



IGFRI Newsletter



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Union Agriculture Minister Shri Sharad Pawar visits IGFRI on Jan 30, 2011

Shri Sharad Pawar, Hon'ble Union Minister for Agriculture and Food Processing Industries, Government of India visited Indian Grassland & Fodder Research Institute, Jhansi on January 30, 2011. He was accompanied by Shri Pradeep Jain 'Aditya', Hon'ble Union State Minister for Rural Development, Govt. of India. Dr S Ayyappan, Secretary DARE and Director General ICAR, Dr PK Basu, Secretary DAC, Dr AK Singh, DDG NRM, Dr SK Datta, DDG Crops Science, ICAR were present on the occasion. Dr KA Singh Director IGFRI and Dr SK Dhyani, Director, NRCAF, Jhansi welcomed the dignitaries. During the visit, Hon'ble Minister of Agriculture laid the foundation stone of Golden Jubilee Gate of IGFRI, Jhansi. Hon'ble Ministers, visited the research fields of IGFRI and NRCAF to see the ongoing research activities, took an overview of IGFRI museum and appreciated the efforts made by the two organisations.



A scientists-farmers interaction was organised with the Hon'ble Ministers. A large number of farmers, press and media persons attended this programme. In this session the Director's of both the Institutes presented a brief note of the activities being undertaken at their respective Institutes.

Shri Pradeep Jain 'Aditya', MoS Rural Development, Govt. of India, in his address informed about the keen interest and concern of Hon'ble Minister of Agriculture towards the problems of farmers and the conditions of Bundelkhand region.

In his address Shri Sharad Pawar expressed that he was eager to visit these Institutes for a long time and congratulated the scientists of IGFRI and NRCAF for their constant efforts for the cause of the farmers in this difficult soil and climatic conditions. He stressed need for development of fodder and feed resources so that the huge livestock population in the country is fed adequately. He pointed out that the dietary habits of people are changing and the demand for milk, meat and eggs is increasing which has put a greater responsibility upon farmers to meet the growing demand. The demand of milk is increasing by 5% whereas the production is increasing by only 3%. There are 11% of the animals of the world in India with 3% of land area. The priority of the farmers is to grow food grains to feed the human beings and growing fodder crop is generally neglected. There is a deficit of 60% green fodder, 21% dry



fodder and 64% concentrate mixture. Thus, inadequate feeding of animals result in lower productivity and poor health of the animals. Hence, every effort should be made to increase the forage and feed supply so that livestock productivity is increased and the growing demand of milk and meat is met. New forage varieties of fodder crops should be developed, and the seeds should be timely made available at adequate prices. For this the 40 agricultural Universities in the country should come forward to produce the seeds required by the farmers. He also showed concern

Forages for Non-ruminants: Potential and Opportunities

Forages are the vegetative parts of plants consumed by animals. Green fodder are easily digestible, palatable and slightly laxative and above all provide fresh nutrients in a most natural form, resulting in efficient utilization of the food without stress on animal body. Usually forages are rich in fiber depending on stage of maturity when harvested for feeding or grazed by ruminant's livestock. Forages are usually a more economical source of nutrients than grains, protein supplements, or mineral-vitamin premixes. High quality forage is consumed in larger amounts and is more digestible than mature, lower quality roughages. Forages can be of diverse types, each varying in chemical composition, moisture content, and physical form.

Non ruminant play an important role in livelihood and nutritional security of landless and weaker sections of society. But with changing food habits and more demand for egg, fur/fleece and meat non-ruminant production particularly the poultry, pig and rabbit production has taken the viable shape of industry/commercial production. There is need to screen the forages for non ruminant to reduce their feeding cost and increasing income of poultry and pig growers. Non-ruminant diets are often imbalance particularly for mineral and vitamins, which usually result in their poor productivity. Non ruminant concentrate feeds are made up of more grains and byproducts of cereal, pulses oilseeds and compete with human food. It is a big challenge to reduce human-livestock food-feed competition and partly substitute ingredients by green forages and succulents to make non-ruminant production more efficient and cost effective.

How to accelerate the non-ruminant growth, decrease the use of cereals, improved non ruminant productivity and reduce the feeding cost are the need of the hour but a challenging task to solve for the benefit of non-ruminant livestock farmers in the country. Non ruminant animals viz. pig, poultry, rabbit, ducks etc differ in their digestive physiology than ruminants and thus in their nutritional requirements. These non ruminant species require higher nutrients density feeds than ruminants. With the increasing demand of cereals and legumes for human beings use of these feed ingredients has added to the cost of production and constrained their availability. Thus, availability of conventional energy and protein sources has stimulated a quest to researcher and planners for alternative feeding stuffs not only to sustain but to increase the productivity and profitability of non ruminants. In this situation incorporation (fully/partially) of green fodder, tree leaves, succulents and other foraging stuffs in ruminants diets seems to be the most practical and viable alternative. The text deals with different foraging stuffs nutritive value, their dietary levels and effect on non-ruminant's performance.

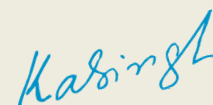
Forages can play an important role in non ruminant nutrition because they are good source of nutrients

particularly the energy, fat, protein, amino acids and minerals. Forages are good sources of carotenoids and xanthophylls pigments to improve carcass and egg quality. They are important for intestinal motility and thus prevent constipation. They are natural sources of nutrients and other nutraceutical agents like omega 3 fatty acids and economize non-ruminant production by sparing use of cereal grains and cakes in their diets.

There are a large number of sources of forages for non-ruminants like bluegrass (*Poa pratensis*, *P. annua*), bromegrass (*Bromus inermis*), alfalfa (*Medicago sativa*), red clover, beans, banana (*Musa cavendishii*) and plantains (*Musa paradisiaca*), cassava (*Manihot esculenta*), sweet potato (*Ipomea batatas*), yam (*Dioscorea spp*), cocoyam or taro (*Coocasia esculenta*), Nacadero (*T. gigantean*), leucaena (*Leucaena leucocephala*), *Gliricidia sepium*, *stylosanthes meal*, chaya (*Cnidocolus aconitifolius*), pigeon pea (*Cajanus cajan*), aquatic plants like duck weed and water spinach (*Ipomoea aquatica*) etc. which can be used in the diets of swine, poultry and rabbits to prepare economical diets to give higher return to the farmers.

Non ruminants require higher nutrients density diets (more requirements for minerals and vitamins) than ruminants due to their digestive differences. Due to deficiency of these nutrients in cereal grains and cakes, diets of non-ruminant are frequently imbalanced. There seems to ample scope to harness the nutritional potential of forages (from cultivated crops, tree leaves/shrubs and other aquatic sources) to make the non-ruminant production more sustainable, economic and market oriented/driven. Following are some of the grey niches that need to be explored/focused/targeted to realize the importance of forages in non-ruminant nutrition. There is need to screening of forages for amino acids balance and mineral contents, exploitation of forages for carotenoids and xanthophylls contents to improve marketing quality of poultry products, breeding of forages for higher mineral and vitamin contents, screening of leaf meals from unconventional feed resources for non ruminant feeding and exploitation of anti oxidant and other nutraceutical properties of forages particularly for pigs and poultry.

"If prices of milk, eggs and meat are to be contained the government should take concrete steps to reduce the cost of livestock feed. It must eliminate the high duties on imported feed additives and aminoacids, slash export incentives given to oil meal traders and remove excise duty on molasses used in cattle feed."



(K.A. Singh)
Director

New Initiatives

Automation of IGFRI Library

To provide quality services to the scientific community the IGFRI library has been upgraded and fully computerized. The Director, IGFRI, Jhansi inaugurated the new facilities of the library on January 04, 2011. Presently, the IGFRI library has a collection of 10,109 books and 5,254 journals which have been bar-coded using “e-Granthalaya 2.0” software developed by the National Informatics Centre (NIC), New Delhi. The database was created using Microsoft SQL 2000 and it may be accessed through LAN using its on-line OPAC (On-line catalogue) features. The profile of members with their photos has been uploaded and on-line user log-in facility

have been provided to see their status of circulation and availability of books & journals in the Library. Using the bar-code scanner, issue-return has now been fully computerized. Mrs. Seema Khatri gave a demonstration of the working of the system before the scientists on this occasion. The “e-Section” of library was also inaugurated on the same day. Dr D R Malaviya, PS & Chairman of the Library Advisory Committee informed the scientists about the digitization of rare books. Soft copies of Annual Reports, Newsletters, and Bulletins are also now available in the library.

(Seema Khatri)



Demonstration of computerized issue-return using barcode scanner



Displaying e-Resources of the Library

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that a large quantity of edible straw is burned which could otherwise be used as livestock fodder. Various technologies such as urea treatment of straw to improve the quality, making fortified feed blocks and bailing should be encouraged to improve feeding standards of our animals.

Shri Sharad Pawar also pointed out that the Bundelkhand region faces frequent drought which affects the agricultural productivity. Looking into this problem, IGFRI was established 50 years ago to cater to the needs of this region. There is need to work more vigorously to solve the problems of this region. For this the Government of India has declared a special package for concerted development of the Bundelkhand region. He also announced that a Central Agricultural University is proposed to be established for which Rs.500 core has already been allocated by the Planning Commission.

Dr. S. Ayyappan, Secretary DARE and Director General ICAR said that development of forage resources is high on the agenda of the government, to improve the livestock productivity so that the demand of milk and meat is met in the country.



Western Regional Research Station IGFRI, Avikanagar



The Western Regional Research Station (WRRS) of IGFRI (Avikanagar, Rajasthan) was established in 1987 to cater to the needs of semi-arid regions of India.

Mandate

- Applied research on range species, fodder trees and cultivated fodder species
- Seed production of range grasses, legumes and fodder tree spp.
- Transfer of technology related to forage production

Research Projects

Station has completed two network collaborative projects, one AP Cess Fund project and 06 institute funded projects. At present 05 Institute funded projects are in operations

Research Achievements

Varieties released

Pearl millet variety AVKB-19 (dual type) developed by selection, has been released for cultivation as a dual purpose variety for the tropical and sub-tropical areas of north-west zone comprising the states of Haryana, Rajasthan, Punjab and Gujarat. This variety is resistant to lodging and major diseases and pests.



Plant Genetic Resource (PGR) Activities

231 germplasm lines of cluster bean were collected from Rajasthan and Karnataka and 70 germplasm lines of

pearl millet from Rajasthan. 280 lines of *C. ciliaris* and 45 lines of *C. setigerus* were obtained from IGFRI, Jhansi. Promising lines were identified for development of superior genotypes. Seeds of cluster bean and pearl millet germplasm lines were deposited with NBPGR, New Delhi for long term storage and with IGFRI, Jhansi for medium term storage. IC nos. have been given to the germplasm lines deposited with NBPGR.

Entries in co-ordinated trials: Five entries of pearl millet, 2 entries of *Cenchrus ciliaris* and 3 entries of cluster bean were evaluated in the AICRP(FC) trials during 2003 to 2007.

Genetic variability among 30 pearl millet genotypes:

The genotypes widely varied in their mean green fodder yield (256.1-426.1 q/ha), dry matter yield (47.2-86.5 q/ha) and seed yield (9.78-16.93 q/ha). High green fodder and dry matter yielding genotypes were VIPT-2023, JBV-2 and AVKB-19 while high seed yield were obtained in VIPT-2023, WCC-75 and D-23. VIPT-2023 (fodder- 5.90 q/ha) and Pusa Bajri-266 (grain-1.91 q/ha) were highest protein yielding genotypes.

Effect of N level (0, 30, 60 & 90 kg/ha) and cutting schedule (no cut, cut at 30 & 40 DAS) in pearl millet var., AVKB-19 : There was significant increase in the green fodder yield with the application of 30 kg (29.2%) & 60 kg N/ha (20.9%) over 0 kg (133.9 q/ha) and 30 kg N/ha. The increase in GFY was non-significant when the nitrogen dose was further increased from 60 to 90 kg N/ha. Green fodder yield was significantly higher in cut at 40 DAS (1.7 times) over cut at 30 DAS (134.7 q/ha). Application of nitrogen increased the yield significantly by 24% at 30 kg N/ha over control (38.5 q/ha).

Effect of nitrogen and phosphorus on *Cenchrus ciliaris* : Application of 60 and 90 kg N/ha produced significantly higher dry matter (3.53 and 3.88 t/ha respectively) over 30 kg N/ha (2.94 t/ha). Increasing trend in yield of grass was also recorded with increasing doses of phosphorus.

Effect of fertilizer and spacing on seed production of *C.setigerus* : The seed production of *C. setigerus* was significantly higher (2.42 q/ha) in 30x20 cm spacing and fertilizer level N: P 30:60 kg/ha as compared to other treatments.

Comparison of fodder yield in oat and barley: Out of 6 entries of oats and 5 entries of barley evaluated for fodder yield contributing attributes, it was observed that GFY and DMY (q/ha) were significantly higher in oats, OS 324 by 36.8% and 28.4% respectively over Kent (132.2 and 21.2 q/ha). GFY and DMY of JHO 851 were lower in single cut but sum of the two cuts was highest among all entries tested. Higher biomass (6.5%) and grain yield (18.8%) was recorded in JHO 822 over Kent (88.9 and 20.2 q/ha).

In barley significantly higher GFY (38.5%), DMY (38.7%) and grain yield (29.1%) were recorded in K 758 over RD 2552 (check) (103.4, 18.1 and 15.1 q/ha).

Role of VAM fungi in management of root-knot and stunt nematodes on berseem, lucerne and cowpea: The most common endophyte, vesicular arbuscular mycorrhizal (VAM) fungi species recorded in the rhizosphere of the plants were *Glomus fasciculatum*, *G. aggregatum*, *G. mosseae*. Host specificity was recorded in terms of per cent root colonisation at inter and intra specific levels in *Medicago*, *Trifolium* and range grasses.

DAP @ 80 kg/ha with VAM gave maximum fodder yield in followed by DAP @ 80 kg/ha alone. The percent root colonisation was not affected by the source and levels of phosphorus.

Network Collaborative Project

Crop based animal production systems: The relative density of *Cenchrus ciliaris* was highest in rotational (39.86) followed by deferred (35.15). Rotational system gave highest forage yield (7.75 t/ha) and lowest in cut & carry system (2.35 t/ha). In December, biomass was lowest in all the systems. Run-off was highest in bare plot 52.36 m³/ha.

Role of Biofertilizer

Effect of nitrogen levels and *Azospirillum* (a biofertilizer) on yield of pearl millet : Green fodder yield significantly increased by 10.8% (330 q/ha) with the application of 30 kg N/ha to 13.9% (339 q/ha) at 60 kg N/ha over no application of nitrogen (298 q/ha). Seed yield significantly increased by 9.8% (14.0 q/ha) with the application of 30 kg N/ha to 12.0% (14.3 q/ha) at 60 kg N/ha over no application of nitrogen (12.7 q/ha). Combined application of 30 kg N/ha and biofertilizer increased GFY (13.0%) and seed yield (11.6%) over control (no nitrogen, no biofertilizer) (287.9 and 12.3 q/ha GFY and seed yield, respectively). Application of 30 kg N/ha and seed inoculation with *Azospirillum* was a better fertilizer combination for optimum fodder and seed yield.

Effect of biofertilizer on seed production of *Cenchrus ciliaris* : Seed yield significantly increased by 14.8% (1.46 q/ha) with the application of 20 kg N/ha to 30.8% (1.66 q/ha) at 60 kg N/ha over no application of nitrogen (1.27 q/ha). Seed inoculation with *Azospirillum* significantly increased seed yield by 13.5% (1.58 q/ha) and with *Azotobacter* by 9.1% (1.52 q/ha) over no inoculation (1.39 q/ha).

Organic Fodder Production

Lucerne : Highest green fodder yield 333.0 q/ha (49.63%) was recorded in the treatment seed soaking in *Panchgavya* (10%) + *Panchgavya* foliar spray (10%). Similarly, seed soaking with *Ghomutra* (10%) + foliar spray *Ghomutra* (10%) enhanced the GFY 324 q/ha (45.69%).

Guinea grass : There were significant differences in the varietal response to treatments. Variety Makueni yielded highest green fodder amongst the three varieties yielding

236 q/ha in two cuts with the treatment vermicompost (5 t/ha) + *Panchgavya* 10%, excelling by 44.1% over the control (163.8 q/ha); followed with *Panchgavya* and *Ghomutra* alone. There were significant differences in response to foliar spray over the control.

Seed production

Seed production of range grasses/legumes : The station has a major responsibility for seed production of range grasses and legumes. During the period 1989-2010, the station has supplied 195 q seeds of *Cenchrus* species to different organisations and has generated revenue of about Rs. 14 lakh for the Institute. The station has produced 23.9 q breeder seed of Institute released cluster bean varieties as per DAC indents. The Station also produced 62.5 q TFL seed of the pearl millet variety, AVKB-19.

Extension Activities

- Participation in Sheep Mela(s) organized by CSWRI, Avikanagar, exhibitions of ICAR institutes and other organisations.
- Participated in the exhibition in state level programme 'Jal Utsav' organised by CECOEDCON and other organisations at Jaipur on 19.03.2004.
- Organised *Kisan Mela avam Chara Sanghosti* on 24.08.2005 and *Kisan Mela avam Chara Sanghosti* on 03.09.2007.
- Supplied seed of *Cenchrus ciliaris* and *C. setigerus* to different *Jal Grahani Samaitis* in Tonk District (Soil Conservation Department, Govt. of Rajasthan), and to other institutes/organizations for soil and water conservation.
- Seed of bajra, AVKB-19, *Cenchrus* spp. and root slips of hybrid Napier and Guinea grass were supplied for demonstration/fodder production to different *goshalas* in Rajasthan, *Krishi Vigyan Kendras* of MPUA&T, Udaipur and Rajasthan Agricultural University, Bikaner (Rajasthan).

Other activities

- Organized Herbage Seed Workshop sponsored by the Indo-UK forage production project from Sept.29-30, 1999 at Jaipur.
- Organized 6th meeting of Research Advisory Committee (RAC) for IGFRI on April 3, 2000 at Jaipur.
- Organised National Symposium on 'Augmenting Forage Resources in Arid and Semi-arid Regions : Long Term Strategies' in association with RMSI, Jhansi at Jaipur (Rajasthan) from Nov. 19-20, 2005.

Honours/awards

- The Station was awarded first prize in the Kisan Mela - cum - exhibition organized by CSWRI at Avikanagar on 04.01.2005.
- The Station was awarded 2nd Prize in Western Regional Kisan Mela and Exhibition at IGAU, Raipur (Chattisgarh) from February 14-17, 2006.
- Dr RK Jain, PS & OIC and Dr RP Nagar, Scientist (SS)

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IMC Meeting

The XXXIV meeting of Institute Management Committee was held on 2nd February 2011 under the chairmanship of Dr KA Singh, Director, IGFRI, Jhansi. Shri Sharma Puran, Dr RP Singh Director Animal Husbandry, Lucknow, Dr SK Gupta, Dr SK Sharma, Dr Amresh Chandra, Dr VK Gupta, Dr UP Singh PS and Sr.AO, IGFRI, Jhansi



attended the meeting. The members appreciated the research activities at IGFRI and its regional research stations. The committee approved the proposals for purchase of equipments, revised the estimate for construction of office-cum-lab Building at WRRS, Avikanagar, conversion of discipline of scientific posts and redeployment of administrative posts besides taking up other matter.

The XXXV meeting of Institute Management Committee was held on March 4, 2011 under the chairmanship of Dr KA Singh, Director IGFRI, Jhansi. Shri Sharma Puran, Dr SK Sharma, Dr Amresh Chandra, Dr VK Gupta, Dr BK Bhadoria and Dr UP Singh PS & SAO, IGFRI, Jhansi attended the meeting. The committee approved the proposals for purchase of tractor operated mower-chaffer-loader having hydraulic control, security proposal at IGFRI, Jhansi, construction of office-cum-lab building at Hilly Regional Research Station, Srinagar.

(GP Nigam and Shailendra Sinha)

NICRA: Technology demonstration in participatory demonstration and action research project launched at village Kadesara of District Lalitpur

A new project on *Technology demonstration in a participatory demonstration and action research* IGFRI, was initiated under the guidance of Dr KA Singh, Director under the umbrella of nationwide programme on, "National Initiative on Climate Resilient Agriculture (NICRA)", with CRIDA, Hyderabad as the lead centre. A workshop was organized at the Kadesara village of Lalitpur district of Bundelkhand region on 16.03.2011 to sensitize the farmers about the climatic vulnerabilities and its impact on the predominant crops of the region. On this occasion two leaflets on the 'Project Profile' and 'Berseem Cultivation' were released by Dr. Sunil Kumar, Head Crop Production Division. The project will focus on the technologies like real time contingency plan implementation, rain water harvesting and its judicious use, efficient energy use and alternate land use systems

for carbon sequestration. In the initial phase the core activity will comprise of the PRA and benchmark survey of 30 beneficiaries and finalization of interventions at farm levels. The project also emphasises on adoption of all the improved packages of practices for each crop and improved packages of practices/real time crop contingency plan based on the experience and feedback from the farmers. The above programme has convergence with the ongoing programmes like ATMA, National Horticulture Mission (NHM) and State department of Agriculture & Animal Husbandry and DASP Lalitpur. The Project is expected to create awareness and equip farmers with climate resilient technologies and climatic risk management in Bundelkhand region of Uttar Pradesh.

(R K Agrawal, Satyapriya, JB Singh, SK Rai and Sunil Kumar)



HRD

An off campus training programme sponsored by NAIP on, “*Vraksh adharit padhyati dwara chara utpadan avam sanrakshan*”, with focus on tree based fodder production and conservation through various systems, was organized for 50 participants on March 15, 2011 at Bamhori, Kulpahaad of district Mahoba.



New Appointment

Dr Kumar Durgesh, Scientist (Plant Breeding) joined IGFRJ on 18.01.2011.

IGFRI WON OVERALL CHAMPIONSHIP (ICAR Western Zone-V Sportsmeet)

ICAR Zonal Sports Meet, Western zone – Zone V was organized at IGFRJ, Jhansi from 15-19 February, 2011. 16 sports contingents from ICAR Institutes of west zone comprising of more than 600 sports persons and officials from various states like Maharashtra, Goa, Gujarat, Rajasthan, Delhi and UP participated. The inaugural function was held on 15th February 2011 in which Dr VS Tomar, Vice Chancellor Rajmata Vijaya Raje Scindhia Krishi Vishwavidhalaya, Gwalior, graced the occasion as the Chief Guest. Shri Ashok Kumar (Dhyanchand) former Olympian and Arjuna award winner (Hockey) and Dr SK Dhyani, Director, NRCAF also graced the occasion as Guest of Honour. The inaugural function started with various cultural programmes and tableaux of various states were displayed

by children of Krishi Nagar Colony which was highly appreciated by the dignitaries and sports persons. During the sports meet a total of 34 sports events (including indoor and outdoor events) were organized. The best contingent award in the march past was awarded to CIRCOT, Mumbai. Dr (Ms) G Smitha, DMAPR, Anand was adjudged the best athlete (woman) and Shri Bhuvnesh Verma, CAZRI, Jodhpur was adjudged the best athlete (men). Outstanding athlete of the sports meet was conferred upon Dr (Ms) G Smitha, DMAPR, Anand. IGFRJ, Jhansi was adjudged the overall Champion for the all round performance during the meet.

The closing ceremony took place on 19th February 2011 in which Shri Subodh Khandekar, former olympian (hockey) graced the occasion as the Chief Guest.



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received Certificate of Merit on Institute's 46th Foundation Day (1.11.2007) for their contribution in release and notification of variety *Avika Bajra Chari* (AVKB-19) in the year 2006.

- The Station was awarded 1st prize for Exhibition in the Sheep Mela and Exhibition organized by CSWRI, Avikanagar on 4.1.2009.

Publications

The station has to its credit 31 research papers (in national & international journals); 53 abstracts in national or international seminars/symposia; 01 edited book; 17 book chapters; 01 status paper; 02 catalogues and 12 leaflets/bulletin in Hindi.



गणतंत्र दिवस समारोह

भारतीय चरागाह एवं चारा अनुसंधान संस्थान में गणतंत्र दिवस समारोह काफी हर्षोल्लास के साथ मनाया गया। संस्थान के निदेशक डा. के.ए. सिंह जी ने समस्त स्टाफ को संबोधित किया और संस्थान की उपलब्धियाँ बताई और आगे अच्छा काम करने के लिये प्रेरित किया।



निधन

श्री बी. एस. सग्गू
स.प्र.अ.
(22.03.1980-06.02.2011)

संस्थान परिवार श्रद्धांजलि अर्पित करता है।

विक्रय हेतु उत्तम श्रेणी बीज

चारा फसलें	प्रजनक (कु.)	दर (रू. प्रति कि.)	टी.एफ.एल. (कु.)	दर (रू. प्रति कि.)
बरसीम				
वरदान	-	240	3.66	120
जे.एच.बी.-146	-	240	-	100
बी. बी. -3	10	240	-	100
जई				
केंट	500	38.50	400	18
जे.एच.ओ. 822	500	38.50	500	18
जे.एच.ओ. 851	100	38.50	-	18
जई 99.2	-	38.50	-	18
ग्वार				
बी.जी.-1	-	-	-	-
बी.जी.-2	-	-	100	25
बी.जी.-3	50	45	30	25
लोबिया				
ई.सी. 4216	50	70	-	-
बी.एल.-1	-	-	-	-
बी.एल.-2	-	-	2	35
कोहिनूर	-	-	2	35
चरी				
पी.सी 6	-	60	-	25
एम.पी.चरी	-	60	-	25
सेम :जे.एल.पी. .4	-	-	35	35
ढँवा	-	-	100	150
घासों				
गिन्नी	-	-	10	325
दीनानाथ	-	-	-	200
धामन घास	-	-	50	250
अंजन	-	-	-	300
स्टाइलो	-	-	600	200
धबलू घास	-	-	-	200
सूबबूल	-	-	950	150
घास की जड़ें (नेपियर/गिन्नी/त्रिसंकर)			1850000 नग	रू. 0.75 /स्लिप

सम्पर्क करें
निदेशक

भारतीय चरागाह एवं चारा अनुसंधान संस्थान, झाँसी
दूरभाष: (0510)2730666, फ़ैक्स: (0510)2730833

सेवानिवृत्ति



डा. मल्लैया
प्रधान वैज्ञानिक
31 जनवरी 2011



डा. आर. के. जैन
प्रधान वैज्ञानिक एवं
प्रभारी उप केन्द्र, अविकानगर
31 जनवरी 2011



श्री मोन्जू
चौकीदार
31 जनवरी 2011



श्री कैलाश चंद
सहायक
28 फरवरी 2011



श्री गु.मो. मीर
माली
28 फरवरी 2011



श्री के. सी. पान्डे
प्रधान वैज्ञानिक
31 मार्च 2011



श्री किशन लाल
स.श्रे.क.
31 मार्च 2011



श्री काशी राम
तकनीकी सहायक
31 मार्च 2011

संस्थान परिवार आपके स्वस्थ जीवन की कामना करता है।

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