and 226 students passed out the UG programme successfully during the year. In PG programme, 84 students were admitted (Master's - 75, Ph.D. - 09) in different subjects and 56 students completed their degrees. Majority of the students were awarded fellowship by various agencies during their course of study.

The research activities were carried out under various research projects. Some crop varieties and technologies were developed and released by the University. In rice, new entries were grown and evaluated under OYT-shallow and PVS/ submergence experiments. Entry TCA 88-1 recorded highest yield. In wheat, the three entries viz. RW 3705, BRW 3719 and BRW 3723 developed by the University have entered in coordinated trials. In maize, Dholi centre contributed 9 single cross hybrids for testing and MHQPM-09-5, a single cross hybrid was promoted for testing in coordinated trials. In pulses, chickpea variety BG 3013 (41.89 q/ha) was found significantly superior to best check KWR 108 and variety JG 63 was found resistant against wilt. Five CGMS lines of pigeonpea namely HY4A, H28A, JBP 36A, ICP 2043 and ICP 2092 A were found suitable for Bihar conditions. Under peripheral cropping system, MAL 13 had shown 612 per cent increase in yield over local and the planting of pigeonpea on raised bed recorded more grain yield than flat bed

method. Sugarcane variety CoP 5436 among early and variety CoP 5437 among mid-late recorded highest yield both in plant and ratoon. Application of 25% N through bio-compost alongwith 75% through inorganic fertilizer gave highest cane yield. In oilseeds, Rajendra Sufalam gave best competitive behaviour against weeds. Intercropping of mungbean and sesame with sunflower produced significantly higher yield. Seed treatment with mixture of iprodione + carbendazim @ 2% and its spraying reduced alternaria leaf spot disease in sunflower.

In mango, hybrid of Langra & Neelam has maximum fruit weight. The application of borax (1%) enhanced the post harvest life of mango up to eight days. For the management of fruit flies in mango and guava, hanging of wooden block, soaked in solution of alcohol + methyl eugenol + DDVP in the ratio of 6:4:1, in plastic bottle has been found cost-effective.

In tuber crops (other than potato), sweet potato entry 440038 and colocasia entry AAUCol-38 were found better in terms of yield potential. Among anthocyanin sweet potato entries against sweet potato weevil, X-24 recorded lower tuber infestation and highest marketable tuber yield. Yam bean seed extract was found most effective in controlling aphid population. In potato, treatment of tubers of variety K. Jyoti with CIPC @ 4ml/q checked rotting, shrinking and weight loss of tubers up to 60 days after treatment.

Under All India Coordinated Research Projects, many important studies were carried out. GPS-GIS based model soil fertility maps for some selected districts of Bihar were prepared for precise fertilizer recommendations to the farmers. Weather based technology for cultivation of rabi maize has been developed. Re-assessment of micronutrients deficiency in soils was done and more than 50% soils were found deficient in organic carbon. Among nutrients, highest deficiency of sulphur followed by Zn, Potash and Mn was found. In water management, improved practices for rice under SRI consisting of 3 days drying after disappearance of 2.5 cm of pond water performed better. In honeybee & pollinators research, number of colonies of *Apis mellifera* bees required to pollinate one hectare of brassica, coriander and pigeonpea was evaluated.

Under departmental research, important findings were made. In agronomical experiments, the effect of different levels of nitrogen, date of sowing and weed control methods on growth, yield and quality of rice and sugarcane was studied. In entomology, findings were made on the effect of insecticidal treatments against insect pests in rice and mungbean. In forestry, experiments were carried out on jatropha, karanj and bamboo. In soil and water conservation engineering, fertigation studies on high density litchi planting and experiments on precision farming in banana were carried out. Strawberry cultivation using plasticulture technology was carried out. Prototypes of grain puffing machine and solar cabinet dryer were fabricated in processing & food engineering.

Important observations were also recorded under non-plan research projects. Improvement of soil aggregation to enhance the productivity of rice-winter maize cropping system was done. Some value added root and tuber products were developed and the nutritional quality of different yam bean genotypes was evaluated. Yam bean genotype, DL-28 had maximum fat, carbohydrate and sugar content. Findings were made on integrated disease management of tomato, chilli and rice. Hybridization studies in rice were conducted and 285 test crosses were successfully made for identification of sterility maintainers and fertility restorers. Genetic improvement studies in faba-bean were done by using gene silencing approach and total RNA was extracted. Pesticide residues were monitored in vegetables and 10% samples of farm gate and market vegetables contained residues above prescribed limit. Evaluation of substrate based microbial bio-film on carp production in pond aquaculture system and standardization of grow out technique for fresh water giant prawn were also carried out.

Under crop variety release programme, new varieties of maize (Rajendra Hybrid Makka Deep Jwala), sugarcane (BO-153, CoP 2061) and rice (Rajendra Bhagwati, Swarna Sub-1) were released. Besides, technology for intercropping of linseed with autumn planted sugarcane in Bihar (sugarcane + linseed var. Garima in 1:3 row ratio) was released at central level.

Krishi Vigyan Kendras and various units of the University have conducted several training programmes for the benefit of farmers, farm women, rural youth and extension functionaries on different aspects viz. crop production, crop protection, crop improvement, natural resource management, fisheries & A.H., farm machinery & engineering, entrepreneurship development, beekeeping etc. More than 48,000 participants got benefited by these trainings. FLDs were conducted by KVKs and units for technology demonstration of various crops. More than 350 on farm trials were conducted by KVKs for testing technologies. 14 Farmers' club and 23 seed village were established. Many kisan mela, field day and honey festival were organized by KVKs and units. The radio and TV talks were delivered by the scientists to inform the farmers/rural people about latest technological developments in agriculture and animal sciences. The seed production unit at Dholi produced 7798 q processed seed of different crops. The units and KVKs also produced crop seed, planting material, fish seed, honey, milk and biofertilizer etc.

The students of the University have participated in various annual games and sports activities, cultural & debating programmes and NSS activities. An animal health camp was organized by NSS unit of BVC, Patna. Besides, the students also participated in NCC activities. Ten students were awarded with "B" certificate and two students with "C" certificate. Educational/study tours were arranged for under-graduate students. The campus interviews were conducted by different agencies for the selection of UG & PG students.

The University library has subscribed 139 journal during 2010-11. 919 New books were purchased and the total number of books in the library has gone up to 62154.

Two faculty members were conferred with Best Teacher Awar
Nineteen faculty members participated in seminars/symposia/conferences, 1
in short courses/trainings/summer school/winter school/refresher course and 4
in workshops/group meetings.

More than 75 research papers were published in research journal wit
good impact factor and 50 research papers were presented by the scientists i
seminars, symposia and conferences. Apart from this, a number of books
technical bulletins and popular articles were published. During the year, 32 Al
India Coordinated, 24 Non-Plan, 18 Ad-hoc, 4 Foreign aided, 12 RKVY and 4
NAIP research projects were operating in the University.

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1. INTRODUCTION

1.1 BACKGROUND INFORMATION

Agriculture is the backbone of Bihar. More than 80 per cent of the state population is dependent on agriculture, Rajendra Agricultural University, Pusa named after the most illustrious son of the soil, Bharat Ratna Dr. Rajendra Prasad, the first President of India was established on December 3, 1970 to give the much needed impetus for agricultural development in the state through education, research and rapid transfer of improved technologies related to crop production and animal management. Establishment of an institution devoted to higher learning exclusively in agriculture and animal sciences was aimed to transform the state's traditional substance agricultural scenario into a modern scientifically oriented production system.

With the establishment of the University, the three Agricultural Colleges, one each at Sabour, Ranchi and Dholi and two Veterinary colleges at Patna and Ranchi were transferred from the Government to the Rajendra Agricultural University which formed the constituent units of the University. Their link from the traditional Universities of Bihar were severed and they came under the academic, administrative and financial control of the Rajendra Agricultural University, Pusa. The four Regional Agricultural Research Institutes, one each at Sabour, Patna, Ranchi and Dholi were also transferred simultaneously to the University by the Government. These institutes except one at Patna were completely integrated with three Agricultural Colleges located at the same campus.

In the year 1981, the areas comprising Chhotanagpur and Santhal Parganas were carved out and a separate agricultural University named as Birsa Agricultural University came into being with headquarters at Ranchi. With the division of the state, the Rajendra Agricultural University was the only Agricultural University in Bihar at that time.

Later the University established other new colleges/faculties such as Sanjay Gandhi Institute of Dairy Technology in 1980, Faculty of Basic Sciences & Humanities in 1981, College of Home Science in 1982, College of Agricultural Engineering in 1983 and College of Fisheries in 1987. Likewise, some research stations, sub-stations, KVKs were created in different agro-ecological regions of the state for the benefit of the rural community. The Rajendra Agricultural University continued to develop steadily and proved to be one of the main functionaries in the service of farmers through its new faculties, colleges and KVKs in the state. After bifurcation of the University again on 5th August, 2010 and creation of a new agricultural University, Bihar Agricultural University, Sabour (Bhagalpur), Rajendra Agricultural University has now six faculties, five colleges, seven research institutes / stations and eleven Krishi Vigyan Kendras. The operational area of RAU falls under agro-climatic zone-I consisting of East and West Champaran, Siwan, Saran, Gopalganj, Vaishali, Muzaffarpur, Sheohar, Sitamarhi, Darbhanga, Madhubani, Begusarai and Samastipur districts.

The Rajendra Agricultural University is poised to lay more emphasis on finding better ways and means to improve well being of people dependent on agriculture and allied sectors for their livelihood. All endeavors are directed towards ensuring food security, reducing poverty and protecting the environment. The vision of the University is to become a highly acclaimed and advanced academic institution in the field of agriculture with global standing.

1.2 MANDATE OF THE UNIVERSITY

- To impart education in different branches of agriculture and allied fields.
- To undertake basic, strategic and applied research for developing technologies to enhance productivity and quality of agricultural and animal produce.
- To disseminate scientific information to farmers.
- To plan, organize and conduct *on campus* and *off campus* training programs for different functionaries and clientele in order to develop human resource capability in the field of agriculture.
- To help the state government in supplying breeder seeds towards production and multiplication of foundation and certified seeds.
- To provide consultancy services and expertise in the agricultural research and development to the industries, NGOs and others.
- To serve as a repository of national and international scientific information on various aspects of agricultural and animal production.
- To collaborate with relevant national and international agencies for all round development of agriculture in the state.

1.3 FACULTIES OF THE UNIVERSITY

❖ **Faculty of Agriculture :**

Departments

- Agronomy
- Agricultural Economics
- Agro-forestry
- Entomology
- Extension Education
- Horticulture
- Nematology
- Plant Breeding &* Genetics
- Plant Pathology
- Soil Science
- Seed Technology

College

Tirhut College of Agriculture, Dholi (Muzaffarpur)

❖ **Faculty of Agricultural Engineering :**

Departments

- Farm Machinery
- Farm Power and Renewable Energy
- Irrigation and Drainage Engineering
- Post Harvest Processing and Food Engineering
- Soil and Water Engineering

College

College of Agricultural Engineering

- **Faculty of Home Science :**

  Departments
  - Child Development
  - Clothing and Textile
  - Family Resource Management
  - Food and Nutrition
  - Home Science Extension Education

  College

  College of Home Science, Pusa

- **Faculty of Basic Sciences and Humanities :**

  Departments
  - Botany and Plant Physiology
  - Biochemistry
  - Microbiology
  - Physics
  - Statistics, Mathematics and Computer Applications

  College

  College of Basic Sciences and Humanities, Pusa

- **Faculty of Veterinary and Animal Science :**

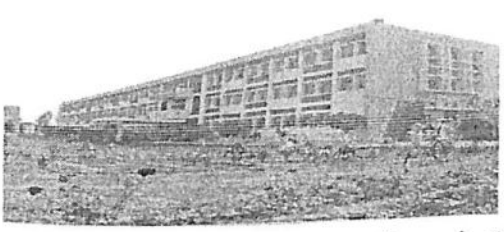
  Unit
  - Animal Production Research Institute

  College
  - College of Fisheries, Dholi (Muzaffarpur)

- **Faculty of Post-graduate Studies, Pusa**

1.4 CONSTITUENT UNITS OF THE UNIVERSITY

Tirhut College of Agriculture, Dholi



Tirhut College of Agriculture, Dholi (Muzaffarpur) was established on 18th August, 1960 by first Chief Minister of Bihar, Late Dr. Sri Krishna Singh with the objectives to provide agricultural education to young men and women; to tackle the problems of agriculture through a network of agricultural research and for dissemination of agricultural knowledge / technologies for upliftment of the farmer's community of the state. TCA Dholi is the only constituent agricultural college of RAU. The students are trained in modern methods of crop improvement, production and protection technologies. The college also encourages the students to participate in extra curricular activities for all round development of their personalities. They are also exposed to Experiential Learning and Rural Agricultural Work Experience programmes in the final year of their graduation. The graduates of this college are engaged in various capacities both in India and abroad and raised the name and fame of this college. During last 51 years of the establishment of this college, notable successes have been achieved in the field of teaching, research and extension.

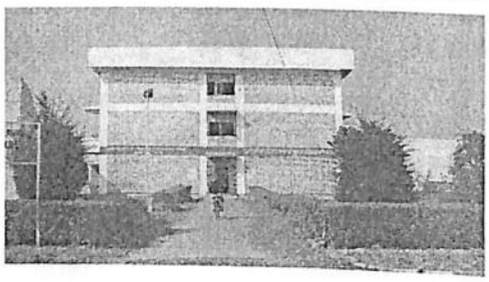
College of Home Science, Pusa

The College of Home Science was established in the year 1982 at Pusa with major objectives to foster the growth, development and well being of individuals, families and communities. The College of Home Science stands for academic excellence, where young women are equipped to meet successfully the challenges of the family and get opportunity. Besides, the college also conducts vocational courses for 6 months duration in different areas of Home Science.

College of Agricultural Engineering, Pusa

This College is located at Pusa and was established on 7th December 1983 with the objectives to impart quality teaching to students for B. Tech and M. Tech degrees, to conduct basic and applied researches in all the aspects of agricultural engineering and to develop suitable technologies for farmers, entrepreneurs, and industrialists.

Faculty of Basic Sciences & Humanities, Pusa



Faculty of Basic Sciences and Humanities was established at Pusa in November 1981 with the objectives to strengthen the teaching and research programme in different disciplines of basic sciences so that it can act as a strong supporting programme for the other faculties; to train graduates and post-graduates in the field of biotechnology with particular reference to agricultural biotechnology and to conduct basic and applied research in the filed of agricultural biotechnology.

College of Fisheries, Dholi

The College of Fisheries was established on 13th January, 1987 at Dholi (Muzaffarpur) with the objectives to produce graduates in fisheries science & technology; to undertake research in the field of fisheries to enhance production of fish and productivity of the water body; to improve quality and acceptability of various value added fishery products and to disseminate relevant scientific advanced technology amongst the farmers. The college is offering four year teaching programme leading to the degree of B.F. Sc. The college has been consistently endeavoring towards popularizing several packages of Fisheries and Aquaculture technologies such as poly-culture of indigenous and exotic carps, induced fish breeding of carps, commercial farming of giant freshwater Prawn, breeding and rearing of aquarium fishes, common fish disease and treatment, preparation of fishery by–products (fish pickles, fish roll, fish papad etc.) through short term training programmes.

1.5 DEGREE PROGRAMMES OF THE UNIVERSITY

- **Under-Graduate programme** in Agriculture, Agricultral Engineering, Biotechnology , Home Science and Fisheries.

S.No.	Degree	Intake capacity
1.	B. Sc. (Agriculture)	100
2.	B. Tech. (Ag. Engg.)	50
3.	B. Tech (Biotechnology)	30
4.	B. Sc (Home Science)	50
5.	B. F. Sc.	50

- **Post -Graduate programme** in 17 fields of specialization with a total intake capacity of 154 students.

S.No.	Discipline	Intake capacity
1.	Agronomy	20
2.	Agricultural Biotechnology	04
3.	Agricultural Economics	12
4.	Agricultural Statistics	04
5.	Botany and Plant Physiology	05
6.	Entomology	12
7.	Extension Education	11
8.	Extension Education (H. Sc.)	04
9.	Family Resource management	03
10.	Food & Nutrition	03
11.	Nematology	02
12.	Plant Breeding & Genetics	12
13.	Plant Pathology	12
14.	Post Harvest Technology	03
15.	Soil Science	12
16.	Soil & Water Engineering	05
17.	MBA	30

- **Ph.D. programme** in 9 departments with a total intake capacity of 34 students.

S.No.	Department	Intake capacity
1.	Agronomy	06
2.	Plant Breeding & Genetics	06
3.	Soil Science	06
4.	Plant Pathology	04
5.	Entomology	04
6.	Extension Education	02
7.	Agricultural Economics	02
8.	Plant Physiology	02
9.	Agril. Biotechnology	02

2. SALIENT ACHIEVEMENTS

2.1 EDUCATION

2.1.1 Under Graduate Programme

2.1.1.1 Number of students admitted

S.No.	Name of College	Degree Programme	No. of Students		
			Male	Female	Total
1.	TCA, Dholi	B.Sc. (Ag.)	60	33	93
2.	CAE, Pusa	B.Tech. (Ag. Engg.)	44	06	50
3.	College of Home Science	B.Sc. (H. Sc.)	0	42	42
4.	FBS & H	B.Tech. Biotechnology	19	9	28
5.	College of Fisheries, Dholi	B.F.Sc.	13	5	18
Total :			**136**	**95**	**231**

2.1.1.2 Number of students on roll

S.No.	Name of College	Degree Programme	I Yr.		II Yr		III Yr.		IV Yr		V Yr.		TOTAL	
			M	F	M	F	M	F	M	F	M	F	M	F
1.	TCA, Dholi	B.Sc. (Ag.)	27	13	30	13	25	16	33	21	01	0	116	63
2.	CAE, Pusa	B.Tech. (Ag.Engg.)	24	03	12	03	26	03	27	03	10	0	99	12
3.	College of Home Sc.	B.Sc. (H.Sc.)	0	21	0	21	0	19	0	17	0	0	0	61
4.	Biotech.	Biotech.	0	01	0	03	02	03	03	0	0	0	05	07
5.	COF, Dholi	B.F.Sc.	05	01	05	03	22	03	23	02	0	0	55	09
Total :			**56**	**39**	**47**	**43**	**75**	**44**	**86**	**43**	**11**	**0**	**275**	**152**

2.1.1.3 Number of students passed out

S.No.	Name of College	Degree Programme	Students passed out		
			Male	Female	Total
1.	BAC,Sabour	B.Sc. (Ag.)	38	15	53
2.	TCA,Dholi	B.Sc. (Ag.)	44	15	59
3.	CAE, Pusa.	B.Tech. (Ag.Engg.)	28	06	34
4.	BVC, Patna.	B.V.Sc. & A.H.	21	05	26
5.	SGIDT, Patna.	B. Tech. (DT)	35	06	41
6.	College of Basic Science, Pusa	B.Tech. (Bio. Tech.)	08	05	13
Total:			**174**	**52**	**226**

2.1.2 Post Graduate Programme

2.1.2.1 Number of students admitted

S.No.	Department	Masters' Degree Programme		Ph.D. Degree Programme	
		Male	Female	Male	Female
1.	Agronomy	08	-	-	-
2.	Soil Science	01	-	-	01
3.	Plant Pathology	04	01	-	01
4.	Plant Breeding	03	02	03	01
5.	Entomology	03	06	01	-
6.	Statistics	02	-	-	-
7.	Extension Education	06	03	-	-
8.	Agril. Economics	04	01	-	-
9.	M.Tech (AE)	05	-	-	-
10.	ABG	07	04	-	02
11.	MBA	09	06	-	-
Total :		**52**	**23**	**04**	**05**

2.1.2.2 Number of students on roll in M. Sc. Programme

S. No.	Discipline	I Yr.		II Yr.		III Yr.		IV Yr.		Total	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1.	Agronomy	5	0	0	0	5	2	1	0	11	2
2.	Soil Science	1	0	0	0	0	1	0	0	1	1
3.	Plant Pathology	2	1	0	0	1	0	0	0	3	1
4.	Plant Breeding	3	2	0	1	0	0	0	0	4	3
5.	Entomology	3	5	0	1	0	0	0	0	3	6
6.	Statistics	1	0	1	0	1	0	0	0	3	0
7.	Extension Education	7	2	3	0	0	0	0	0	10	2
8.	Agril.Economics	4	1	2	0	0	0	0	0	6	1
9.	AB & MB	6	3	6	3	0	0	0	0	12	6
10.	Agril. Engineering	5	0	5	0	0	0	0	0	10	0
11.	M.B.A.	15	0	15	0	22	0	22	0	74	0
Total :		**52**	**14**	**32**	**5**	**29**	**3**	**23**	**0**	**137**	**22**

2.1.2.3 Number of students on roll in Ph.D. Programme

S. No.	Discipline	Ist Yr.		IInd Yr.		IIIrd Yr.		IVth Yr.		Total	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1.	Agronomy	-	-	-	-	2	-	1	-	3	-
2.	Soil Science	-	-	-	1	-	-	-	-	-	1
3.	Plant Pathology	-	-	-	-	-	-	1	-	1	-
4.	Plant Breeding	3	-	-	-	1	1	-	-	4	1
5.	Entomology	1	-	2	-	-	-	2	-	5	-
6.	Extension Edn.							3	1	3	1
7.	AB & MB		2								2
Total :		**4**	**2**	**2**	**1**	**3**	**1**	**7**	**1**	**16**	**5**

2.1.2.4 Number of students passed out

S.No.	Department	Masters' Degree Programme		Ph.D. Degree Programme	
		Male	Female	Male	Female
1.	Agronomy	3	0	0	0
2.	Soil Science	1	0	3	0
3.	Plant Pathology	0	0	1	0
4.	Plant Breeding	1	0	2	0
5.	Entomology	1	1	1	1
6.	Extension Education (H.Sc.)	0	1	0	0
7.	Horticulture	1	2	3	0
8.	Genetics	1	2	1	1
9.	Bot &Pl. Phy.	0	0	1	0
10.	S.W.E.	2	0	0	0
11.	Food & Nutrition	0	1	0	0
12.	M.V.Sc.	7	1	0	0
13.	M.Tech (AE)	1	0	0	0
14.	MBA	10	06	0	0
Total :		**28**	**14**	**12**	**2**

2.1.3 Thesis Accepted

Department	Name of Student	Name of Advisor	Title of Thesis
Ph.D.			
Agronomy	Kamlesh Kumar Pd.	Dr. V. Kumar Univ. Prof.	Effect of different organic sources on growth, yield and quality of potato (*Solanum tuberosum*) varieties
Agronomy	Pankaj Kumar	Dr. V. Kumar Univ. Prof.	Effect of integrated nutrient management on growth, yield and quality of aromatic rice (*Oryza sativa* L.)
Entomology	Manoj Kumar	Dr. R. Singh Univ. Prof.	Foraging behaviour and effect of honey-bee (*Apis mellifera*-L) pollinatioin on yield and quality of seeds of coriander and fennel
Entomology	Preeti Kumari	Dr. M.L. Agarwal Univ. Prof.	Studies on biology and integrated management of Giant African Snail *Achatina fulia* Bowdich
Extension Education	Adline Shanta Tigga	Dr.K.K.Sinha Univ. Prof.	Livelihood security through NREGA - an impact study in Pusa Block of Samastipur
Genetics	Kundan Kishore Rajak	Dr. Harsh Kumar Univ. Prof.	Micropropagation and improvement of litchi (*Litchi chinensis* sonn.)
Genetics	Archana Rani	Dr. M. Kumar Univ. Prof.	*In vitro* and biochemical studies in *Witharnia somnitera* (Ashwagandha) and *Rauvoleia serpentine* (Serpagandha)

Hort (Oleri)	Vinit Kumar Choudhary	Dr. Indra Deo Prasad Assoc. Prof.	Effect of biofertilizer and chemical fertilizers on growth yield and quality of onion (*Allium cepa* L)
Hort. (Pomo)	Ashish Ranjan	Dr. Rajesh Prasad Assoc. Prof.	Effect of foliar sprays of growth substances and mineral nutrients on flowering, fruiting and quality of litchi (*Litchi chinensis* sonn)
Hort. (Pomo)	Suraj Prakash	Dr. U.S. Jaiswal Univ. Prof.	Studies on bearing behaviour of some varieties of banana (Musa & spp.)
Plant Breeding	Sardar Sunil Singh	Dr. S.B. Mishra Univ. Prof.	GxE interaction and genetic divergence study in chickpea (*Cicer aritinum* L.)
Plant Breeding	Praveen Singh	Dr. Anil Pandey Univ. Prof.	GxE interaction and genetic divergence study in aromatic rice
Plant Pathology	Awadh Kumar Patel	Dr. Dayaram Assoc. Prof.	Innovative management of shisham (*Dalbergia sisso* Roixle) wilt incited by *Fusarium solani* f.sp. dalbergiae Gordon
Plant Physiology	Prabhat Kumar	Dr. A.K. Singh Univ. Prof.	Physiology of maize (*Zea mays*-L) under excess moisture stress during early stage of growth
Soil Science	Anil Kumar	Dr. K. Yadav Univ. Prof.	Dynamics of plant growth promoting rhizobacteria in maize based intercropping system
Soil Science	Prem Chand Kumar	Dr. B.C. Chaudhary Director, Research	Effect of levels of potassium and irrigation on K- uptake and water use efficiency of potato
Soil Science	Abhinaya Priyadarshi	Dr. R.C. Yadav Univ. Prof.	Study on identification of suitable common extractants for available nutrients
M.V. Sc.			
Animal Nutrition	Anjani Kumar	Dr. Chandramoni Assoc. Prof.	Studies on effect of feeding different level of jute seed cake on the performance of broilder chicken
L.P.M.	Ravi Kumar	Dr. S.P. Sahu Asstt. Prof.	Effect of restricted feeding on the performance of broiler chickens under different management systems
Medicine	Jiwan Kumar	Dr. S.P. Verma Univ. Prof.	Studies on clinic-bio-chemical alterations and therapeutic measures in gangrenous syndrome of cattle and buffaloes

M. Sc. (Home Science)

Extension Education Home Science	Sudha Kumari	Dr. Meera Singh Dean, Home Science	Empowerment of rural women through KVKs study in Bihar
Food Science & Nutrition	Afshan Jaamal	Dr. Mukul Sinha Assoc. Prof.	Mid-day meal programme- an update and impact on nutritional status of selected children

M.Tech. (Agril. Engineering)

Processing & Food Engineering	Arvind Kumar	Dr. (Mrs.) P.D. Sharma Assoc. Prof.	Development of process technology of yam slices and chips
Soil and Water Engineering	Alok Kumar Singh	Dr. S.K. Jain Assoc.Prof.	Effect of drip irrigation regimes on growth and yield of chewing tobacco
Soil and Water Engineering	Bablu Kumar	Dr. R. Suresh Univ. Prof.	Development of production function of banana crop under drip irrigation

M.Sc. (Ag.)/M.Sc.

Agronomy	Pawandeo Kumar	Dr. S.K. Pathak Assoc. Prof.	Effect of levels of nitrogen on growth, yield and quality of aromatic rice genotypes
Agronomy	Md. Riton Choudhary	Dr. Vinod Kumar Univ. Prof.	Water and nutrient management in rice grown under system of rice intensification
Agronomy	Ashish Kr. Tripathi	Dr. Harendra Singh Assoc. Prof.	Effect of weed management practices on yield and quality of sugarcane (*Saccharum officinarum* L)
Agronomy	Ritesh Ranjan	Dr. D.K. Dwivedi Assoc. Prof.	Effect of plant density and weed management on weed dynamics and yield of rice (*Oryza sativa* L.)
Agronomy	Manish Ranjan	Dr. I.B. Pandey Assoc. Prof.	Effect of nutrient levels and weed management on weed dynamics and yield of hybrid rice.
Entomology	Manisha Kumari	Dr. M.L. Agrawal Univ. Prof.	Life history, trades and male annihilation of bactro (Bactrocera) cucurbitae (Coquiett) (Dibitera Telritida)on bittergourd, (*Momordica-charantia* L)
Entomology	Supriya Sadanand Gogate	Dr. Neeraj Kumar Asstt. Prof.	Foraging behaviour of honey bees on strawberry
Entomology	Abishek Kumar	Dr. R.K. Akhauri Assoc. Prof.	Management of white files *Bemisia tabaci* G. (Alegrodidai-Homoptera) in sunflower through varietal resistance, chemical insecticides and bio-products
Genetics	Sugandh Suman	Dr. Harsh Kumar Univ. Prof.	Effect of ploidy on tissue culture responses of banana

Genetics	Suchi Smita	Dr. V.K. Shahi Dean, FBS & H	Phenotypic and molecular characterization of rhizobia isolates
Genetics	Sonal Kashyap	Dr. M. Kumar Univ. Prof.	*In vitro* studies in jatropha for their micropropagation
Hort. (Pomo)	Jagannath mandal	Dr. R.R. Singh Assoc. Prof.	Effect of different age and height of root stock on success of short wood grafting in different cultivars of mango (*Mangifera indica*-L)
Hort. (Pomo)	Bibha Kumari	Dr. Rajesh Kumar Univ. Prof.	Studies on effect of etiolation and plant growth substances on success, survival and growth behaviours of air-layers of guava (*Psidium guajava*-L)
Plant Breeding	Chandan Kishore	Dr. S.S. Pandey Univ. Prof.	Comparative response of sugarcane (*Saccharum offienarum* L) varieties under in vitro condition
Plant Breeding	Kanchan Kumari	Dr. Nilanjaya Asstt. Prof.	Genetic evaluation of rice genoypes udner aerobic condition
Soil Science	Ashwani Kumar Chandrawal	Dr. M.P. Singh Assoc. Prof.	Evaluation of toxicity level of cadmium and nickel in soils and vegetables

2.1.4 Fellowship Awarded to Students

Name of student	Degree Programme	Name of fellowship	Awarding Organization	Amount of Fellowship in Rs.(P.M.)
B.Sc. (Ag)/B. Sc. (H. Sc.)/B. Tech. (Agril. Engg.)				
Dharmender Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Sujit Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Inderjeet Kr. Mandal	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Mirdu Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Kumar Singh	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Rashmi Singh	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Ajit Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Amit Kumar Singh	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Saurav Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Rakhi Kumari	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Firoz Ansari	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Krishna Kumar Singh	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Shivajee Hembram	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Santosh Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Aswani Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Nikhil Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Manju Kumari	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Akhilesh Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Jitender Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-

Sushil Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Manish Bharti	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Jitendra Yadav	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Vikash Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Jitendra Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Rajeev Ranjan	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Sanjeev Kr. Poddar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Sneh Prabha	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Kumari Renu	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Binay Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Devendra Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Krishna Kumar Singh	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Roshan Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Sanjeev Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Sanjit Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Bharti Gupta	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Rupa Kumari	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Rashmi Mehta	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Jaya Jagriti	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Md. Neyaz Ahmed	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Lalit Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Chandra Deo	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Kunwar Singh	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Uma Shankar Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Sandeep Kr. Daman	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Om Prakash Bharti	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Jayant Samdesh	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Md. Asharaf	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Mukesh Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Nisha Kumari	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Dipti Priya	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Pooja Kumari	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Murari Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Rakhi Kumari	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Tara Kumari	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Roshan Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Ajay Kumar Sahu	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Amit Ranjan	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Babita Kumari	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Bishwanath Kr.Bharti	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Shivkant Nirmal	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Saunya Shiwani	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Pawan Kumar	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Navin Kumar Sinha	B.Sc. (Ag)	Merit -cum -Means	RAU, Pusa	1300/-
Ramesh Kumar Sahni	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1300/-
Khushbu Kumari	B.Tech.	Merit Scholarship	RAU, Pusa	1500/- per Semester
				1500/- per

	(Agril.Engg.)			Semester
Rupesh Kumar	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Chandan Kumari	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Man Mohan Deo	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Om Prakash	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Shalini Krishnam	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Utpal Kr.Mishra	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Zafar Iqbal	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Raushan Kumar	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Kumar Pratyush	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Ambesh Kishore	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Rahul Kumar	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Deepanshu Sahay	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Anamika Thakur	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Manish Kumar Gupta	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Sunil Kumar	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Sweta Kumari	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Kumari Chanchal Priya	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Sushil Kumar	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Alok	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Ajay Kumar Jha	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Pankaj Kumar	B.Tech. (Agril.Engg.)	Merit Scholarship	RAU, Pusa	1500/- per Semester
Khusboo	B.Sc. (Ag)	National Talent	ICAR, New Delhi	1000/-
Sunil Meena	B.Sc. (Ag)	National Talent	ICAR, New Delhi	1000/-
Tabsoom Praween	B.Sc. (Ag)	National Talent	ICAR, New Delhi	1000/-
Jyotsna Kumari	B.Sc. (Ag)	National Talent	ICAR, New Delhi	1000/-
Sushma Kumari	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Shweta Singh	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-

Manisha Singh	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Jyoti Kumari	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Shilpa Shree	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Nitu Kumari	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Shweta Priya	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Swarn Lata Kumari	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Manisha Kumari	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Sawmya Shivani	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Rahul Kumar Anand	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Pankaj Kumar	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Krishna Chandra	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Mukesh Kumar Singh	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Surendra Ram	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Pappu Kumar	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Mirdu Kumar	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Dharmendra Kumar	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Shahank Shekhar	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Sudhanshu Kumar	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Ashish Kumar	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Ranjeet Kumar Jha	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Mithlesh Kumar	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Anwar Alam	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Sushil Kumar	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Ramsham Kuamr	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Mayank Shekhar	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Akhilesh Kr. Thakur	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Jitendra Yadav	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-

Md. Negar Ahmad	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Kheket Bharti Choudhary	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Sanjit Kumar	B.Sc. (Ag)	RAWE Programme	ICAR, New Delhi	1000/-
Sweta Priya	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Dinesh Kumar	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Rahul Kumar	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Rabinder Kumar	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Rahul Kr. Anand	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Rajesh Kumar	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Rima Kumari	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Amit Kumar	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Smender Ram	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Uma Kant Ram	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Kunda Lal Sahgal	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Ashok Kumar	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Sajit Kumar Ram	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Manish Singh	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Shashank Shekhar	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Namrta Kumari	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-

Rahul	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Sima Kumari	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Dharmraj Nayan	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Shamboo Kumar	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Jaikishan Kumar	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Rakesh Kumar	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Shokin Kumar Rajak	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Vinay Kumar	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Shilpa Shree	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Shiwajit Hembran	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Ravindra Kumar	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Mamta	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Anupam Kumari	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Anita Kumari	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Dharmendra Rajak	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Akhilesh Kr. Nirala	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Om Prakash Kumar Aditya	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Sunita Safi	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-

Sangita	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Chandra Kant Sagar	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	1300/-
Surendra Ram	B.Sc. (Ag)	Stipend	District Welfare Office Muzffarpur	900/-
Neetu Nand	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Deepak Kumar	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Ajay Kr. Chaudhary	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Sandeep Ranjan	B.Sc. (Ag)	Stipend	District Welfare Office, Muzffarpur	900/-
Sujata Kumari	B.Sc. (Home Science)	Welfare scholarship & tuition	District Welfare Office, Samastipur	14580/-

M. Sc. (Ag.)/M. Sc./M. Tech.

Swati Rani	M.Sc., AB&MB	DBT Fellowship	DBT, New Delhi	4,500/-
Poonam Kumari	M.Sc., AB&MB	DBT Fellowship	DBT, New Delhi	4,500/-
Sandeesha Kodru	M.Sc., AB&MB	DBT Fellowship	DBT, New Delhi	4,500/-
Sandeep Kr. Suman	M.Sc., AB&MB	DBT Fellowship	DBT, New Delhi	4,500/-
Ram Chandra Chaudhary	M.Sc., AB&MB	DBT Fellowship	DBT, New Delhi	4,500/-
Satish Kumar	M.Sc., AB&MB	DBT Fellowship	DBT, New Delhi	4,500/-
Nitish Jangde	M.Sc., AB&MB	DBT Fellowship	DBT, New Delhi	4,500/-
Smitha S. Nair	M.Sc., AB&MB	DBT Fellowship	DBT, New Delhi	1800/-
Vandana	M.Sc., AB&MB	DBT Fellowship	DBT, New Delhi	1800/-
Demudunaidu Panchada	M.Sc., AB&MB	DBT Fellowship	DBT, New Delhi	1800/-
Nand Kishor Sharma	M.Sc., AB&MB	DBT Fellowship	DBT, New Delhi	1800/-
Pankaj Kumar	M.Sc., AB&MB	RAU Fellowship	DBT, New Delhi	4,500/-
Anuja Supriya	M.Sc., AB&MB	RAU Fellowship	DBT, New Delhi	4,500/-
Deepti	M.Sc., AB&MB	RAU Fellowship	DBT, New Delhi	4,500/-

Subhra Sinha	M.Sc. (Ag.)	University Fellowship	RAU, Pusa	1500/-
Anupam Kumari	M.Sc. (Ag)	University Fellowship	RAU, Pusa	1500/-
Kanti Kumari	M.Sc. (Ag.)	University Fellowship	RAU, Pusa	5129/-
Murari Pd. Singh	M.Sc. Ag.	University Fellowship	RAU, Pusa	1500/-
Aashish kumar	M.Sc. Ag.	University Fellowship	RAU, Pusa	1500/-
Arjun	M.Sc. Ag.	University Fellowship	RAU, Pusa	1500/-
Amar Kumar	M.Tech (PFE)	University Fellowship	RAU, Pusa	15000/-
Ajay Kumar	M.Tech (PFE)	University Fellowship	RAU, Pusa	15000/-
Rajeev Kumar	M.Sc.	Student Fellowship	RAU, Pusa	2000/-
Pankaj Kumar	M.Sc.	Student Fellowship	RAU, Pusa	2000/-
Ph.D.				
Sugandh Suman	Ph.D.	INSPIRE Fellowship	DST, New Delhi	16,000/-
Adeline Shanta Tigga	Ph.D.	Rajiv Gandhi National Fellowship	UGC, New Delhi	12000/+contingency (Annually)
Anita Kumari	Ph.D.	Rajiv Gandhi National Fellowship	UGC, New Delhi	16,000/-
Sunil Kumar	Ph. D.	Univ. Fellowship	RAU, Pusa	1700/-
Kamini Kumari	Ph.D.	Univ. Fellowship	RAU, Pusa	14360/-

2.2 RESEARCH

2.2.1 Crop Research

Rice :

- OYT-Shallow : Entries RAU 639- 20-55, OR 2312-44, CN 1265 -2-40, JM 50, NDR 9481, NDR 9520, NDR 93600, and IR 70153- 11- TTB 1-8 were best entries having yield potential of 87.00 q/ha each.

- PVS Sub-mergence: Entry TCA 88-1 recorded highest yield (26.20 q/ha) along with P/S Vaidehi followed by Jal Mangna (25.00 q/ha).

Wheat :

- The genotype BRW 3719 recorded the highest yield (49.11 q/ha) and was significantly superior to the best check K 0307 (46.29 q/ha).

- Highest grain yield was recorded in genotype RW 3705 (37.55 q/ha) followed by BRW 3734 (36.52 q/ha).

- The genotype RW 3688 gave the highest yield (26.57 q/ha) followed by BRW 3723 (25.76 q/ha).

- 16th November sown crop recorded highest mean grain yield of 47.35 q/ha.

- Three entries viz., RW 3705, BRW 3719 and BRW 3723 of Sabour centre have entered in Co-ordinated trials to be conducted during Rabi 2011-12.

Maize :

- MHQPM-09-5, a single cross experimental hybrid developed from Dholi Centre, was promoted to AET-1st year (QPM-2) stage of testing in Co-ordinated trials.

- Dholi Centre contributed 9 single cross hybrids for testing in IET. Early maturity (2), Medium maturity (2), QPM (4), Speciality corn Baby corn (1).

Pulses

Chickpea :

- **IVT- Desi :** BG 3013 (41.89 q/ha) was found significantly superior to the best check KWR 108 (37.79 q/ha).

- **IVT Kabuli :** GNG 1969 (16.73 q/ha), HK 05-169 (19.56 q/ha), HK 07-227 (17.73 q/ha), IPCK 2006-78 (28.42 q/ha), IPCK 2006-56 (19.67 q /ha) and HK 07-234 (25.63 q/ha) were superior to the best check BG 1053 (13.41 q/ha).

- **IVT ELSK :** Two entries namely HK 06 171 (21.17 q/ha) and HK 06-163 (14.43 q/ha) exhibited significantly superior yield than the best check KAK 2 (11.76 q/ha).

- **Rice fallow trial :** JG 16 (15.70 q/ha), Pusa 372 (14.09 q/ha) and Vaibhav (13.38 q/ha) were found most promising in comparison to other test entries.
- **IIPR Nursery:** Maximum yield was obtained by IPC 2009-172 (17.92 q/ha).
- **Conservation agriculture practices (Tillage, Nutrient and Weed Management for enhancing chickpea productivity) :** Pre-emergence application of pendimethalin @ 1.0 kg/ha and two hand weeding at 25 and 50 DAS proved equally effective for reducing the weed density and producing the grain yield.
- **IVT and AVT trials :** GNG 1958 & GNG 26054 exhibited resistant reaction against wilt (*Fusarium oxysporum* f. sp. *ciceri*).
- **Identification of races of *Fusarium oxysporum* f. sp. *Ciceri* :** JG 63 was found resistant against wilt.
- IPC 2006-111 recorded moderately resistant reaction against wilt in sick plot.
- In ICRISAT chickpea wilt nursery trial; ICC 5003, ICC 11322, & ICCV 07105 showed moderately resistance reaction against wilt.

Pigeonpea :

- Five CGMS lines viz. HY4A, H28A, JBP 36A, ICP 2043 and ICP 2092A were found suitable for Bihar condition.
- Out of forty experimental hybrids developed, only ICP 2092A x MAL-13 (10.8 q/ha) had given the higher yield than Bahar (10.1 q/ha).
- Out of 47 water-logging tolerant test entries, DAW 07-22, DAW 07-54 and DAW 07-09 were found most promising.
- Under peripheral cropping programme, MAL 13 had shown 612% increase over local (4.10 q/ha), followed by Bahar (19.40 q/ha).
- Pigeonpea + urdbean intercropping system recorded significantly higher pigeonpea equivalent yield (16.32 q/ha) than pigeonpea + maize intercropping (13.79 q/ha).
- Hand weeding twice (12.69 q/ha) and pendimethalin + one H.W. (11.95 q/ha) had recorded significantly higher yield than other weed control treatments.
- Planting of pigeonpea on raised bed recorded 22.6% more grain yield than flat bed method of planting.
- Validated IPM module of pigeonpea sown on ridges after seed dressing with trichoderma @ 4g + vitavax @ 2 g/kg seed, installation of bird perches @ 50/ha, 1st round of spraying with spinosad (73 g a.i./ha) followed by 2nd spray with indoxacarb (60 g a.i./ha) and 3rd one with dimethoate (350 g a.i./ha) at reproductive crop stage.
- **Advance stage screening against pod borer complex in long duration pigeonpea :** MAL-31 and MAL-32 showed relatively higher level of resistance against pod fly as well as Heliothis. Among the test entries, MAL-31 recording highest grain yield closely followed by Bahar (861.10 kg/ha).

- **Evaluation of newer insecticides against pod borers of pigeonpea :** In 1st field evaluation of newer insecticides against pod borer complex of pigeonpea CV. Bahar, indoxacarb at 60 g a.i./ha proved most effective against pod fly (18.1%) followed by flubendiamide @ 5.0 g a.i./ha. However against Heliothis, flubendiamide (5.0 g a.i./ha) proved most effective and recorded lowest pod damage (6.7%) followed by spinosad (73.0 g a.i./ha).

- **Evaluation of different microbials against *H. armigera* on pigeonpea :** *Beauveria bassiana* DOR SC formulation (300 mg/lt) proved better than others by recording relatively low pod damage (22.4%).

MULLaRP :

- **IVT :** PU 08-2 (10.25 q/ha) and KUG 540 (9.84 q/ha) showed significant superiority over the check Uttara (8.20 q/ha).

- **AVT 2+1 (Lentil) :** IPL 318 (24.02 q /ha), PL-097 (22.97 q /ha) and IPL 319 (21.57 q/ha) exhibited significant superiority over the check Arun (10.79 q /ha).

- **IVT tall (Field pea) :** HFP 554 (14.22 q/ha) and RFP 2009-1 (12.34 q/ha) weresignificantly superior to the check Rachna (10.76 q/ha).

- **Station trial (Lentil) :** DL 10-7 (13.10 q/ha) and DL 10-10 (12.08 q/ha) were found at par to the check Arun (12.46 q/ha).

- Hand weeding at 25 DAS (24.59 q/ha) and imazethapyr @ 50 g a.i./ha applied at 30 DAS (23.92 q/ha) being at par proved significantly superior to weedy check (20.20 q/ha) and pendimethalin @ 1 kg a.i./ha (21.76 q/ha).

Field evaluation of germplasms against major insect pests of mungbean and urdbean :

- IPM-2K-14-1, MH-565 and KM-2268 recorded low infestation of thrips (22.1-22.4 thrips/50 flowers) as against the maximum (42.8 thrips/50 flowers) in the entry HUM-16.

- SG-58-23, SML-668, MH-565 and IPM 2K-14-5 recorded less than 6.0 percent pod borer damage. MH-565 proved less susceptible to both thrips as well as pod borer.

- Pre sowing seed soaking with monocrotophos (10 ml/kg seed) followed by one spraying of fenvalerate (0.04%) or acephate (0.04%) or metasystox (0.04%) at flower initiation stage recorded significantly low infestation of thrips (10.2-13.06 thrips/50 flowers).

- AKU-7-4 proved promising and recorded significantly less damage due to Bihar hairy caterpillar (8.0%) as well as pod borer. IPM module consisting of seed treatment with imidachloprid (3 ml/kg seed) + carbosulfan (3 ml/kg seed) + trichoderma (4 g/kg seed) followed by seed inoculation with Rhizobium culture, intercropping with sorghum (6:2), mechanical collection and destruction of gregarious stage of Bihar hairy caterpillar and spraying of spinosad (3 g a.i./ha) at pod initiation stage proved most effective.

- Screening of field pea germplasms to identify resistant donars against stem fly & borer : HFP-716 (1.1%), Pant-P 137, VL 54, KPMR-913, HFP-530 and KPMR- (2.3 to 2.7%) were found as promising lines against stem fly. Some lines of field namely IPFD-10-12, HFP-8909, IPFD-09-2 and HFP-4 recorded significantly lo pod borer infestation. HFP-547 recorded moderately lower incidence of both stem (3.8%) and pod borer (5.0%).

Sugarcane :

- Among early, CoP 5436 recorded highest yield in both plant and ratoon, (74.20 t/ 61.82 t/ha) which was superior but at par with the best standard BO 130.

- Among mid late, CoP 5437 recorded highest yield both in plant and ratoon (78.40 t/ 71.03 t/ha).

- Application of fresh sulphitation pressmud cake @ 20 t/ha or fresh sulphitati pressmud cake @ 10 t/ha with 25 kg $ZnSO_4$/ha at ratooning and 60 kg K_2O/ha alone with 25 kg $ZnSO_4$/ha 30 days before ratooning were found superior for improvi winter ratoon cane yield.

- Application of BMSW @ 150 m^3/ha and improvement in soil health significantl increased cane yield.

- Application of 25% N through bio-compost along with 75% N through inorgani fertilizer recorded highest cane yield.

- In early group, COX 03178 (90.85 t/ha) recorded significantly higher yield tha standard BO 130 (76.8 t/ha).

- Three set size, three bud setts recorded significantly higher germination %, no. of tillers and NMC than two bud and one bud setts.

- Sugarcane + moong bean M-12 (1:2 RR) gave maximum gross return (Rs. 1,54,648.00/ha) than sole sugarcane (Rs. 1,46,698.00/ha).

- 1^{st} generation of top borer started in last week of March, 2^{nd} generation in 1^{st} week of May, 3^{rd} in generation last week of June, 4^{th} generation in 1^{st} week of August and 5^{th} generation was observed in mid September during crop season 2010-11 at New Area Farm.

- Appearance of *Stenobracon deesae* and *Cotesia flavipes* were recorded in the month of May, 2010. The maximum parasitization of *S. deesae* and *C. flavipes* (13.0% and 10.0%) in the month of Sept., 2010, whereas *R. scirpophagae* was found 6.5% in the month of Oct., 2010.

Jute :

- In *C. capsularis,* genotype CEX-15 (309.0 cm) was recorded to be tallest accession over check JRC-212 (303.0 cm).

- **NP(JB) 4.93 :** AVT–II with *C. olitorius* : Test entry JROM-1 recorded highest yield of 28.13 q/ha which was followed by check. JRO-524 (26.59 q/ha).

- **NP (JB) 4.94 :** IET with *C. capsularis* : Test entry NDC-2014 (32.21 q/ha) gave highest fibre yield followed by NCJ-28-1 (31.83 q/ha) and both entries were at par with superior check JRC-321 (31.25 q/ha)

- **NP (JB) 4.95 :** AVT–I with *C. capsularis* : The highest fibre yield was given by KJC–11 (22.32 q/ha) followed by JRCM-9-1 (20.77 q/ha). JRC-321 (superior check) gave (20.71 q/ha) fibre yield.

- **NP (JB) 4.96 :** AVT–II with *C. capsularis* : Test entry KJC-10 (21.19 q/ha) was highest yielder followed by KJC-9 (20.89 q/ha) and being at par with superior check JRC-212 (19.14 q/ha).

- **NP (SB) 12.48 :** IET with *H. sabdariff* : JRM-G-2 (32.37 q/ha) was highest yielder follwed by CRIJAFR-2 (32.22 q/ha) and were significantly superior over best check, AMV-5 (27.77 q/ha).

- **NP (CB) 1.21 :** IET with kenaf (*H.cannabinus)* : Test entry JBM-G-3 (30.48 q/ha) was superior to both check, AMC-108 (30.09 q/ha) and HC-583 (28.16 q/ha).

- **NP (CB) 1.22 :** AVT-I with kenaf *(H.cannabinus):* Test entry JRKM-9-2 (22.26 q/ha) performed the best among all entries and out yielded superior check, HC 583 (21.25 q/ha). Entries were found to be highly significant.

- **NP (CB) 1.23 :** AVT–II with kenaf (*H. cannabinus*) **:** Test entries JBM-85 (19.82 q/ha), JBM–84 (17.98 q/ha) and JBM-81 (15.50 q/ha) significantly out yielded both the check, HC 583 (14.72 q/ha) and AMC 108 (12.29 q/ha)

Spices :

- **Management of bacterial wilt of ginger (bio-fumigation using cabage) :** Ginger rhizome treated with endophytic bacterial antagonist (Supplied by IISR, Calicut, Kerala) @ 30 g/kg ginger rhizome resulted in 25.88% reduction in bacterial wilt incidence and 72.67% increase in yield.

- **Management of foliar disease in turmeric :** Foliar spray with carbendazim + mancozeb (0.1%) at 45 & 90 DAP reduced leaf spot incidence upto 87.39%.

Oilseeds :

- Alternaria tolerant/resistant station materials RAURD 09-32, RAURD 09-212 (in UDN) and RAURD 09-25 and RAURD 09-78 (NSN-AB) entered in National trials under artificial disease epiphytotics.

- At National (multilocation) level in IVT, toria + Early mustard promising entries were PCJ-03-401 and NDRE 08-04 (Early mustard AVT toria + EM; PRE 2007-06 and NDRE 7 in dual purpose linseed (IVT) LCK 1009 (15 q seed + 13 q fibre yield).

- Promising hybrid was IAHT-07 (21.31 q/ha).

- Altogether 645 kg breeder and 24.5 kg nucleus seed of toria - RAUTS-17, YS-66-197-3, mustard Varuna, Pusa Bold, Rajendra Sufalam and Rajendra Anukool and in linseed - Garima, Shekhar and Meera has been produced.

- Parental lines of CMS 17A, CMS 17B and RHA 95-C-1 and hybrid seed of KBSH-44 produced.

- In RM Agronomy, the mean mustard equivalent yield was significantly influenced by different row combination of maize + mustard intercropping and maize + mustard (1:2 RR) gave best results.

- Rajendra Sufalam gave best competitive behavior against weed than other varieties.

- Intercropping of mungbean and sesame with sunflower in both normal and paired row arrangement system produced significantly high sunflower equivalent yield (SEY).

- Seed treatment by metalexyl @ 6 g/kg seed + foliar spray of mancozeb @ 2 g/lt at 50 DAS was found best in minimizing AB severity and increasing the yield level.

- Zinc sulphate soil application @ 15 kg/ha + Borax 10 kg/ha + Sulphur 20 kg/ha was found best in both minimizing AB severity and increasing yield level.

- IAHT-6 and IAHT-9 were found as promising HR entries against ALS in spring 2011.

- Seed treatment with mixture of iprodione + carbendazim @ 0.2% and spraying of the same fungicide was found best in minimizing Alternaria leaf spot (ALS) with significantly highest seed yield in sunflower.

- Carbendazim + mancozeb @ 3 g/kg seed alogwith two sprays of propiconazole @ 0.1% at 30 and DAS was found best.

- Treatment with *Verticillium lecenii* folowed by azadizachtin 1500 ppm @ 4 ml/lt gave highest (68.1%) reduction in aphid population.

Fruits

Mango :

- Collection No. 20/80 produced maximum fruit yield of 48.00 kg/plant. 1/09 (IB), 2/09 (Ganga Sagar) and 3/09 are new promising collections.

- The post harvest life of mango was enhanced with application of Borax (1%) showing the best performance in terms of quality and extending self life up to 8 days.

- On pollination & fruit set in mango, the treatment calcium nitrate (0.06%) resulted in minimum fruit drop and highest fruit yield/plant (123.06 kg / plant).

- While evaluating the substrate dynamics for IPNM in mango, the treatment 1000: 500: 500 gm NPK + 50 kg FYM + 250 gm *Azospirillium* gave maximum yield (128.23 kg/plant).

- Hybrid No. 150 (Langra x Neelam) produced maximum average fruit weight (362.50 g).

- Cost effective management strategy identified for control of fruit flies in mango and guava was hanging of wooden block, soaked in solution of alcohal + methyl eugenol + DDVP in the ratio of 6:4:1, in plastic bottles.

- Spinosad followed by thiamethoxam and Neemagel was found very effective in controlling mango hopper with highest fruit yield (216.6 kg/plant).

Guava :

- While evaluating the substrate dynamics for IPNM in guava the treatment 250:100:250 gm NPK + 5 kg FYM enriched with Trichoderma produced maximum fruit yield (50.40 kg/plant).

Papaya :

- In papaya, irrigation applied to meet 80% ER from transplanting to flower emergence; 60% ER from flowering to first harvest and 80% ER from first harvest to end of first cropping period produced the best yield.

- Application of neem oil 1% + acephate 1.5 g/lt with least disease incidence (16% and 55%, respectively) at 60 and 150 days after planting (DAP) was the most effective treatment followed by application of dimethoate.

Tuber Crops (other than Potato) :

- **Uniform regional trial:** Among seven entries, S-1-60 recorded highest marketable tuber yield (28.24 t/ha) and harvest index (69.67%).

- **Multilocation trial on orange fleshed sweet potato:** Among five entries, the entry 440038 performed better on the basis of mean tuber yield (16.79 t/ha) over four locations followed by SV-98 (14.39 t/ha).

- **Uniform regional trial on *Colocasia* (Taro) :** Among eight entries, AAUCol-38 gave highest cornel yield (18.24 t/ha).

- **Uniform regional trial on lesser yam :** Amongst five entries under test only one i.e. DE-17 recorded significantly highest yield (14.18 t/ha) over National check i.e. Sree Kala (10.07 t/ha) but at par with local check i.e. Sree Latha (12.44 t/ha).

- **Intercropping of spice crops in Elephant foot yam :** Among different intercrops tried, EFY + ginger (1:1) was found as most suitable combination.

- **Screening of anthocyanin sweet potato entries against sweet potato weevil :** X-24 recorded lowest tuber infestation (7.0%) and highest marketable tuber yield (15.6 t/ha).

- **Management of sweet potato weevil through intercrops :** Sweet potato + coriander (1:1) recorded lowest tuber infestation (8.7%) and gave highest marketable tuber yield (15.8 t/ha).

- **Screening of orange fleshed sweet potato entries under MLT :** 440127 recorded significantly lowest mean per cent tuber infestation (0.82%).

- **Evaluation of bio-pesticides against pests of national importance (aphid) :** Yam bean seed extract (YBSE) at 5 and 2 per cent proved most effective in minimizing aphid population.

- **Management of yam bean pod borer :** Yam bean seed extract (5%) and tobacco decoction (3%) proved most efficacious in minimizing borer population (3.1 & 3.2/shoot, respectively).

- **Screening of yam bean genotypes against yam bean pod borer:** DPH-85 and DPH-83 recorded lowest level of flower infestation (9.33 & 10.67%, respectively).

Potato :

- In on farm trial GENET-4 , Hybrid J/96-171 with 19.10 t/ha total & 16.11 t/ha marketable tuber yield in 75 days crop was superior and exhibited high tolerance against diseases also. Red hybrid 2001-P-55 with 26.29 t/ha total and 25.18 t/ha marketable tuber yield in 75 days crop and 30.00 t/ha total and 26.48 t/ha marketable tuber yield in 90 days crop, respectively was significantly superior in GENET-10.

- Tubers of the variety K. Jyoti treated with CIPC- 4 ml/quintal proved very positive to check rotting, shrinking of the tuber and weight loss of the tubers up to 60 days after treatment.

2.2.2 Allied Field Research

Response of FCI - Aravali Gypsum in Reclamation of Calcareous Sodic Soils in Muzaffarpur District of Bihar :

- After first crop rotation (rice-wheat), besides improvement in crop production, the pH, EC and ESP of soil was found to decrease, while there was slight increase in organic carbon content. This was more pronounced in the treatments receiving the pressmud and/ dhaincha along with gypsum.

GPS – GIS Based Model Soil Fertility Maps for Selected Districts for Precise Fertilizer Recommendation to the Farmers of India :

- In Samastipur, the range and mean pH, EC, organic Carbon (%), avail N (kg/ha), avail P (kg/ha) avail K (kg/ha), Fe (ppm), Cu (ppm), Zn (ppm) and Mn (ppm) were 5.29 to 9.61 (8.05), 0.01 to 1.86 (0.39), 0.02 to 1.62 (0.62), 67 to 661 (245.11), 1.32 to 86.86 (25.99), 38 to 802 (163), 0.1 to 104.6 (12.061), 0.334 to 4.842 (1.895), 0.002 to 7.076 (1.152) and 1.334 to 31.36 (6.710).

- The fertility index of Samastipur district with regards to avail N, P and K were 1.45, 2.39 and 1.7 which indicate that fertility with regards to N was low; P was medium from higher side and for K medium from lower side. 27.84% samples were found deficient in Fe, 0.38% in Cu, 38.83% in Zn and 6.06% in Mn.

AICRP on Agro-meteorological Research & Value Added Services :

- Phenophase wise thermal requirements and heat use efficiency of the crops have been worked out.

- The effect of temperature during milking to dough stage on yield was more pronounced than that during 50 percent flowering to milking stage. A temperature of about 24.5 to 24.8°C during milking to dough stage was found congenial for highest yield. An increase of 4.3°C temperature from 25th November sown crop to 25th December sown crop during 50 percent flowering to dough stage of the crop decreased the thermal time period by 8 days.

- 25th November sown crop required highest thermal time and accumulated highest thermal units upto maturity followed by 5th December sown crop. The heat use efficiency was highest for 5th Dec sown crop.

- Weather based technology for cultivation of *rabi* maize has been developed and it is in the process of publication.

- Characterized the agro-climate of East Champaran district (Zone I) & Gaya district (Zone IIIB) with reference to annual, seasonal, monthly and weekly rainfall characteristics and probabilities. Dry & wet spell sequences, initial conditional and probabilities of rainfall have been worked out.

AICRP on Soil Test Crop Response Correlation :

- Complex experiment to develop targeted yield equation : In general, STCR calibrated fertilizer doses, net profit and benefit/cost ratio due to nil test based fertilizer dose were greater than that of GRD & FP in case of rice, wheat, winter maize, sesame, mustard, linseed, pigeon pea, lentil, cauliflower, potato, coriander, chick pea & cabbage.

AICRP on Micro and Secondary Nutrients and Pollutant Elements in Soils and Plants :

- Reassessment of micro nutrients deficiency in soils of Bihar: For Kishanganj, the Zn, Cu, Fe & Mn content varied from 0.19 to 5.27, 0.75 to 10.11, 17.95 to 718.50, and 0.28 to 153.88. More than 50% of soils were deficient in organic carbon. Among mineral nutrients, highest deficiency was observed in sulphur (86%), followed by Zn (45.2%), potash (19.5%) and Mn (5.9).

- Screening of rice and wheat variety for Zn and Fe in calciorthents: On the basis of Zn efficiency and zinc index efficiency, the rice genotypes Janki, Kishori and Sugandha were found as most efficient genotypes.

- On the basis of Zn efficiency and zinc index efficiency, 17 wheat genotypes has been classified into most efficient and inefficient Wheat genotypes HD 2643, HD 2733, WR 544, HD 2824 and NW 2036 were Zn most efficient varieties.

AICRP on Agro-forestry :

- Growth, volume, biomass production and carbon sequestration in different multipurpose tree plantations: Carbon storage on the individual tree basis was highest in Safed siris (5.52 q/tree) followed by Eucalyptus (4.14 q/tree) and Arjun (4.14 q/tree). Carbon sequestration, long-lived C and CO_2 assimilation followed the same trend. Significant bearing in the improvement of the soil organic carbon status was recorded with Arjun (0.896%) followed by Eucalyptus (0.836%). These values were 145% and 129% more as compared to initial value.

AICRP on Water Management :

- Improved water management practices for rice under SRI consisting of 3 days drying after disappearance of 2.5 cm of pond water in rice performed better. The WUE was also higher in the SRI (193.27 kg/ha-cm) as compared to 100.57 kg/ha-cm in the control.

- Higher yield (31.91 q/ha) and WUE (177.28 kg/ha-cm) were recorded in case of wheat, grown after harvest of rice.

- The highest wheat equivalent yield (49.03 q/ha) was found with wheat-rajmash intercrop grown in 1:2 ratio.

- Paddy–Maize + Potato sequence recorded significantly superior rice equivalent yield and net return than Paddy–Rai–Moong and Paddy–Wheat–Moong and was at par with Paddy–Potato–Moong.

AICRP on Ground Water Utilization :

- Assessment of ground water resources for irrigation : During 1998-2008, the total annual ground water recharge of Patna and Gaya districts has been estimated to be 91924 ha-m and 98648 ha-m, respectively. The net annual recharge available for irrigation for Patna and Gaya district has been estimated to be 35403 ha-m and 45643 ha-m, respectively.

- Study on ground water pollution arising from different sources: In samples collected from Patna Bye-pass area, the relative accumulation of the trace metal cations in different plant species was as follows:

  Radish>sugar beet>red spinach>sponge gourd>bhindi>cabbage>cowpea>cauliflower> chilli>turnip for Fe, Turnip>radish>bhindi>red spinach>chill>cowpea>sponge gourd> pumpkin>cauliflower for Cu, Turnip>radish>cabbage>red spinach>cowpea>sponge gourd>Bitter gourd>bhindi>cauliflower for Zn, Cauliflower>sugar beet>radish> bhindi>cow pea>red spinach>cabbage>chilli for Mn.

AICRP on MAP and Betelvine :

- Twelve collections of *Bacopa monnieri and* eleven collections of *Centella asiatica* obtained from various parts of the state have been conserved and being characterized

AICRP on Weed Control :

- Management of *Sacchrum* spp. weed prevailing in Aurai in Muzaffarpur district of Bihar: Control of this problematic weed *Sacchrum* spp was obtained through the foliar spray of ammoniated glyphosate @ 1 liter a.i./ha followed by deep ploughing of these lands after one month for the cultivation of crop.

AICRP on Mushroom :

- 10 mushroom germplasms were collected locally and identified as *Calocybe indica* on the basis of morphological and molecular level.

AICRP on Post Harvest Technology :

- The following technologies were developed :

  (a) Chulha for grain puffing machine (b) Optimized sieve size & type of grading screen for maize seed processing (c) Process variable for maize seed processing (d) Technology for feasibility testing & evaluation of different machines/equipments/ prototypes.

AICRP on Honeybees & Pollinators :

- Among the pollinator fauna complex other than honey bees, five species on pigeonpea, nine species on brassica and six species on coriander visisted the pigeonpea, brassica and coriander bloom. Syrphid flies were also observed as pollinator of these crops.

- About 25-30% increase in yield was recorded in bee pollinated crops viz., mustard, pigeonpea, coriander and strawberry.

- One colony of *Apis mellifera* had been found sufficient to pollinate one hectare brassica crop and two colonies of *Apis mellifera* had been found sufficient for pollinating one hectare coriander crop.

- Four colonies of *Apis millifera* had been found sufficient to pollinate pigeonpea crop.
- The artificial diet comprising of Soybean flour (25 g) + Yeast (10 g) + Pollen (15 g) + Skimmed milk powder (5 g) + Honey (22.5 g) + Sugar (22.5 g) was best suited for colony development during dearth period.

- For artificial queen rearing, grafting larva of younger age i.e. >24 hrs old in artificial wax cups of 9 mm diameter size for *Apis mellifera* after priming the wax cups with royal jelly was best suited to obtain more number of queens of better potentiality. Queen reared during autumn season were of better quality than other season.

- Bt 1% was effective in controlling the wax moth infestation in raised combs under storage.

- The infestation of *Tropilaelaps clarae* was effectively controlled by application of oxalic acid (35 g) and 200 g sugar in warm water @ 2 ml per frame at weekly intervals.

2.2.3 Departmental Research

Department of Agronomy :

- **Effect of crop establishment methods, fertility levels and weed management on rice (*Oryza sativa*) productivity :** Yield attributes got better expression under SRI system except panicles m^{-2}. Both grain and straw yields were also higher under the SRI system. Higher F-levels also increased all the three aforesaid economic characters. SRI system with 120 kg N, 80 kg P_2O_5, 60 kg K_2O/ ha and one hand weeding at 35 DAT appeared to be a more profitable proposition.

- **Effect of levels of nitrogen on growth, yield and quality of aromatic rice genotypes :** Except number of tillers m^{-2}, all the growth characters got their best expression up to application of 80 kg N / ha being at par with 40 kg N/ha. The rice genotype RAU 748-12-6 followed by RAU 747-12-6 had the best expression in terms of almost all the growth as well as yield attributes, yield and economics

- **Effect of date of sowing and weed control methods on growth, yield and quality of direct seeded rice :** Pre-emergence application of 1.5 kg ha^{-1} butachlor followed by one hand weeding at 30 DAS was the best. Economic aspects got their best reflection under 22nd June sowing and in butachlor + 1 HW treatments.

- **Effect of weed management practices on the yield and quality of sugarcane (*Saccharum officinarum* L.) :** The lowest weed count and weed dry weight and highest weed control efficiency were recorded under atrazine @ 2.0 kg/ha applied as pre-emergence + 2, 4-D @ 1.0 kg/ha at 60 DAP. The highest net return of Rs. 120136/ha was recorded with pre-emergence application of atrazine @ 2.0 kg/ha + dicamba @ 350 g/ha at 75 DAP.

Department of Agricultural Economics :

- A micro level study on economics of production and marketing of principal vegetable crops in North Bihar revealed that vegetables shared, on an average, 16 percent of the operational holding. It was observed that there was an inverse relationship between farm size group and area under vegetables. Analysis of cost of cultivation of the vegetables showed that operational cost and overhead cost accounted for approximately 71 percent and 29 percent, respectively

- It was observed that in general, factors like area under the crop, bullock labour, machine labour and seed were found to exert positive and significant influence on the production of the vegetables.

- Producer's share in consumer's rupee and marketing efficiency decreased with increasing length of marketing channel.

Department of Entomology :

- Treatments of storage bags with insecticides *viz.* flubendiamide @ 0.2ml/l, emamectin benzoate @ 2 g/l, spinosad @ 0.2 ml/l, deltamethrin @ 3.5 ml/l was found to be effective against *Callosobruchus chinensis* infesting mungbean up to 6 months.

- Buprofezin+ acephate (20+50% a.i.@1000 g/ha) was found superior (6.91% DH at 30 DAT with 5.15% WEH) in rice.

- Carbofuran 3G @ 1.1 kg a.i./ha + Non-chemical based module (Pheromone trap @ 20 trap/ha) was found quite effective in rice .

Department of Nematology :

- **Management of *M. incognita* with organic manuring and seed treatment :** The treatment of Neem seed powder @ 50 kg/ha + seed coating with carbosulfan @ 3 % w/w had maximum suppression of root-knot formation and final nematode population in pulse crops.

- **Rice-wheat system :** The phytonematode population increased about 239.63% after rice and it further increased upto 51.19% after wheat.

- **Til-Wheat system :** It decreased the nematode population upto 72.38%.

Department of Forestry

Jatropha and Karanja Project :

- Under zonal trial, 13 germplasms of *Jatropha curcas* and 10 germplasms of karanja were established.
- Under propagation techniques, best rooting and sprouting were recorded at 100 ppm IBA or NAA in case of jatropha and 800 ppm IBA or NAA in case of karanja of thick stem cutting (1.5 cm diameter) after 24 hrs soaking treatment.
- Among seed treatment best germination of seed was recorded with hot water followed by 20 ppm IBA or GA3 in jatropha & karanja.

National Bamboo Mission :

- Recorded 10 bamboo species, their natural occurrence and phenological features of different bamboo species under different habitats.
- Standardized different propagation techniques in different sized beds.
- (a) Ground layering (b) Culm cutting (c) Culm split-cutting (d) Branch plantation with/ without culms.

Department of Textile & Apparel Design :

- **Designing and evaluation of khadi apparel enriched with phulkari embroidery: Revival of Manjusha painting through apparel designing :** The designs of Manjusha painting were developed on paper and out of which ten designs were selected for designing gent's Kurta and Dupatta painting work of suitable design was created on 'Vanya silk' Kurta and Dupatta.

Department of Human Development and Family Studies :

- Evolving play and teaching aids for early childhood education : An experiment with local crafts and natural resources : A "Concept Formation Kit" consisting of 13 concepts like colour, flower, birds, animals, fruits, vegetables, txture, time, length, weight, science, weather and domestic activities was developed.

Department of Soil and Water Conservation Engineering :

- **Fertigation studies on high density litchi planting with and without plastic mulch :** Yield per plant was considerably increased to 18.42 kg/plant with fertigation of 100% N + mulch and was 39.26% more compared to control tree. Fruit cracking reduced to a level of 2.56 % with 100% N through fertigation.
- **Precision farming in banana with soil solarisation, drip irrigation, fertigation and mulch and vermicompost :** Maximum bunch weight (30.07 kg/bunch) was recorded with T_1-Soil solarization + vermicompost + 0.8 V water + mulch) with plant geometry of 2 m x 2 m. Although maximum yield/ha (95.15 ton/ha) was recorded with plant spacing of 2 m x 1.5 m due to high planting density.
- **Standardization of fertigation level through drip with and without plastic mulch for precision farming in Sapota :** Maximum plant growth in terms of plant height, trunk girth and canopy spread was noted with application of 100% of N through drip

with mulch with plant height 3.82 m, trunk girth 22.00 cm and canopy area of 4.82 sq.m. It was 92.92%, 62.96% and 52.53% more, respectively in comparison to control.

- **Strawberry cultivation using plasticulture technology in agro climate of Bihar :** Earliest flowering, fruiting and highest yield (22.01 tonnes/ha) was recorded with poly tunnel + mulch + 120% RDF.

- **Varietal evaluation of Gerbera under poly house, shade Net and in open condition:** Early flowering was observed in poly house followed by open condition and shade net.

Department of Farm Power & Renewable Energy :

- Performance evaluation of SK-14 solar cooker was conducted and it was observed that temperature attained in SK-14 is 356^{O}C and 127^{O}C at focus as compared to 108^{O}C and 20^{O}C in Box type solar cooker. Maximum and minimum solar intensity was found to be 671 w/m^2 and 373 w/m^2.

Department of Processing and Food Engineering :

- Prototypes of grain puffing machine and solar cabinet dryer are being fabricated in the department.

2.2.4 Non-Plan Project Research

Improvement of Soil Aggregation to Enhance the Productivity of Rice-Winter Maize Cropping System in Bihar :

- Puddled transplanted + brown manuring showed improvement in soil properties viz. organic carbon, bulk density & porosity (0-7.5 cm depth), available nutrients and produced highest grain (54.95 q/ha) and straw (76.38 q/ha) yields of rice crop followed by SRI.

- Zero tillage (A_1) and dry seeded (A_2) systems of rice establishment resulted in significantly higher grain yield of succeeding winter maize crop and showed improvement in soil properties as compared to puddle transplanted system. However, puddle transplanted + brown manuring reduced the ill effects of puddling.

- Mulching with rice straw, application of vermicompost and combination of the two resulted in significant improvement in maize grain yield by 45.2, 41.7 & 43.1%, respectively over control (100% NPK only).

Value Addition and Product Diversification in Root and Tuber Crops for Nutritional Security :

- Some value added root and tuber products like chips, flour, noodles, fasting food, pickles (sweet), pickles, jam, sauce, papad, gulab jamun from Sweet potato and yam pickles have been developed. After nutritional evaluation, these products have been tested for organoleptic property.

Evaluation of Nutritional Quality of Yam Bean Genotypes :

- Out of thirty eight yam bean genotypes, DL-28 had maximum fat (0.249 g/100 g edible tubers), carbohydrates (14.86 g) and sugar (6.925 g) content while it has third lowest fiber content followed by DHP-1 in terms of nutrient contents and these two lines can be of much commercial value.

Extent, Distribution & Reaction of Arsenic in Soil and Water, its Impact on Crops in Some Affected Districts of Bihar :

- 95% water samples from Vidyapati Nagar, Mohiuddin Nagar and Pusa have recorded arsenic content in the range of 0.01-0.05 ppm as determined by Arsenic Kit (Hi-media).

- The water samples of Pusa tested by arsenic anhydride generation unit recorded 1.3 ppb (min.) to 73.7 ppb (max.) arsenic.

- Effect of graded dose of arsenic on grain yield of wheat : The pot experiments on wheat and mustard during rabi 2010-11 clearly indicated the effect of arsenic contamination in soil on all agronomical parameters.

Exploration of Soil Mycoflora Diversity for Salutary Fungi :

- The total fungal population was highest (29.6 x 10^4 cfu/g soil) under alluvial soil. Acidic soil supported the highest (4.0 x10^4 cfu/g soil) population of phosphorus solublizing fungi. Population of decomposers were almost identical (5.7 & 5.3 x 10^4 cfu/g soil) in calcareous and alluvial soil.

- Fungal diversity under non cereal crops (*Lecus aspera*, patharchata and turmeric) was much higher to cereal crop (Rice-wheat cropping system) in salt affected soil. The resident fungus of non cereal crop rhizosphere seems to have soil pH neutralizing capacity.

To Evaluate the Beneficial and Detrimental Aspects of Fungi Isolated from Different Ecosystem :

- Best decomposers selected under lab. conditions were *Fusarium, Cladosporium, Humicola, Curvularia, Trichoderma, Paecilomyces, Aspergillus* and *Penicillium.*

- Enriched vermicompost promoted the growth of *Aspergillus niger* and *Paceilomyces* sp. *Trichoderma* was not found compatible with vermicompost.

- The castor cake at 25 percent concentration had significantly enhanced the growth of *Trichodema virens* and *Paecilomyces lilacinus,* while higher concentration of vermicompost had markedly enhanced the growth of *Trichoderma harizaum.* Growth of *Aspergillus niger* var. *awamori* on neem cake extract at both the concentration was superior to all other substrates and was highly supportive to the mycelial growth of *Cladosporium cladosporioides* .

- Metabolites used at eleven days interval enhanced the systemic resistance in plant at farmer's field and reduced fungicide application upto 50 percent and yellow vein mosaic disease incidence upto 65 percent.

- Soil treatment with *Trichoderma* spp. and use of *Trichoderma* metabolite alongwith *Aspergillus niger* var. *awamori, Paecilomyces lilacinus* and *Cladosporium cladosporioides* at the time of initiation of germination in papaya had enhanced the germination four days prior to control. The same combination had promoted the healthy growth of the seedlings, but not reduced the germination period when used before the initiation of the germination. Use of *Trichoderma* metabolite with half dose of recommended fungicide in papaya seedling has reduced the wilt incidence upto70 percent.

- Minimum growth of *Fusarium solani* was recorded on extractant of *Paecilomyces lilacinus* loaded on bhang and congress weed at 25 and 50 percent concentration.

- Fungal and bacterial combination (contributing in phosphorus solublization and growth promotion) supported the maximum fruit yield per plant in moong crop in comparison to other combinations.

Integrated Disease Management of Bacterial Leaf Blight of Rice :

- **Effect of different doses of nitrogenous fertilizer on Bacterial leaf blight of rice disease :** Higher yield was obtained in the plots treated with Nitrogen @ 80 kg/ha. Higher disease severity was observed in the plots treated with 120 kg Nitrogen as compared to 80 kg Nitrogen/hectare.

- **Effect of different date of sowing on Bacterial leaf blight of rice :** The highest yield was observed in early sown crops in the rice varieties namely Pusa Basmati, Pankaj, Rajendra Bhagwati & Arize 6444 followed by normal sown and late sown crops. The maximum disease severity was observed in late sown crops of all the rice varieties .

- **Isolation of rhizobacteria from rhizosphere of Basmati rice experimental field :** The isolated rice Rhizosphere bacteria (RRb) were tested for antagonistic effect against bacterial leaf blight of rice pathogen i.e. *Xanthomonas oryzae* pv. *oryzae*. Three isolates showed inhibition zone.

- **Evaluation of Plant extracts against BLB Pathogen :** The plant extracts of tulsi & akwan, marigold, ginger, datura, neem, chirchiri, mhang, onion, and garlic at 5, 10 and 15% concentration inhibited the growth of pathogen.

- **Isolation and identification of pathogen associated with seeds collected from experimental plots :** *Fusarium* sp., *curvularia* sp., *Helminthosporium oryzae and Xanthomonas oryzae* were found to be associated with seeds. Among them the most predominant one was *Fusarium* sp.

Eco-friendly Management of Diseases of Tomato and Chilli :

- Effect of plant products on per cent conidial germination and per cent inhibition of conidial germination of *Alternaria solani* causing early blight of Tomato *Fusarium oxysporium & Colletotrichum capsci* causing wilt and fruit rot of chilli, garlic extract, barhmi buti and neem extract produced maximum (99.89%) inhibition of conidial germination of *Alternaria solani*, *Fusarium oxysporum* and *Colletotrichum capsici*, respectively.

Commercial Utilization of Natural Dyes :

- Maximum dye absorption was found with 4% concentration in case of *Asphodellus tenufolium* (Jangli Pyaz) natural dye in 75 minute of extraction time and 45 minutes of dyeing time.
- The dye extracted from *Litchi chinensis* leaves produced beautiful shades of dark petal colour to brown with different mordents.
- The optimization of the condition for extracting natural dyes and dyeing process for *Asphodellus tenufolium* and *Litchi chinensis* have been achieved.

Influence of Crop Residues, Conservation Tillage and Management Practices on Soil Health and System Productivity :

- In rice-wheat-moong cropping system, conventional tillage in rice + zero tillage in wheat along with residue + microorganism resulted in higher grain yield besides improving the soil bio-physio-chemical properties and recorded higher carbon sequestration nutrient management along with one chemical weeding and had proved its superiority to others.

Hybrid Rice Project :

- Confirmation of male sterility in cytoplasmic male sterile lines and stability of cytoplasmic male sterile lines was ascertained on individual plant basis and completely male sterile plants were identified on the basis of pollen staining pattern and utilized for making test crosses.

- Hybridization program for test crossing of cytoplasmic male sterile lines was carried out extensively using five cytoplasmic male sterile lines and 235 pollen parents taken from 55 rice varieties and advanced breeding lines.

- Altogether 285 test crosses were successfully made for the identification of sterility maintainers and fertility restorers from amongst the pollen parents utilized in the hybridization program.

Survey, Surveillance and Integrated Nematode Management of Root-Knot Nematodes in Tomato, Brinjal and Pointed Gourd in Samastipur, Muzaffarpur and Vaishali district of Bihar :

- The most dominant species found was *Meloidogyne incognita* followed by *Helicotylenchus* spp. in all the three crops. The root-knot index no. of root-knots per plant was above 3 to 4 and some where above 4.

Monitoring of Pesticide Residues in Vegetables and Soil and their Impact on Soil Microbes :

- 56% sample of farm gate and market vegetables were found contaminated with pesticides viz. endosulfan, malathion, chlorpryphos, cypermethrin and fenvalerate. 10% Samples contained residues above the maximum residues limit.

Maintenance and Strengthening of Nursery for Development of Medicinal and Aromatic Plants in Bihar :

- Allelopathic activity of *Andrographis paniculata* and *Withania somnifera* showed inhibitory effect on sugar and protein and stimulatory effect on amino acid content of moong seedlings.

Development of High Yielding Sugarcane Varieties Tolerant to Water Logging :

- 2671 seedlings from 15 crosses having water logging tolerant parents are standing at New area Farm, R.A.U., Pusa. 15 Desirable crosses involving water logging tolerant parents were made at National Hybridization Garden, SBI, Coimbatore.

Genetic Improvement of Faba-bean by Reducing the Amount of Proantocyanidin by Gene Silencing Approach :

- Biosynthesis of proanthocyanidin (CTs) in leaf, stem, root and flower was confirmed by estimating condensed tannin by Vanillin-HCl method.
- Composition of CT was estimated in seeds and results showed that epicathechin is one of the monomer of CT.
- Based on above information, total RNA was extracted from leaf tissues to get cDNA of *ANR* gene.
- Two pairs of degenerate primer for amplification of ANR cDNA are designed based on sequences available in Gen Bank.

Development of Packaging Technology for Fresh Fruits and Vegetables :

- Bamboo based packaging designs/prototypes have been made.
- Minimum loss of 5.48% was observed in tomatoes transported in egg trays in carton.

Evaluation of Substrate Based Microbial Bio-Film on Carp Production in Pond Aquaculture System

- The sugarcane bagasse @ 24 kg/0.01 ha, paddy straw @ 22 kg/0.01 ha and bamboo sticks @ 300 no. (approx 1.5 cm diameter & 2 m length) were were found sufficient to generate desired bio-films per unit areA due to addition of sugarcane bagasse and paddy straw along with cattle dung, dissolved oxygen dropped sharply and it was below 3.0 mg/1 during the first week. However, there was marked improvement in the dissolved oxygen during the subsequent weeks.

Standardization of Grow Out Technique of Freshwater Giant Prawn *Macrobrachium rosenbergii* in the Ponds of North Bihar :

- The prawn Seed (PL) were fed with rice bran + wheat bran + mustard oil cake @ 5% of the body weight of the PL stocked in the ratio of 1:1:1. Later on boiled and mashed molluscan meat was added in the feed. The growth rate was very slow in the first two months but later on it was faster. It was also found that seed obtained from natural sources grew faster than hatchery bred.

2.2.5 NAIP Research

Sustainable Livelihood Improvement Through Need Based Integrated Farming System Models in Disadvantaged Districts of Bihar (Samastipur) :

- Fish production at Rosera cluster : 5000 fingerlings of common carp (Rehu, Katla Mrigal and Grass carp) were added to the Mann converted in pond at Kalwara of Rosera cluster which produced 1600 Kg fish resulting into net income of Rs 2,10,000/-.
- High value vegetables production under three tier system: In Model –I consists of bitter gourd var. Palee (Upper), cowpea var. Pusa Komal (middle) and elephant foot yam bean (lower tier) in Pusa cluster which increased the income over one tire system 288.32 %.

Understanding the Mechanism of Variation in Status of a Few Nutritionally Important Micronutrients in Some Important Food Crops and the Mechanism of Micronutrient in Plant Parts :

- Application of iron significantly increased the mean grain yield from 46.0 to 52.4 q/ha under different treatments. There was maximum increase in grain yield in genotype Shaktiman-3 (13.7 q/ha).

- Genotypes screened under iron stress condition revealed that Swan, Dewki, Hemant, Lowa, CM-600, Pop-64, RHM-1, M-7 have been rated as efficient maize genotypes.

- A pot experiment was conducted to study the physiological mechanism for absorption, translocation and partitioning of Fe in different plant parts. Overall 20.7% iron translocated from lower leaf to grain, 28.3% iron translocated from middle leaf to grain while 32.1% iron from upper leaf to grain.

Improving Livelihood Security in Salt-Affected Watersheds of Muzaffarpur and Sheohar Districts of Bihar :

- Adoption of IPNS approach on soil test crop response basis has resulted in saving of 121-154 kg Urea/ha/season (2.2-2.8 kg Urea/Kattha/Season) and had also minimized the yield loss.

2.2.6 RKVY Project Research

Promotion and Adoption of Insect Sex-Pheromones and Bio-agents at Farmers Field for the Management of Major Rice Insect Pests (Stem Borer and Leaf Folder) in Bihar :

- Demonstrations of 1250 insect pheromontraps installed in 75 hectares of boro rice and *kharif* rice and 400 for the management of yellow stem borer of rice and leaf folder, respectively were conducted.

- Use of 17 traps per hectare was found most effective for control of rice stem borer without use of insecticide and resulted in saving of Rs. 2000-2500/ha on use of chemical pesticides.

Production and Popularization of Bio-fertilizers for Nutrient Availability and Crop Production :

- 80 Nitrogen fixing (*Rhizobium, Azotobacter*), phosphate solublizing bacteria (*Bacillus, pseudomonas*) and *Trichoderma* isolates were collected from Samastipur, Muzaffarpur, Nalanda, Rohtash, Arah, Munger and Lakhisarai districts.

- Isolation, purification and identification of the *Azotobacter* culture and their biochemical characterization were done from soil collected from different districts.

- Preparation of location specific lyopholized cultures of *Azotobacter, Rhizobium, Pseudomonas, Bacillus* species and of fungal consortium for establishing culture bank has been done.

- Training & demonstration : 20 to 25 percent increase in yield was recorded in paddy and rabi as well as summer pulse crops due to application of bio-fertilizer.

Enhancement of Heat Tolerance in Locally Adapted Wheat Cultivars of Bihar :

- Two hundred and twenty five lines were procured from different sources alongwith local agronomically superior varieties and screened under natural as well artificially induced heat stress conditions. The lines with different degree of tolerance were identified which are being validated. Nineteen such lines were genotyped with seventeen SSR markers.
- For imparting heat tolerance through genetic transformation technique, the in-vitro culture responsive lines were identified to be used for the purpose.

Development of Aerobic Rice for Sustainable Rice Production in Bihar :

- Identified six promising aerobic rice lines suitable for cultivation under aerobic condition from amongst nearly 500 lines procured from National and International Agencies like IRRI, DRR etc and tested in the last three years.

Protected Cultivation of Vegetables and Flowers in Bihar :

- Three varieties of vegetable and five varieties of flowers were identified for protected cultivation in Bihar.

Farm Machine Bank :

- A low cost potato grader has been developed under the project for the small and marginal farmers.

Vermicompost Production :

- The earthworms Epigeics in particular and Anecics in general have largely been harnessed for the use in the vermicomposting processes.

2.2.7 Crop Varieties Released :

- **Maize**

Rajendra Hybrid Makka Deep Jwala :

Released in 2010, is a full season white dent variety with 110-115 q/ha potential yield in rabi season and 60-65 q/ha in kharif season.

- **Sugarcane**

BO-153 :

Released in 2011 as an early maturing variety, developed from selfing of BO 131 with an average yield of 87.0 t/ha and sucrose in juice of 17.42%. The cane is characterized by straight green, cylindrical medium thick inter-node and ovate bud, medium width green leaves and without spines leaf sheath. Suitable for all types of soil and paddy-sugarcane (plant) sugarcane (ratoon)-wheat cropping system in Bihar.

CoP- 2061 :

Released in 2011 as a mid-late maturing variety, developed from crosses of CoLk 8102 and HR 83165 with an average yield of 98.0 t/ha and sucrose in juice of 17.40%. The variety is characterized by straight, green, cylindrical stalk (exposed part yellowish green), medium to long inter-node, small ovate bud without bud groove, medium width green leaves without spines with purple blotches and loose clasping and semi drooping carriage.

- **Rice**

Rajendra Bhagwati :

A mid-early duration (115 days) variety suitable for rainfed upland condition of Bihar. It's grains are long, slender, fine and scented. A high yielding variety having genetic yield potential of 45-30 q/ha. The variety is moderately resistant to Blast and Bacterial leaf blight.

Swarna Sub-1 :

A variety developed though Marker Assisted Selection keeping all the good features of Swarna (MTU 7029) intact. The variety Swarna (MTU 7029) with an additional feature of submergence tolerance under stagnant water for 16 days has been developed with collaboration of IRRI, Philippines. It is a mid- late duration (135-140 days) variety with genetic yield potential of 60-65 q/ha. It is most suitable for the rainfed lowland condition of North Bihar venerable to floods during normal monsoon.

2.2.8 Technology Developed : One, 2011

- Intercropping of linseed with autumn planted sugarcane in Bihar (sugarcane + linseed variety Garima) in 1:3 row ratio.

- Released in Linseed AICRP National Group Meeting at Central Level (TCA Dholi-SRI Pusa Joint Collaborative Programme).

2.3 EXTENSION

2.3.1 Trainings Conducted by Units

Name of Unit	Name of training	Type / No. of training	Period	Sponsored by	No. of Participants		
					Male	Female	Total
University Apiary	Beekeeping training	6	6 days	Self financed	173	32	205
	Beekeeping training	16	1 day	-do-	288	117	405
	Beekeeping training	1	30 days	-do-	0	1	1
T.C.A., Dholi	Production, Protection and commercialization of elephant foot yam	On Farm	Six months	ATMA	25		25
	Skill development training (14)	Village Based	01to 02 days	NAIP	441	40	481
	Summer vegetable production (Sheohar cluster)	1	2 days	NAIP			25
	Seed production of paddy (Kanti cluster)	1	1 day	NAIP			64
	Rouging of moong crop for seed production (Sheohar cluster)	1	1 day	NAIP			72
	Seed production of paddy (Motipur cluster)	1	1 day	NAIP			64
	Integrated nutrient management (Kanti & Motipur cluster)	1	2 days	NAIP			20
	New technology for vegetable production (Sundarpur)	1	1 day	NAIP			20
	Hybrid variety of vegetable and management of fertilizer and irrigation etc. (Sundarpur)	1	1 day	NAIP			18
	Technology for vegetable production, management of pest and disease in standing crop viz. onion, garlic, pea and potato (Chiknauta)	1	1 day	NAIP			17

	Technology for vegetable production and management of disease and pest (Chiknauta)	1	1 day	NAIP			15
	Sugarcane production (Kanti cluster)	1	3 days	NAIP			20
	Post harvest & storage of grain technology (Kanti cluster)	1	1 day	NAIP			20
	Processing of wheat seed (Sheohar cluster)	1	1 day	NAIP			62
CAE, Pusa	Scaling up of water productivity in agriculture for livelihood (19)	KVK based	7 days	ICAR			1131
Department of Entomology	Importance of the use of pheromone trap & tricocard in controlling of rice pests	3			140	16	156
COF	Fisheries Management	3			46	30	76
FBS&H, RAU, Pusa	On Job Training on Agriculture Biotechnology	On Job training	June-July, 2010				15
FBS&H, RAU, Pusa	Mushroom training for farmers and un-employed youth	Mushroom training	31.07.2010				52
			29.09.2010				41
			02.10.2010				56
			03.10.2010				49
			10.10.2010				48
			28.10.2010				51
			14.11.2010				42
			05.12.2010				22
			10.03.2011				10
			31.07.2010				52

2.3.2 Training Conducted by KVKs

Name of KVK	Thematic Area	No. of trainings	No. of Participants		
			Male	Female	Total
Begusarai	NRM	51	6713	615	7328
	Crop Protection	12	2286	39	2325
	Fisheries & A. H	9	1287	89	1376
	Farm Machinery & Engg.	3	349	17	366
	EDP	6	81	251	332
	Total :	**81**	**10716**	**1011**	**11727**
Darbhanga	NRM	23	696	0	696
	Crop Protection	3	100	0	100
	Home Science	5	0	146	146
	Total :	**31**	**796**	**146**	**942**
East Champaran	NRM	3	220	37	257
	EDP	4	122	0	122
	Total :	**7**	**342**	**37**	**379**
Muzaffarpur	NRM	54	-	-	-
	Crop Protection	19	-	-	-
	Fisheries & A. H	33	-	-	-
	Home Science	17	-	-	-
	Farm Machinery & Engg.	17	-	-	-
	EDP	9	-	-	-
	Other Misc.	2	-	-	-
	Total :	**134**	-	-	-
Samastipur	NRM		1026	66	1092
	EDP		17	30	47
	Total :		**1043**	**96**	**1139**
Sheohar	NRM	16	-	-	-
	Crop Protection	05	-	-	-
	EDP	06	-	-	-
	Total :	**27**	-	-	-

Saran	NRM	50	6695	590	7285
	Crop Protection	10	2236	31	2267
	Fisheries & A. H	8	1237	81	1318
	Farm Machinery & Engg.	3	347	15	362
	EDP	6	80	245	325
	Total :	**77**	**10595**	**962**	**11557**
Siwan	NRM	4	12357	3156	15513
	Total :	**4**	**12357**	**3156**	**15513**
Vaishali	NRM	11	340		340
	Crop Protection	3	250		250
	Farm Machinery & Engg.	2	72	-	72
	EDP	6	162	8	170
	Total :	**22**	**824**	**8**	**832**
West Champaran	NRM	52	1419	77	1496
	Crop Protection	20	509	30	539
	Fisheries & A. H	27	687	49	736
	Farm Machinery & Engg.	09	218	15	233
	EDP	3	73	0	73
	Total :	**111**	**2906**	**171**	**3077**

2.3.3 FLD Conducted by Units

Name of the Unit	Technology demonstrated	Area (ha)	Crop	Impactof demonstration
Maize				
TCA, Dholi	QPM Hybrid demonstration and hybrid seed production	334	Maize Shaktiman-2, 3 & 4	Popularization of QPM hybrid and hybrid seed production technique
	WP-QPM seed production - 30FLDs	12.0	QPM SM-2/SM-4	Impressive
	Kharif , Rabi and Summer WP-I 344 FLDs	137.6	QPM SM-2/SM-4	Impressive
	WP - 11 FLDs	2.0	Finger millet PR 202	Impressive

Oilseeds				
TCA, Dholi	WP-I (TS&LS) - 9 FLDs	3.6	Mustard R. Sufalam	Impressive
	S vs No. Sulphur - 6 FLDs	2.4	Mustard R. Sufalam	Impressive
	WP-I (Spring) DRSF-113 - 35 FLDs	11.6	Sunflower DRSF-113	Impressive
	Sugarcane (Autumn Planted)+ Linseed 1:3 Row ratio - 10 FLDs	4 .0	Linseed Garima with Sugarcane	Impressive
	WP – 10 FLDs	4.0	Sesame Krishna	Impressive
Pulses				
TCA, Dholi	Varietal, Rhizobium + RDF, Rhizobium + RDF+PP 26 FLDs	10.4	Pigeonpea, Bahar and NDA-1	Impressive
Deptt. of Plant Breeding & Genetics	*Rajendra Bhagwati - 32 FLDs*	*5*	*Rice*	*The seed demand of variety - Rajendra Bhagwati has* increased
AICRP on MAP & Betelvine	Integrated crop management(INM+IDM) in betelvine	0.25 Acre each	Technology under demonstration is quite superior to farmers practice	
Deptt. of Agronomy	Irrigation with improved methods		Wheat	Increase in wheat production and water-use efficiency
Deptt. of Agronomy	Demonstration of Paddy variety Swarna Sub-1 in flood affected areas		Paddy	
Deptt. of Agronomy	Integrated nutrient management and weed control	10	Wheat- Variety - HD 2824, PBW 343 & DBW 14	
Deptt. of Agronomy	Irrigation by SRI method in paddy after three days drying of water		Paddy	Increase in production and water use efficiency
Deptt. of Agronomy	Demonstration of wheat varieties, CBW-38 and K-307		Wheat	Increase in production

2.3.4 FLD Conducted by KVKs

Name of KVK	Technology demonstrated	Area (ha)	No. of Parti-cipant	Crop	Impact of demonstration
West Champaran	Varietal (RAUTS-7)	2.0	2	Toria	Sulphur or sulphur containing fertilizer should be added in soil to get more yield.
	Varietal R. (Anukul)	8.0	19	Rai	It may be sown upto 10th December. Suitable for the district.
	Varietal (Malviya-13)	1.8	6	Arhar	More branching & seed rate may be reduced from 20 kg/ha to 18 kg/ha. less infestation of pod borer, Resistance to sterility mosaic.
	Varietal (NDA-1)	1.2	3	Arhar	Good yield, less infestation of pod borer and resistance to sterility mosaic.
	Varietal (HUL-57	2.5	9	Lentil	Suitable for this locality, wilt resistance, high yielding variety.
	Varietal (HD 2733)	2.0	6	Wheat	Most suitable, timely sowing, high yielding variety for this district.
	Varietal (PBW373)	3.0	8	Wheat	Late sowing variety.
Begusarai	Varietal Trial	2	5	Maize	
	Zero tillage	4	10	Lentil	
	HYV	3.5	29	Paddy	
	HYV	2.5	15	Arhar	
	HYV	1	10	Onion	
	HYV	5	12	Wheat	
Saran	Full package	4	15	Red gram	Demonstration yield 15.94 q/ha and local check 9.98 q/ha. Increased 60.36% yield due to technology demonstrated. Benefit-Cost ratio for demonstration 4.56 and local check 2.98.
	Full package	2	5	Lentil	Demonstration yield 12.90 q/ha and local check 8.85 q/ha. Increased 51.76% yield due to technology demonstrated. Benefit-Cost ratio for demonstration 3.36 and local check 2.25.
	Full package	2	5	Gram	Demonstration yield 14.36 q/ha and local check 9.5 q/ha. Increased 51.15% yield due to technology demonstrated. Benefit-Cost ratio for demonstration 3.23 and local check 2.41.

Full package	5	12	Green gram	Demonstration yield 9.7 q/ha and local check 7.2 q/ha. Increased 34.72% yield due to technology demonstrated. Benefit-Cost ratio for demonstration 3.12 and local check 2.54.
Full package	4	15	Maize	Demonstration yield 70 q/ha and local check 59 q/ha. Increased 18.64% yield due to technology demonstrated. Benefit-Cost ratio for demonstration 2.87 and local check 2.43.
Full package	10	25	Paddy	Demonstration yield 38.69 q/ha and local check 33.39 q/ha. Increased 15.87% yield due to technology demonstrated. Benefit-Cost ratio for demonstration 1.87 and local check 1.67.
Full package	2	5	Wheat	Demonstration yield 40.2 q/ha and local check 31.9 q/ha. Increased 26.01% yield due to technology demonstrated. Benefit-Cost ratio for demonstration 2.23 and local check 1.84.
Full package	5	13	Okra	Demonstration yield 120 q/ha and local check 98 q/ha. Increased 22.44% yield due to technology demonstrated. Benefit-Cost ratio for demonstration 4.84 and local check 4.20.
Full package	5	13	Brinjal	Demonstration yield 222 q/ha and local check 170 q/ha. Increased 67.9% yield due to technology demonstrated. Benefit-Cost ratio for demonstration 4.93 and local check 4.20.
Full package	3.25	8	Sesamum	Demonstration yield 7 q/ha and local check 5.3 q/ha. Increased 32.07% yield due to technology demonstrated. Benefit-Cost ratio for demonstration 3.39 and local check 2.72.
Full package	2	5	Rapeseed and Mustard	Demonstration yield 15.0 q/ha and local check 8.9 q/ha. Increased 68.53% yield due to technology demonstrated. Benefit-Cost ratio for demonstration 2.83 and local check 1.78.

	Full package	3	7	Sunflower	Demonstration yield 17.3 q/ha and local check 12.8 q/ha. Increased 35.15% yield due to technology demonstrated. Benefit-Cost ratio for demonstration 3.82 and local check 2.20.
Siwan	HYV+ Seed treatment + Rhizobium	12	30	Green gram	Good
	HYV+ Seed treatment + Rhizobium	4	13	Red gram	Good
	HYV+ Fertilizer	10	25	Paddy	Good
	HYV+ Bio-fertilizer	1	3	Lentil	Good
	HYV	10	27	Wheat	Good
	HYV	0.4	9	Yam	Good
	HYV+ Bio-fertilizer	12	37	Green gram	Good
	HYV+ Seed treatment	8.5	41	Paddy	Good
	HYV+ Seed treatment	4	13	Toria	Good
	HYV	2.4	6	Wheat	Crop standing
Muzaffarpur	Performance of variety	10	27	Maize (QPM)	Large scale adoption
	Performance of variety	4	10	Paddy (R. Sudha)	Large scale adoption
	Performance of variety	4	10	Paddy (R. Sweta)	Large scale adoption
	Performance of variety	4	14	Redgram	Large scale adoption
Vaishali	Performance of variety	10	30	Paddy (Rajendra Subhashini)	Good
	Performance of variety	2.5	15	Wheat (K-307)	Good
	Performance of variety	7.21	16	Wheat (HD-2733)	Good
	Performance of variety	3.5	19	Redgram (Malviya-13)	Good
	Performance of variety	5	11	Maize (Shaktiman - 4)	Good
	Performance of variety	5	9	Rai (R-Suflum)	Good
Samastipur	Treatment trial	4	14	Pigeonpea	Good germination with healthy crop growth
	Performance of variety	5	10	Paddy	Seed replacement

	Performance of variety	3	13	Wheat	Seed replacement
	Treatment trial	5	15	Pointed gourd	Lesser infection of fungal diseases
	Integrated disease management	5	15	Trichoderma	
Sheohar	Varietal trial	5	17	Mustard	Yield enhancement
	Varietal trial	5	20	Lentil	Yield enhancement
	Varietal trial	1	14	Radish	Yield enhancement
	Varietal trial	1	10	Cauliflower	Yield enhancement
	Varietal trial	1	5	Tomato	Yield enhancement
Darbhanga	Integrated Crop Management	5	20	Paddy (R-Bhagawati)	Yield enhancement
	Integrated Crop Management	5	25	Pigeonpea (M-13)	Yield enhancement
	Integrated Crop Management	2	20	Wheat (PBW-373)	Yield enhancement
	Integrated Crop Management	2	20	Gram (Pusa-256)	Yield enhancement
	Integrated Crop Management	5	20	Moong (Pusa Vishal)	Yield enhancement
Gopalganj	Varietal trial	10	12	Pigeon pea	Yield enhancement
	Varietal trial	5	12	Gram	Yield enhancement
	Varietal trial	5	13	Lentil	Yield enhancement
	Varietal trial	4	11	Wheat (HD-2733)	Yield enhancement
	Varietal trial	4	11	Wheat (DBW-14)	Yield enhancement
	Varietal trial	5	10	Paddy (Usar-3)	Yield enhancement
East Champaran	Production Technology	10	24	Paddy	Increase in yield
	Varietal trial	4.4	11	Paddy (Scented)	Increase in yield

2.3.5 OFTs Conducted at KVKs

Name of KVK	Technology tested	No. of trials
Begusarai	Effect of transplanting of varying age of paddy seedling under SRI method of paddy cultivation	06
	Studies on efficacy of different formulation of herbicides on weed control in wheat	10
	To assess the efficacy of fungicides for the management of purple blotch of onion	06
	Management of stalk rot of Maize through INM and Seed inoculated with antibiotics	08
	Study the efficiency of different hand tools in managing the weeds in Maize	10

Gopalganj	Application of PGR on increase of female flower	05
	Application of effective fungicide in critical stage in cucumber	07
	Application of Bio fertilizer in paddy	05
	Varietal performance in paddy	05
	Micronutrient and PGR in paddy	05
Muzaffarpur	Varietal trial of Paddy	10
	Integrated Nutrient Management through Bio-fertilizer (Azotobactor & PSB) in Wheat	10
	Effect of bio-fertilizer on soil fertility (post harvest soil nutrition status)	10
	Evaluation of different levels of sulphar application on rai.	10
	Effect of different protectants on phsysicochemical quality of green gram during storage	05
Samastipur	Selection of alternate technology of paddy cultivation	10
	Selection of alternate technology for wheat cultivation	10
	Selection of appropriate management technique for wilt management in pointed gourd	10
Saran	Assessment of zero tillage technology	02
	Assessment of green manuring with sesbania in paddy-wheat cropping system	02
	Assessment of paddy-wheat cropping system	02
	Assessment of paddy-mustard cropping system	02
	Refinement of gram cultivation technology	02
	Use of zero tillage in wheat production	01
	Assessment of seedling transplantation in paddy	02
	Assessment of fertilizer application options in rapeseed and mustard	02
	Assessment of feeding options to enhancement of productions	04
	Effect of external insecticides on animal rearing	04
	Assessment of pest control methods in paddy	01
East Champaran	Performance of different sowing methods of wheat	06
	Yield performance Rai/Tori is affected by integrated nutrient management.	10
	To enhance the productivity of vegetables	06
	Management of wilt disease of chick pea	04
	To enhance the productivity of potato though organics	06
Sheohar	Variety of late sown wheat	
	Inter cropping of mustard & tomato in cauliflower for control of diamond back moth(DBM)	06
Siwan	Method of *Trichoderma viride* in management of wheat dieses in Gram	07
	Management of Fruit borer in tomato by non chemical method	07
	Comparative efficiency of Soil amendments on usar soil	05
	Assessment of sulphinated press mud, vermi-Compost and FYM through Integrated Nutrient Management	05
	Assessment of different treatments in case of repeat breeding in Cow	48
West Champaran	Assessment of SRI method in rice over conventional method	10
	Management of fruit fly *Bactrocera dorsalis* in mango orchard	08
	Assessment of fungicides to manage late blight disease in potato	08
	Management of gram pod borer, *Helicoverpa armigera* in pigeonpea	08
	Feed Management in carp fish culture	12
	Enhancement of fish yield through proper species selection & stocking ratio	12
	Assessment of different methods of sowing in late sown wheat	08
	Resource conservation technology	07
Vaishali	Varietal Evaluation	06

2.3.6 Seed Village Formed and Seed Produced

Name of the KVK / Unit	No. of seed village formed	Seed Production	
		Crop	Quantity (q)
KVK, Muzafarpur	4	Wheat	600
		Paddy	120
KVK, Samastipur	5	Paddy (R. Bhagwati)	900
		Wheat (K. 307/ PBW 343 / HD 2433)	400
		Pigeon pea (P-9)	40
KVK, Darbhanga	2	Paddy	250
		Wheat	150
KVK, E. Champran		Wheat	1837
		Paddy	1703
		Lentil	131
KVK, Begusarai	7	Wheat	1365.0
KVK, Saran		Paddy, Rajendra Suhasini	10
		Paddy, Prabhat	25
		Paddy, MTU 1001	25
		Paddy, Rajendra Mehsuri	30
		Wheat, HW 2045	50
		Wheat, PBW 373	50
		Wheat, K307	50
		Rai var. Rajendra Suphalam	10
		Til, var. Krishna	10
		Red gram , Narendra-I	40
		Gram, PG 114	10
		Green gram, SML 668	8
		Lentil, Arun	20
		Brinjal, Pant Rituraj	0.50
		Okra, Parbhani Kranti	1.00
		Pea, Kashi Nandini	1.00
		Potato, Kufri Jyoti	400
TCA Dholi	5	Elephant foot yam	6000

2.3.7 Farmer's Club Established

Name of the KVK/ Unit	No. of Club established	Village	Block	District
KVK, E.Champran	02	Baltharwa, Sangrampur	Piprakothi Sangrampur	E.Champran
TCA, Dholi	01	Dwarikapur	Muraul	Muzaffarpur
KVK, Jale	05	Sauria, Singhwara, Brahmpur, Sanahpur Jale	Jale	Darbhanga
KVK, Sheohar	03	Sriphnagar, Khearma, Kothia	Sheohar	Sheohar
KVK, Siwan	04	Swami Sahjanand, Sarswati K.Club, Beer kuwar Singh K.Club, Jagrook K. Club	B.Hat, Siwan	Siwan

2.3.8 Radio/TV Talks

Name of the Scientist/KVK	Topic	Radio/ TV talk	Name of Radio/ TV station
Dr. A.K. Mishra	Disease management of coriander	TV talk	Doordarshan, Muzaffarpur
Dr. Anil Pandey	Oilseed RM & linseed cultivation (4 talks)	Radio talk	Community Radio Station, KVK Birauli
Dr. D.K. Ray	Chara phasalon ki dekh-rekh	Radio talk	AIR, Darbhanga
Dr. D.K.Dwivedi	Ol ki khudai, bhandaran evam bipran	TV talk	Doodarshan, Muzafarpur
Dr. J.P. Singh	Badhgrast kshetra mein dhan ki kheti	TV talk	Doordarshan, Muzaffarpur
Dr. L.M.Yadav	Phoolgobhi, pattagobhi, tamater, mater, muli, gajor evam saljam kee kheti	Radio talk	All India Radio Darbhanga
Dr. L.M.Yadav	Aloo evam sharad kalin subjion kee kheti	TV talk	Doordarshan, Muzaffarpur
Dr. L.M.Yadav	Sarad ritu me kandmool subjion kee kheti	TV talk	Doordarshan, Patna
Dr. L.M.Yadav	Aloo kee kheti	TV talk	Doordarshn, Muzaffarpur
Dr. M.P.Mandal	Aadhunik krishi pranali se mentha (Japani pudina) ki vaigyanik kheti kaise karein	Radio talk	Community Radio Station, KVK Brauli
Dr. M.P.Mandal	Aadhunik krishi pranali se german chameli ki vaigyanik kheti evam uski aushdhiya upyogita	Radio talk	Community Radio Station, KVK Brauli
Dr. M.P.Mandal	Aadhunik krishi pranali se ashwagandha ki vaigyanik kheti evam uski aushdhiya upyogita	Radio talk	Community Radio Station, KVK Brauli
Dr. M.P.Mandal	Aadhunik krishi pranali se tulsi ki vaigyanik kheti kaise karein	Radio talk	Community Radio Station, KVK, Brauli
Dr. M.P.Mandal	Aadhunik krishi pranali se stevia (chini tulsi) ki vaigyanik kheti evam uski aushdhiya upyogita	Radio talk	Community Radio Station, KVK, Brauli
Dr. M.S. Ali	Eucalyptus ki kheti	Radio talk	AIR, Darbhanga
Dr. M.S. Ali	Vaniki briksh ke liye beejo ka eakratriyakaran	TV talk	Doordarshan, Panta
Dr. M.S. Ali	Popular ke etp dwara parawardhan	TV talk	Doordarshan, Panta
Dr. M.S. Ali	Krisi vaniki apnay	TV talk	Doordarshan, Panta
Dr.Pawan Kumar	Bihar mein strawberry ki safal kheti	Radio talk	Community Radio Station, KVK Birauli
Dr.Pawan Kumar	Sukshma sinchai : Upyog evam prabandhan./	TV talk	ETV, Bihar
Dr. P.P. Singh	Kanda aur arvi kee ropayee	TV talk	Doordarshan, Patna
Dr. R. Suresh	Drip sinchai pranali upyogita evam labh	Radio talk	Community Radio Station, KVK Birauli
Dr. R. Suresh	Fabbara sinchai pranali ki vishestayen awam labh	Radio talk	Community Radio Station, KVK Birauli

Dr. R. Suresh	Green house ki upyogita evam mahatwa	Radio talk	KVK Birauli
Dr. Rajesh Kumar	Nitrogen broadcating, water management and weed control in transplanted rice	TV talk	Doordarshan, Darbhanga
Dr. Rajesh Kumar	Boro dhan ke liye nursery ki taiyari	TV talk	Doordarshan, Patna
Dr. Ravikant	Krishi darshan karyakram kein paudha prajati sanrakshan evam krishak adhikar adhiniyam vishay par varta ke visheshagya	TV talk	Doordarshan, Patna
Dr. Ravinandan	Vibhinna pahasalon se sambandhit samasyayein evam nidan	TV talk	Doordarshan, Muzaffarpur
Dr. S.B. Mishra	Pulses Production Tech. (4 talks)	Radio talk	KVK Birauli
Dr. S.C. Rai	Self employment of rural youth through fish seed production	TV talk	Doordashan, Patna
Dr. S.K. Choudhary	Dhan ki katni evam bhandaran	TV talk	Doordarshan, Patna
Dr. S.P. Singh	Scientific cultivation of turmeric & ginger	Radio talk	All India Radio, Patna
Dr. S.P. Singh	Scientific cultivation of nigella	TV talk	Doordarshan, Muzaffarpur
Dr. S.P. Singh	Scientific cultivation of coriander	TV talk	E-TV, Bihar
Dr. U.S. Singh	Lagawein makka ki upyukta kismein	TV talk	Doordarshan, Muzaffarpur
Dr. U.S. Singh	Makka ki buwai evam khet ki taiyari	TV talk	Doordarshan, Muzaffarpur
Dr. U.S. Singh	Khad, urvarak evam kharpatwar niyantran	TV talk	Doordarshan, Muzaffarpur
Dr. Vinod Kumar	Vibhinna samasyaon se sambandhit kisanon ke prashnon ka uttar telephone ke madhyam se	Radio talk	AIR, Darbhanga
KVK Muzaffarpur	On different aspects (Talk-11)	TV talk	Doordarshan, Muzaffarpur
KVK Samastipur	On different aspects (Talk - 03)	TV talk	Doordarshan, Darbhanga
KVK Vaishali	On different aspects (Talk-)15	TV talk	Doordarshan, Patna

2.3.9 Kisan Mela/Field days etc. Organized by Units

Event	Place	Date	Scientist/ Place	No. of Participants
Field day cum training programme on small millets	i. TCA, Dholi ii. KVK, Piprakothi iii. Farmers field Gopalganj	27.09.2010 29.9.2010 8.10.2010	Dr. S.K. Singh Dr. S.K. Singh Dr. S.K. Singh	32 participants 30 participants 30 participants
Maize QPM	Baghauni Samastipur	26.11.2010	Maize Group	45 participants
Kisan Pathshala	Dwarikapur Muraul Block Muzaffarpur	22.05.2010	Sri A.K. Chaudhary	Village participant member of Kisan Pathshala
Kisan Pathshala	Dwarikapur Muraul Block Muzaffarpur	24.07.2010	Sri A.K. Chaudhary	Village participant member of Kisan Pathshala
World Environment Day	Pusa	06.06.2010	RAU, Pusa	125 participants
Harit Bihar	Pusa	12.10.2011	RAU,. Pusa	150 participants

Plantation Day				
Van Mahtosaw	Pusa	07.07.2011	RAU, Pusa	50 participants
World Forestry Day	Pusa	21.03.2011	RAU, Pusa	25 participants
Honey Mela	Pusa	April 6-7, 2010	RAU, Pusa	95 participants
Maha Kumbh Health Mela, Bhagalpur	Bhagalpur	Feb. 25-28, 2011	RAU, Pusa	3024 participants
Kisan Mela, Pusa	Mela ground, Pusa	March 14-15, 2011	RAU, Pusa	3056 participants
Mushroom Diwas	Pokhraira	03.03.2011	Pokhraira	800 participants
RAU Stall in Bihar Diwas	Patna	March 21-24, 2010	Patna	137 Participants
Agril. Exhibition	Dholi	18.08.2010	TCA, Dholi	-
Tuber Exhibition	Dholi	01.10.2010	TCA, Dholi	-

2.3.10 Kisan Mela / Field Day organized by KVKs

Name of the KVK	Kisan Mela		Field Day	
	No.	No. of Participants	No.	No. of Participants
Begusarai	01	Not counted	01	Not counted
Darbhanga	03	Uncounted	04	229
E.Champran	NIL	NIL	NIL	NIL
Gopalganj	03	2091	NIL	NIL
Muzaffarpur	07	Not counted	02	45
Samastipur	02	1100	06	125
Saran	02	614	15	287
Sheohar	07	214	NIL	NIL
Vaishali	05	1112	01	14
W.Champran	12	484	NIL	NIL

2.3.11 Honey Festival Organized

A two days Honey festival was organized at RAU, Pusa campus on 6-7 April 2010. The chief guest of the function was Dr. M.L. Choudhary, Vice-chancellor, RAU, Pusa. The function was attended by a large number of faculty members, beekeepers (More than 2000), NGOs, financing agencies, exporters and other organizations. A 'Souvenir' and a 'Training Manual' published by the scientists of the Honey bee project were released by the chief guest. More than 30 stalls were displayed by different beekeeping agencies which were centers of attraction in the Honey festival.

2.4 SEED PRODUCTION

2.4.1 Quantity of Seed Received (*Kharif*) and Sold

Name of the Unit	Crop	Category of seed	
		N/S	B/S
B.S.P. Unit	Paddy	04.50	109.52
	Wheat	09.49	105.20
	Pulses	01.44	10.66

2.4.2 Seed Production by Seed Processing Plant, Dholi

S. No.	Crop	B/S		F/S		C/S		T/F	
		Raw Seed (q)	Seed Sold (q)	Raw Seed (q)	Seed Sold (q)	Raw Seed (q)	Seed Sold (q)	Raw Seed (q)	Seed Sold (q)
a.	**Seed Produced during Kharif, 2009-10 and Sold during Kharif, 2010-11**								
1.	Paddy	202.19	186.31	3425.73	2902.80	542.32	474.97	15.80	224.96
2.	Arhar	03.22	02.96	27.55	23.79	07.63	06.49	--	--
3.	Til	00.30	00.26	02.33	01.26	--	--	--	--
4.	Maize (K)	--	--	--	02.57	--	--	--	05.93
b.	**Seed Produced during Rabi, 2009-10 and Sold during Rabi, 2010-11**								
5.	Wheat	1165.3	1096.96	1935.47	1673.12	140.90	114.37	40.20	37.80
6.	Maize (R)	--	--	64.15	58.48	--	--	02.00	01.86
7.	Lentil	64.01	60.48	39.10	37.20	15.68	13.88	08.50	07.40
8.	Urd	02.25	02.12	01.96	01.84	--	--	--	--
9.	Peas	02.10	01.84	03.90	03.44	--	--	--	--
10.	Rajmash	03.62	03.33	--	--	--	--	--	--
11.	Moong	20.83	19.74	26.77	25.15	03.50	03.25	00.47	00.44
12.	R-M.	10.11	07.27	61.16	32.31	18.92	00.35	00.90	00.83
13.	Linseed	--	--	02.43	02.26	--	--	01.70	01.64
Total:-		**1473.93**	**1381.27**	**5526.40**	**4764.16**	**728.95**	**613.31**	**69.57**	**280.86**

2.4.3 Seed Production by KVKs

Name of KVK	Crop	Quantity (q)
Darbhanga	Paddy (F/S)	90.00
	Wheat (F/S)	100.00
	Lentil (F/S)	14.00
	Moong (F/S)	2.38
East Champran	Paddy (F/S)	60.75
	Wheat (F/S)	133.00
	Pulses (F/S)	13.70
	Oil Seed (F/S)	3.21
	Sugarcane (F/S)	1063.05
Gopalganj	Paddy (F/S)	344.00
	Wheat (F/S)	345.50
	Lentil (F/S)	13.00
	Gram (F/S)	19.00
	Lobia (T/L)	11.00
	Tomato (T/L)	0.20
Muzaffarpur	Paddy (F.S.)	11.43
	Wheat (F.S.)	80.00

	Oil Seed	0.452
	Pulses	1.28
Samastipur	Wheat (F.S.)	60.00
	Lentil (B.S)	16.84
	Pigeonpea (B.S.)	0.40
	Ol (T/L)	45.00
Saran	Paddy (F/S)	70.00
	Wheat (F/S)	108.00
	Sesame (F/S)	7.07
	Rai (F/S)	8.00
	Pulses (F/S)	11.00
	Potato (F/S)	11.00
	Pea (F/S)	8.00
Sheohar	Paddy (F/S)	23.20
	Paddy (T/L)	35.46
	Wheat (F/S)	26.50
	Lentil (F/S)	21.90
Siwan	Paddy (F/S)	60.00
	Wheat (F/S)	80.00
	Gram (F/S)	14.05
	Oil Seed (F/S)	3.50
Vaishali	Paddy (T/ L)	7.80
	Oil seed	6.00
West Champran	Paddy (F/S)	63.36
	Wheat (F/S)	65.00
	Arhar (F/S)	1.70

2.4.4 Seed Production by Units

Name of Unit	Crop	Variety	Quantity (q)			
			Breeder	Foundation	Certified	T/L
TCA, Dholi						
Oilseeds	Rapeseed-Mustard					
	Toria	RAUTS-17	0.50	-	-	-
	Yellow sarson	66-197-3	0.85	-	-	-
	Mustard	Rajendra Suflam	0.90	-	-	-
		Rajenra Anukool	0.60	-	-	-
		Varuna	0.90	-	-	-
		Pusa Bold	0.65	-	-	-
	Linseed (Seed Type)	Shekhar	0.70	-	-	-
		Garima	0.90	-	-	-
	DPL	Meera	0.45	-	-	-
	Sunflower	KBSH-1(Hybrid)	-	--	0.14	-
	Sesame	Krishna	0.15	-	-	-
		Pragati	0.15	-	-	-
Pulses	Pigeonpea	Bahar	6.72	-	-	-
		Sharad	0.45	-	-	
		NDA-1	18.04	-	-	-
		MAL-13	5.80	-	-	-
	Mungbean	SML 668	-	-	-	-
		HUM-16	-	-	-	-
	Urd bean	Naveen	0.10	-	-	-
	Lintil	Arun	7.65	-	-	-
		KLS 218	7.50	-	-	-

		HUL 57	5.50	-	-	-
	Chickpea	Pusa 256	6.07	-	-	-
		Pusa 372	1.77	-	-	-
		IPG 186	7.00	-	-	-
		DCP 92-3		-	-	-
		Pusa 362		-	-	-
	Rajmash	Arun	0.16	-	-	-
		PDR-14	0.34	-	-	-
		Utkarsh	0.36	-	-	-
	Field pea	HUDP-15	0.58	-	-	-
Millets	Finger millet	RAU-8	1.50	-	-	-
Maize	Maize Inbred	CML 161	8.5	-	-	-
	lines (Kharif	CML 163	1.8	-	-	-
	& Rabi)	CML 169	2.0	-	-	-
		CML 176	4.15	-	-	-
		CML 186	1.99	-	-	-
	Composites	Suwan	3.45	-	-	-
		Devki	8.0	-	-	-
		Lakshmi	4.0	-	-	-
	Hybrid	Saktiman-2 (Kharif 2011)	-	-	0.50	-
Dholi	Arhar	Bahar	-	20.55	-	-
Kothi	Oil seed	-	-	-	-	-
Farm	Rai	Pusa Bold	7.00	-	-	-
	Yellow sarson	YS 66-197-3	5.50	-	-	-
	Til	Krishna	1.35	-	-	-
	Pulse	-	-	-	-	-
	Rajmesh	PDR-14	2.76	-	-	-
	Lentil	Arun	22.35	-	-	-
		HUL-16	10.25	-	-	-
	Urd	Pant-31	-	1.33	-	-
	Moong	HUM-16	-	1.95	-	-
		SML-668	2.44	-	-	-
		Pusa Vaishali	2.58	-	-	-
		Meha	1.08	-	-	-
		PDM-139	2.67	-	-	-
		TMB-37	8.15	-	-	-
	Maize	Shaktiman-3	2.00	-	-	-
	Wheat	HD-2643	-	74.05	-	-
	Paddy	Prabhat	-	110.70	-	-
		R.Bhagabati	-	105.75	-	-
		R.Sweta	-	41.40	-	-
		MTU-1010	-	63.00	-	-

2.4.5 Planting Material Production

Crop	Quantity sold (No.)	Value (Rs.)
Agro forestry Unit		
Deshi Semal	2205	4410.00
Mahogani	309	1545.00
Bamboo	37	740.00
Sagwan	4027	8054.00
Green Semal	2030	4060.00
Chah	77	154.00
Arjun	1770	3540.00
Gamhar	1390	2780.00
Kadamb	330	660.00
Jamun	426	852.00
Bahera	50	100.00
Plash	10	50.00
Bamboo Seedling	2	10.00
Kachnar	5	10.00
Bija Sal	420	840.00
Sammi	13	195.00
White Siris	230	460.00
Sindur	50	100.00
Karanja	100	200.00
Tun	20	40.00
Kala shisham	1010	1010.00
Shisham	250	500.00
Neem	160	320.00
Jackfruit	20	40.00
Goldmohar	125	250.00
Poplar	50	250.00
Non-Plan Project (BPP)		28944.00
Stevia , Bahera, Sarpgandha, Coleus Jal Brahmi, Sanjiwani tiktraj, Akarkara Pipili, Lajwanti, Alovera, Sadabahar Ashwagandha, Jawa cytonella, Bavchi Ajwain, Vaska, Lamon Grass, Gudmar Pathalchur, Kali mushli, Kalmegh, Mehdi Kalihari, Khus, Arjun, Kali haldi Menthe neem, Summy, Bavchi, Tulsi Kasturi bhindi, Apamarg, Giloe, Stavar Gandh brahami, Aparjita, Kachur Pamarose, Aam adi Pachalui, Harjorh		
KVK, Vaishali		
Tubrose	109000 (Tubers)	90800.00
Bottle Guard	5.0 kg	1000.00
Ridge gourd	1.5 kg	300.00
French been	4 .0 kg	200.00
Vegetable seedling	2053	5243.00
Fruits	1852 (no)	64750.00
Ol	20 q	24000.00
KVK, W.Champaran		

Fruits	185 q	6250.00
KVK, E.Champran		
Fruits	617 q	
KVK, Siwan		
Mango	1100	
Oal	20 q	
KVK, Saran		
Fruits	12000	
Vegetables	102 kg	
AICRP on Tuber Crops (Other than Potato)		
Yam bean seed	174.350 kg	43587.50
Elephant foot yam	3467 kg	5200.00
Arvi	500 kg	6000.00
Lesser yam	197 kg	2364.00
TCA, Dholi		
Fruit plants	24230	93410.00
Centrally Sponsored Scheme on Spices Development, Deptt. of Horticulture, T.C.A., Dholi		
Rhizome Spices (Turmeric and Ginger)	35 q	
Seed Spices (Coriander, Fenugreek, Nigella, Fennel & Omum)	5 q	
Non-Plan Project (BPP)		
Pippermint, Mentha, Safed Musli, Kalmegh, Ashwagandha ,Kachur	122.35 kg	

2.4.6 Mushroom Production

Name of Unit	Species	Quantity	Value (Rs.)
Mushroom unit	Mushroom	9 q	45000.00

2.4.7 Fish Seed Production

Name of Unit	Species	Stage	Quantity (No.)	Value (Rs.)
COF, Dholi	Catla, Rohu, Mrigal, Grass Carp, Common Carp	Spam	6 million	107717.00

2.4.8 Honey Production

Name of unit	Type	Quantity (Kg)	Value (Rs.)
AICRP on Honey Bee & Pollinators	Mustard	1200.00	198000.00
	Litchi	1400.00	231000.00
KVK, Saran	Mustard	28.10	2810.00
	Total:		**431810.00**

2.4.9 Milk Production

Name of KVK/unit	Type	Quantity	Value (Rs.)
KVK, Saran	Buffalo	1007.5 lt @ Rs. 20.00/lt	20030.00
APRI, Pusa	Cow	114710 lt @Rs.18 / lt	2064780.00
	Buffalo	16307 lt @Rs. 20 /lt	326410.00

2.4.10 *Rhizobium* and *Azotobacter* Biofertilizer Production

Biofertilizer	No. of packets	Area coverage (ha)
Rhizobium	99,220	18,244
Azotobacter	52,194	10,439
PSB	50,557	10,112
Total Receipt (Rs.)	**20,19,710**	**38,795**

3. STUDENTS' WELFARE ACTIVITIES

3.1 GAMES & SPORTS ACTIVITIES

The games and sports is an essential activity in every educational institution that inculcate team spirit and accommodativeness among students, besides physical and mental development. These activities create keenness amongst the students to get themselves acquainted and being familiar to each other and activate young talented players to prove their skill in games and sports.

3.1.1 University Level Games & Sports

The Annual Athletic Meet and Games & Sports Tournament for different events, such as 100 M, 200 M, 400 M, 800 M, 1500 M, 4x100 M Relay, High Jump, Long Jump, Shot Put, Javelline Throw, Table Tennis, Badminton, Carrom, Chess and Volleyball were organized at TCA Dholi from 20th to 23rd January, 2011. About 168 boys & girls of different Colleges of RAU participated in the aforesaid Athletic Meet and Games & Sports Tournament. The Hon'ble Vice-Chancellor inaugurated the tournament. The participants were awarded gold, silver & bronze medals and certificates on the basis of best performance in different events and prizes were distributed amongst the participants by the chief guest. The details of talley of different Colleges in Athletic & Sports Meet are as below :

S.No.	College	Gold	Silver	Bronze	Total
1.	Home Science, Pusa	5	6	4	15
2.	CAE, Pusa	9	5	4	18
3.	Bio-Tech, FBS & H, Pusa	6	5	4	15
4.	TCA, Dholi	3	5	5	13
5.	COF, Dholi	1	2	3	6
6.	Post Graduate Faculty, Pusa	8	1	1	10
7.	MBA Agribusiness, Pusa	-	-	1	1

3.2 UNIVERSITY LEVEL ANNUAL CULTURAL & DEBATING PROGRAMME

The Annual Cultural & Debating programmes were conducted at RAU from 18–19th February, 2011 for selection of Boys & Girls Team for participation in various events such as Classical Song, Semi Classical Song, Light Song, Folk Song, Classical Instrumental, Classical Dance, Semi Classical Dance, Folk Dance, Balley Short Drama, Comics, Kavya Path, Debate, Elocution, Painting, Flower Bouquet & Handicraft. About 139 students of different colleges of RAU participated in the selection trials for participation in various State & outside State Inter University Tournaments.

3.3 NATIONAL SERVICE SCHEME ACTIVITIES

In view of the efforts made by the University Level Programme Coordinator, a separate budgetary system has been evolved for NSS activities as per the provision of NSS guidelines. The various NSS activities carried out by the university are as below :

3.3.1 Participation in Kisan Mela

A Kisan Mela was organized by the Department of Agriculture, Govt. of Bihar in the campus of Bihar Veterinary College, Patna on 24-25th May, 2010. On this occasion, a stall was arranged by the NSS unit of BVC, Patna. Altogether 14 students participated in the programme. Our students advised the farmers for economic dairy, goat and poultry farming. The students also told the farmers that how the less nutrient paddy straws can be enriched through urea treatment for feeding to the dairy animals. They also rendered their services in disease diagnosis through examination of faecal samples and proper line of treatment was given to the farmers.

3.3.2 Organization of Animal Health Camp

An Animal Health Camp was organized at Raja Pakar block within the jurisdiction of Hariharpur KVK, Vaishali through NSS unit of BVC, Patna on 9th June, 2010. Altogether 12 students participated in the programme. The main objective of this camp was the disease diagnosis and treatment of ailing animals. Altogether 72 cases including cattle and buffaloes were registered for treatment. Irrespective of diseases, the acute problem was the infertility. Majority of the animals were suffering from helminth and tick infestation.

Disease diagnosis and proper line of treatment were provided by experts namely Dr. Pallav Shekhar, Asstt. Professor, Deptt. of Clinical Medicine and Dr. Ankesh Kumar, Asstt. Professor, Veterinary Clinical Hospital, BVC, Patna. All the students actively participated in the programme and assisted during the entire period of the camp. Dr. Narendra Kumar, Junior Scientist, Hariharpur KVK also joined the team. A buffalo and a cow, suffering from abdominal abscess for last few months, were successfully operated by the NSS volunteer students.

Thanks to the pharmaceutical agencies like M/s Intervet and M/s Nutrivet who supported them by providing medicines at free of cost for the treatment of ailing animals. Without support of these agencies, the camp would have been incomplete. The Principal, BVC, Patna was kind enough to give the permission for organizing these NSS activities.

3.3.3 NSS Activities in the Adopted Villages

- **Training of POs**

  The BVC, Patna imparted training related with pregnancy diagnosis with the help of project staff of KVK Hajipur during the NSS camp organized at Raja Pakar village of Vaishali district on 9th June, 2010. The faculty members of BVC, Patna, NSS volunteers of the college and POs of Hajipur block were present on this occasion.

- **College of Home Science**

  The NSS volunteers of College of Home Science organized an awareness programme about knowledge of proper hygienic conditions, malnutrition, child health care and practice to the rural women of Ladaura and Mahamada villages.

- **SGIDT, Patna**

  Sanjay Gandhi Institute of Dairy Technology, Patna has undertaken a NSS Programme in the Sahalichak village near Maner block of Patna district in which NSS volunteers of this institute imparted different knowledge/skills to the dairy farmers for their cattle management and enhancement of milk production.

- **Faculty of Basic Sciences & Humanities, Pusa**

Faculty of Basic Sciences and Humanities, Pusa organized a seminar on "Role of Bio-Technology in National Service Scheme" on 31st May, 2010 in the lecture hall of Department of Bio- Chemistry. All the NSS volunteers of Bio-Technology (B. Tech.) participated in the seminar and expressed their views about the application of bio-technology tools and mechanism for welfare of the rural community. Dean, Basic Sciences along with other faculty members including Dr. A.K. Singh, NSS Programme Coordinator participated in the seminar.

- **College of Agricultural Engineering, Pusa**

The student of CAE, Pusa participated in live demonstration of tubular maize sheller and hand rotary maize sheller at village Bishanpur near Birauli on 8th May, 2010 under the NSS programme. The small farmers generally do the shelling of maize by beating with a stick followed by hand shelling. It takes a lot of time and it is highly arduous work. Thus, this demonstration was conducted to provide technical knowledge regarding shelling of maize which is grown on large scale in this locality. It will help to reduce time and cost of shelling as well as to improve the output capacity. Nearly fifty persons (mostly women) participated in the demonstration.

3.4 NATIONAL CADET CORPS ACTIVITIES

National Cadet Corps unit of Rajendra Agricultural University, Pusa is running with an authorized strength of fifty five cadets and one NCC Officer, Lt. (Dr.) Uma Shankar Singh. Apart from regular classes and parades in which cadets were trained in relevant course content, they also took part in Independence Day and Republic Day celebrations and different functions of the colleges and University.

The cadets of this unit participated in the Combined Annual Training Camp & Army Attachment Camp held at Muzaffarpur (6-15 September, 2010), Darbhanga (15-24 February, 2011) and Ramgarh (1-15 February, 2011). The following students of College of Agricultural Engineering, Pusa appeared for "B" certificate Examination of NCC and were declared successful and awarded with Momento & certificates on the occasion of Independence Day 2010.

(1) Jitendra Kumar
(2) Ashutosh Kumar
(3) Aman Kumar Ravi
(4) Ranjeet Kumar Paswan
(5) Vikash Kumar Vikrant
(6) Manish Kumar
(7) Kushal Kunal
(8) Manish Kumar Sah
(9) Raushan Kumar
(10) Sujeet Kumar Bhagat

Cdt. Raushan Kumar and Sgt. Sujeet Kumar Bhagat (B.Tech., Agricultural Engineering student) appeared for "C" certificate Examination and were declared successful and awarded with Momento and certificates on the occasion of Republic Day, 2011. Besides, Dr. U.S. Singh, NCC Officer of this unit participated in Combined Annual Training Camp held at JNV, Birauli from 8-17 May, 2010 and also at Muzaffarpur from 6-15 September, 2010 as Camp Adjutant and Camp Quarter Master, respectively.

3.5 HOSTEL

The RAU provides hostel accommodation to each and every student admitted in under-graduate, post-graduate & Ph.D. programmes along with common room and mess

facilities in all campuses viz; Tirhut College of Agriculture, Dholi; College of Fisheries, Dholi; College of Agricultural Engineering, Pusa; College of Home Science, Pusa and College of Basic Sciences & Humanities, Pusa under the control of concerned Warden & Hostel Superintendent, Assoc. Dean/Dean and Director Students' Welfare.

During the reported year, the common rooms of hostels at Pusa were provided fan, door curtain, water supply system, electrification and refrigerators. The beautification of hostel has also been done.

3.6 DEVELOPMENTAL ACTIVITIES

The cleaning work of sports complex and grass cutting work around University boys & girls Hostels have been done.

3.7 EDUCATIONAL/STUDY TOUR

The Education tours of South & North India to 58 students of TCA Dholi and 13 students of B.Tech. (Biotech) have been sanctioned. Besides, study tour of 25 students of B.F.Sc. has also been sanctioned.

3.8 FELLOWSHIP/SCHOLARSHIP

As per provisions under regulation, 33 M.Sc. (Ag.) & 7 Ph.D. students of various disciplines have been awarded Junior & Senior Fellowships. Under U.G. programme, Merit & Merit-cum-Means Scholarship have been sanctioned to 41 students during the reported year as per detailed given below:-

(A) Fellowship :

S. No.	Programme	Fellowship sanctioned for 1st & 2nd semester	Fellowship sanctioned for 3rd & 4th semester	Fellowship sanctioned for 5th & 6th semester
1.	M.Sc.(Ag.)	22	11	-
2.	Ph.D.	04	01	02
	Total:	26	12	02

(B) Scholarship (Merit & Merit-cum-Means Scholarship) :

S. No.	Name of College	No. of Students
1.	College of Agriculture Engineering, Pusa	41

(C) RAWE :

S.No.	Name of College	No. of students
1	Tirhut College of Agriculture, Dholi	66
2	College of Agricultural Engineering, Pusa	34
3.	College of Home Science, Pusa	01
4.	College of Fisheries, Dholi	25

3.9 PLACEMENT CELL

Registration of pass out students of U.G. and P.G. programme of various disciplines viz. Agriculture, Veterinary and Animal Sciences, Agricultural Engineering, Basic Sciences and Humanities, Fisheries and Dairy Technology is done to facilitate them for various jobs offered by private, corporate and Government sectors and suited to their professional fields through campus interviews. During the reported year, the campus interviews for appointment of UG, PG and Ph.D. students in different agencies have been organized and the following students were selected.

S. No.	Name of the student	Post	Organization
1.	Mr. Tarun Kumar	Agriculture Officer, Scale/Grade-1	Bank of India
2.	Mr. Ved Prakash Karn	Agriculture Officer, Scale/Grade-1	Bank of India
3.	Mr. Satedra Kumar	Agriculture Officer, Scale/Grade-1	Bank of India
4.	Miss Anupam Kumari	Agriculture Officer, Scale/Grade-1	Bank of India
5.	Mr. Mukesh Kumar Mandal	Agriculture Officer, Scale/Grade-1	Bank of India
6.	Miss Swati Singh	Agriculture Officer, Scale/Grade-1	Bank of India
7.	Mr. Kumar Ranjan	Agriculture Officer, Scale/Grade-1	Bank of India
8.	Mr. Shashi Kant	Agriculture Officer, Scale/Grade-1	Bank of India
9.	Mr. Kumwar Singh	Agriculture Officer, Scale/Grade-1	Bank of India
10.	Mr. Sudhanshu Kumar	Agriculture Officer, Scale/Grade-1	Bank of India
11.	Mr. Nisheh Kashyap	Agriculture Officer, Scale/Grade-1	Bank of India
12.	Mr. Mukesh Kumar	Agriculture Officer, Scale/Grade-1	Bank of India
13.	Mr. Dharmendra Kumar	Agriculture Officer, Scale/Grade-1	Bank of India
14.	Mr. Deepak Kumar Sinha	Agriculture Officer, Scale/Grade-1	Bank of India
15.	Mr. Chandra Deo	Agriculture Officer, Scale/Grade-1	Bank of India
16.	Mr. Anwar Alam	Agriculture Officer, Scale/Grade-1	Bank of India
17.	Mr. Mridu Kumar	Agriculture Officer, Scale/Grade-1	Bank of India
18.	Mr. Ashish Kumar	Agriculture Officer, Scale/Grade-1	Bank of India

4. UNIVERSITY LIBRARY

University Library at Pusa is catering to the needs of scientists, teachers, extension specialists, students and staff of the main campus of the University as well as scientific staff of the Research stations, Sub-stations and KVKs.

1.	Opening hours	:	9.00 AM to 5.00 PM	
2.	Circulation hours		10.00 AM to 4.30PM	
3.	Documents in the library	:	62574	
4.	Additions during the year	:	Books on 31.03.2010:	61235
			Books by purchase:	919
			Documents on Gratis:	368
			Theses by Students:	052
			Total Addition :	**1339**
5.	Journals subscribed (2011)	:		139
6.	CD ROM Databases available	:	1. AB Abstracts (1984 – Present)	
			2. ROP CD (1973-2003)	
			3. ABPEST CD (1973-2004)	
			4. GRIS CD (1991 – 2003)	
			5. GRICOLA (1984 – 2003)	
			6. ABSAC (1973 – 1997)	
			7. Food & Hum. Nutr. CD (1975 – 2004)	
7.	Circulation of books	:	Books issued:	5227
			Books returned:	4216
			Total:	**9443**
8.	No. of readers registered during the year	:	Teachers/Scientists:	094
			PG Students:	113
			UG Students:	294
			Staff :	010
			Total:	**511**
9.	No. of visitors during the year	:	Teachers/ Scientists:	2983
			Students and others:	16690
			Total :	**19673**
10.	No. of photocopies produced	:		8727
11.	Services provided	:	1. CAB Abstracting Service	
			2. Photocopying Service	
			3. Reference Service	
12.	No. of staff	:	1. Technical/Professional:	02
			2. Ministerial Staff:	05
			3. Support Staff:	04
13.	Courses offered	:	PGS – 501	

5. UNIVERSITY HOSPITAL

5.1 NUMBER OF PATIENTS TREATED IN UNIVERSITY HOSPITAL

S.No.	Particulars	Total Number
1.	Patients treated	6001
2.	Patients admitted	258
3.	Patients recommended for specialized treatment	23

5.2 PATHOLOGICAL TESTS DONE AT UNIVERSITY HOSPITAL

S.No.	Name of the Test	No. of Patients
1.	Blood Sugar	206
2.	B. Urea	03
3.	Hb % of blood	39
4.	ESR	61
5.	BT (Bleeding time)	06
6.	CT (Clotting time)	06
7.	Urine Routine Exam.	14
8.	Stood Routine Exam.	02
9.	M.P.	03
10.	T.L.C	127
11.	D.L.C.	127
12.	X-ray	17
13.	ABORH	118
14.	VDRL	01
15.	Widal	06

5.3 FACILITIES AVAILABLE

S.No.	Facility	Remarks
1.	X-Ray Machine	Functional
2.	Routine Pathological Lab.	Functional
3.	Ambulance - 01	Functional

6. STAFF POSITION

S. No.	Post	Sanc-tioned post	Filled up post	Vacant post	Remarks
Non Plan					
1.	Dean/Director/Registrar/ Comptroller	22	0	22	Work of Dean/ Director/Registrar /Comptroller is being assigned to Senior Officers/ Teachers of RAU
2.	Univ. Prof.-cum-Chief Scientist	36	0	36	Promoted under Career Advancement Scheme
3.	Assoc. Prof.-cum- Sr. Scientist	97	13	84	Promoted under Career Advancement Scheme
4.	Asstt. Prof.-cum- Jr. Scientist	259	149	110	
ICAR Projects					
1.	Chief Scientist-cum-Univ. Prof.	3	0	3	
2.	Sr. Scientist-cum-Assoc. Prof.	27	22	5	
3.	Jr. Scientist-cum- Asstt. Prof.	58	50	8	
KVKs					
1.	Programme Coordinator	11	0	11	
2.	Subject Matter Specialist	66	55	11	

7. ANNUAL ACCOUNT

RECEIPT

S.No.	Particulars	Amount (in Rs.)
1.	State Non-Plan	800000000.00
2.	State Plan	627491622.00
3.	ICAR	225609880.00
4.	KVK	274896500.00
5.	Misc. Scheme	282139747.20
6.	Other Scheme	62096852.75
7.	Revolving Fund	78224554.05
8.	GIS	3200230.83
9.	University Receipt	47037807.41
10.	Students Fund	5194670.63
Total :		**2405891864.87**
Add Opening Balance :		**2018589172.12**
Grand Total :		**4424481036.99**

EXPENDITURE

S.No.	Particulars	Amount (in Rs.)
1.	Non-Plan	706877817.77
2.	Plan	101827384.10
3.	ICAR Scheme	94079894.79
4.	ICAR Plan	22581391.08
5.	KVK A/C	165999505.41
6.	Misc. Scheme	51954982.61
7.	Other Scheme	31444168.10
8.	Revolving Fund	59656363.40
9.	GIS	4774117.39
10.	Remittances adjustable	1488522605.87
11.	University Receipt	2143796.62
12.	Students Fund	1339355.24
Total :		**2731201382.38**
Closing Balance :		**1693279654.61**
Grand Total :		**4424481036.99**

8. AWARDS/RECOGNITIONS

- Best Teacher Award (2010) to Dr. S.K. Sinha, Assistant Professor, Department of Biochemistry was conferred by RAU, Pusa.
- Best Teacher Award (2010) to Md. A. Sattar, Assistant Professor, Department of Agrometeorology was conferred by RAU, Pusa.

9. SEMINAR/SYMPOSIUM/TRAININGS ORGANIZED

- Progressive Farmers Seminar on Commercialization of Tuber Crops (other than potato) was organized by AICRP on Tuber Crops, Dholi, October 1, 2010.
- Farmers Training on Spices Production was organized by Department of Horticulture, Tirhut College of Agriculture, Dholi, September 25-27, 2010.
- Training for Lady Supervisors of Anganwari was organized by College of Home Science, RAU, Pusa.
- Seminar on Development of Horticulture in Bihar : Issues & Strategies was organized by Bihar Horticultural Society at Patna, January 28-29, 2011.

10. PARTICIPATION OF SCIENTISTS IN SEMINAR/ SYMPOSIUM/CONFERENCE

- Sri A.K. Choudhary attended Seminar on Development of Horticulture in Bihar - Issues and Strategies organized by R.A.U., Pusa, BAU, Sabour & NHB at Patna January 28-29, 2011.
- Sri B. Prasad attended Seminar on Development of Horticulture in Bihar-Issues and Strategies organized by R.A.U., Pusa, BAU, Sabour & NHB at Patna, January 28-29, 2011.
- Dr. C.K. Jha attended National Seminar on AIDA-cum-CPCB at New Delhi, February 26-27, 2011.
- Dr. D. K. Das attended National Seminar on Agroforestry for Environmental Services, Livelihood Security and Climate Resilient Agriculture: Challenges and Opportunities at National Research Centre for Agroforestry, Jhansi, December 3–5, 2011.
- Dr. M. S. Ali attended Seminar on Development of Horticulture in Bihar - Issues and Strategies organized by RAU, Pusa, BAU, Sabour & NHB at Patna, January 28-29, 2011.
- Dr. M.L. Agarwal and Dr. Neeraj Kumar attended National Biennial Group Meet of AICRP (HB & P) and Honey Festival at OUAT, Bhubneshwar (Orissa), February 11-13, 2011.
- Ms. Madhuri Arya attended 12th Indian Agril. Scientist and Farmers Congress organized by Bioved Research Society at Allahabad, February 20-21, 2010.
- Ms. Madhuri Arya attended SAARC Workshop on Biodiversity Conservation organized by BHU at Varanasi, September 21-22, 2010.
- Dr. Neeraj Kumar attended Seminar on Development of Horticulture in Bihar - Issues and Strategies organized by RAU, Pusa, BAU, Sabour & NHB at Patna, January 28-29, 2011.
- Dr. P. Prakash attended Asian- Pacific Aquaculture 2011 (APA 2011) organized by World Aqu.
- Dr. P.P. Singh attended Seminar on Development of Horticulture in Bihar-Issues and Strategies organized by R.A.U., Pusa, BAU, Sabour & NHB at Patna, January 28-29, 2011.
- Dr. Phool Chand attended 64th Indian Phytopathological Society Annual Meeting & National Symposium on Biology of Infection, Immunity and Disease Control in Pathogen-Plant Interactions organized by IPS, New Delhi & Deptt. of Plant Sciences, School of Life Sciences, University of Hyderabad, December 2-4, 2011.
- Ms. Rita Kumari attended Seminar on Development of Horticulture in Bihar-Issues and Strategies organized by R.A.U., Pusa, BAU, Sabour & NHB at Patna, January 28-29, 2011.
- Sri R.K. Ranjan attended Seminar on Plant Biomolecule: A Panacea for Umpteen Human Genetic Disorder – A New Opportunity of Genetic Engineering at BVC, Patna on May 5, 2010.

- Dr. S. K. Singh and Sri P K Chaudhary attended Seminar on Development of Horticulture in Bihar - Issues and Strategies organized by RAU, Pusa, BAU, Sabour & NHB at Patna, January 28-29, 2011.
- Dr. U. Mukharjee attended Seminar on Development of Horticulture in Bihar - Issues and Strategies organized by RAU, Pusa, BAU, Sabour & NHB at Patna, January 28-29, 2011.
- Dr. Vibha attended National Symposium on Emerging Trends in Plant Sciences, March 3-4, 2011 at BHU, Varanasi.
- Dr. Vikram Bharati attended Seminar on Development of Horticulture in Bihar-Issues and Strategies organized by R.A.U., Pusa, BAU, Sabour & NHB at Patna January 28-29, 2011.
- Sri V. K. Choudahry attended Seminar on Development of Horticulture in Bihar-Issues and Strategies organized by R.A.U., Pusa, BAU, Sabour & NHB at Patna, January 28-29, 2011.

11. PARTICIPATION OF SCIENTISTS IN SHORT COURSE/TRAINING/ SUMMER SCHOOL/WINTER SCHOOL/REFRESHER COURSE

- Dr. Ajay Kumar participated in refresher course organized by Banaras Hindu University at Varanasi, February 17-26, 2011.
- Dr. D. K. Das participated in training programme on Data Analysis of Agroforestry Experiments using SAS of the NAIP Consortium - Strengthening Statistical Computing for NARS organized by IASRI at New Delhi, January 17 -22, 2011.
- Dr. R.K. Jha participated in winter school on Advances in Agroforestry for Livelihood Security, Sustainable Development and Bio-diesel Production organized by National Research Centre for Agroforestry at Jhansi.
- Dr. Ravi Kant participated in refresher course organized by Staff Academic College, B.H.U. at Varanasi, January 27 - February 16, 2011.
- Dr. Ravi Kant participated in short course on Integrated Seed Improvement organized by Govt. of India, N.S.R.T.C. Ministry of Agril., (D.A.C.) at Varanasi, February 1 - 20, 2012.
- Er. Dinesh Rajak participated in training program for Research Engineers of PHTS on Agro-processing Equipment Design organized by CIPHET at Ludhiana (Punjab), January 7-27, 2011.
- Er. I.B. Bhagat participated in GIS winter school organized by NBSS, LNUP at Nagpur, September 6-26, 2010.
- Er. Sanjay Kumar participated in refresher course on Renewable Energy organized by Gandhi Gram Rural Institute at New Delhi, December 1-22, 2010.
- Md. M.N.Ansari participated in winter school on ICT Mediated Agricultural Extension Basics to Advanced organized by BHU at Varanasi, December 5 to January 5, 2011.
- Ms. Gitanjali participated in refresher course on Instrumental Technique in Agriculture and Food Quality Assessment organized by Junagadh Agril. University at Junagadh, October 1-21, 2011.
- Ms. Madhuri Arya participated in winter school organized by Banaras Hindu University at Varanasi, January 2-28, 2011.
- Ms. Pramila participated in refresher course on Production & Seed Production of Temperature Vegetables organized by Centre for Advance Faculty Training in Horticulture, Deptt. of Vegetable Science, Dr. Y.S. Parmar University of Horticulture & Forestry, Nauni, March 8-28, 2011.
- Sri Dinesh Rai participated in winter school on Plant Pathology in Practice organized by CAFT, GBPU&T at Pantnagar (Uttarakhand), March 22 - April 11, 2010.
- Sri R. K. Brahmchari participated in training on Induced Breeding of Mangur organized by Central Institute of Fresh water Aquaculture at Bhubaneswar, July 19-23, 2010.

12. PARTICIPATION OF SCIENTISTS IN WORKSHOP/ GROUP MEETING

- Dr Ajay Kumar attended Bangladesh Annual Group Discussion and Presentation organized by BMZ-DMR (ICAR), September 30 - October 6, 2010.
- Dr. Ajay Kumar attended 53rd Annual Maize Workshop organized by Directorate of Maize Research, New Delhi and Sher-e-Kashmir University of Agricultural Sciences & Technology of Kashmir at Srinagar, April 10-12,2010.
- Dr. Ajay Kumar attended Annual Group Discussion and Presentation organized by BMZ-DMR (ICAR), CSKHPKV, Palampur, May16-18, 2010.
- Dr. Ajay Kumar attended Annual Group Meet of AICRP on MuLLaRP organized by IIPR, Kanpur, May16-18, 2010.
- Dr. Anil Pandey attended18th Annual Group Meeting of Rapeseed-Mustard organized by Directorate of Rapeseed-Mustard Research (ICAR), August 5-7, 2011.
- Dr. B. Kumar attended Group Meeting of AICRP on Potato organized by CPRI, Shimla, September 11-13, 2010.
- Dr. G. Jha attended Group Meeting of AICRP on Potato organized by CPRI, Shimla, September 11-13, 2010.
- Dr. J. Prasad attended Eastern Regional Seminar cum Training Workshop on Soil Testing for Balanced and Integrated Nutrient Management of Fertilizer and Manure organized by IGKV, Raipur (Chhatishgarh), December 23-24, 2010.
- Dr. J. Prasad attended Mid term Workshop of GPS-GIS Project organized by Indian Institute of Soil Science, Bhopal, November 13-14, 2010.
- Dr. J. Prasad attended Seminar on Development of Horticulture in Bihar-Issues and Strategies organized by R.A.U., Pusa, BAU, Sabour & NHB at Patna, January 28-29, 2011.
- Dr. K.K. Sinha attended Annual Group Meet of AICRP on MuLLaRP organized by IIPR, Kanpur, May16-18, 2010.
- Dr. L.M. Yadav attended Group Meeting of AICRP on Potato organized by CPRI, Shimla, September 11 - 13, 2010.
- Dr. M. Kumar attended 53rd Annual Maize Workshop organized by Directorate of Maize Research, New Delhi and Sher-e-Kashmir University of Agricultural Sciences & Technology of Kashmir at Srinagar, April 10-12, 2010.

- Dr. N.K. Singh attended 45th Annual Rice Group Meeting organized by Anand Agricultural University, Anand, April 4-6, 2010.
- Dr. P.K.Jha attended Group Meeting of AICRP on MAP and Betelvine organized by DMAPR, Anand and MPKV, Rahuri, November 8-11, 2010.
- Dr. P.P. Singh attended Annual Crop Group Meeting of AICRP on Tuber Crops (other than Potato) organized by Central Tuber Crop Research Institute (CTCRI) at Thiruvananthapuram, March 11-12, 2011.
- Dr. Phool Chand attended Annual Group Meeting on Sunflower and Castor organized by TNAU, Coimbatore, April 8-10, 2010.
- Dr. Rajesh Kumar attended 45th Annual Rice Group Meetings organized by Anand Agricultural University, Anand, April 4-6, 2010.
- Dr. S. B. Mishra attended Annual Group Meeting of Pigeonpea organized by IIPR (ICAR), May 16-19, 2010.
- Dr. S. Jha attended Eastern Regional Seminar cum Training Workshop on Soil Testing for Balanced and Integrated Nutrient Management of Fertilizer and Manure organized by IGKV, Raipur (Chhatishgarh), December 23-24, 2010.
- Dr. S. Jha attended Mid term Workshop of GPS-GIS Project organized by Indian Institute of Soil Science, November 13-14, 2010.
- Dr. S. Jha attended Seminar on Development of Horticulture in Bihar-Issues and Strategies organized by R.A.U., Pusa, BAU, Sabour & NHB at Patna, January 28-29, 2011.
- Dr. S.K. Singh attended National Group Meeting of AICRP on Micro and Secondary Nutrients and Pollutant Elements in Soils and Plants organized by A.A.S., Jorhat, Assam, March 11-13, 2011.
- Dr. S.K. Varshney attended Annual Group Meeting of A.I.C.R.P. - N.S.P. (Crops) organized by D.S.R., Mau, May 2-4, 2011.
- Dr. S.P. Singh and Dr. A.K. Mishra attended Group Meeting of AICRP on Spices organized by NRC on Seed Spices at Ajmer (Rajasthan), July 5 - 7, 2010.
- Dr. S.S. Prasad attended Annual Workshop of NAIP Component-3 at National Bureau of Fish Genetic Resources, Lucknow, March 1-2, 2011.
- Dr. S.S. Prasad attended Hand Hold Workshop on Project Monitoring & Tracking System at IGKV, Raipur, August 16-17, 2010.
- Dr. S.S. Prasad attended Mid-term Review Meeting of NAIP at NAAS, New Delhi, May 21-23, 2010.
- Dr. U. K. Singh attended Annual Group Meeting on Sunflower. Sesame & Niger organized by DOR, Hyderabad (ICAR) at TNAU, Coimbatore, April 8-10, 2011.

- Dr. Vikram Bharati attended Annual Group Meeting on Sunflower organized by PDKV, Akola (Maharashtra), March 24-26, 2011.

- Dr. Vipin Kumar attended Fourth C.A.C. & C.I.C. Meeting of NAIP Comp-IV organized by Indian Institute of Soil Science, Bhopal, March 25-26, 2011.

- Dr. Vipin Kumar attended National Group Meeting of AICRP on Micro and Secondary Nutrients and Pollutant Elements in Soils and Plants organized by A.A.S., Jorhat, Assam, March 11-13, 2011.

- Md. Tanveer Alam attended 53rd Annual Maize workshop organized by Directorate of Maize Research, New Delhi and Sher-e-Kashmir University of Agricultural Sciences & Technology of Kashmir, Shalimar, Srinagar, April 10-12, 2010.

- Ms. Rita Kumari attended Annual Crop Group Meeting of AICRP on Tuber Crops (other than Potato) organized by Central Tuber Crop Research Institute (CTCRI) at Thiruvananthapuram, March 11-12, 2011.

- Sri A.K. Choudhary attended Annual Crop Group Meeting of AICRP on Tuber Crops (other than Potato) organized by Central Tuber Crop Research Institute (CTCRI) at Thiruvananthapuram, March 11-12, 2011.

- Sri B. Prasad attended Annual Crop Group Meeting of AICRP on Tuber Crops (ther than Potato) organized by Central Tuber Crop Research Institute (CTCRI) at Thiruvananthapuram, March 11-12, 2011.

- Sri Dinesh Rai attended 53rd Annual Maize workshop organized by Directorate of Maize Research, New Delhi and Sher-e-Kashmir University of Agricultural Sciences & Technology of Kashmir at Srinagar, April 10-12, 2010.

- Sri Dinesh Rai attended Annual AICRP (R&M) Group Meeting cum Workshop organized by RVSKVV, Gwalior, September 1-3, 2010.

- Sri R.K. Ranjan attended Annual Group Meeting of AICRP – NSP (Crops) organized by DSR, Kushmaur, Mau, May 4-6, 2010.

- Sri V.K. Choudhary attended Annual Group Meeting organized by CRIJAF, Barrackpur, May 4-6, 2010.

13. PUBLICATIONS

13.1 RESEARCH PAPERS PUBLISHED

Ajit, Das, D.K., Chaturvedi, O.P., Jabeen, Nighat and Dhyani, S.K. (2011). Predictive models for dry weight estimation of above and below ground biomass components of *Populus deltoides* in India: Development and Comparative diagnosis. *Biomass and Bioenergy*, **35**: 1145-1152.

Alam, M., Jha, C.K., Sinha, S.K., Kumari Geeta and Choudhary B.C. (2010). Use of bio-methanated distillery effluents in sugarcane as source of plant nutrients. *Indian Journal of Fertilizers*, **6**(7): 56-61.

Ansari, M.N. and Paswan, A.K. (2010). Socio-economic and communicational characteristics of rice trainee farmers. *RAU Journal of Research*, **20**(1&2): 54-56.

Chand, H., Kumar, A. Dwivedi, G.P. and Paswan, S. (2010). Incidence level of borer pests to promising clones/varieties of sugarcane in Bihar. *Environment & Ecology*, **28**(3A): 1855-1857.

Chand, H., Kumar, A., Dwivedi, G.P. and Paswan, S. (2010). Seasonal incidence of *Chilo tumidicostalis* hampson on commercial varieties of sugarcane in Bihar agro-ecosystem. *Journal of Insect Science*, **24**(1): 91-95.

Chaudhary, A.K. and Mishra, S.B. (2011). Character Association and path analysis study in sweet potato (*Ipomola batatas* L.). *Environment and Ecology*, **29**(IA): 435-438.

Chaudhary, S.K., Singh, J.P and Jha, S. (2011). Effect of integrated nitrogen management on yield, quality and nutrient uptake of rice (*Oryza sativa*) under different dates of planting. *Indian Journal of Agronomy*, **56**(3): 228-231.

Choudhary S.K., Mukharjee, U. and Kumar Sambhu (2010). Efficacy of bio-pesticides against scarring beetle. *Pest Management in Horticultural Ecosystem*, **16**(2): 120-123.

Choudhary, A.K. and Mishra, S.B. (2011). Character association and path analysis study in sweet potato (*Ipomoea batatas*). *Environment and Ecology*, **29**(14): 435-438.

Choudhary, S.K., Singh, J.P. and Jha, S. (2011). Effect of integrated nitrogen management on yield, quality and nutrient uptake of rice under different dates of planting. *Indian Journal of Agronomy*, **56**(3): 228-231.

Choudhary, S.K., Mukherjee, U. and Ahmad, A. (2010). Fluctuation in population of scarring beetle, *Basileepta subcostatum* jacoby infesting banana crop in relation to weather parameters. *RAU Journal of Research*, **20**(1&2): 51-53.

Das, D.K., Chaturvedi, O.P., Jha R.K. and Kumar, Rajeev (2011). Yield, soil health and economics of aonla (Emblica officinalis Gaertn)-based agri-horticultural systems in Eastern India. *Current Science*, **101**(6): 786-790.

Das, D.K., Chaturvedi, O.P., Laik, R., Jha, A.K. and Chakraborty, R.K. (2010). Aerial tree biomass and nutrient status of soil in *Acacia lenticularis* (L.) wild plantations in relation to stands density. *Indian Journal of Agroforestry*, **12**(1): 8-12.

Deo, Sangeeta (2010). Dyeing of silk with natural colouring materials – Butea frondosa. *RAU Journal of Research*, **20**(1&2): 44-46.

Dwivedi, N.B. and Kumari, Rita (2011). Performance of taro cultivars against phytophthora leaf blight disease in agro-climatic zone-I of north Bihar. *Bihar Journal of Horticulture*, **1**(1): 57-59.

Jha, R.K. (2010). A study on variability association and path analysis in popular (*Populus deltoides* Bastr. Ex. March.). *Journal of Sustainable Forestry*, **29**: 03.

Kashyap, S.N. (2010). Effect of income and education on budget making of tribal farm women. *RAU Journal of Research*, **20** (1 &2) : **41**-43.

Kumar N. and Singh, R. (2010). Relative abundance of *A. mellifera* on Jamun bloom. *Asian Bee Journal*, **13 (2)** : 145-146.

Kumar, Krityanand and Kumar, Balwant (2010). Heritability and genetic advance in some selected inbred lines of maize (*Zea mays L.*). *RAU Journal of Research*, **20 (1&2)** : 22-24.

Kumar, Udit and Singh, S.K. (2011). Seasonal incidence of thrips in onion. *Bihar Horticulture Society*, **1**: 19-20.

Kumar, A. and Prasad, R. (2010). Combining ability studies in Indian mustard. *RAU Journal of Research*, **20** (1&2): 17-18.

Kumar, A., Chand, H. and Dwivedi, G.P. (2010). Evaluation of genotypes for their field reaction to top borer, *Scirpophaga excerptalis* Walk under Bihar condition. *Environment & Ecology*, **28 (4)** : 2249-2251.

Kumar, A., Chand, H., Dwivedi, G.P. and Paswan, S. (2010). Assessment of compatability of recommended insecticides with *Trichogramma chilonis* Ishu in laboratory conditions. *Indian Journal of Sugarcane Technologies*, **26**(1): 31-32.

Kumar, A., Chand, H., Dwivedi, G.P. and Paswan, S. (2010). Comparative field efficacy of insecticides against *Emmalacera* depressella Swinehoe in sugarcane, *Journal of Entomological Research*, **35**(1): 35-37.

Kumar, Amit, Singh, P.P., Kumari, Rita and Kumar, A. (2011). Effect of abiotic factors on population fluctuation of sweet potato weevil (*Cylas formicarius* Fab.) in North Bihar. *Bihar Journal of Horticulture*, **1**(1): 66-67.

Kumar, Balwant, Pandey, S.S. and Kamat, D.N. (2010). Phenotypic stability for yield and quality in sugarcane (*Saccharum spp.*). *Indian Sugar*, **59** (11): 33-37.

Kumar, Balwant, Pandey, S.S. and Kamat, D.N. (2010). Genotype x environment interaction and adaptation in sugarcane (*Saccharum hybrid complex*) under north Bihar condition. *Indian Journal of Sugarcane Technology*, **25**(1-2): 33-38.

Kumar, Dilip, Singh, R. R., Singh, S. P., Jha, Shankar and Srivastava, Prashant (2011). Selection of suitable extractant for predicting the response of chickpea to zinc application in vertisols. *Communications in Soil Science and Plant Analysis*, **42**(6): 728-740.

Kumar, Mahesh, Singh, S.P., Bharati, R.C. and Sinha, S.K. (2010). Growth studies for forecasting wheat productivity in Bihar. *RAU Journal of Research*, **20**(1&2): 11-13.

Kumar, Navnit, Kumar, J., Paswan, S. and Sinha, U.P. (2010). Correlation and regression studies in quality of sugarcane (*Saccharum officinarum* L.). *Environment and Ecology,* **28**(1A): 407-409.

Kumar, Navnit, Kumar, R. and Sinha, U.P. (2010). Dry matter accumulation pattern and sugar yield of sugarcane (*Saccharum officinarum* L.) as influenced by phosphorus and sulphur nutrition. *Indian Journal of Sugarcane Technology,* **25**(1&2): 5-8.

Kumar, Praveen, Das, D.K. and Laik, R. (2010). Nitrogen mineralization rates and kinetics in calciorthent amended with leaves of leguminous trees. *Annals of Forestry,* **18**(2): 197-207.

Kumar, Rakesh, Nandan, Ravi and Prasad, Shambhu (2010). Yield and yield attributes of summer mungbean as affected by sowing time, seed rate and varieties. *Environment & Ecology,* **28**(2): 937-939.

Kumar, Randhir, Kumar, Balwant and Kumar, Shambhu (2011). Phenotypic stability in hybrids and inbreds of bottle gourd (*Legenaria siceraria*) for yield and yield attributing traits. *Bihar Journal of Horticulture,* **1**(1): 36-41.

Kumar, Sunil , Singh , A.P. and Tiwari , S. (2010). Impact of long term application of green manuring on vertical distribution of DTPA – extractable zinc and organic carbon. *Journal of Indian Society of Soil Science,* **58**(1): 91-93.

Kumar, Udit and Singh, S.K. (2011). Evaluation of some botanicals against onion thrips. *Bihar Horticulture Society,* **1**: 34-36.

Kumar, Vipin and Singh A.P. (2010). Long-term effect of green manuring and farmyard manure on yield and soil fertility status in rice-wheat cropping system. *Journal of Indian Society of Soil Science,* **58**(4): 409-412.

Kumar, Vipin, Prasad, R.K., Prasad, B. and Singh, A.P. (2010). Depth wise distribution of horizontal movement of Cd and Ni in sewage sludge amended soils and their uptake by vegetable crops grown thereon. *Journal of Indian Society of Soil Science,* **58**(3): 286-292.

Kumari, A.R. and Singh, Usha (2010). Food safety knowledge and attitude of mobile street food vendors in Patna city. *RAU Journal of Research*, **20**(1&2): 37-40.

Kumari, Rita and Singh, P.P. (2010). Evaluation of *Colocasia* entries for phytophthora leaf blight resistance under North Bihar situation. *Annals of Plant Protection Sciences,* **18**(2): 546.

Kumari, Rita and Singh, P.P. (2010). Management of phytophthora leaf blight disease of *Colocasia* through various non-chemical measures. *RAU Journal of Research,* **20**(1&2): 14-16.

Kumr, Vishal and Bhagat, I.B. (2010). Design and development of a centrifugal clarifier for sugarcane juice. *RAU Journal of Research*, **20**(1&2): 6-10.

Mandal D., Singh, D., Kumar, R., Kumari, A. and Kumar, Vinod (2011). Production potential and economics of direct seeded rice as affected by sowing date and weed management method. *Indian Journal of Weed Science,* **43**(3&4): 139-144.

Mandal, M.P. and Das, D.K. (2010). Phenological characteristics of different horti-silvicultural trees of North Bihar. *Journal of Tropical Forestry,* **26**(iii): 67-71.

Minnatullah, M., Kumar, S., Akhtar, Riyaz, and Dohare, S. (2010). Management of red rot disease through sett treatment with bioagents. *Environment & Ecology,* **28**(4): 2660-2661.

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Narayan, A. (2010). Genotypic stability under variable sowing dates for the expression of grain yield and its contributing traits in sorghum (*Sorghum bicolor* L. Monech). *RAU Journal of Research,* **20**(1&2): 25-30.

Prasad R.K., Kumar, Vipin, Prasad B. and Singh A.P. (2010). Kinetics of decomposition of wheat straw and mineralisation of micronutrients in zinc-treated rice field. *Agropedology,* **20**: 60-66.

Prasad, B, Singh, P.P. and Singh, A.K. (2010). Studies on intercropping in mango orchard with tuber crops. *Bihar Journal of Horticulture,* **1**(1): 9-10.

Prasad, B. Singh, P.P. and Ansari, A.A. (2010). Effect of organic manures and biofertilizer on growth and yield of elephant foot yam (*Amorphophallus paeoniifolius*). *RAU Journal of Research,* **20**(1&2): 47-50

Prasad, R.K., Kumar, Vipin, Prasad, B. and Singh, A.P. (2010). Long term effect of crop residue and Zn fertilizer on crop yields, nutrient uptake and fertility buildup under rice-wheat cropping system in calciorthents. *Journal of Indian Society of Soil Science,* **58**(2): 205-211.

Prasad, S.S., Nanda, K.K., Sinha, S.K. and Ram, Hanuman (2010). Effect of organic/inorganic amendments on nutrient uptake by rice-wheat cropping system in salt affected soil.*Environment and Ecology,* **28**(1B): 543-546.

Prasad, S.S., Sinha, S.K., Nanda, K.K and Ram, Hanuman (2010). Effect of soil amendments on physico-chemical properties of salt affected soils and yield attributing characters in rice-wheat cropping system. *Environment and Ecology,* **28**(1B): 592-597.

Rani A. and Kumar, Harsh (2011). Micro-propagation of *Chlorophytum borivilianum* to boost its cultivation. *International Journal of Plant Sciences,* **6**: 67-72.

Rani A. and Kumar, Harsh (2011). Callus formation from different explants of *Chlorophytum borivilianum* (Safed musli). *International Journal of Plant Sciences,* **6**: 16-18.

Rani, A. and Kumar, Harsh (2010). Adventitious shoot differentiation from cultured stem disc, shoot bud and inflorescence explants of *Chlorophytum borivilianum* L. *International Journal of Plant Sciences,* **5**: 225-229.

Sattar, A. (2010). Rainfall probability analysis for different agroclimatic zones of Bihar. *Journal of Agrometeorology,* **12**(2): 261-262.

Shahu R.S., Kumar, Balwant, Kamat, D.N and Panday, S.S. (2010). Index selection in intervarietal crosses of sugarcane (*Saccharum Hybrid complex*). *Indian Journal of Sugarcane Technology*, **25**(1-2): 25-28.

Sahu, R.K. and Sharma, Arun (2010). Estimation of irrigation water requirement : A case study. *RAU Journal of Research*, **20**(1&2): 57-58.

Singh, P.P. and Ray, R. (2011). Management of sweet potato weevil (*Cylas formicarius* Fab.) through host plant evasion and biopesticide application. *Bihar Journal of Horticulture,* **1**(1): 21-25.

Singh, Praveen and Pandey, Anil (2011). Genetic variability study of different morpho-physiological and quality traits in aromatic rice (*Oryza sativa* L.). *Journal of Plant Science Research,* **27**(2): 157-161.

Singh, R.N., Singh, Surendra, Prasad, S.S. and Singh, V.K. (2010). Production of rice-gram cropping system as influenced by INM in copper mines area of East Singhbhum. *Journal of Research (BAU),* **2**(1): 1.

Singh, S.K. and Jha, P.K. (2011). Differential reactions of banana varieties to panama wilt in agro-ecological conditions of Bihar. *Bihar Journal of Horticulture,* **1**(1): 18-20.

Singh, Surendra, Singh, R.N., Sarkar, A.K. and Prasad, S.S. (2010). INM for higher productivity of rice-pea cropping system and experiences from copper mines area. *Indian Journal of Fertilizer,* **6**(2): 43.

Smita, Shuchi, Sinha, S.K. Sharma, V.K. and Shahi, V.K. (2011). Phenotypic and physiological characterization of rhizobia strains isolated from different areas of Bihar, India. *Bioscience Discovery*, **2**: 281-287.

Smita, Shuchi, Sinha, S.K., Dayaram and Shahi, V.K. (2010). Molecular diversity of rhizobia strains from different areas of Bihar. *RAU Journal of Research,* **20**(1&2): 1-5.

Thakur, S.K., Jha, C.K. and Paswan, S. (2010). Effect of salinity on germination, cane yield, uptake and juice quality of sugarcane genotypes. *Environment and Ecology,* **28**(1A): 315-318.

Thakur, S.K., Jha, C.K., Kumari, Geeta and Singh, V.P. (2010). Effect of trichoderma inoculated trash, nitrogen level and biofertilizer on performance of sugarcane (*Saccharum officinarum)* in calcareous soils of Bihar. *Indian Journal of Agronomy,* **55**(4): 55-58.

Upadhaya, H.D., Ramesh, S., Sharma, Shivali, Singh, S.K. and Varshney, S.K. (2010). Genetic diversity for grain nutrients contents in a core collection of finger millet *Elusine coracana* L. Gaertn. Germplasm. *Field Crops (communicated).*

Upadhayaya, H.D., Ravishankaran, C.R., Singh, S.K. and Varshney, S.K. (2011). Identification of trait-specific germplasm and developing core collection for efficient use of foxtail millet resources in crop improvement. *Field Crop Research,* **124**: 459-467.

Upadhayaya, H.D., Singh, S.K. and Varshney, S.K. (2010). Development mini core collection in finger millet using multilocations data. *Crop Science*, **50**: 1924-1931.

Verma, Rinkee, Chourasia, S.K. and Jha, M.N. (2011). Population dynamic and identification of efficient strains of Azosprillum in maize ecosystem of Bihar. *Biotechnology*, **1**: 247-253.

Vibha, Jha, P. K. and Nidhi (2010). Effect of tillage practices in rice-wheat cropping system on diversity of soil mycoflora of calcareous soil. *Oryza*, **47**(4): 302-306.

Yadav, A.K., Mishra, S.B., Singh, S.S. and Arya, Madhuri (2010). Character association and genetic divergence study in chickpea (*Cjcer arietinum* L.). *Environment and Ecology*. **28**(2B): 1276-1280.

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13.2 RESEARCH PAPERS PRESENTED IN SEMINAR/SYMPOSIUM/CONFERENCE

Alam, M., Sinha, S.K., Jha, C.K., Poddar, B.K., Singh A.P. and Roy. S, (2010). Use of bio-menthanated distillery effluent - An alternative source of K-fertilizer. In XVIII International Symposium on Alcohol Fuels held at New Delhi.

Alam, M., Sinha, S.K., Poddar, B.K., Jha, C.K., Kumari, Geeta and Thakur, S.K. (2010). Bio-methanated distillery effluent and bio-compost: Promising alternatives of plant N nutrients for sugarcane production. In Proceedings of the 9th Joint Convention of STAI and SISSTA held at Chennai.

Arya, M. and Mishra, S.B. (2010). Field screening of chickpea genotypes for drought tolerance under North Bihar conditions. 12th Indian Agricultural Scientists and Farmers Congress, pp. 88-89.

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13.8 OTHER PUBLICATIONS

- Adhunik Kisan Diary, 2011.
- RAU Newsletter.

14. RESEARCH PROJECTS IN OPERATION

14.1 ALL INDIA COORDINATED RESEARCH PROJECTS

S.No.	Name of the Project	Name of P.I.	Place of operation	Budget (Rs. in lakh)
1.	AICRP on Honey Bee	Dr. M.L. Agarwal	Faculty of Agriculture	43.68
2.	AICRP on Medicinal & Aromatic Plants	Dr. P. K. Jha	-do-	23.26
3.	AICRP on Soil Testing Correlation Response	Dr. J. Prasad	-do-	32.07
4.	AICRP on Micronutrient in Soil & Plants	Dr. M.P. Singh	-do-	58.16
5.	AICRP on Rice	Dr. N.K. Singh	-do-	49.78
6.	AICRP on Agroforestry	Dr. D. K. Das	-do-	28.70
7.	AICRP on Agrotemeorology	Dr. A. Sattar	-do-	12.15
8.	AICRP on Water Management	Dr. V. Kumar	-do-	59.40
9.	AICRP on Tropical Fruits	Dr. P.K. Ray	-do-	78.30
10.	AICRP on Mushroom	Dr. Dayaram	-do-	12.83
11.	AICRP on Vegetable	Sri Udit Kumar	-do-	7.65
12.	AICRP on Floriculture	Dr. A.K. Singh	-do-	7.73
13.	AICRP on Post Harvest Technology	Dr. M. Srivastava	C.A.E., Pusa	37.73
14.	AICRP on Farm Implement & Machinery	Sri S. Chandra	-do-	26.32
15.	AICRP on Ground Water Utilization	Dr. S.K. Jain	-do-	27.24
16.	All India Networking Project on Biofertilizer	Dr. M.N. Jha	F.B.S. & H., Pusa	27.71
17.	AICRP on Sugarcane	Dr. S.S. Pandey	SRI, Pusa	57.83
18.	AICRP on Oil Palm (Madhopur)	Dr. P.N. Mandal	RRS, Madhopur	12.62
19.	AICRP on Weed Control	Dr. Y. Singh	DOR, RAU, Pusa	25.78
20.	AICRP on Seed Technology	Dr. S.K. Varshney	TCA, Dholi	49.31
21.	AICRP on Maize	Dr. M. Kumar	-do-	58.07
22.	AICRP on MULLaRP	Dr. D. Singh	-do-	34.04
23.	AICRP on Chickpea	-do-	-do-	22.58
24.	AICRP on Pigeonpea	-do-	-do-	12.06
25.	AICRP on Small Millet	Dr. S.K. Singh	-do-	8.49
26.	AICRP on Tuber Crops	Dr. P.P. Singh	-do-	58.43
27.	AICRP on Potato	Dr. L.M. Yadav	-do-	33.38
28.	AICRP on Spices	Dr. S.P. Singh	-do-	22.56
29.	AICRP on Rapeseed & Mustard	Dr. Anil Pandey	-do-	49.19
30.	AICRP on Sunflower	-do-	-do-	32.09
31.	AICRP on Onion & Garlic	Sri Udit Kumar	-do-	14.15
32.	AICRP on Breeder Seed Production	Dr. S.K.Varshney	D.S.F., Dholi	35.39

14.2 NON-PLAN RESEARCH PROJECTS

S. No.	Name of Projects & Principal Investigators
(i)	**Faculty of Agriculture, Pusa**
1.	Popularization & dissemination of sustainable farming system model under changing climate condition for upliftment of small and marginal farmers. P.I. - Dr. D.K.Rai, Sr. Scientist, Deptt. of Agronomy, RAU, Pusa
2.	Promotion & dissemination of boro rice technology in target areas of Bihar. P.I. - Dr. D.K.Rai, Sr. Scientist, Deptt. of Agronomy, RAU, Pusa
3.	Influence of crop residues, conservation tillage system and management practices on soil health and systems productivity. P.I. - Dr. YSingh, Jr. Scientist, Deptt. of Agronomy, RAU, Pusa
4.	Papaya seed production P.I. - Sri Shambhu Kumar, Asstt. Prof., Deptt. of Hort., RAU, Pusa
5.	Improvement of soil aggregation to enhance the productivity of rice winter cropping system in Bihar. P.I. - Dr. Mukesh Kumar, Assoc. Prof., Deptt. of Soil Science, RAU, Pusa
6.	Assessing the extent, distribution and reaction of arsenic in soil and water its impact on crop in some affected districts of Bihar. P.I. - Dr. Pankaj Singh, Asstt. Prof., Deptt. of Soil Science, RAU,Pusa
7.	Neem prevence trial for making tooth brush, chew stick and tooth. P.I. - Dr. R.K.Jha, Sr.Sc. (Forestry), Deptt. of Forestry, RAU, Pusa
8.	Exploration of soil mycofloral diversity for salutary fungi P.I. - Dr.(Mrs.) Vibha, Jr. Scientist, Deptt. of Plant Pathology, RAU, Pusa
9.	Integrated disease management of bacterial leaf blight of rice (*Xanthomonas oryzae* pv. Oryzae.) P.I. - Dr. R.K.Ranjan, Jr. Scientist, Deptt. of Plant Pathology, RAU, Pusa
10.	Eco-friendly management disease of chilli and tomato P.I. - Sri P.K.Choudhary, Jr. Scientist, Deptt. of Plant Pathology, RAU, Pusa
11.	Survey & surveillance and integrated nematodes management of root knot nematodes in tomato, brinjal and pointed gourd in Samastipur, Muzaffarpur and Vaishali districts of Bihar. P.I. - Mrs. Nishi Kumari, Asstt. Prof., Deptt. of Nematology, RAU, Pusa
12.	Vegetable marketing in the inter lands of Pusa Road, Tajpur P.I. - Dr. R.R. Mishra, Assoc. Prof., Deptt. of Agricultural Economics, RAU, Pusa
13.	Participatory action research for enhancing productivity of pulses in different agro-climatic zones of Bihar. P.I. - Dr. Satya Prakash, Asstt. Prof., Deptt. of Extension Education, RAU, Pusa.
(ii)	**Faculty of Agricultural Engineering, Pusa**
14.	Development of packaging technology for fresh fruits and vegetables. P.I. - Dr. Mukesh Srivastava, Chief Scentist, Deptt. of PFE, FAE, Pusa
(iii)	**Sugarcane Research Institute, Pusa**
15.	Development of high yielding sugarcane varieties tolerant to wáter logging. P.I. - Dr. Balwant Kumar, Jr. Scientist (P.B.), SRI, Pusa

16. Development of sugarcane varieties for durable resistance against red rot.
P.I. - Sri D.N.Kamat, Jr. Scientist (P.B.), SRI, Pusa

17. Optimization of fertilizer and irrigation requirement in sugarcane based cropping system in Bihar.
P.I. - Dr.Navneet Kumar, Jr. Scientist (Agro.), Deptt. of Sugarcane Breeding , SRI, Pusa

(iv) College of Home Science, Pusa

18. Value addition and product diversification in root and tuber crops for nutritional security.
P.I. - Mrs. Gitanjali, Asstt. Prof., Deptt. of Food & Nutrition, COH, Pusa

19. Sustainable quality protein maize cultivation for livelihood security through production consumsption chain management.
P.I. - Dr.(Mrs.) Usha Singh, Univ. Prof. Deptt. of Food & Nutrition, COH, Pusa

20. Commercial utilization of natural dyes.
P.I. - Dr. (Mrs.) Sangeeta Deo, Sr. Scientist, Deptt. of Textile & Apparel Designing, COH, Pusa

(v) Faculty of Basic Sciences & Humanities, Pusa

21. Maintenance and strengthening of nursery for development of medicinal and aromatic plants in Bihar.
P.I. - Dr.M.P.Mandal, Asstt. Prof., Deptt. of Botany & Plant Physiology, FBS&H, Pusa.

(vi) Tirhut College of Agriculture, Dholi

22. Monitoring of pesticides residue in vegetable soil and their impact on soil microbes
P.I.:- Dr.S.K.Singh, Asstt. Prof., Deptt. of Soil Science, TCA,Dholi

23. PGPR Mediated Induced Systematic Resistance An apparoach to Eco-friendly management of bacterial of Tomato
P.I. - Dr. A.K. Mishra, Jr.Scientist, Deptt. of Plant Pathology, TCA, Dholi

(vii) College of Fisheries, Dholi

24. Standardization and grow out technique for freshwater Giant prawn in the ponds of North Bihar.
P.I. - Dr.Poonam Prakash, Assoc. Prof. (Fish.), COF, Dholi

14.3 AD-HOC RESEARCH PROJECTS

S. No.	Name of Projects	Funding Agencies
1.	GPS-GIS based model soil fertility maps for selected districts for precise fertilizer recommendation to the farmers of India.	DAC, Govt. of India.
2.	Agrometeorological advisory services projects	G.O.I.
3.	Forecasting Agril. Output using space agrometeorology & land based observations (FASAL)	I.M.D.
4.	Soil profile distribution thermodynamics & kinetics of micronutrient reactions in soil & integrated micronutrient recommendation for rice-sugarcane-wheat cropping system in Bihar.	S.D.F., G.O.I.

5.	Soil testing campaign in koshi flood affected areas under project establishment of soil, seed-fertilizer laboratory & improvement of working laboratories.	G.O.B.
6.	National project on management of soil health fertility	G.O.B.
7.	National soil carbon food assessment	IISR, Dehradun.
8.	Response of FCI-aravali gypum in reclamation	FCI-Aravali, Gypsum Ltd.
9.	Effect of bio-methanated distillery efficient and bio-compost on soil enzymatic activities.	Riga Sugar Co. Ltd., Sitamarhi
10.	Evaluation of bio-fertilizer with bio-compost & bio-methanated distillery effluent in sugarcane crop.	New Swadeshi, Sugar Mills, Narkatiaganj
11.	Nutrient management though bio-methanated distillery effluent for enhancing sugarcane productivity and sustaining soil health in entisol of Bihar.	Harinagar Sugar Mills Ltd., Harinagar.
12.	DAC-ICARDA-ICAR collaborative pilot project on evaluating lentil production food nutritional security & improved rural livelihood.	Govt. of India, ICARDA
13.	Efficacy trials of customized Nagarjun fertilizer at RAU, Pusa.	Nagarjun Fertilizer Ltd.
14.	Solubility of zypmit and its utility as source of sulphur.	
15.	DBT India abiotic stress tolerant rice varieties with major QTLS for drought submergence and salt tolerance.	DBT India, IRRI
16.	International agencies funded project stress tolerance rice for poor farmers of Africa & South Asia (STRASA)	Bill & Melinda Gates Foundation – IRRI
17.	Centrally sponsored scheme of spices development programme – NHM	Govt. of India.
18.	Precision farming development centre (PFDC)	Govt. of India.

14.4 FOREIGN AIDED RESEARCH PROJECTS

S. No.	Name of Project	PI	Place of operation	Budget (Rs. in lakh)
1.	Eastern India rainfed low land shuttle breeding network	Dr.N.K. Singh	R.A.U., Pusa	2.5
2.	Stress tolerant rice for poor farmers of Africa and South Asia- (STRASA-BMGF).	Dr.A.K. Singh	R.A.U., Pusa	5.0
3.	IFAD Project	Dr.N.K. Singh	R.A.U., Pusa	1.0
4.	DBT India – IRRI, Network Project "QTL to variety – marker assisted selection for a biotic stress tolerant rice''	Dr.Rajesh Kumar	R.A.U., Pusa	9.0

14.5 RASTRIYA KRISHI VIKAS YOJNA RESEARCH PROJECTS

S. No.	Name of Project	Name of P.I.	Place of Operation	Budget (Rs. in lakh)
1.	**(RKVY-01):** Promotion and adoption of insect sex-pheromones and bio-agents at farmers field for the management of major rice insect pest (stem borer and leaf folder) in Bihar	Dr. A. K. Misra University Professor	Dept. of Entomology, RAU, Pusa	33.62
2.	**(RKVY-02):** Development of golden rice for diverse agroecologies of Bihar	Dr. V. K. Sharma Associate Professor	Dept. of AB&MB, RAU, Pusa	143.86
3.	**(RKVY-03):** Production and popularization of bio-fertilizer for nutrient availability and crop production	Dr. R. K. Pandey University Professor	Dept. of Soil Science, RAU, Pusa	115.85
4.	**(RKVY-04):** Enhancement of heat tolerance in locally adapted wheat cultivars of Bihar	Dr. Rajeev Kumar Assistant Professor	Dept. of AB& MB, RAU, Pusa	115.81
5.	**(RKVY-05):** Development of aerobic rice for sustainable rice production in Bihar	Dr. Nilanjaya Assistant Professor	Dept. of PB&G, RAU, Pusa	120.00
6.	**(RKVY-06):** Protected cultivation of vegetable and flowers in Bihar	Dr. A. K. Singh, Assistant Professor	Dept. of Horticulture, RAU, Pusa	528.92

7.	**(RKVY-07):** Farm machine bank	Er. Subhash Chandra Assistant Professor	Dept. of CAE, RAU, Pusa	107.00
8.	**(RKVY-08):**Vermicompost production	Dr. Shankar Jha Assistant Professor	Dept. of Soil Science, RAU, Pusa	155.00
9.	**(RKVY-09):** Mushroom production technology	Dr. Dayaram Associate Professor	Dept. of Microbiology, RAU, Pusa	69.05
10.	**(RKVY-10):** Strengthening of seed production programme	Dr. N. K. Singh Chairman	Dept. of PB&G, RAU, Pusa	1500.00
11.	**(RKVY-11):** Mechanization of KVK's scheme	Er. Subhash Chandra Assistant Professor	Dept. of CAE, RAU, Pusa	74.00
12.	**(RKVY-12):** Evaluation of mukhya mantri tibra bej vistar & beej gram yojana	Dr. R. N. Yadav University Professor	Dept. of Agril. Economics, RAU, Pusa	10.35

14.6 NAIP RESEARCH PROJECTS

S. No.	Name of Project	Name of P.I./CO-PI/CCPI
1.	**NAIP (Samastipur):** Sustainable Livelihood Improvement through Need Based Integrated Farming System Models in Disadvantaged District of Bihar.	Dr. K.N. Padhak University Professor(Nematology), RAU, Pusa & Co-PI
2.	**NAIP (Muz. & Sheo.):** Improving Livelihood Security in Salt-affected Watersheds of Muzaffarpur and Sheohar Districts of Bihar.	Dr. S S. Prasad, Assistant Professor (Soil Science), TCA, Dholi & CPI
3.	**NAIP (Comp.-IV), BVC, Patna:** Understanding the mechanism of variation in status of a few nutritionally important micronutrients in some important food crops and the mechanism of micronutrient enrichment in plant parts.	Dr.Pramod Kumar, Assistant Professor, BVC, Patna & CCPI.
4.	**NAIP (Comp.-IV), RAU, Pusa:** Understanding the mechanism of variation in status of a few nutritionally important micronutrients in some important food crops and the mechanism of micronutrient enrichment in plant parts.	Dr. Vipin Kumar Assistant Professor(Soil Science), RAU, Pusa & CCPI

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