



# Kamdhenu

## CIRC Newsletter

ICAR-Central Institute for Research on Cattle, Meerut Cantt.



**Vol. 5, No. 2**

**October 2015 -  
March 2016**

**Half Yearly**

### *In this issue ...*

Institute activities

Reaching out to farmers

Scientific seminars

Meetings and celebrations

Awards and recognitions

Joining/ Relieving

Science News

Website:  
[www.circ.org.in](http://www.circ.org.in)

## **DST sponsored training organised**

Department of Biotechnology, Ministry of Science and Technology, Government of India sponsored short term training course on 'molecular approaches for augmenting reproductive efficiency in cattle' was organized from 8-21 December 2015 at CIRC Meerut. Twenty participants, including 4 women have attended this programme. Category wise the participants belonged to two each from Principal Scientists and Scientists, 11 Assistant Professors, 1 Veterinary Officer employed in disease diagnostics, one each from Research Assistant and Young Professional, and 2 from Senior Research Fellows from various Institutes located in different states.

During the training programme, 54 lectures-cum-demonstrations on various advanced molecular topics/techniques devoted to improvement of reproductive performance of cattle were held. The procedural aspects of the various techniques were given more emphasis with 44 (more than 80%) sessions dedicated to hands-on demonstrations whereas remaining 10 sessions were of theoretical in nature. For an effective implementation of the mandate of the training programme, services of seven and four eminent scientists as internal core and guest faculty respectively, were arranged. Additionally, expertise of 14 scientists of the host Institute was also sought for practical/demonstrations, which were held in the laboratories like- Semen Freezing, Molecular Genetics, Animal Physiology and Animal Nutrition at this Institute. Additionally, two field visits for practical's on animals were also arranged at Military Dairy Farm, Meerut Cantt.



## Institute activities

### Annual AICRP meeting held

The XIV annual review meet of AICRP on Cattle was held on 28-29 October, 2015 at the NASC Complex, New Delhi under the chairmanship of DDG (AS). Dr. Birham Prakash, Director CIRC Meerut welcomed the dignitaries of ICAR and Ministry of Defence and the PI and Co-PIs from different units of AICRP on cattle.



Hon'ble DG, ICAR and Secretary DARE, Dr. S. Ayyappan briefed the participants about enhanced significance being given to cattle by the central government and desired that this project must perform to achieve targeted objectives. Dr. K.M.L. Pathak, DDG (AS), ICAR expressed his concern on the performance of various units of AICRP on cattle. He desired that the number of animals registered under the project by various units must be achieved in terms of breedable females, male, calves etc. as outlined in the technical programme either by purchase or by expanding the coverage area. He requested ADG (AP&B) to communicate concerned Vice Chancellors for speedy action. Dr. R.S. Gandhi, ADG (AP&B), ICAR stressed the importance of cattle production in India and the role of the AICRP projects on genetic improvement of indigenous and crossbred cattle.

Later, Dr. Birham Prakash, Director CIRC presented the Action Taken Report on the recommendations of the XIII Annual Review Meeting of AICRP on cattle held at GBPUA&T, Pantnagar.

### Capacity building and training for Skilled Support Staff

Under the HRD activities of the institute, a training/workshop on "Capacity Building and Training of the Skilled Support Staff" was organized on 29 March 2016. Every member of Skilled Support Staff category participated in the programme. After brief introduction and opening remarks about the training by the Director, Dr. Birham Prakash, four lectures-cum-interactive sessions were conducted. The topics included awareness to general aspects and service rules, working in the research laboratory/farm, office record keeping and maintenance, and basic handling and working with computers.



### Vigilance awareness week celebrated

A vigilance awareness week was celebrated at CIRC Meerut from 26-31 October 2015. On the first day, the staff of the Institute took oath for vigilance and corruption free system and to observe



such things in day to day life. During this period written articles and quotations were invited and read before the institute staff. A lecture on "Preventive vigilance" was delivered by Vigilance Officer Dr. Rajendra Prasad on 30 October 2015.

### राष्ट्रीय एकता दिवस का आयोजन

सरदार वल्लभ भाई पटेल के जन्मदिवस वार्षिकोत्सव पर उन्हें स्मरण करने हेतु दिनोंक 31 अक्टूबर 2015 को "राष्ट्रीय एकता दिवस" (National Unity Day) के रूप में मनाया गया। इस अवसर पर निदेशक महोदय द्वारा सभी अधिकारियों/कर्मचारियों को प्रातः 11:00 बजे पर "राष्ट्रीय एकता दिवस" की शपथ दिलाई गई।



### Institute foundation day celebrated

The 29th foundation day of the Institute was celebrated on November 03, 2015. The occasion was graced by Dr. V.N. Tripathi, former Director PDC, Sh. Harish Chand Joshi, Rtd Director (Official language, ICAR), Dr. Kuldeep Sharma Rtd. Director (DKMA, ICAR) and Dr. R.S. Khanna, CEO Quality Industries Ltd. Delhi and several retired scientists of the Institute.

At the outset Dr. Birham Prakash Director CIRC, welcomed the guests and presented the glimpses of scientific activities undertaken during the last 28 years, achievements made and the future goals of the Institute. Dr. Tripathi disclosed historical glimpses of CIRC growth. Sh. Joshi presented various facets of cattle importance, their use and future prospects in Indian context. Dr. Khanna highlighted the possibilities of collaborative work

between CIRC and Quality Industries Ltd. Several sport events like hammer throw, discus throw, musical chair and tug of war etc. were organized and the distinguished guests distributed prizes to the winners on this occasion.



### Republic day celebrated

On 26th January, 2016, institute celebrated 67th Republic Day. On this occasion Dr. Birham Prakash, Director CIRC hoisted the National flag followed by recitation of National Anthem by the staff. Dr. Prakash extended hearty congratulation to entire staff and respective families and apprised the staff about the greatness of our constitution and the ideas enshrined. Dr. Prakash also highlighted the major activities and future targets of the Institute. He emphasized the need to work dedicatedly for the welfare of cattle species, institute and the country as well.



### Swachh Bharat Abhiyan

The CIRC in consonance with Government of India initiative on 'Swachh Bharat Abhiyan' and to realise



the importance of cleanliness, carried out cleanliness efforts on 9th October 2015 where Dr. Birham Prakash, Director CIRC accompanied by scientists, officers and staff carried out the cleanliness drive in the campus. By removing and cleaning weed and bushes, the importance of cleanliness was spread so that the Institute premise remains hygienic for the inhabitants.



## Reaching out to farmers

### Infertility camps organized

To solve the problem of infertility in cattle and buffalo, the institute organized various 'Infertility Camps' in different villages viz., Tikri (05.11.2015), Rohta (15.02.2016) and Majra (09.03.2016). Dr. A.K. Mathur, Dr. Rajendra Prasad, Dr. S.K. Verma, Dr. S. Saha, Dr. Naimi Chand and Dr. Y.K. Soni took part in the camps. Camp at village- Rohta was organised in collaboration with Anand Sagar, an NGO working for the cause of animals in Meerut district. On this occasion Hon'ble MLA, Sh. Rajpal Singh visited the camp and appreciated our efforts. A total 151 animals were examined for various infertility and general health related problems. Out of these 34% were anestrus, 14% were repeat breeders and 52% animals had general health related problems. Artificial Insemination was also performed in two animals. In the follow up 10 out of 17 of anestrus animals responded after the treatment and came into estrus. Farmers were also made aware of importance of balanced feeding and mineral mixture along with the other nutrients for the optimum production and reproduction. Owner

of the animals were provided medicines, mineral mixture and other feed supplements.



### Local Gaushala provided technical support

The Gopal gaushala Meerut was given technical guidance and support to solve the problem of infertility of the animals. A total of 66 animals were examined for the diagnosis and treatment of different reproductive disorders. Out of them 41% were anestrus and 12% were repeat breeders. Seventy percent (19/27) of the anestrus animals came into heat after the mineral and hormonal supplements. Three follow-up visits were also given to provide technical support.

### एक दिवसीय किसान जागरूकता व प्रशिक्षण कार्यक्रम का आयोजन

भारत सरकार के कृषि व सहकारिता विभाग, कृषि एवं किसान कल्याण मंत्रालय, के सौजन्य से "उत्तम गुणवत्ता के कच्चे दूध का विपणन व कुछ भारतीय पारंपरिक दुग्ध उत्पादों को बनाकर दूध का मूल्य संवर्धन" विषय पर एक जागरूकता व प्रशिक्षण कार्यक्रम संस्थान में दिनांक 24 नवम्बर 2015 को आयोजित किया गया। यह कार्यक्रम डा. संजीव कुमार वर्मा, द्वारा गाँव रसूलपुर जाटान (जिला मुजफ्फरनगर) के किसानों के लिए विशेष रूप से आयोजित किया गया था। इस कार्यक्रम में किसानों को पशुओं के संतुलित खानपान, प्रबंधन, उचित प्रजनन एवं उच्चगुणवत्ता के वीर्य का उपयोग के साथ पशुओं की विभिन्न बीमारियों के बारे में भी अवगत कराया गया। संस्थान के निदेशक डा. ब्रह्म प्रकाश ने इस बात पर जोर दिया कि गर्भाधान हेतु उच्च कोटि का वीर्य ही प्रयोग

किया जाये। संतुलित पोषण के महत्त्व को बताते हुए डा. प्रमोद सिंह, प्रधान वैज्ञानिक ने किसानों से आग्रह किया कि नवजात बछड़े-बछियों का पोषण सुनिश्चित करके ही पशु पालन को लाभदायक स्तर तक पहुँचाया जा सकता है। कार्यक्रम में राष्ट्रीय डेरी अनुसंधान संस्थान, करनाल से आये पूर्व प्रधान वैज्ञानिक व मुख्य अतिथि डा. सत्य प्रकाश अग्रवाल, ने अपने संबोधन में कहा कि दूध की गुणवत्ता में वृद्धि करके ही किसान दूध का सही दाम प्राप्त कर सकता है। अगर कच्चे (ताजे) दूध की गुणवत्ता उत्तम होगी तो किसान को उसके मनचाहे दाम प्राप्त हो सकेंगे। इस प्रशिक्षण कार्यक्रम में आये हुए किसानों को निकटवर्ती ग्राम अरनावली में एक प्रगतिशील पशुपालक द्वारा चलाए जा रहे आधुनिक डेरी फार्म का भी भ्रमण कराया गया जिसमें किसानों ने दूध निकालने की मशीन के बारे में जानकारी प्राप्त की व दूध की स्वचालित पैकिंग मशीन को भी देखा। इस कार्यक्रम में गाँव रसूलपुर से आये लगभग चालीस व मेरठ जनपद के विभिन्न पंद्रह गाँवों से आए लगभग तीस किसान सम्मिलित हुए।

### किसान संगोष्ठी का आयोजन

संस्थान द्वारा "मेरा गाँव मेरा गौरव" योजना के अंतर्गत चयनित कलंजरी गाँव में दिनांक 23 दिसंबर 2015 को किसान सम्मान दिवस मनाया गया और जिसमें करीब 30 किसानों ने भाग लिया। इस कार्यक्रम के तहत एक किसान गोष्ठी का भी आयोजन किया गया।

इस मौके पर संस्थान के निदेशक डा. ब्रहम प्रकाश ने जानकारी दी कि संस्थान में साहीवाल, गिर, कांकरेज एवं थारपारकर गायों की नस्लों का उच्चकोटि का वीर्य उपलब्ध है जिसे इस्तेमाल कर किसान अपने पशुओं की दुग्ध उत्पादन क्षमता

बढ़ा सकते हैं। डा. उमेश सिंह, डा. सुरेश कुमार, डा. रविन्द्र कुमार व डा. नेमीचन्द्र ने किसानों को पशुओं से संबंधित अन्य जानकारी भी दी। वहां पर उपस्थित पैरावेट्स को पशु नस्ल सुधार का कार्य में तेजी लाने हेतु संस्थान में उपलब्ध उच्च श्रेणी के वीर्य को उपयोग में लाने की सलाह दी गयी।

### राजस्थान के किसानों का संस्थान भ्रमण

संस्थान से पशुपालन के बारे में आधुनिक तकनीक व जानकारी प्राप्त करने हेतु राजस्थान के करीब 30 प्रगतिशील किसानों ने दिनांक 20 जनवरी 2016 को संस्थान में भ्रमण किया। इस मौके पर निदेशक डा. ब्रहम प्रकाश ने गोवंश को पालने के महत्त्व तथा संस्थान में उपलब्ध उन्नतदेशी व संकर किस्म के गोपशुओं के हिमीकृत वीर्य की उपलब्धता व उसके प्रयोग के बारे में बताया। डा. सुरेश कुमार ने पशुओं की विभिन्न बीमारियों, उनसे बचाव एवं पशुपालन से सम्बंधित महत्वपूर्ण जानकारियां किसानों को दीं। इसके पश्चात डा. राजेन्द्र प्रसाद ने पशुओं को संतुलित आहार खिलाने व उसे बनाने के बारे में किसानों को विस्तृत जानकारी दी। विभिन्न मौसमों में पशुओं से उपयुक्त उत्पादन पाने हेतु हरे चारे की कमी की अवस्था में संतुलित आहार खिलाने के बारे में भी जानकारी दी गयी।



### 'Jai Kisan Jai Vigyan' week celebrated

Keeping in view the immense contribution of former Prime Ministers (Late) Shri Chaudhary Charan Singh and Shri Atal Bihari Vajpayee for promoting the use of science for the welfare of farmers, CIRC observed 'Jai Kisan Jai Vigyan' week from December 23-29, 2015.



## Participated in Krishi Unnati Mela

The institute participated in the KrishiUnnati Mela held at IARI, Pusa New Delhi on March 19-21, 2016. Scientific activities like artificial insemination technique and availability of quality frozen semen of Sahiwal, Gir, Kankrej, Tharparkar and Frieswal cattle, and preparation of balanced feed for various categories of cattle using local feed ingredients were displayed on this occasion. Published literature for profitable cattle rearing was also distributed among the farmers. Vermi-compost was the item of attraction among farmers and the methodology of vermi-compost preparation was demonstrated. The team consisting of Dr. Suresh Kumar D.S. (Principal Scientist), Dr. Ravinder Kumar (Senior Scientist) and Shri. C.P. Singh (CTO) under the leadership of director of institute Dr. Birham Prakash participated in the mela. More than 2000 farmers visited the Institute stall.

## Scientific Seminars

Following monthly seminars were organised at CIRC-

1. Dr. Satish Kumar Rathi, Scientist delivered seminar on the topic "Genetic Evaluation of Frieswal Cattle for Lifetime Traits" on 31.10.2015.
2. Dr. S.K. Verma, Principal Scientist, CCMB, Hyderabad delivered an invited seminar on the topic "DNA in daily life. All that you need to know" on 28.11.2015.
3. Dr. B. Prakash, Director CIRC delivered seminar on the topic "DNA Biotechnologies: The other side of the coin" on 31.12.2015.
4. Dr. S. Tyagi, Principal Scientist delivered seminar on the topic "Physiology and Management of Hypertension" on 01.02.2016.
5. Dr. A.K. Mathur, Principal Scientist delivered seminar on the topic "Vigilance – A tool of management" on 29.02.2016.

## Awards and Recognitions

1. डा. ऐ.के. माथुर, प्रधान वैज्ञानिक (पशु शारीरिकी) को हिन्दी में प्रकाशित शोध पत्रों के आधार पर भारतीय

भाषा प्रतिष्ठान राष्ट्रीय परिषद, मुंबई द्वारा वर्ष 2015 में "राष्ट्रभाषा के स्वतन्त्रता सेनानी" पुरस्कार से सम्मानित किया गया।

2. CIRC exhibition stall hosted at Kissan Mela and Agriculture Exhibition organized by Department of Agriculture, government of UP from February 25-27, 2016 at Meerut was adjudged best for displaying institute activities.
3. A poster presentation on 'Differential Expression of Interferon Stimulated Genes in Blood leucocytes: An Alternative Diagnostic Approach for Early Pregnancy Detection in Dairy Cattle' by Rani Alex, Umesh Singh, Ramesha K.P., Sushil Kumar, Rafeeqe Rahman Alyethodi, Rajib Deb, Gyanendra Sengar and B. Prakash was adjudged second best presentation in National Seminar on Policy Planning for Livelihood Security through Domestic Animal Diversity and XIII Annual Convention of Society for Conservation of Domestic Animal Biodiversity (SOCDAB), held on February 11-12, 2016 at SKAUST-Jammu.

## Patents filed

Following patents were filed by the Institute Technology Management Unit during the year-

1. Development of a rapid user friendly single tube PCR based tool for detection of Bovine Leukocyte Adhesion Deficiency (BLAD) carrier in cattle. Patent File No: 1073/DEL/2015. Inventors: R.R. Alyethodi, Umesh Singh, Sushil Kumar, Rajib Deb, Rani Alex, Sheetal Sharma and B. Prakash.
2. A color based assay for differentiating Cow vs Goat milk/meat. Patent File No. 1901/DEL/2015. Inventors: Rajib Deb, Rani Alex, Sushil Kumar, Umesh Singh, T.V. Raja, R.R. Alyethodi, Gyanendra Sengar and B. Prakash.
3. Development of an in-house built LAMP assay for rapid detection of cow components adulterated in buffalo milk/meat. Patent File No. 3870/DEL/2016. Inventors: Rajib Deb, Umesh Singh, Sushil Kumar, A.K. Das, T.V. Raja, R.R. Alyethodi, Rani Alex, Gyanendra Sengar and B. Prakash.



## Joining/ Relieving

### New Staff Joined

1. Sh. Jitender Kumar, Senior Technical Officer (T-6), ICAR-CIRB, Hisar joined the Institute on 02.11.2015 on same post.
2. Dr. Jitender Kumar Singh, Senior Scientist (Animal Physiology), ICAR-CIRB Sub-Campus, Nabha joined the Institute on 16.11.2015 on same post.

## Relieving

1. Sh. Ashok Kumar Tripathi, LDC relieved on 30.11.2015 (A/N) from ICAR-CIRC, Meerut to join ICAR-Directorate of Seed Research, Mau (UP) on inter-institutional transfer on the same post.
2. Dr. S.K. Verma, Senior Scientist (AN) relieved on 26.12.2015 (A/N) from ICAR-CIRC, Meerut to join ICAR-Directorate of Poultry Research, Hyderabad on inter institutional transfer on the same post.

## Science News

### A1 and A2 milk: facts and role in human health

Milk is about 85% water. The remaining 15% is the milk sugar lactose, protein, fat, and minerals. Among proteins, 80% and 20% are represented by casein and whey proteins respectively. Beta-casein is about 30% of the total protein content in cow's milk. A2 beta-casein is a type of beta-casein from cows which have evolved since they were domesticated, over 10,000 years ago. It is considered safe and nutritious and has no known negative effects on human health. Sometime in the past few thousand years, a natural mutation occurred in some European dairy herds that changed the beta-casein. The gene encoding beta-casein altered such that the 67th amino acid in the 209 amino acid chain of the beta-casein protein was changed from proline to histidine. This new beta-casein that was created is known as A1 beta-casein, and is generally more common in many of the big black-and-white cow breeds of European descent such as the Holstein and Friesian.

Each cow carries two copies of the gene encoding beta-casein, with a genotype of A1/A1, A1/A2, or A2/A2. Neither A1 nor A2 trait appears to be dominant, which means that the milk produced by an A1/A2 cow will likely contain equal proportions of A1 and A2 beta-casein. A1/A1 cows will obviously only produce A1 beta-casein, just as A2/A2 cows will only produce A2 beta-casein. While each dairy herd is capable of being quite different from average, a broad characterization of the A1 or A2 genetics of breeds can be made. Northern European black-and-white breeds such as Friesian Holstein usually carry A1 and A2 alleles in equal proportion. Jersey cows and other Southern European breeds probably have about 1/3rd A1 and 2/3rd A2 genetics. Guernsey cows generally have about 10% A1 and 90% A2 genetics. The A2 allele gene in Indian milch breeds of cows and buffalos is almost 100 per cent, while in foreign breeds, it is around 60 per cent

The cause for concern with milk containing A1 beta-casein is that the 67th amino acid switch from proline to histidine readily allows a digestive enzyme to cut out a 7 amino acid segment of the protein immediately adjacent to that histidine. When proline is present in that location (as it is in A2 beta-casein), that same segment is either not separated at all or the separation occurs at a very low rate. The 7 amino acid segment that is separated from A1 beta casein is known as beta-casomorphin-7, often abbreviated as BCM-7.

BCM-7 is the cause of concern in A1 milk for a number of reasons. It is exogenous (doesn't naturally occur within the human body) opioid that interacts with the human digestive system, internal organs, and brainstem. While no direct medically proven relationships have been demonstrated between BCM-7 and these diseases due to a wide range of contributing factors for each illness but BCM-7 has been linked to type 1 diabetes, heart disease, autism, and other serious non-communicable diseases as well. Thus more conclusive scientific studies need to be undertaken on this aspect with respect to human health.

## *From Director's Desk.....*

Dear Readers,

Our country is among the 12 mega biodiversity centers of the world and houses all major species of livestock and poultry. The country's vast animal genetic resources are represented by almost all animal species such as cattle, buffalo, sheep, goat, equine, camel yak, mithun, pig, rabbit, duck, chicken etc. The animal species contribute sizably to the livelihood of Indian population and national economy. The livestock sector



has emerged as one of the key driver of Indian agriculture. Livestock owners and farmers own the animals as natural capital, which can be easily converted in to finance against income shock of the crop failure and natural calamities. Marginal, small and semi-medium operational holdings own about 87.7% of the livestock. But the productivity of Indian livestock remain 20-60% lower than the global average. The projected demand of milk for about 1500 million populations in India by the year 2021-22 will be about 180 million tons. This demands an average incremental increase in milk production by 6 million tons per year, as against the average increase of 4.5 million tons during the last 10 years. This is no easy task. Thus achieve the target country have to adopt a multipronged strategy. The most urgent priority in making livestock sector more remunerative is to improve genetic potential of our livestock resources. We need technologies to identify animals with genetic merit and multiply them faster to meet the demand of organized farms and farmers. There is also a need for developing the cattle industry from population driven to technology driven sector. Several technological options for application in Indian context are available. One of the primary area could be establishment of elite herds of indigenous cattle would help in meeting the growing demand of superior animals by the farmers. Multiplication of superior germplasm using several proven assisted reproductive techniques coupled with optimal feeding and management. Value addition to milk and milk products could be another area which can fetch better prices to farming community and can be well established in private sector. The product portfolio needs to include exciting range of Indian dairy products with established market. This will not only help in exploiting domestic market but also open up new areas for export to neighboring countries which are happen to be milk deficient. All such efforts even if adopted and implemented initially in small volumes will give a boost to livestock sector in general and cattle industry in particular.

**(B. Prakash)**  
**Director**

E-mail: [dirpdcms@yahoo.com](mailto:dirpdcms@yahoo.com)

**Published by:** Director, ICAR-CIRC, Grass Farm Road, Meerut Cantt.-250001 (UP)  
**Compiled & Edited by:** Dr. Rajendra Prasad, Dr. Sushil Kumar & Dr. Pramod Singh  
**Photography by:** Dr. Puneet Kumar

**Printed at:** Yugantar Prakashan Pvt. Ltd., WH-23 Mayapuri Industrial Area, Phase-I, New Delhi-110064  
Phones (O): 011-28115949, 01128116018; (M): 09811349619, 09953134595; E-mail: [yugpress01@gmail.com](mailto:yugpress01@gmail.com)