

Seed Science and Technology

N.D. University of Agriculture and Technology, Kumarganj, Faizabad (UP)

1. **Teaching:** The M. Sc. (Ag.) and Ph. D Programmes in Seed Science and Technology are enforced since Academic session 2012-13. As a results two dozen PG students have been awarded and *centpercent* have been engaged leading to UP Public Service Commission. The following courses are regularly offered in order to fulfill the requirement for the degree of M.Sc. (Ag) and Ph. D. in Seed Science and Technology of the University as per Fourth Deans Committee recommendations:

M. Sc. (Ag):

Course Number	Course Title	Credit hours
SST-511	Floral Biology, Seed Development and Maturation	3(2+1)
SST-512	Principles of Seed Production	2(2+0)
SST 513	Seed Production in Field crops	3(2+1)
SST-514	Seed Physiology	3 (2+1)
SST-515	Seed Pathology	3(2+1)
SST-521	Seed Legislation and Certification	3(2+1)
SST-522	Seed Processing and Storage	3(2+1)
SST-523	Seed Quality Testing	3(2+1)
SST-524	Seed Entomology	3(2+1)
SST-525	Seed Processing and Management	3(2+1)
SST-591	Seminar	1(0+1)

Ph. D.:

Course Number	Course Title	Credit hours
SST-611	Hybrid Seed Production	2(1+1)
SST-612	Planning, Seed Quality Control and Movement	3(2+1)
SST 613	Seed Vigour and Crop Productivity	3(2+1)
SST-614	Testing for Genuineness and Purity of Cultivars	2 (1+1)
SST-621	DUS Testing for Plant Variety Protection	3(2+1)
SST-622	Advances in Seed Science Research	1(1+0)
SST-623	Advances in Post-Harvest Management of Seed	3(2+1)
SST-624	Seed Senescence	2(2+0)
SST-691	Seminar	2(0+2)

2. **Research:** Seed technological research activities comprising seed production and certification, seed physiology, storage and testing\, seed pathology and seed entomology under the umbrella of All India Coordinated Research Project on National Seed Project (Crops) –Seed Technology Research funded by ICAR, New Delhi. Some of the commendable achievements are give below:

Salient Achievements:

1. The urdbean cv PU19 sown on the onset of Monsoon at 30x15 cm spacing yielded significantly higher as compared to the same date of sowing in paired row or just receding at normal spacing and or paired planting system. Sowing just after Monsoon minimized the infection of ULCV. Also, the paired row system found superior for graded seed quality as well as important yield contributing traits as compared to normal spacing under both sowing systems.
2. The SRI (System of Rice Intensification) method of cultivation could successfully be utilized to increase about 25 per cent more seed yield in rice (medium duration variety) over normal method of its cultivation.
3. The application of fertilizers @ 150:75:60 Kg/ha and row spacing of 75 x 20 cm have been found optimum for increasing the seed yield and important seed quality parameters of inbred lines i.e., LM 5 and LM 6 of single cross hybrid 'Paras' of maize during *Kharif* season. The hybrid seed production of single cross rabi maize hybrid DMH₂ (C1-4/KDMI-10) could be commercialized by differential applications of fertilizer @ 150:60:40 and 120:60:40 Kg/ha on male and female rows, respectively which led to synchronize the flowering of both inbred at about 118 days spaced at 60 x20 cm in 2:4 planting ratio.
4. Ageing has been experienced which led to faster decline in the viability, vigour and yield potential of such precious hybrid seed. Hybrid seed obtained/ harvested at 25 days after anthesis showed the maximum yield along with highest viability, vigour and field performance.
5. The application of ZnSO₄ @ 50kg/ha as a basal and 3g/l as a foliar twice at one week interval accompanied by recommended dose of NPK have been observed to be the best management practices to produce high quality of seed under zinc deficient condition.
6. The polymer coating with Polymer (DISCO AG SP RED L-200) + Thiram + Carboxine, Polymer (DISCO AG SP RED L-200) + Thiram + Genius Coat and Polymer (DISCO AG SP RED L-200) + Thiram + Quick Roots/Mycorrhizabeing zero dust off, saving the chemicals, eco-friendly seed treatment, and an efficient release of chemicals to the root zones, etc. could successfully be exploited as an efficient and health friendly seed treatment operation for seed enhancement in rice.
7. Three packaging materials i.e. jute canvas bag, HDPE non inter woven bags and polylined Jote canvas bags were used for the storage of 20 seed samples each of

wheat and paddy in villages. The storability of seed in HDPE bag was found superior polylined Jute canvas bag for both the crops.

8. Pre-sowing seed treatment for invigoration and better crop establishment was studied in mung bean cv. NDM-1. Seed hydration with 50ppm GA₃ for 14 hrs and surface drying at room temperature was found better among all treatments *viz.* Hydration with CaCl₂ for 14 hrs and surface drying at room temperature. Hydration for 14 hrs and dry dressing with Thiram @ 0.25% , Hydration with 0.5% KNO₃ for 14 hrs and surface drying at room temperature Check (Untreated seed). Hydration for 14 hrs and surface drying at room temperature leading to maximum field emergence 90 per cent and subsequently the enhancement of seed yield 5.90 g/plant and its contributing characters *viz.*, germination 94 per cent, final plant stand 84 per cent, days to 50% flowering after 53 days and days to maturity after 69 days. Hydration with CaCl₂ for 14 hrs and surface drying at room temperature showed slightly better (germination 89%, field emergence 86% and yield per plant 5.15 g/plant) in comparison to Hydration for 14 hrs and dry dressing with Thiram @ 0.25 per cent (germination 88%, field emergence 84% and yield per plant 5.15 g/plant).
9. A number of seed vigour attributes (germination, seed length, seedling dry weight, vigour index, field emergence, Electrical Conductivity of seed leachate, accelerated ageing test and germination after storage) were studied to determine the planting value and storability of wheat, paddy, gram and field pea. Five seed lots of four varieties of each crop were taken for the study. The first and final count were positively correlated with field emergence and its components *viz.*, Accelerated Ageing Test (AAT) after 48 hrs to 19.20 hours. On the basis of vigour parameters *viz.*, germination, field emergence, vigour index and germination after storage 2, 4 and 6 months, the PBW-154 variety of wheat, Sugandha-2 variety of rice, Awarodhi variety of gram and Shikha variety of field pea were better than other varieties of crops under studied.
10. To assess farmer's perception of the strength and weaknesses of priming and to know how priming benefits interest with different conditions of crop establishment used by average and poorly resource farmers. The wheat crop variety PBW-343 has been taken and experiment was conducted at farmer's field near by University Campus. Seed germination was found to accelerated by one and half days and seed yield was better in case of hydroprimed and treated with thiram @ 0.25% seed sowing (34.87 q/ha) as compared to unprimed seed sowing (32.65q/ha). The seed yield increased

6.80% due to hydropriming technology. This study indicated that priming technique is beneficial for poor farmers to wheat crop production.

11. Out of 90 seed samples comprising 22 paddy varieties/hybrids collected from 14 locations under 8 districts of eastern U.P., 20 (22.22%) were found infected with paddy bunt ranging between 0.00-0.35%. Likewise, out of 73 STL samples, only 2 samples were found infected in the same range. The incidence of BLB and false smut was very-very low which was correlated with erratic and below average rainfall.
12. Seed treatment with Tebuconazole @ 1.0 g/kg and two foliar sprays of Propiconazole @ 1.0 ml/lit. water (1st at 50% PE and second after 12 days) was found most effective for the management of false smut of paddy.
13. Total 22.44% farmer's saved paddy samples exhibited germination below IMSCS. Also, 28.57% samples were found infected with paddy bunt. Fungi which were found associated were *Drechsleraoryzae*, *Curvularialunata*, *Fusariummoniliforme*, *Alternariapadwickii* and *Aspergillus spp.*
14. Standard Blotter technique was found more accurate as compared to PDA and Guaiacol agar media isolation method for the reproducible results in case of *Bipolarisoryzae* causing brown spot disease of paddy.
15. Significant positive correlation between seed infection of *Drechsleraoryzae*, seed germination and vigour was worked out.
16. Emamectin benzoate (Proclaim 5 SG) @ 2 ppm (40.0 mg/kg seed) followed by Novaluron (Rimon 10 EC) @ 5ppm (0.05ml/kg seed and Spinosad (Tracer 45 SC) @ 2 ppm (4.4 mg/kg seed) were found best capable of restricting insect damage and also maintained seed germination above IMSCS even after 6 months of storage under ambient storage condition in Pigeonpea.
17. While studying seed health status of farmer's saved seed with respect to insect infestation in 8 districts of eastern Uttar Pradesh, it was observed that Paddy samples infested with *Sitotrogacerealella*, *Sitophilus spp.* and *Rhyzoperthadominica* . Whereas, wheat samples infested with *Sitophilus spp.* and *Rhyzoperthadominica*. About 29.0% of paddy and 34.30% of wheat samples were found having seed germination above IMSCS . Farmers of eastern UP stored their seed in jute bag and covered with wheat straw while some of the farmers stored in metal/ mud bins.
18. Quality seed production of pigeonpea could be ameliorated after managing the pollination by honey bees to the extents of 75 percent .

19. NeemAzal(Neem product) 10,000ppm @ 1.5ml/kg seed followed by Citronella oil @ 5ml/kg of seed and *Acoruscalamus* TNAU Formulation @10ml/kg treatment was found best besides , chemicals protectants capable of restricting insect damage and maintained seed germination above IMSCSeven after 6 months of storage during ambient condition in pigeonpea.

Award during 2015-16:

Scientist	Name of Award	Awarding academy/society
Dr. R.D.S Yadav	Dr. Shankar Lal Vishisht Krishi Vaigyanik Puraskar-2015	UP Academy of Agricultural Sciences, Lucknow (UP)
Dr. S.C.Vimal	Outstanding Performance Award	Vigyan Bharti, BRDPG College, Deoria (UP)
Dr. S.C.Vimal	Young Scientist Award	Society of biotechnology, SHIATS, Allahabad (UP)
Dr. S.C.Vimal	Distinguished Scientist Award	Society of upliftment of rural economy, Varanasi
Dr. S.C.Vimal	Excellence in Teaching Award	JMD Educational Society, Etah, UP
Dr.K.K. Srivastava	Excellence in Teaching Award	Vigyan Bharti, BRDPG College, Deoria (UP)
Dr.K.K. Srivastava	Young Scientist Award	Society of biotechnology, SHIATS, Allahabad (UP)
Dr. R.B. Singh	Distinguished Scientist Award	Astha Foundation, Meerut
Dr. R.B. Singh	Distinguished Scientist Award	Society of Bio technology, SHIATSAT Allahabad, (UP)
Dr. R.B. Singh	Excellence in Teaching Award	JMD Educational Society Etah, (UP)
Dr.R.K. Chaudhary	Distinguished Scientist Award	Astha Foundation, Meerut

3. **Seed Production:** Production and supply of quality seed comprising Breeder Seed, Foundation Seed, Truthful Level Seed as per DAC, State Government, farmers, etc. demand of promising varieties of field crops are a regular feature. Currently estimated availability of Breeder Seed and Foundation Seed of major crops varieties for sowing Rabi 2016-17 are given in table 1.

Table 1: Availability of Breeder and Foundation Seed for sowing Rabi 2016-17

S. No.	Crop	Variety	Breeder Seed (q)	Foundation seed (q)	Others
1.	Wheat				
		HD 2967	66.80	-	
		NW 5054	61.00	-	
		NW 2036	47.10	18.60	
		K 7903	195.90	50.40	
		PBW 562	83.50	-	

		PBW 154	220.0	468.00	
		PBW 550	39.50	-	
		PBW 373	362.10	395.50	
		DBW 107	17.50	-	
		NW 1014	27.25	-	
		HUW 234	9.35	23.20	
		NW 1076	46.75	-	
		HD 2733	162.50	47.70	
		PBW 502	-	48.60	
2.	Barley				
		NB 1173	1.20	84.33	
		NB 1445	4.52	-	
		NB 943	18.49	-	
		NB 2	44.55	-	
3.	Gram				
		Udai	29.65	2.30	
		Pusa 362	11.25	-	
4.	Pea				
		HUDP 15	11.35	-	
5.	Lentil				
		NDL 1	14.60	61.93	
		HDL 57	27.865	-	
6.	Rapeseed – Mustard				
		Pitambari	7.45	-	
		NDR 8501	12.05	25.43	
		NDRE 4	7.45	8.00	
		Varuna	-	3.30	

4. Staff-Profile:

Office of the Section:

S. N.	Name	Designation	Mobile	Residence
1.	Dr. R. D. S. Yadav	SRO/Prof.	9454212742	Bramhababa Allahabad Road, Faizabad-224135 (U.P.)
2.	Dr. G.D. Kushwaha	Breeder	9838678815	Durjapuri Calony Naka Faizabad
3.	Dr. H. C. Yadav	Asst. Prof.	9450763060	Chadpur Harbar P.O. Dobahason
4.	Dr. R. K. Chaudhari	Asst. Prof.	9838517297	7/14/47, Naka Faizabad
5.	Dr. J.P. Srivastawa	Seed Patho /Asst. Prof.	9450762774	3/20/31, Nahar Bagh Faizabad
6.	Dr. R. B. Singh	ASRO/Asst. Prof.	9415717971	A2/10, N.D. Campus
7.	Dr. V. N. Singh	Breeder/Asst. Prof.	9450075894	C. R. S. Masodha
8.	Dr. K. K. Srivastawa	ASPO/Asst. Prof.	9453092676	A-29, Vaidehi Nagar Sahebganj, Faizabad (U.P.)
9.	Dr. S. C. Vimal	ASRO/Asst.	9451955851	B-17 N. D. Campus

		Prof.		
10.	Dr. (smt) Kiran Singh	SPA	9415720441	A-16 N. D. Campus
11.	Sri Vijai Kumar Singh	Tech. Asst.	9161642178	D-104, N. D. Campus
12.	Sri Ashok Kumar Singh	Steno	9450766614	Vill. & Post-PithlaFaizabad
13.	Smt. Raj Kumari Singh	Jr. Clerk	9473960920	C-39, N. D. Campus
14.	Sri Manoj Kumar	Lab Asstt.	7860890323	D-145, N. D. Campus
15.	Sri Brijendra Kumar Singh	Lab Asstt.	9919359517	C-82, N. D. Campus
16.	Sri Asha Ram	Lab Attendant	9639815733	C-31, N. D. Campus
17.	Sri Dineesh Kumar Mishra	Lab Asstt.	9453842171	D-164, N. D. Campus
18.	Sri Vinod Kumar Srivastawa	Messenger	8004477486	D-142, N. D. Campus
19.	Sri DeshrajYadav	S.M. Attendant	9453888592	Vill. & Post-Shiv Nathpur, Faizabad
20.	Sri Saheb Barden	S. P. Attend.	9651912232	Vill. & Post-GobulaFaizabad
21.	Sri Dharam Dev Pathak	Lab Asstt.	7379729914	Vill. & Post-Jarai, Sultanpur
22.	Sri PooranVasi	S. M. Attendant	7376010012	D-13, N. D. Campus
23.	Sri Suresh Chandra Mishra	Attendant	9565873594	Vill. & Post-Bawar
National Seed Project (NSP) Farm-I				
1.	Dr. Manoj Kumar Singh	Research Asstt.	9415720210	Teacher Hostel R. No.-23, Campus
2.	Sri Anjani Kumar Singh	Tube-well operator	9415457655	Vill/Po. Kanpa, Sultanpur
3.	Sri Yogendra Singh	Tractor Driver	7054548223	D-75 Campus
4.	Sri Jitendra Prasad Tiwari	Jr. Clark	9450421699	NSP Farm Manager Office, Amarher, Faizabad
5.	Sri Harendra Kumar Srivastava	Farm Mechanic	9415720415	GirijaPuram Colony (Parikarma Road) Janoora Near PakkaTalab, Faizabad
6.	Sri Mh. Kalim	Tube-well operator	7460580777	NSP Farm Mavaler office Amarher, Bawan, Faizabad
7.	Sri Om Prakash Singh	Tractor Driver	9554478255	NSP-I Amarher Farm Kumarganj, Faizabad
8.	Sri Ram Murat Pandey	Attendant	9838709898	Vill. Sivanathpur, Po. Kumarganj, Faizabad
9.	Sri Shiv Kumar Pathak	Attendant	7388989115	Vill/Po. Pathakooli Khandasa, Faizabad
10.	Sri Ram Nawal Yadav	Driver	8419830551	Vill. & PO.-Zorium, Kumarganj, Faizabad

National Seed Project (NSP) Farm-II				
1.	Sri C. V. Pandey	STA	9450760801	NSP Farm Unit-II Birooli, Kumarganj, Faizabad
2.	Sri Satya Prakash	Tractor Driver	9936964130	NSP Farm Unit-II Birooli, Kumarganj, Faizabad
National Seed Project (NSP) Farm-III				
1.	Sri Heeralal	JRA	9918832566	Mavli, Kumarganj, Faizabad
2.	Sri Jethu Ram	Tractor Driver	8090514799	NSP-III, Tipti, Khandasa, Faizabad
National Seed Project (NSP) Farm-IV				
1.	Sri AkhilackAhamad	Tractor Driver	8853649313	Amarher Farm, Kumarganj, Faizabad
2.	Sri Lallan Pandey	Tube-well Operator	9453211124	ChuramanKaPurwa, PO.-Bawan, Kumarganj, Faizabad
National Seed Project (NSP) Farm-V				
1.	Sri Babulesh Singh	Tube-well Operator	9473911960	Vill.& PO-Pithala, Faizabad
2.	Sri Ram Ikbal	Tractor Driver	9005029393	NSP-V, Faizabad
Seed Processing Plant, Kumarganj				
1.	Dr. C. N. Ram	In-charge SPP	9451205686	B-56, Campus
2.	SomNath Pandey	Store Keeper	947351022	C-109
3.	Shiv Kumar Singh	Mechanic	9559013422	C type, Seed Dev. Campus
4.	NarendraBahadur Singh	Electrician	9889097525	C type, Seed Dev. Campus
CRS Masodha-I				
1.	Sri Anil Kumar	FS	9005819147	CRSM-I, Faizabad
2.	Sri Hari Ram	Tube well Operator	9598545971	Chaudharypur, PO-Jyotisadan, Faizabad
3.	Sri Siya Ram	Plough Man	8853525395	Chaudharypur, PO-Jyotisadan, Faizabad
4.	Sri Ramprasad	Plough Man	9793272394	Vill. &PO-Dabhasemar, Faizabad
5.	Sri Rampal	Plough Man	-	Vill.-Biharipur, PO-Dabhasemar, Faizabad
6.	Sri Birjoo	Plough Man	9044432867	Rampur, PO-Dabhasemar, Faizabad
7.	Sri Jamuna Singh	Plough Man	-	Janaura, Faizabad
8.	Sri Rambaran	Plough Man	9455836013	Vill. &PO-Dabhasemar, Faizabad
9.	Sri Shiv Prasad	Plough Man	9956470854	Sivdaspur, PO-Jyotisadan, Faizabad
10.	Sri Bharat Kuma	Plough Man	9559933028	Sivdaspur, PO-Jyotisadan, Faizabad
11.	Sri Balak Ram	Plough Man	8601944090	Birauli, PO-Jyotisadan, Faizabad
CRS Masodha-II				
1.	Sudhakar Singh	FS	9450208021	FS Residence,CRSMasodha

2.	Pawan Kumar Tandan	Jr. Clerk	7275472164	Masaudha Unit-2
3.	Ghanshyam	Tractor Driver	9453136797	Masaudha Unit-2
4.	Ram Naval Yadav	Meth	7458901718	Chaudhry kaPurwa, Faizabad
5.	Ram Sajivan	Plough Man	8853326215	Shivdaspur, JyotiSadon, Faizabad
6.	Nanhakoo	Ploughman	9198923291	Shadipur, Dabhasemar, Faizabad
7.	Ram DhirajYadav	Ploughman	9984988496	Fzb. I. Area Masaudha
8.	Keshari Prasad Yadav	Water Man	9452212772	Chaudhry kaPurwa, Faizabad
CRS Masodha-III				
1.	Ahtram Raja	Adhichak	9473597101	Rath Haveli, Faizabad
2.	Girijesh Kumar Singh	Parecher	9935089845	Dr.Mansheyrrer, Faizabad
3.	Banveer Singh	Watchman	8739027732	Abmanpur, ShavourFaizabad
4.	Krishna Prasad	Plumber	9651360597	Chaudhary Kapurva, Faizabad
5.	Hausla Prasad	Watchman	7607985066	Usaru, Gaddopur, Faizabzd
6.	Raj Narayan Singh	Tractor Driver	9198179576	Bhakhari, Sultanpur
Seed Processing Plant, Masodha				
1.	Sri. GayajeetYadav	Asstt. Prof.	9415716581	42, NokheKaPurva, By Pass Road, Faizabad
2.	Sri Suresh Kr. Yadav	Sr. Clerk/ Storekeeper	9919453655	Ganga-Bihar Colony, Jogi Tara, Faizabad
3.	Sri Guru Prasad	Foreman	9415821831	B-1, CRS Masodha, Faizabad
4.	Sri IsratHussain	Jr. Clerk	7860880531	Rath Haveli, Faizabad
5.	Sri Rajesh Kr. Mishra	Peon	8400069358	Vill. BihariPur, PO.- Dabhasamar, Faizabad