



# Yak News



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## ASRB Member Prof. (Dr.) M. J. Modayil visited NRCY

Prof. (Dr.) M. J. Modayil, Honourable Member, Agricultural Scientist Recruitment Board, Indian Council of Agricultural Research, New Delhi along with Dr. O.P. Dhanda, Ex-ADG (ANP), ICAR visited the National Research Centre on Yak on 25-11-2010. After visiting the centre including its farm at Nyukmadung he commented "It was indeed a refreshing experience at NRC Yak with a small team of motivated and hard working scientists. This is an unique institution with a grave responsibility dealing with researchable issues of a fast dwindling species. There is need for greater support in terms of man power, both scientific and technical, at this institute. LPM discipline along with disease, nutritional and reproductive management should address the issue of bringing the yak population in India to over 1,00,000 in the next 5 years. My best wishes to the Director, Scientists and all staff of NRC Yak." Inaugurating a Farmers' training Programme on "Value Addition of Yak Products" organized at NRC on Yak with financial assistance from NABARD Prof. Modayil, emphasized on the productivity enhancement of yak and pointed out that economic benefit from the value added yak products will accelerate the sedentarization programme of the nomadic yak herdsmen.



Prof. (Dr.) M. J. Modayil inaugurating a Farmers' Training Programme at NRCY

### Success Stories



A novel product on yak milk *i.e.* dietary fibre enhanced low fat paneer (Designer Paneer) has been selected in the top ten ICAR technologies in the North-East during 2<sup>nd</sup> North-East Agri-Expo held at Dimapur, Nagaland during Dec 15-19, 2010.

concentrate mixture, chaffed paddy straw and little grass (1kg). Feeding trial was completed for 120 days and a digestibility trial was conducted.

During 120 days of feeding period, the average daily gain in body weight were 359, 407, 457 and 507g in Ll, Lh, Hl and Hh groups, respectively. The average feed intakes per 100kg body weight were 2.25, 2.32, 2.46 and 2.50 and per kg metabolic body weight were 77.37, 78.33, 81.66 and 84.66, respectively in corresponding groups. Significantly higher gain in body weight and feed intake per 100kg body weight were observed in high protein high energy group. The digestibility of OM and CP were higher in Hh and Ll group as compared to two other groups. However, CF digestibility was significantly high

### Research News

#### Effect of plane of nutrition on growth performance, nutrient utilization and reproduction in yak.

To assess the effect of plane of nutrition on growth performance, nutrient utilization and reproduction in yak, twenty four growing yak calves (12male & 12 females) of about 1 year of age and weighing 90kg average mean body weight were selected and allotted in 4 groups of 6 animals (3male, 3 female) each on the basis of their body weight. The four groups were offered four nutritional treatments comprising of two protein and two energy levels in a 2x2 factorial design. The levels of protein were 100% and 75% and two levels of energy expressed as total digestible nutrient (TDN) *i.e.* 100% and 75% of NRC1989 for 0.5kg daily gain. For four different nutritional treatments the required protein and energy were supplied through different levels of concentrates and roughage in Low-low (Ll), Low-high (Lh), High-low (Hl) and High-high (Hh) group respectively. The ration consisted of

in only one group *i.e.* Hh group. Whereas, no significant differences were observed in respect of DM, EE, and NFE digestibility.

#### AICRP on "Improvement of Feed Resources and Nutrient Utilization in Raising Animal Production"

To assess the effect of complete feed block (CFB) feeding on animal growth during feed scarcity period of winters and thereafter to assess the compensatory growth in yak, an on farm feeding trial was planned at Mandala (about 10,000ft above MSL). Eighteen yak calves of about 12-15 months of age were divided into 3 groups (G-I, G-II and G-III). Group-I was fed Maize stover and green fodder (25:25) based CFB and Group-II was fed maize stover based CFB (50% maize stover) whereas group-III was fed area specific mineral mixture Zn, Cu, Co and Mn @ 40:20:2:1 along with grazing. After one month of CFB feeding the average daily gain in body weight in G-I and G-II were 350 and 301g per day respectively. However, G-III animals lost about 22% of their body weight. The feeding trial is further continuing to assess the compensatory growth.

## Influence of antepartum administration of Vitamin E-Selenium on reproductive and productive efficiency of Yak.

The study was carried on 18 female yaks to study the effect of antepartum administration of Vitamin E- Selenium on reproductive and productive efficiency. 18 animals in late gestation were randomly divided into three groups with six animals each. Group I animals received 5ml of E care Se injection containing DL- alpha Tocopheryl Acetate equivalent to Tocopherol (vitamin E) 50 mg/ml and Sodium Selenite 1.5 mg/ml at the rate of 5 ml twice with one week interval intramuscularly. First injection was given at 40-60 days prior to the expected date of calving. Animals in group II was injected 10 ml twice with one week interval at same times. In Group III similar dose of normal saline was injected at same times and served as control. Placental expulsion period (hrs) was found to be 5.9, 4.6 and 6.7 in Groups I, II and III respectively. No calving abnormalities were recorded in groups I and II, however, in group III 28.6 per cent abnormal calving were recorded. Uterine involution period (days) recorded in Group I, II and II were 31.6, 29.4 and 34.9 respectively.

### Invitro Yak hybrid embryo production

Yak hybrid embryos following *in vitro* fertilization of cattle oocytes with frozen yak semen could be produced under collaborative DBT sponsored project "Conservation and multiplication of germ plasm of yak (*Poephagus grunniens L*) and its hybrid using *in vitro* embryo production technique". The morulae were subsequently cryopreserved following vitrification method. The project work is undergoing in collaboration with NDRI, Karnal and the College of Veterinary Science, Assam Agricultural University, Guwahati.

### Trial plots for pasture regeneration and assessing pasture production potential

Temperate grass (*Dactylis glomerata*) and legume (*Trifolium repens*) were successfully transplanted in beds for testing their suitability and biomass production potential at the selected field sites in temperate and sub-alpine regions of Arunachal Pradesh and North-Sikkim. The preliminary results for performance of the *Dactylis glomerata* in trials plots related to plant growth and biomass production are given in Table 1. The results showed that the growth of the *Dactylis glomerata* at high altitude of 3650m amsl is slow. The probable reason for the slow growth was the late (in first week of August) sowing/transplantation of the plant saplings in the field. In month of August the temperature start falling at high altitudes. It was also recorded that 30% of the transplanted sapling died in this particular field site.

**Table 1. Plant growth and above ground biomass production (first cut) of *Dactylis glomerata* in different trial plots**

Field location	Altitude (msl)	Average plant height (in inch)	Fresh biomass (kg/m <sup>2</sup> )	Plant growth
Rabum, North Sikkim	1850 m	21.0	0.160	Excellent
Lachung, North Sikkim	2600 m	18.0	0.132	Good
Zeema, North Sikkim	3000 m	18.0	0.140	Very good
Yhathang, North Sikkim	3650 m	7.0	-	*Poor growth
Lhagyala Gonpa, Arunachal Pradesh	2800 m	30.9	0.273	Excellent
Merkmu, Arunachal Pradesh	3000 m	29.6	0.825	Excellent

# the reason for poor plant growth may be the late sowing of *Dactylis glomerata* at site



Dactylis glomerata growing at trail pasture site Merkmu (at 3000 m amsl altitude) in Arunachal Pradesh



Dactylis glomerata growing in trail beds at pasture site Rabum (at 1850 m amsl altitude) in North Sikkim

### Publication

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## Participation



NRC on Yak participated in 2<sup>nd</sup> NE region Agri Expo held at Dimapur, Nagaland from December 15-19, 2010.

- ▶ **Dr. V.S. Chauhan**, Scientist attended Online Certification Course on the RTI, ACT 2005 from 18/06/2010 to 02/07/2010, organized by Centre of Good Governance (CGG) Hyderabad, Government of India,
- ▶ **Dr. P. Chakravarty**, Pr. Scientist attended Management Development (MDP) Workshop on Policy and Priority Setting, Monitoring and Evaluation (PME) Support to Consortia-based Research in Agriculture, from 1-6 July, 2010 at NAARM, Hyderabad.
- ▶ **Dr. K.K. Baruah**, Director. attended "Up gradation of nutrient requirement for different classes of livestock and nutritive value of India feed stock" at Karnal on 10<sup>th</sup> August, 2010.
- ▶ **Dr. S. Deori**, Scientist attended Summer School on "Enhancement of Productivity through Livestock Integrated farming system" from 2-22 September, 2010 at ICAR Research Complex for N.E.H. Region, Umiam, Meghalaya.
- ▶ **Mr. Sanjit Maiti**, Scientist participated Training programme on "SAS: A Comprehensive Overview" of the NAIP Consortium "Strengthening Statistical Computing for NARS" from 23/08/2010 to 29/09/2010, 2010 organized by ICAR Research Complex for NEH Region, Barapani.

- ▶ **Dr. K.K. Baruah**, Director attended workshop on national strategy for conservation of indigenous breeds of livestock on 28<sup>th</sup> September, 2010 in committee room no. 122, Yojana bhavan, New Delhi.
- ▶ **Dr. (Mrs) Leema Bora**, Technical Officer attended the Zonal workshop of KVK's in North East Region during 28-29 September, 2010 at Umran (Ribhoi district) Meghalaya organized by the Zonal Project Directorate, zone-III, Barapani, Meghalaya.
- ▶ **Dr. Joken Bam**, Scientist attended winter school on "Basic techniques in Solid phase peptide synthesis and the application of synthetic peptide in animal diseases diagnosis and research" from 22.09.2010 to 12.10.2010 organized by IVRI Izatnagar, Bareilly.
- ▶ **Dr. P. Chakravarty**, Pr. Scientist attended training on *In-vivo* conservation of animal genetic resources, organized by NBAGR and FAO from 28-30 October, 2010 at NASC Complex, New Delhi
- ▶ **Dr. V. Paul**, Sr. scientist and **Dr. S. Deori**, Scientist attended training programme on Ultrasound guided transvaginal ovum pick up in cattle from 25<sup>th</sup> October to 8<sup>th</sup> November, 2010 organized by Animal Biotechnology Centre, NDRI, Karnal.
- ▶ **Dr. P. Chakravarty**, Pr. Scientist participated International conference on 'physiological capacity building in livestock under changing climate scenario' from 11-13 November, 2010 at IVRI, Bareilly
- ▶ **Dr. V. Paul**, Sr. scientist and **Mr. S. Maiti**, Scientist participate the National symposium on "Technology Management, visioning and Upscaling for Accelerating Livestock Production" from 11-13 November, 2010, organized by Dept. of LPM, C.V.Sc., AAU, Khanapara, Guwahati.
- ▶ **Dr. V.S. Chauhan**, Scientist participated "International conference on 'physiological capacity building in livestock under changing climate scenario'" 11-13 November, 2010 at IVRI, Bareilly.
- ▶ **Dr. S. Deori**, Scientist participated National Symposium on Technology Management, Visioning and Upscaling for Accelerating Livestock Production held at the Department of Livestock Production & Management from 11-13 November, 2010 at College of Veterinary Science, Assam Agricultural University, Khanapara, Guwahati.
- ▶ **Dr. V. Paul**, Sr. scientist participate national symposium on "Optimizing Forest Production from Arable and non arable Lands for increasing livestock production" from 12-14 November, 2010 organized by Management society of India and IGFRI, Jhansi.
- ▶ **Dr. P. Chakravarty**, Pr. Scientist attended PIMS-ICAR Workshop at IASRI, Pusa, New Delhi on 15 November, 2010.
- ▶ **Dr. K.K. Baruah**, Director and **Mr. S. Maiti**, scientist attended interface meeting on "ICAR-industry meet-2010" from 18-19 November, 2010 organized by ICAR Research Complex for NEH Region, Barapani.
- ▶ **Dr. P. Chakravarty**, Pr. Scientist. Consultation Meeting on "Abiotic Stress Management of Animal Sciences" from 19 to 20 November, at NIAM, Baramati
- ▶ **Dr. Joken Bam**, Scientist participate XXVII Annual conference of Indian Association of Veterinary Pathologist & C.L. Devis Satellite Seminar, from 25-27 November in AAU, Khanapara.
- ▶ **Dr. K. K. Baruah**, Director, **Dr. V. Paul**, Sr. Scientist and **Mr. S. Maiti**, scientist attended 2<sup>nd</sup> North East Agri Expo from 15-19 December, 2010 at Dimapur, Nagaland.
- ▶ **Dr. P. Chakravarty**, Pr. Scientist participated Animal Nutrition Association Conference from 17-19 December, 2010 at OUAT at Bhubaneswar

## Farm News

The Institutional Farm of National Research Centre on Yak is situated at Nyukmadung, 31 kms from Dirang. The Nyukmadung Farm complex has a total cultivated area of 108347.4 m square. Till December, 2010, there were all total of 201 yaks in the farm of which 79 were males and rest 122 were females. Animal strength reached to its highest i.e. 201 yaks ( 79 males and 122 females) in the month of December 2010. During the period from July to December, 2010, a total of 32 calves were born. Out of the calves born, 18 were males and 14 were females. The total milk production from July to December, 2010 was recorded to be 3306.75 liters, and the highest quantity was produced during the month of December, 2010 (774.52 L). The milk was sold as raw milk and product form like paneer, ghee etc.

## Visitors

- Kazuo Ando, Center for Southeast Asian Studies, Kyoto Univ. Kyoto, Japan visited the institute on 15.09.10
- Yasuko Ishimoto, Kyoto University, Kyoto, Japan visited the institute on 15.09.10
- Major Ravi Kumar N Maney, SM 2IC, 6 Assam Regt. visited the institute on 14.12.10

## Extension Activities

► An Off-Campus Extension cum Animal Health Camp was organised at Lubrang on 8<sup>th</sup> November 2010. About 247 animals (Mostly yak and yak-cattle hybrid) were treated mostly for parasitic infections, tympanitis etc. Animals were also treated for different health ailments and given deworming and supplementary medicines. In this training extension camp, nomadic herdsman and their family members were also given human health check-ups and fast aid medicines.

► Two Off-Campus Extension cum awareness programmes on “Scientific Yak Rearing” and “Innovations of NRC on Yak” were organised at Seru Village of Tawang Circle and Rho Village of Thingbu Circle of Twang District, Arunachal Pradesh on 7<sup>th</sup> and 8<sup>th</sup> December 2010. More than 50 *Brokpas* were made aware about the “Scientific Yak Rearing” and “Innovations of NRC on Yak”.

► NRC on Yak participated in “ICAR-Industry Meet-2010” held at ICAR Research Complex for NEH Region, Barapani, Meghalaya during November 18-19, 2010 and showcased “Technologies Ready For Commercialisation” of NRC on Yak during the Meet.

► NRC on Yak participated in 2<sup>nd</sup> North-East Agri Expo held at Dimapur, Nagaland during December 15-19, 2010 and exhibited activities and significant achievements to the farming community and industry people at ICAR Pavilion during the expo.

► A Farmers-Scientists meet was organised on November 27, 2010 to address the different practical problems faced by the yak rearing community in adoption of scientific yak rearing practices. More than forty yak owners and herdsman participated in this interface meeting. Dr. K. K. Baruah, Director assured *Brokpas* community that National Research Centre on Yak will extend its maximum help to them for their overall development.



Extension cum Animal Health Camp at Lubrang



A view of Farmers-Scientists meet at NRCY

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## KVK News



Field day on Duck cum Fish Culture



Training on Apiculture

### 1) Farmers training/OFT/FLD conducted during July-December 2010

Discipline	Training	Participants	FLD		OFT	
			Nos. of conduct	Beneficiary	Nos. of conduct	Beneficiary
Agronomy	13	322	6	135	1	5
Plant Protection	7	186	1	6	2	27
Animal Science	6	156	2	11	1	7
Fishery Science	3	79	2	17	1	5
Ag. Engineering	4	122	-	-	-	-
Total	33	856	11	169	5	44

### 2) Field day:

Discipline	Nos. of conduct	Participants
Agronomy	2	41
Fishery Science	1	14
Total	3	55

### 3) Farm Production for the period July-December, 2010

Farm Production	Quantity
Broiler	420
Fish	NIL
Paddy	2 qt
Potato tuber	2qt
Radish (Fresh fruit)	52 Kg
French Bean (Fresh fruit)	10 Kg
Okra (seed)	3.5 Kg

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