



# CIRG news

भा.कृ.अ.प. - केन्द्रीय बकरी अनुसंधान संस्थान  
ICAR-Central Institute for Research on Goats  
(An ISO 9001:2008 Certified Organization)



## From the Director's Desk

I wish you all a Happy and prosperous New Year. When I look back, last year was full of energy and enthusiasm among the stakeholders about the know-how's of goat farming. More and more people have shown interest towards goat farming. Although, India is the world's largest producer of goat milk, the supply-chain and demand of goat's milk as a commodity is little explored. What is required is the value addition of goat's milk and its popularization to create a



stable market to help goat dairy farmers to meet the demands of the consumers. According to 2012 livestock census, among the total milk producing animals, goats contribute about 31%, with 34 million goats contributing to the Indian dairy sector. This figure matches with the buffalo in terms of population of goats directly contributing to milk and little above the indigenous cattle's share of 26%. Compared to other dairy animals like Cattle and buffalo, goats have certain unique diversities in anatomy, physiology and product, which give rise to picture-perfect qualities in goat milk towards human nutrition. The unique properties in goat milk like naturally micronized fat, optimum amount of lactose, short and medium chain fatty acids and lower level of alpha S1 casein are indeed an advantage to be tapped to create a strong consumer clientele for goat's milk. At the same time the value added products limit only to paneer, but it can be diversified to other products like Goat milk butter naturally enriched with short and medium chain essential fatty acids, which can be even consumed by elderly and cardiac patients. It is little disappointing that the goat population in the country has declined by 3.82% compared to the previous census, nevertheless the infusion of fresh energy and interest towards the organized sector could fill the gap in the years to come. India has the potential for goat farming, given the strongest consumer base for both milk and meat. The growing demand to feed a billion and above human population to meet out the energy and protein requirements of high quality can be a boon instead, to identify a consumer and market base for goat based products.

The institute has witnessed the visit of Hon. DG and Secretary DARE, Dr. Trilochan Mohapatra on 26<sup>th</sup> September, 2016. Truly a man of essence due to his high level of scientific thinking with a human face in it and his positive thinking at work has enlightened us in the true spirits. I sincerely thank one and all who co-ordinated Hon DGs visit to our institute.

I also take opportunity to thank all the team of scientists working for CIRG news.

(M. S. Chauhan)  
Director

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## Success Story - Al-Baqar Barbari Goat Breeding Farm- a Goat based Business Model



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Shri Rashid Ul Haq S/O Sh Abdul Ul Haq is a resident of Jaisinghpura, Vrindavan Mathura (UP). He was a valedictorian in the National Training Programme on Commercial Goat Farming of the Institute held in 2012. After completion of the training programme he decided to start his own Barbari breed based goat farm. He obtained some Barbari type goats and started his goat farm in 2014. Initially he encountered with poor growth and heavy mortality (30-40%) of adults and kids.

After initial setback he again visited Institute in September, 2015 and explained his problems particularly to start with quality seed stock to Dr. Dixit. He told him that Dr. M. K. Singh, Incharge of AICRP Barbari unit has recently introduced a Multiplier Flock Scheme of Barbari goat for promoting scientific goat farming, development of business models, genetic improvement and conservation of Barbari goats. Mr Rashid showed his keen willingness to become member of this scheme. Entire team of Barbari unit made visit of Rashid's farm and found the farm set-up satisfactory with some modifications in housing, storage of feed-fodder and sanitation etc. Within a week an agreement signed between the AICRP- Barbari unit and Mr Rashid under which he was supported with pure-bred and superior Barbari goats on book value, Five each male and female kids of 3-6 months of age, 6 adult female and one breeding male along with all technical support such as treatment of animals at monthly interval, ensuring vaccine availability, feeding, breeding practices, care of new born kids etc. He has to raise minimum 20% males born at his farm with good initial growth rate for breeding purpose and remaining he may rear for sacrifices/meat etc. Mr Rashid also showed great enthusiasm in learning skills of goat farming, adopted improved

management practices and technologies such as breeding calendar, vaccination and deworming schedule, strategic intensive feeding, chaffed green fodder and reserving quality male for breeding. Proper adoption of preventive health measures that mortality at his farm in 2016-17 was just 1%. The average body weights of buck are ranged from 30-38 kg at one year and that of female from 22-28 kg. The body weight of castrated male at about one and half year of age was 46 to 55 kg. The cost of production per goat per year was 7000-7200. He has sold his 9 adult bucks @ of Rs. 14000 to 18000, whereas castrated males were sold @ Rs. 15000 - 25000/male. The net profit per female per year in 2016-17 was Rs. 6780 through sale of males.

Mr. Rashid is planning to create another unit of 200 goats at his parental village after realizing profit and future prospects of commercial goat farming. He has also initiated to support villagers for scientific goat farming and ensured to supply pure Barbari male and females to them. He is providing all desired data to AICRP-Barbari Unit of CIRG for improvement of Barbari breed and development of germ-plasm resource centers. Director of Institute Dr M S Chauhan has appreciated the sincere efforts of Barbari Project team and encouraged to them to develop more such type of farms for creating agri-business entrepreneur models and doubling of farmer's income as per vision of Honorable Prime Minister of India.





## Campylobacteriosis (Vibriosis) in Goats



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The disease is also called vibronic abortion or vibronic enteritis, and is caused by members of genus *Campylobacter* consisting of a number of species, of which *Campylobacter fetus* subsp *fetus* (formerly *Vibrio fetus* intestinalis), *C. jejuni*, and *C. coli* are the pathogenic ones. Both *Campylobacter fetus* subsp *fetus* and *C. jejuni* are the common cause of abortion in sheep whereas, campylobacteriosis is less often documented a cause of abortion in goats. Vibronic abortion in goats is commonly caused by *C. jejuni*, and less frequently by *C. fetus*. Campylobacters are zoonotic, micro-aerophilic, slender, spirally curved rods with a polar flagellum at one or both ends, and require approximately 10% CO<sub>2</sub> and 3-6% O<sub>2</sub> for their growth. Campylobacters are widely distributed in nature with most of their species adapted to intestinal tracts of warm-blooded animals and birds. The infection can be transmitted by (i) ingestion of contaminated water and feed (ii) direct contact with carriers (human and animals) (iii) sexual contact. Aborting does usually show no clinical signs but may have mild diarrhea and

mucopurulent vaginal discharge. Aborted kids may have grossly visible liver necrosis. The placenta is often edematous with necrosis of cotyledons. Confirmatory diagnosis of campylobacteriosis is done by the isolation of the organism which requires specific media and special microaerophilic culture technique. Fetal lung, abomasal content and vaginal discharge are the preferred samples for the isolation of the organism. In addition to this, various immunological and molecular techniques are available for the diagnosis of the disease. In case of an undiagnosed abortion, administration of tetracycline (long acting; 20 mg/kg every 48 hours) may be effective not only against campylobacteriosis but also against several other abortion causing bacterial agents. In case of tetracycline resistant pathogens, sulfamethazine (110 mg/kg orally) or tylosin (30 mg/kg I/M once daily) may be given. Sanitation at the farms is the necessary step for prevention and control of *Campylobacter* infections. Fecal contamination of feed and water should be avoided and the aborting does should be isolated. Like other abortions, placentas, body fluids and fetuses should be burned or buried deeply. In conclusion, various scientific reports probably indicate that the disease is of minor importance in goats, although of public health significance.

## Immunological Techniques: Important Tools for Basic and Applied Research



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On the basis of antigen (Ag)-antibody (Ab) reactions, immunological techniques are specialized experimental methods for measuring and characterizing the presence of target molecule(s) in the sample. Ag-Ab interaction is a specific molecular interaction between Ab, produced by B cell and Ag during an immune reaction. The binding specificity of these molecules is due to the unique chemical constitution of the variable region of Ab i.e. paratope

(Ag binding site of Ab) which recognizes the antigenic determinant (epitope) of Ag. Ag-Ab interaction is used in different laboratory techniques for hormone assay, testing of biological fluids and protein expression. Immunological techniques are categorized into two classes-

1. Qualitative: Determines presence or absence of Ab or Ag.
2. Quantitative: Determines quantity of Ab titer and the highest dilution of the specimen which gives a positive reaction in the test.

Based on the type of reaction performed, reagents and samples used, some important commonly used immunological techniques are as follows (on next Page)-

S.N.	Name of the technique	Principle	Applications
1	Precipitation	Precipitation reactions are based on the interaction of soluble Ab and Ag that come together to make an insoluble product (precipitate).	This process can be used to isolate and concentrate a particular protein from a sample with different proteins.
2	Agglutination	Agglutination is the process of clump formation. This occurs due to the reaction of Ab with particulate Ag.	This test is routinely used in matching blood groups.
3	Radio-immunoassay (RIA)	This technique involves competitive binding of radiolabeled Ag and unlabeled Ag to a high-affinity Ab. The labelled Ag is mixed with Ab at a concentration that saturates the Ag-binding site of Ab and then test samples of unlabeled Ag. Thus two kinds of Ag compete for available binding sites on the Ab. As the concentration of unlabeled Ag increases, more labelled Ag will be displaced from the binding sites. The decrease in the amount of radiolabeled Ag bound to specific Ab in the presence of the test sample is measured in order to determine the amount of Ag present in the test sample.	It is used to measure the concentration of Ag or Ab e.g. hormone levels in blood and other biological fluids such as urine, saliva and milk.
4	Enzyme-linked-immunosorbant assay (ELISA)	ELISA is a plate-based assay technique. In this technique, an Ag or Ab must be immobilized to a solid surface and then complexed with an Ab that is linked to an enzyme. Detection is accomplished by assessing the conjugated enzyme activity via incubation with a substrate and the stop solution to produce a measurable product.	ELISA can be applied for determination of Ag or Ab concentration in a sample. It is also used in pregnancy test and in the food industry when detecting potential allergens present in milk and other food products
5	Western blot	It uses SDS-PAGE to separate various proteins given in the samples. The separated proteins are then transferred or blotted onto a matrix (generally nitrocellulose membrane) where they are stained with Abs specific to the target protein. By analysing location and intensity of the specific reaction, expression details of the target proteins in the given cells or tissue are obtained.	It is used for qualitative or semi-quantitative measurement of protein, Ag or Ab in biological samples.
6	Immuno-fluorescence	This technique is based on the specificity of Abs to their Ag and to the target fluorescent dyes within a cell. It allows visualisation of the distribution of the target molecule through the sample.	Immunofluorescence can be used on tissue sections, cultured cell lines or an individual cell. This may be used to analyse the distribution of protein, glycans and small biological and non-biological molecules
7	Flow cytometry	The basic principle of flow cytometry is the passage of cells as a single line in front of the laser so they can be detected, counted and sorted. Cell components may also be fluorescently labelled and then excited by the laser to emit light at varying wavelengths. The fluorescence can then be measured to determine the amount and type of cells present in a sample.	This technology has applications in almost every branch of the biological science including molecular biology, pathology, immunology, hematology, genetics etc. It is also extensively used in the analysis of DNA damage, caspase cleavage and apoptosis.
8	Complement fixation	In this technique, a serum sample is first heated at 56°C to destroy serum complement. A measured amount of complement and Ag are then added to the serum. If there is presence of Ab in the serum, the complement is fixed due to the formation of Ag-Ab complex. If no Ab is present, then complement remains free.	It is widely used in the diagnosis of infections, particularly with microbes that are not easily detected by culture methods.
9	Enzyme-Linked ImmunoSpot (ELISPOT)	In this assay, cells are cultured on a surface coated with a specific capture Ab in the presence or absence of stimuli. Proteins such as cytokines that are secreted by the cells will be captured by the specific Abs on the surface. After an appropriate incubation time, cells are removed and secreted molecule is detected using a detection Ab in a similar procedure to that employed by the ELISA. The end result is visible spots on the surface. Each spot corresponds to an individual cytokine-secreting cell.	This is a highly sensitive immunoassay that measures the frequency of cytokine or immunoglobulin-secreting cells at the single-cell level. This has been widely applied to investigate specific immune responses in disease including autoimmune diseases, infections and allergies



## Management of Sheep and Goats in Winter Season



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Winter season is the coldest season of the year characterized by freezing cold temperatures, falling snow and usually exacerbated by strong winds. In winter season most of the ewes/ does are pregnant with parturition occurring in late winter and spring. Therefore, feeding and management during winter season requires certain modifications to minimize health and nutrition problems among sheep and goats during the winter, kidding, and lambing seasons.

**Shelter Management:** Provide adequate shelter to protect animals from precipitation and wind-chill to minimize the impact on the nutritional requirements and to reduce the risk of hypothermia, weakness, and death in newborn kids and lambs. Wind chill will negatively affect kids as they are unable to maintain their body temperature. A heat lamp in the shelter will provide extra heat and warmth for the kids.

**Nutritional Management:** The maintenance nutritional requirement can increase significantly during cold weather condition. Therefore, small ruminant rearers must provide suitable winter supplementation to ensure that animals receive adequate protein, energy, and mineral supplements during winter. Energy can be provided through grain or additional roughage (hay). Roughage is generally preferable due to its feeding safety, lower cost and greater heat released during digestion. Good quality hay should be provided to all animals. If roughage is in short supply, grains (maize, barley, wheat, oats, etc.) may be used as a source of energy to the animals. Frequent small grain feedings are safer than one large daily feeding.

**Health Management:** Pneumonia is most common disease encountered in small ruminants during winter. Signs of pneumonia include a temperature over 104°F, nasal discharge, rapid and difficult breathing, and a wet cough. Diarrhea is sometimes associated with pneumonia. For prevention of pneumonia, vaccinate adults and young stock against PPR, HS and

Goat/Sheep pox. Stress, poor ventilation, damp bedding and other environmental conditions which are predisposing factors for pneumonia, particularly among lambs and kids should be avoided.

Enterotoxaemia or overeating disease caused by the bacteria *Clostridium perfringens*. It may occur when sheep and goats experience a sudden change of diet or stress. A gradual introduction of grain into the winter diet will help to prevent enterotoxaemia among animals. Sheep and goats should be vaccinated against enterotoxaemia. Pregnancy toxemia is a metabolic disorder that occurs in does and ewes usually carrying multiple fetuses during late gestation.

External parasites like mites, ticks and lice are prevalent when there is close animal-to-animal contact during the winter months. Affected animals may require isolation from the herd or flock for treatment and to minimize further infections. A variety of dips, powder and spray products are available to treat external parasites and fungal infections.

Pink eye (keratoconjunctivitis) in sheep and goats is a common problem during winters. Sore-mouth (contagious ecthyma) requires isolating sick animals and application of 20% potassium permanganate solution or iodine ointments. Lameness due to foot rot can affects the well-being, body condition, and general health of the animal. Foot baths with concentrated zinc sulfate solution should be available at all times as a preventive measure. Iodine solution or local antibiotics can be used in severe cases.



## Development of Targeted Selective Treatment Chart Against Haemonchosis in Barbari Goats



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Among South-East Asian countries, helminth infections are ranked as high impact animal health constraints with immense detrimental effects on resource-poor goat keepers. Among all the helminth parasites in goats, inarguably the most pathogenic and common one is *Haemonchus contortus*, also known as the barber's pole worm. Adult worms attach to the abomassal mucosa and suck blood; a single adult worm can suck 0.05 ml host blood per day, resulting in anemia, oedema, and death of infected goats. Anthelmintics are the primary means of controlling haemonchosis; however, the acute threat of anthelmintic resistance has led to adoption of targeted selective treatment strategies in goat production systems.

Targeted selective treatment (TST) is treating only those animals that need treatment, leaving the rest of the flock untreated. It's based on the fact that in a flock approximately 80% of the worms found in only 20–30%

of the goats. Therefore, extra economic loss can be avoided by treating affected animals only, instead of the whole flock and at the same time TST suppress the development of anthelmintic resistance. Another major advantage of TST lies in the fact that it is designed for easy use by individuals without any veterinary skills, it can be successfully applied by generally illiterate people, and can thus be a valuable tool for resource-poor farmers in developing countries.

Under the study we analyzed faecal and blood samples from Barbari goats reared under semi-intensive system. Based on the sample survey we developed a TST chart based on the same principle as of FAMACHA® (i.e., ocular mucous membrane colour as an indication of anaemia due to haemonchosis) for use against haemochosis in Barbari goats. But, many goat farmers/entrepreneurs have expressed their difficulty about too many categories and color indices (five) in the FAMACHA® chart. The chart developed in the study is simpler than the original FAMACHA® chart, having only three categories instead of five. Implementation of this system and feedback from the farmers will help us to assess the performance and benefits of this TST under existing social and technical context

Score	Type	Appearance	Inference	Picture
3	Good	Bright Red/Pink, Red/Pink	No treatment required	
2	Borderline	Reddish/Pinkish; Faint Red/Pink	Treatment w.r.t body condition and faecal score	
1	Bad	Pale/White	Treatment needed	



## Cross Breeding for Goat Improvement in India



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Major objective of crossbreeding of Indian goats with exotic breeds was to rapidly evolve new breeds of milch goat suitable to the local agro-climatic conditions and capable of yielding at least 300 kg in a lactation period of 150 days as well as to improve meat and fiber breeds of India.

**Cross breeding programme:** Under V<sup>th</sup> Five Year Plan in the year 1971's, ICAR through its network programme later called All India coordinated Research Project on Goat (AICRP) carried out experiments to achieve rapid increase of genetic potential of indigenous goat for improvement of milk, meat and mohair yield by crossbreeding. The first units of All India coordinated Research Project on Goats (for milk) was started at NDRI, Karnal in 1971 using Beetal and Alpine and Saanen as improver exotic breed. Similarly another unit was set up at KAU, Trichur in 1972 to evolve a new breed of milch goat, suitable to the local agro-climatic conditions and capable of yielding 200 kg of milk in a lactation period of 200 days. Alpine, Saanen, Anglo-Nubian and Toggenburg were identified as exotic dairy breeds, whereas Beetal and Malabari goats as indigenous breeds for enhancing milk potential by crossbreeding. Gaddi and Sangamneri were used as native breed and Russian Angora as exotic breed of goats for mohair. The AICRP on Goats in VI<sup>th</sup> plan covered two units for milk, two for pashmina and one for mohair. The milk yield of cross-bred goats was slightly higher (23%) than the Sirohi but with lower kidding (69%)

in crossbred as compared to Sirohi goats.

**Results of cross breeding:** Different genetic combinations of Alpine, Saanen and Beetal with various levels of exotic genes were generated and tested for their comparative performance. The Saanen x Beetal crosses with 75% of exotic inheritance was the best having an average yield of 399.1±34.0 kg. Saanen x Malabari and Alpine x Malabari crosses were found to be superior to pure-bred Malabari in growth, survival, milk yield, fecundity and feed conversion efficiency. The Saanen x Malabari had an average lactation yield of 211.5 kg in 200 days, which was 147% higher than contemporary pure-bred Malabari goats. The Saanen x Malabari crosses were found more suitable to the local agro-climatic conditions of Kerala and recorded enhancement in milk yield by 200%.

**Failure of Cross Breeding:** Malabari cross breeding unit had problems with inbreeding because live animals or frozen semen of the exotic breeds could not be imported. Importing of germplasm or semen of exotic dairy goat breeds was banned by the government of India since, import of live animals were suspected to be carriers of Caprine Arthritis Encephalitis (CAE) disease. In cross breeding program encouraging results were achieved during initial years (i.e. F1 generation) and afterwards downfall started in the performance. The main reason of downfall in production traits was low adoptability of crossbreeds in prevailing environment. Having studied the work done on crossbreeds under Network Project/AICRP, it was decided to stop crossbreeding in between the years of 1984 to 1989 and efforts were diverted to apply selective breeding for goat improvement.

## Goat Population Dynamics in India



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There is significant growth in population of goat in India during the last three decades. As per 19<sup>th</sup> livestock census 2012, goat population in India has increased from 95 to 135 million between 1982 and 2012. The highest increase in goat population was recorded 16% during 1982 to 1987.

About 13% increase has been recorded between 2007 and 2003. Growth in goat population is demand- driven. In urban areas, demand for high value commodities which include livestock products rises faster than the other food groups when income starts to increase. However, goat population has declined by 3.82% over the previous census (2012-2007). This may be due to high rate of slaughter, effect of consumer shift resulting pressure on small ruminants, shrinking grazing lands and migrations. Compound annual growth has been worked out for

different sets of census periods indicated that growth in goat population was about 3 per cent during 1982 to 1987. However, declined to 0.27% during 1997 to 2003 but further increase and maintained about 2.5% during 2003 to 2007. A negative annual growth (-0.78) was recorded between 2007 and 2012.

Better health, nutrition, general management practices and marketing at commercial age may further improve the growth in population. Major challenge in increasing the small ruminants' population is the dwindling area and productivity of permanent pastures and grazing lands. Moreover, shrinking pastures and grazing lands is more concern to goat keepers because they are resource poor and their dependency on such resources for grazing and gleaning grasses is very high.

**Trends in Goat Population**

Census year	Goat Population (million)	Periods	% increase/ decrease	CAGR (%)
1982	95	-	-	-
1987	110	1987-82	15.79	2.96
1992	115	1992-87	4.55	0.90
1997	123	1997-92	6.45	1.26
2003	124	2003-97	1.34	0.27
2007	140	2007-03	13.01	2.48
2012	135	2012-07	-3.82	-0.78

**Triplet in Barbari Goat by Frozen Semen Artificial Insemination Technology**



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Barbari goat is a descript dwarf meat goat breed found in Agra, Etah and Etawah of Uttar Pradesh as well as Gujarat in India and Jhelum and Sargodha districts in Punjab Province, Pakistan. Breed characteristics are medium size with a compact body; alert and attractive; bulging eyes; short, erect ears; short, straight horns, well set udder with conical teats; adapted to stall feed. Triple kidding and early maturity are common features of these breed. Tropical goat breeds are non-seasonal breeder though the frequency of oestrus varies among the months/season and

is used for intensive farming. The kidding rate was 1.5 during 2015-2016 at this Institute. Artificial Insemination (AI) by using frozen semen straws having post thaw motility 40-50% was carried out. AI was done in 21 Barbari goats and out of them, 15 goats kidded. Overall, a success rate of 71.43% was recorded on the basis of actual kidding in Barbari breed of goats maintained by Experimental Shed of NFR&PT Division of this Institute under Intensive Management System. One goat (B-1229) aged more than four years and 35.7 Kg live weight kidded with triplet in her second kidding on 28<sup>th</sup> November 2016. There were two male, B-1687 (2.4 Kg.) and B-1688 (2.2 Kg.) and one female, B-1689 (2.0 Kg.). The AI was done on 7<sup>th</sup> July, 2016 with two frozen semen straw doses of B211 breeding buck maintained at Experimental shed of Physiology and Reproduction Division. The total gestation period was 145 days. The health condition of mother and triplet were sound.



*Breeding Buck*



*Frozen Straw*



*Mother with AI born kids*



## Extension and Farmer's Education Programme

### Farmers' Training Organised

#### National Training Organised

- Organized 67<sup>th</sup> National Training Programme (10 days) on Scientific Goat Farming from 30<sup>th</sup> August to 8<sup>th</sup> September 2016. In this training programme 87 participants attended from 16 states of the country.
- Organized 68<sup>th</sup> National Training Programme (10 days) on Scientific Goat Farming on 2-11 November 2016. This training programme was attended by 53 participants from 15 different states of the country.



#### Exhibition/Kisan Mela Participated

- Participated in District Kisan Mela to exhibit ICAR-CIRG Goat Technologies at KVK Mathura (U.P.) on 8<sup>th</sup> July 2016.
- Exhibition organised on the occasion of 37<sup>th</sup> Foundation Day of institute on July 12, 2016.
- Participated in Krishi Evam Gramya Vikas Pradarshni at Pt. Deen Dayal Dham Nagla Chandrabhan, Farah, Mathura on 25-29<sup>th</sup> September 2016.
- Showcased goat production technologies at Purvanchal Krishi Pradarshni evam Kisan Sangosthi on 23-24<sup>th</sup> October 2016 at Gorakhpur (U.P.).
- Participated in Janpadiya Kisan Mela at Mathura on 27<sup>th</sup> October 2016.
- Exhibited ICAR-CIRG Goat Technologies in Northern Regional Farmers'/Agriculture Fair (RAF), Krishi Kumbh 2016 at Muzaffarnagar (U.P.) on 28-30 November 2016.

## Events

#### 37<sup>th</sup> Foundation Day of the Institute

The institute foundation day (37) was celebrated on 12<sup>th</sup> July 2016. The foundation day started with plantation of trees by the Director, Dr. MS Chauhan with participation of all the staff of the institute. The Director highlighted the scientific achievements of the institute during the year.

#### RAC meeting

The 22<sup>nd</sup> Research Advisory Committee meeting was held on 29<sup>th</sup> July 2016. The committee was chaired by Dr. A.K. Mishra, Vice-Chancellor, Maharashtra Animal & Fishery sciences University (MAFSU), Nagpur (Maharashtra). The other members of the committee were, Prof. S.A. Ashokan, Director of Distance Education, TANUVAS, Dr. D.V. Rangnekar, Former programme coordinator, BAIF, Ahmedabad, Dr. B.S. Prakash, ADG (AN&P) ICAR, New Delhi, Dr. Mohammed Nadeem Fairoze, Prof & Head, Department of LPT, Veterinary college, KVAFSU, Hebbal, Bengaluru, Dr. R.K. Tanwar, Ex-director Clinics, CVAS, Bikaner, Dr. M S Chauhan, Director, CIRG. Persons representing agricultural/ rural interest were Shri. Ashok Rangnath Kale, Ahmednagar, Maharashtra and Shri K. Venkatesh, Vijay Farms, Villupuram, Tamil Nadu and Dr. P.K. Rout, Principal Scientist and I/C PME cell acted as member secretary. The Chairman and Members appreciated programme implemented, activities undertaken and achievements by CIRG. All the scientists of the institute participated in meeting.

## Events

### ● Independence Day celebration

Institute celebrated 70<sup>th</sup> Independence day with devotion and joy on 15<sup>th</sup> August, 2016. Dr. M. S. Chauhan, Director of the institute in his address congratulated the scientific staff and supporting for their contribution in uplifting goat farmers of the country on this great occasion.



### ● Single Window System for Goat Farmers inaugurated at ICAR-CIRG, Makhdoom

Dr Trilochan Mohapatra, Secretary, DARE and Director General, ICAR inaugurated the Single Window System for the goat farmers at ICAR-Central Institute of Research on Goats (CIRG), Makhdoom on 26.09.2016 to provide all kinds of technical information and assistance regarding goat production from a single place. He enthusiastically interacted with the local goat farmers gathered during the occasion and queried them about their problems related to the goat farming. Dr Mohapatra keenly observed different Livestock Units, Agroforestry Section, and Laboratories and discussed about research projects being carried out with the scientists and suggested to incorporate cutting edge research in respective fields to provide a better solution to the goat farmers of the nation. In his wonderfully delivered address to the Institute staff in the auditorium, he exhorted for pro-farmers, cost effective and easily adoptable research for enhancement of income of goat farmers. He observed that being a National Institute, CIRG should keep all recognized goat breeds in the institute, albeit in limited numbers for showcasing to the farmers of the country, and develop breeding strategies for faster growth, new generation diagnostics and multivalent vaccines, research on cloning aspect for multiplication of elite germplasm. He appreciated the work and contribution of the Institute.



### ● Foundation Stone for Kisan Hostel laid at ICAR-CIRG, Makhdoom

Shri Radha Mohan Singh, Union Minister of Agriculture and Farmers' Welfare, GOI inaugurated and laid the foundation Stone for the establishment of "Pt. Deendayal Upadhyay Kisan Chhatrawas" at ICAR-Central Institute for Research on Goats, Makhdoom on 26.09.2016 on the occasion of inauguration of "Rashtriya Krishi Unnati Mela". During the occasion Dr. Trilochan Mohapatra, Secretary, DARE and Director General, ICAR, Sh. Devendra Chaudhry, Secretary, DAHD&F, Dr A.K. Singh, DDG (Extn.), ICAR and Dr. M.S. Chauhan, Director, ICAR- Central Institute of Research on Goats, Makhdoom were also present.



### ● Vigilance Awareness week-2016, Public participation in promoting integrity and eradicating corruption.

The Central Vigilance Commission issued a directive to observe Vigilance Awareness Week during the period of Oct. 31 – Nov. 5, 2016 with the theme on "Public Participation in Promoting integrity and eradicating Corruption". In pursuance of the said directive issued by the Central Vigilance Commission, New Delhi vide circular no. 16/VGL/030 dated 19.09.2016, 23.09.16, 26.09.16 and 27.09.16 and the directive issued by the Council vide file no. 51-2/2016-Vig.-1 dated 17.10.16, Vigilance Awareness Week was observed in ICAR-CIRG, Makhdoom from October 31 to November 5, 2016. On this occasion display of banner at prominent locations/places in laboratory building/offices and main gate of the institute were done to create awareness on vigilance awareness week-2016 on the theme "Public Participation in Promoting integrity and eradicating Corruption". The program on first day was inaugurated by the Director, ICAR-CIRG, Makhdoom. The pledge was administered by Dr. S. D. Kharche, Vigilance Officer at 11.00 hrs on 31<sup>st</sup> October 2016 in Central auditorium of the Institute where all employees including RAs/SRFs/Students of ICAR-CIRG took the pledge.





## Honour's, Awards and Recognitions

- **RAFI AHMED KIDAI AWARD FOR OUTSTANDING RESEARCH IN AGRICULTURAL SCIENCES 2015**

Dr. M.S. Chauhan was awarded 'Rafi Ahmed Kidai Award for Outstanding Research in Agricultural Sciences 2015' on July 16, 2016 for his contribution in outstanding research in Animal and Fisheries Science at NDRI, Karnal. He has developed several potential Assisted Reproductive Technologies for enhancing the reproductive efficiency in livestock. He has significantly contributed towards the development of simple method for *in vitro* Production (IVF) of embryos in cattle, buffalo, yak and goats, production of embryonic stem cell lines in buffalo, ovum pick up (OPU)-IVF technology in cattle and yak and cloning technology in buffalo using a modified and cost effective hand guided cloning technology. He has published a large number of research papers in the high impact journals. His research achievements are well recognized both within and outside the country.



- **ICAR TEAM AWARD**

Dr. M.S. Chauhan was awarded ICAR team award (as team member) on July 16, 2016 for his contribution in outstanding research in Animal and Fisheries Science NDRI, Karnal. The team led by Dr. S.K. Singla was involved in standardization and optimization of Zone-free Embryo Cloning (hand guided cloning) of buffaloes of high generic merit-Garima-II, Mahima, Shresht, Swarn, Lalima, Rajat, Apurva. The production involved several types of somatic cells such as fetal, new-born and adult skin fibroblasts, embryonic stem cells, seminal plasma-derived cells, trophoblast cells, blood lymphocytes, etc. and birth of live progeny from cloned embryos using newborn fibroblasts as donor cells-first in the world in buffalo.



- **S. C. SUD MEMORIAL AWARD**

Dr. Ravi Ranjan, Scientist, Animal Physiology & Reproduction Division of Institute was awarded S. C. Sud Memorial Best Doctoral Thesis Award-2015 during XXV Annual Conference of Society of Animal Physiologists of India (SAPI) held at Department of Veterinary Physiology, College of Veterinary Science & Animal Husbandry, Nanaji Deshmukh Veterinary Science University, Mhow- 453446, Indore, M.P., India on 21-December, 2016. He completed Ph. D. in Veterinary Physiology from ICAR-Indian Veterinary Research Institute, Izatnagar, Bareilly, U.P. in 2013 and the title of thesis was "Studies on Developmental Potency of Caprine Parthenogenetic Embryos".



## Distinguished Visitors



*Hon'ble Sh. Purushotam Rupala,  
Union State Agriculture and Farmers Welfare  
Minister, on 28<sup>th</sup> September, 2016.*



*Hon'ble Sh Sudarshan Bhagat,  
Union State Agriculture and Farmers Welfare  
Minister, on 29<sup>th</sup> September, 2016.*



*Dr T Mohapatra, Secretary DARE and  
Director General ICAR on 25 -26<sup>th</sup> September, 2016.*



*Shri R P Singh, Governing body and  
General body member on 16-17 Sept, 2016*



*Dr. A. K. Srivastava, Member, ASRB, New Delhi and  
Former Director NDRI, Karnal on 11-12 November, 2016.*



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