

ICAR-Central Institute for Research on Buffaloes, Sirsa Road, Hisar भा.कृ.अ.प.- केन्द्रीय भैंस अनुसंधान संस्थान, सिरसा रोड, हिसार

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From Director's Desk

It is a welcome sign that buffalo dairy entrepreneurs are coming forward to take up buffalo farming in a big way. The growing popularity of buffaloes among all sections of the society and the world is a proof to this. Buffalo has been the friend of small farmers, often their largest capital asset. It is a fit companion for Indian farmers, who grow with their buffaloes by developing a high degree of mutual understanding. The buffalo farming entrepreneurs will have to practice scientific livestock production through optimum breeding, nutrition and health practices. The farmers have to recognise the importance of animal identification and record keeping for the progress of dairy sector in general and buffalo production systems in particular. A stronger buffalo farming system in the country could only diminish the gap in demand and supply for milk. Otherwise, India can again become a net importer of milk. Keeping in mind the strength that Indian livestock and farmers have, buffalo productions systems hold the promise for handsome economic returns to the farmers of all strata. CIRB has taken many initiatives for identifying farmers' needs and exerting to evolve solutions to their problems. The trainings organised by the Institute are in high demand among farmers, educated un-employed youth and dairy entrepreneurs from all over India. In these trainings farmers were sensitized to scientific breeding, reproduction, nutrition and health aspects, besides the necessity of record keeping, breed conservation and improvement. Scientists explained various approaches for harnessing maximum returns using latest technologies and scientific practices in buffalo farming. The Institute takes pride in its association with the species that has the potential to transform rural livelihood with food security for the masses.



RESEARCH

Digital Imaging for Buffalo Conformation/ Body Condition Score

A new instrument was designed for linear measurements of body parts (length, height, pin-shoulder length etc.) and applied on Murrah and Nili-Ravi buffaloes maintained at Institute farms.

A tool under the name of 'Kalrumscale' was designed for measuring 3D angular and linear orientation of buffalo external rump/ pelvic surface with the aim of digital quantification of dairy characters.



Types of horn curves in Murrah and Nili-Ravi buffaloes

Herds at CIRB, main and subcampus were screened for curving pattern of horns- Type-C curled and Type-D downward emerging (Fig. 1). This screening will be useful for identification of purity under two categories of aforesaid breeds.

Cordia dichotoma for Reduction in Methane Production

Inclusion of Cordia dichotoma leaves at graded levels (5-20% of the substrate DM) with wheat straw improved (16.5%) true degradability of dry matter and organic matter of composite diet with reduction in methane production up to 13.86% under in vitro system. Supplementation of Cordia dichotoma leaves at the rate of 5% in DM increased (17%) body weight gain in lactating buffaloes, however quality and quantity of milk remained unaltered.

Embryo Transfer Technology in Buffaloes

Multiple ovulation and embryo transfer (MOET) was undertaken for faster multiplication of elite buffaloes for conservation and multiplication of superior buffalo germplasm with the main objective to produce pedigreed superior males and females.

Embryo Recovery, Transfer and Freezing Activity During the Year 2013-14

Buffaloes superovulated	21
Total embryo recovery per flushing	1.14
Viable embryo recovery per flushing	1.05
Fresh Transfers	19/22
Frozen Transfers	4/4
Total Transfers	23/36
Pregnancy diagnosis due	3
Pregnancies	4/20
Pregnancy with frozen embryo	01

ITK Known Anthelmintic Herbs

A study was undertaken to screen ITK known herbs viz. fruits of Kantkari (Solanum xanthocarpum) and Vidangh (Embelia jerium cottam), bark of Siris (Albizia lebbek) and Harshringar (Nyctanthes arbortristis) for their anthelmintic activity. Out of various extracts chloroform-methanol extract was found to be most effective against L3 larvae of Haemonchus contortus. Most effective, irrespective of the plant sources was fruit extract of Embelia jerium cottam which killed upto 82.6% of larvae.

Germplasm Conservation

Male germplasm conservation and dissemination (2013-2014)

Item	Murrah	Nili-Ravi
Frozen semen straws prepared	110844	23452
Semen straws supplied/sold	87596	25969
Stock	252681	44207
Breeding bulls sold	96	2
Semen doses prepared from field bulls	15148	-

Herd Strength as on March 31, 2014

Breed	Adult Buffaloes	Suckling Calves	Breeding Males	Young Males & Females	Heifers
Murrah	151	129	11	92	66
Nili-Ravi	144	125	20	164	12

Herd Performance (July 2013-March 2014)

Traits	Nili-Ravi (n)	Murrah (n)
Total Lactation Milk Yield (kg)	2312 (83)	2577 (68)
Wet Average (kg)	8.47	8.03
Herd Average (kg)	5.45	4.55
Calf Mortality%	3.05	6.21
305 days Milk Yield (kg)	2161 (83)	2322 (68)
Calving Interval (days)	432 (46)	532 (79)
Service Period (days)	122 (46)	235 (79)

Agriculture Production (July 2013 to March 2014)

Agricultural produce	Main Campus (qt.)	Sub-campus (qt.)
Green Fodder harvested	32665.50	35525
Silage	4577.50	4089
Grain	-	4719.90
Dry fodder/straw	-	3487
Paddy	-	1096.55

Semen Sale at Network Centres (2013-14)

Breed	Centre	Semen Sold
Murrah	CIRB, Hisar	68635
	NDRI, Karnal	62054
	GADVASU, Ludhiana	24784
	Sub-total	155473
Nili-Ravi	CIRB Sub Campus, Nabha	27875
Surti	RAJUVAS, Vallabh Nagar	2345
Jaffarabadi	MPKV, Kollapur	8725
Bhadawari	IGFRI, Jhansi	4323
	Sub-total	43268
	Total	198741

EXTENSION

Linkages With Farmers

The institute has developed linkages with farmers engaged in livestock rearing in general and buffalo rearing, in particular through field progeny testing, clinical camps and Buffalo Melas, etc. Institute organizes Buffalo Mela annually at the institute premises to showcase the technologies developed at the institute and inspire buffalo breeders for rearing superior quality animals. Buffalo Mela was organized at the Institute premises on 1st Feb, 2014 in which farmers with 161 elite buffaloes from all over Haryana and Punjab participated. National Institutes like



Chief Guest, Dr Gurbachan Singh, Chairman ASRB and Dr Inderjeet Singh, Director CIRB with a superior buffalo bull during Foundation Day Buffalo Mela at CIRB, Hisar on Feb. 1st, 2014

NDRI, NRCE, Central Sheep Breeding Farm, Tractor Training Centre put up their stalls. Competitions were held in different categories of buffaloes like lactating, dry, adult & young bulls. More than 550 farmers participated in this event. Four calf rallies were organized in village, Jewra, Dhiktana, Kheri Barki and Sarsod. More than 300 farmers participated in these calf rallies along with their animals.



Dr KML Pathak, Dy Director General (AS) ICAR and Dr Inderjeet Singh, Director CIRB, inspecting the elite Nili-Ravi Buffaloes during 26th Foundation day and Nili-Ravi Buffalo Mela at CIRB Sub-Campus, Nabha on December 2, 2013

Farmers' Training

Institute organizes tailor made Training Programs on various aspects of Improved Buffalo Husbandry Practices viz; artificial insemination, nutrition and management for farmers, farm women, educated youth and entrepreneurs. The trainings imparted by the Institute are in great demand from all over the country.

Trainings conducted by CIRB during July 2013-March 2014

Title of training program/ Campus	Duration	Number of Participants
Improved Buffalo Husbandry	July 8-15, 2013	69
Improved Buffalo Husbandry	Aug. 5-8, 2013	30
Balanced Nutrition & Improved Buffalo Husbandry	Aug. 19-26, 2013	68
Improved Buffalo Husbandry	Sept. 2-9, 2013	86
Artificial Insemination	Sept. 23-30, 2013	25
Improved Buffalo Husbandry	Oct. 21-28, 2013	86
Improved Buffalo Husbandry & Nutrition	Nov. 22-29, 2013	125
Buffalo Husbandry and AI	Jan 13-25, 2014	16
Improved Buffalo Husbandry	Feb 17-22, 2014	86
Improved Buffalo Husbandry, at Sub-campus Nabha	Mar 11-25, 2014	40

The Institute organized 12 infertility treatment camps with PNB Sucha Khera at Banarkhan, Dhiktana, Sinsar, Sarsod, Kabartha, Juglan, Mehndipur, Rajgarh Dobhi, Bichpuri, Nandal, Jaganwala, Julhera Bhaini Majra.



Sh Surjeet Singh, a progressive farmer, distributing certificates to participants of Improved Buffalo Husbandry Training (Oct. 21-28, 2013)



Trainees at Improved Buffalo Husbandry Training (July 8- 15, 2013)

ICT Based Extension Initiative

Institute scientists have developed 'Buffalopedia' – an interactive web-portal for providing information to general public and farmers / entrepreneurs on varied aspects related to buffalo and its farming. 'e-Bhains Gyan Kendra'- CIRB's virtual centre for learning in buffalo husbandry and platform for scientist-farmer interactions is being developed. Institute has also launched Helpline No. 1800-180-1043 for buffalo farmers.



ICT Initiatives at Institute



Dr Inderjeet Singh, Director CIRB and Scientists interacting with farmers during Kisan Goshthi at village Karnoli, Dist Fatehabad, Haryana

EVENTS & CELEBRATIONS

Progressive Farmers' Meet

Farmers' meet was organised to strengthen the interactive approach for identification of research gaps and related problems of buffalo keepers on June 21, 2013 at CIRB, Hisar. Farmers from Raseeda, Singhwa, Rohtak and Jind participated in deliberation during the meet. Scientists apprised the farmers about the importance of male germplasm in livestock husbandry, factors affecting semen quality, significance of evaluating breeding soundness for bull selection, importance of AI in buffalo productivity, buffalo germplasm conservation, progressive trends of buffalo meat production, composition and significance of balanced ration and micronutrients, mineral requirements and its toxicity in relevance to national buffalo development policies. Significance of awareness of genomic selection and its impact on genetic improvement to achieve 8000 to 12000 L animals as in other countries like America, Europe, Newzealand and Israel.

Scientists also expressed their views on achieving high milk production rates by promising breed's benefits of integrated farming in close-knit with fisheries and silage making etc. Farmers expressed low milk price as a basic problem in dairy



Dr Inderjeet Singh, Director, CIRB addressing the Farmers at Farmer's meet.

sector which does not combat with cost of production. Director mainly, stressed the need of organising Association of Buffalo Breeders at regional level for buffalo development and improvement. Farmers were assured of access to frozen semen banks.

Farmers suggested that buffalo less than 20 L is not economical for farmer against the expenditure to the tune of Rs 8000 per month. Suggestions made were as below:

- Try to improve productivity of our native breeds.
- There is a need to develop state level Breed Associations of Buffalo keepers.
- While selecting the promising germplasm, pedigree of animal shall be considered than its phenotype.

- A regular check on diseases like Brucellosis, IBR, TB and JD must be followed.
- Natural service shall not be encouraged to avoid reproductive problems in these animals.

30th Foundation Day

The Central Institute for Research on Buffaloes celebrated 30th Foundation Day and organised a Buffalo Mela-cum-Exhibition on 1st February, 2014. Dr Gurbachan Singh, Hon'ble Chairman, Agricultural Scientists Recruitment Board, New Delhi inaugurated the function. Maj Gen (Retd) Shri Kant, Vice



Chancellor, LUVAS, Hisar was the Guest of Honour. Dr RS Dalal, Member Secretary, Haryana Kisan Ayog and chief guest at concluding function distributed prizes to the winners. Besides Dr RK Singh, Director, NRCE; Dr (Mrs) Indu Sharma, Director, DWR; Sh Kuldeep Dhaliwal, Member, ICAR Governing Body and Dr SC Chopra, former Director, CIRB also graced the occasion. There were competitions for different categories of buffaloes viz; heifers, milk teeth and two to four teeth female, milch buffalo, dry buffalo, milk teeth male, two to four teeth male and breeding bull. 161 elite buffaloes from all over Haryana and other states participated.

Overall Champion in male & female category were also awarded. All winning animals were awarded certificate, shield and cash prize, sponsored by Haryana Kisan Ayog.

An exhibition showcasing recent technologies related to buffalo production and other relevant agricultural activities was also arranged. ICAR and other Govt. departments like Central State Farm, Central Sheep Breeding Farm, Tractor Training Centre, Regional Station for Forage and Livestock and other related industries participated in the exhibition and put up their stalls. More than 550 farmers participated in these events with their prized Murrah animals. A Jaffarabadi bull of Sh Ravinder Singh Sandhu of Firozpur (Punjab) was an attraction during the mela.

Vigilance Awareness Week

During the 'Vigilance Awareness Week-2013', noted columnist Sh Devender Uppal was the Chief Guest. He quoted the noble words of writer, Publilius Syrus, "Even when there is no law, there is conscience". He discussed the Indian philosophy, where 'Karma' (doing) and honesty to oneself and the society are considered paramount. Dr Inderjeet Singh, Director CIRB, chairing the function stressed upon the need for sincerity, transparency and honesty in working. He assured a free and fair consideration of all issues while reiterating firm dealing with all undesirable practices. On the occasion, participants including scientists and other staff openly expressed their views on issues



related to corruption. Dr Navneet Saxena, Principal Scientist said that a vigilant workforce is essential for the growth and progress of an organization. He also stressed on the four pillars of vigilance as Truth, Honesty, Integrity and Transparency. Dr AK Panday, organizer of the event, apprised the audience of the history of the event and its importance in view of well-being of any organization.

Murrah Breeders Welfare Association

As consented during the progressive farmer's meet, held on June 21, 2013 the Murrah Breeders Welfare Association was formally launched on February 1, 2014 the foundation day of CIRB. Registration certificate was handed over to the President and General Secretary of the Association by Dr Gurbachan Singh, Chairman, ASRB at this occasion.

हिन्दी सप्ताह समारोह



संस्थान में 16-21 सितंबर, 2013 के दौरान हिंदी सप्ताह का आयोजन किया गया। इस समारोह के दौरान, संस्थान और उसके

सहयोगी संस्थान के कर्मचारियों के लिए कई प्रतियोगिताओं का आयोजन किया गया। डॉ रवि दत्त शास्त्री, प्राचार्य (सेवानिवृत्त), जगन्नाथ बालिका आर्य स्कूल, हिसार मुख्य अतिथि थे और उन्होंने हिंदी में अधिकतम काम करने के लिए संस्थान के कर्मचारियों को प्रेरित किया। इस अवसर पर डॉ इंद्रजीत सिंह, निदेशक ने भी सभी वैज्ञानिकों को और प्रशासनिक कर्मचारियों को हिंदी में काम करने के लिए प्रोत्साहित किया।

ICAR Zonal Tournament (North-Zone)

ICAR Inter Zonal Tournament (North-Zone) was held at IIPR, Kanpur from 20-23 March, 2014. CIRB contingent was represented by 37 players from the institute. The sports contingent participated in Badminton, Table Tennis, Races,



Throw events, Volleyball (Shooting and Smashing) Carrom, Chess and Kabaddi. Institute badminton team represented by Navneet Saxena, A K Panday, A Majid, Viksit Kapil, V Mudgal became the champion of North Zone, defeating DWR, Karnal team in the final. Kabaddi team was adjudged runners-up.

Team of Army Officers from India, Nepal and Myanmar visits Institute



Dr Inderjeet Singh, Director CIRB interacting with army officers

A team of nine officers from Remount Veterinary Corps of the Indian Army, Border Security Forces, Veterinary Core of Royal Nepal Army and Myanmar Army visited CIRB, Hisar on August 29, 2013. Visiting officers appreciated the facilities available at the Institute as well as the research contribution towards rural



DDG Fisheries, Dr D Meena Kumari, visiting Institute Animal Farm livelihood improvement in country through improved buffalo production systems.

Important Meetings

Meeting	Date
Institute Management Committee	28.10.2013
Research Advisory Committee	30.10.2013
Institute Research Council	27.09.2013
	28.09.2013
	18.10.2013
	24.10.2013



Independence Day & Republic Day Celebration

The institute celebrated Independence Day and Republic Day with traditional fervor. On these occasions Dr Inderjeet Singh, Director, CIRB unfurled the Indian Tri-colour. During the 67th Independence Day Celebration, Dr Singh remembered the freedom fighters for their sacrifices for country. He underlined various activities, achievements and initiatives undertaken at the Institute during the year. He exhorted all members of the CIRB to pay their tributes to these heroes through commitment towards building a vibrant and prosperous India. Wards of the staff presented a short programme reciting patriotic poems, songs and making short speeches.

On the occasion of Republic Day, meritorious wards of staff were



Independence Day, 2013



Republic Day, 2014

honoured and given cash prizes. Widows of deceased staff of CIRB were also given monetary help by Staff Welfare Fund.

VISITS ABROAD

Director's SAARC Visit

Buffalo is attracting increased attention the world over. In this regard, a meeting on "Inception of High Yielding Dairy Buffaloes Breeds Development in SAARC countries" was organized by SAARC Agriculture Centre (SAC) at Dhaka during Nov. 16-17, 2013, where Dr Inderjeet Singh, Director CIRB was invited amongst others from Bhutan, Pakistan, Nepal, Sri Lanka and Bangladesh. In this meeting, consensus was arrived at the need to explore the possibilities of regional cooperation in buffalo



Dr Inderjeet Singh, Director CIRB and Dr A Chakravarty, Pr Scientist, NDRI, representing India in SAARC meeting at Dhaka

germplasm improvement. Towards this end, initially a trial with the exchange of a few hundred doses of frozen semen of Nili Ravi and Murrah breeds will be made between different countries and performance of progeny will be evaluated in the given environment of each participating country. The format of Material

Transfer Agreement in this regard was developed. Another proposal for capacity building of professionals in dairying, veterinary science and animal husbandry was also agreed. Importance of balanced feeding was also kept in focus during the discussions and the professional and laboratory infrastructure of India can be of immense help in this direction.

Another meeting was organized at Manila from Nov. 28-29, 2013 between scientists and professionals engaged in buffalo development from Philippines, India, Brazil, Australia, Pakistan, China, Italy, Australia and an ICAR (International Committee on Animal Recording) representative. Database development through animal identification and recording system for milk production was discussed in detail. It was opined to join the Interbull Programme as member through International Buffalo Federation for developing international buffalo genome and genomic selection programme. The NDDB's field data recording program was appreciated, which can serve as the buffalo database for this purpose. Besides, concerns about disease free herd were aired, which hamper exchange of superior buffalo germplasm amongst buffalo rearing countries. The meeting was followed by a visit to the Philippine Carabo Centre (PCC) at Menzo.



Delegates of International Consultation and Workshop on Genetic Improvement for Dairy Buffaloes held No. 28-29 at Marriot Hotel, Pasay City, Metro Manila.

DBT CREST Fellowship



Dr. Dharmendra Kumar, Scientist, visited Friedrich-Loeffler-Institut, Institut für Nutztiergenetik, Mariensee, 31535 Neustadt, Germany on DBT CREST fellowship for Stem Cell Biology and Regenerative Medicine 2011-12 from February 25, 2013 to February 20, 2014. He worked on transposons mediated generation, characterization and differentiation of induced pluripotent stem cells in the laboratory of Dr Wilfried A Kues.

PERSONALIA

Joining	Dr Selokar Naresh Lalaji, Scientist	10.10.2013
	Shri Chetan S Issar, AO	27.08.2013
	Shri Mahesh Kumar, F&AO	31.01.2014
Retirement	Shri Ishwar Singh, Casual Labour	28.02.2014
Promotion	Shri Gopal Singh	01.07.2013
	Sr. Tech. Asst. to Technical Officer	
Transfer	Shri RK Sharma, AO	01.07.2013
	Dr Thirumaran SMK, Scientist	31.12.2013
Resignation	Dr C Zupeni Tsanglai, Scientist	08.08.2013
Demise	Shri MS Kairon, Tech. Officer	30.01.2014

SECTORAL NEWS

Buffalo Making News World Wide



Elite Murrah buffalo Lakshmi brings fortunes to its owner Sh. Kapur Singh, village Sighwa Khas, Hisar, Haryana, who sold this buffalo for Rs. 25 lakhs to an affluent farmer from Andhra Pradesh, making a headline in national and international media.

Indian Buffalo meat Industry will grow by 15% annually

India is one of the largest bovine (buffalo) meat exporter in the world. Buffalo meat has emerged as India's second highest agri-export commodity after Basmati rice, according to data released by Agricultural and Processed Food Products Export Development Authority (APEDA). Indian buffalo meat exports touched an all time high of Rs 13,917 crore in value terms in April-October 2013, representing an increase of nearly 58% over the same period last year. In terms of quantity too, there has been 23% rise in buffalo meat exports from India.



ISO Certification

ICAR-Central Institute for Research on Buffaloes, Hisar received ISO 9001:2008 Certification (BN8192/7295:0913) on "Improved Buffalo Germplasm Production" for the Institute during Sept, 2013.