

#### Doctoral/Masters Research - M.Sc. - 07

#### Workshop/Brainstorming

- AICRP (FC) group meet, Jorhat, May 10-11, 2013
- AICRP (FC) group meet, Jabalpur, Sept. 07-08, 2013
- *Kharif Chara* Workshop, Aug. 06, 2013 at IGfRI, Jhansi
- One day consultative group meet at Srinagar for Fodder Production Strategies for Jammu & Kashmir on Sep. 03, 2013

#### Awards and Recognitions

- Dr. D.R. Palsaniya received **PS Deshmukh Young Agronomist Award** of Indian Society of Agronomy, New Delhi on November 26, 2012 for outstanding contribution in the field of Natural Resource Management.
- Dr. D.R. Palsaniya was honored by **Garhkundar Mahotsva Aayojan Samittee** - 2012, Government of Madhya Pradesh on December 29, 2012 for exemplary contribution in enhancing agricultural productivity and imparting livelihood security to the watershed dwellers through integrated watershed approach.
- Dr. P.K. Ghosh inducted as member, International Grassland Congress (representative of South East Asia).
- Dr. A.K. Roy received appreciation for outstanding contribution in research on sustainable rural livelihood under NAIP Project.

#### Best poster awards - 04

#### Publications

Research Papers in peer reviewed journals- 59; Popular articles -18; Book/Book chapters- 17; Training Manuals- 11; Technical bulletin - 6; Leaflets- 8, IGfRI Agropedia.

#### Sports

#### ICAR Inter Zonal Sports 17-22 January, 2013

- Dr. Tejveer Singh secured 1<sup>st</sup> place in 800m and 1500 m and 11<sup>th</sup> place in 400m race. First in Race at inter zonal sports, IARI New Delhi.
- Shri Faiyaz Khan was runner up in Javlin throw
- Smt. Sakun Bagela was runners up in Chess (women)

#### ICAR Zonal Sports 27 February-03 March, 2013

- Shri S.K. Rai runner up in Chess (Men) event

#### Infrastructure developed

- Renovation of Farm Laboratory, CP Division
- Renovation of three experimental animal sheds
- ATIC was inaugurated having call centre, seed and product sale unit and farmers advisory board etc.
- Installation of Feed plant
- Livestock drinking water facilities initiated
- Recarpeting of campus roads initiated
- Renovation of VIP Guest House initiated
- Construction of CO<sub>2</sub> room initiated

#### New initiatives

#### National

- National Initiative on Fodder Technology Demonstration (NIFTD) in collaboration with SMD (Agriculture Extension, ICAR) through 100 KVks.
- Nano technology for enhancing nutrient use efficiency.
- Participatory fodder and seed production in Mango orchards in RRS, Dharwad.
- Development of Mitigation and adaptation strategies for abiotic stress in forage crops under climate change scenarios through NICRA.
- Long-term effect of different grazing intensities on soil health and pasture-animal productivity.

- Scaling up of fodder technology in farmer's field and establishing a model "Adarsh Chara Gram"



- Natural resource optimization and fodder based production system for livelihood support to marginal farmers and pastoral communities in North-East Region.
- Amelioration of temperate/alpine pastures for livelihood support to pastoral communities

#### International

- ICAR- ICARDA initiative on Cactus as alternative feed and fodder resource
- CGIAR research programme (CRP 1.1) for dryland systems
- DAC-ICARDA-ICAR on grass peas

#### Inter-institutional

- Livestock based Integrated Farming Systems for semiarid region (IGfRI-PDFSR-NRCAF).
- Improvement in nutritional quality & yield of grasses and exploitation of non-conventional fodder resources for higher livestock production (IGfRI-NIANP).
- Policy perspective of forage and grassland development - scenario, gaps, recommendations and expected outcome (IGfRI-NIANP-NCAP-DAHDF).
- Assessment of impact of grazing on natural resources and surrounding environment of rangelands located in different agro climatic regions (IGfRI-CSWCRI&T)

#### Consortium Research platforms (ICAR)

- Sustainable Crop-Livestock Production Systems through Conservation Agriculture in Bundelkhand Region
- Mechanization on fodder component
- Agrobiodiversity in Forage crops

#### Promotions

**Scientists** - Sr. scientists to Principal scientist : 21

Sr. scientists to Pay Band of Rs. 37400-67000+RGP 9000 : 07

**Technical**- T-4 to T-5 : 03; T-5 to T-6 : 06

**Probation cleared** - Scientists/Sr. Scientists : 18, Technicals : 02

**Administrative** - PA to AAO : 01, SSS to T-1 : 01

**I-MACP Granted** : 01

**II-MACP Granted to Skilled Supporting Staff** : 11

#### New Appointments

Dr. A.K. Misra, HoD, PAR Division

Dr. R.V. Kumar, HoD, GSM Division

Dr. D.K. Verma, PS (Pl. Breeding)

Dr. S.K. Singh, Sr. Scientist (ASP)

Shri A. Ahmed, Scientist (SWCE)

Dr. A. Maity, Scientist (ST)

Shri Manav, Assistant



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# YEAR AT A GLANCE

*November 2012 - October 2013*



**Indian Grassland and Fodder Research Institute**  
**Jhansi-284 003 India**

The Indian Grassland and Fodder Research Institute is celebrating its 52<sup>nd</sup> Foundation Day. During the previous years, the institute has made significant contribution in the field of forage research and capacity building and expanded horizon for technology up-scaling through National Initiative on Fodder Technology Demonstration Project.

### SUCCESS STORIES



Utilisation of inter tree space in guava orchard for berseem to ensure fodder security and improving soil fertility.

Production and availability of quality seed of guar were encouraged for varieties (Bundel Guar-3 and Bundel Guar-2) in Jhansi and Datia (M.P.) districts.

### Research

#### Forage Improvement

- Forage genetic resources was enriched by 555 accessions (Phaseolus-5, Vigna-37, Stylosanthes-90, Clitoria-12, Cowpea-15, Lathyrus-12, Zea mays-179, Pearl millet-93, Sorghum-44, and Napier grass-28).
- Single cut variety of oat (JHO-2010-1), *Brachiaria ruziziensis* cv. DBRS-1 and Guinea grass (*Panicum maximum*) DGG-1 were identified for release in south zone.
- Pearl millet: Five novel genetic stocks (derivatives of pearl millet and apomictic wild species crosses) were registered.
- Four fungal pathogen cultures deposited in ITCC repository.



#### Forage Production

- In oats, seed priming with 0.05% solution of ZnSO<sub>4</sub> and /or MnSO<sub>4</sub> and CuSO<sub>4</sub> and VAM application with 50% recommended dose of micronutrients could be utilized for effective micronutrient management with increased productivity, nitrogen use efficiency and bioavailability.
- In Chaya, application of 200 kg N, 80 kg P<sub>2</sub>O<sub>5</sub>, 80 kg K<sub>2</sub>O /ha gave higher green biomass yield (465 q/ha) when harvested at 60 days interval.
- Guinea grass+(berseem-cowpea) cropping system and FYM application contributed more to active carbon pools (AOC) than that of passive pool.
- Modelling studies on cowpea showed 46 and 20% increase in biomass and grain yield, respectively, due to elevated CO<sub>2</sub> from 330 ppm to 770 ppm at normal temperature.



#### Livestock Management

- Supplementation of wheat bran (200 g) and common salt (20 g) increased milk yield by 22% in cattle.
- In Bhadawari buffalo, overall least square means of lactation milk yield, lactation length and peak yields were 1250.5 kg, 291.4 days and, 6.9 kg, respectively.

- On-farm trials with tribal farmers indicated providing concentrate mixture as a strategic supplement (@ 100g/head/day or 0.5% of the body weight) to goats reared on grazing, increased body weight gain (by 84-87%).
- Addition of polyphenol isolated from Jamun @ 1% reduced *in vitro* methane emission of wheat and oat straw from 35.77 to 17.51 and 23.03 to 12.26 ml/g DDM, respectively.



#### Forage Conservation and Utilization

- Stylo meal prepared from *Stylosanthes hamata* and *S. seabrana* can replace concentrate mixture (50% level in dry grass based rations) of milch cows with 6 kg daily milk yield.
- Sorghum stover-oat (40:60) silage could be used as summer forage in lactating cows with positive effect on feed intake as well as daily milk yield & cost (Rs 9.70 vs 11.60 per kg) of milk production.

#### Seed Research

- Sorghum and cowpea seeds may be stored up to 3 years in poly bags (700 Gauge), plastic/metal bins with the treatment of 0.1% Carbendazim, 1.0 g/kg Malathion and 3% Neem leaves powder (w/w).
- Breaking seed hardness in *C. ternatea* by nicking and H<sub>2</sub>SO<sub>4</sub> (10 min.) recorded 90 and 69.5%, germination, respectively.
- Breeder Seed and TFL seed produced were 225 and 164 quintals, respectively.

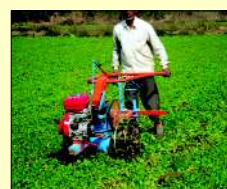
#### Grassland and Silvopasture Management

- Combination of Guinea grass with *S. hamata* gave high dry forage yield.
- Silvopasture at Ladakh was developed using *Salix elegans*, and *Robinia pseudoacacia* (woody perennials) planted at 4m x 4m spacing and Dactylis, *Lolium* and Timothy and tall fescue grasses.
- Establishment of a pasture/livestock museum of temperate range grasses and legumes.
- Grassland inventory of Jammu and Kashmir using GIS and remote sensing.
- A complete inventory of migratory routes was done using GPS, structured and semi-structured questionnaires and personal interviews with mature and knowledgeable members of the pastoral communities.



#### Evaluation of Farm Machinery

- Power weeder modified for adoption of fodder crops sown in rows.
- A hand held brush cutter was successfully used for harvesting Napier, natural grass, maize stalks and general shrubs as well as forage on bunds, vegetative waterways, rangelands etc, having thickness up to 2 cm and 1.5 m height.
- Draper type seed cleaner cum grader developed in collaboration with CIPHET.



#### Social and Behavioral Research

- Index to measure the socio-economic status of farmers in livestock based farming developed.
- Green chaffed sorghum was superior to Baled and Dry chaffed sorghum.

#### Tribal Sub Plan

- Eight hundred forty two technologies demonstrations were conducted under Tribal sub plan for livelihood improvement programme of tribal farmers and farm women in Dhar and Jhabua district of M P, Banswara in Rajasthan and Nandurbar in Maharashtra.

#### Transfer of Technology

**Extension Activities :** Kisan Mela (1), Mahila Krishak Gosthi (1), Farmers- Scientist Interface (1), Kisan Goshthi (2) and Postal & Telephonic Enquiries (40), Visits (47) and Extension Literature distribution at ATIC (470 copies)

**Field/Fodder Technology Demonstration :** Fodder technology demonstrations (FTD) =322 (*rabi*:93 and *kharif*: 229)



#### Human Resource Development

##### Foreign visits for participation in conferences/training

- Dr. N.S. Ekka, The Netherlands, 22 Apr. - 22 Jul., 2013
- Dr. P.K. Ghosh, Jordan, 21 - 23 May, 2013
- Dr. Sultan Singh, Tsukuba, Japan, 05 - 07 Jul., 2013
- Dr. P.K. Ghosh, Kathmandu, Nepal, 26 - 28 Aug., 2013
- Dr. P.K. Ghosh, Sydney, Australia, 15 - 19 Sep., 2013
- Dr. A.K. Roy, Sydney, Australia, 15 - 19 Sep., 2013
- Dr. D.R. Malaviya, Sydney, Australia, 15 - 19 Sep., 2013
- Dr. N. Biradar, Sydney, Australia, 15 - 19 Sep., 2013
- Dr. Vinod Kumar, Wageningen UR, 19 May, 2013 - 06 June, 2014
- Dr. Shahid Ahmad, South Dakota, USA, 31 Oct., 2013 - 31 April, 2014
- Dr. Vijay Kumar Yadav, Dakota USA, 01 Oct. - 31 Dec., 2013
- Dr. K.K. Dwivedi, Utah, USA, 03 Oct. - 31 Dec., 2013

##### National trainings

(i) **Attended:** Scientists- 23; Technicals-10

(ii) **Organized**

- Model Training Course on "Dual purpose crops and trees for nutritional and food security" funded by Directorate of Extension, Ministry of Agriculture, GOI, New Delhi, 19-26 November, 2012
- National training programme on "Apomixis: components, importance and utilization/exploitation" sponsored by NAIP, 03- 16 December, 2012
- Model Training Course on "Fodder Crops for Climate resilient agriculture", funded by Directorate of Extension, Ministry of Agriculture, GOI, New Delhi 4-11 February, 2013.
- Training on "Transferable technologies for fodder production" for KVK staff during 11 -12 March, 2013.
- Training Programme for Samman Vetan Labourers (20 days), 16 August-04 September, 2013.
- Winter school on "Quality seed production and seed standards in forages crops and range grasses: Challenges, Advances and Innovations", 11 September- 01 October, 2013.
- Model Training Course on "Mitigation of climate change through innovative forage production systems" during 14 - 21 October, 2013.
- Administrative Staff training by NAARM Faculty- 12 - 15 February, 2013
- On Farm Inter-institutional training programme for Women farmers on Improved Livestock Rearing Practices, Aug. 30 - Sept. 4, 2013 at Dhikauli, Jhansi
- On farm training organized for tribal farmers under TSP: 06 numbers
- IAS probationers Professional Course phase-I, 18 February, 2013
- Field Experience Training programme for ARS probationers: 2