ISSGPU NEWSLETTER

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From the President's desk

The Indian Society for Sheep and Goat Production and Utilization (ISSGPU) has completed twenty-seven years of its service to the scientific and technical community engaged directly or indirectly in development of meat and fibre sectors. The society feels proud of having organized thirty National seminars and Interactive Meetings in different parts of the country and provided platform for scientists, teachers, technocrats, NGO's, farmers, weavers, industrialists to deliberate, interact and attempt to provide amicable solutions to the problems and issues connected with improvement of sheep, goat and rabbit industries. The Volume 15 issue 1 of the Indian Journal of Small Ruminants (2009) has already been out and being distributed to all the life members free of cost. The online version of the journal is available at *www.indianjournals.com*. This journal has now been included in NAAS list of referred journals.

The year 2009 is being celebrated as the International Year of Natural Fibres (IYNF). The idea of IYNF was first conceived in December 2004 during a meeting of FAO's Intergovernmental Groups on Hard Fibres and on Jute, Kenaf and Allied Fibres. At the request of FAO, the declaration of IYNF was made by the General Assembly of the United Nations on 20 December 2006. The main purpose of declaring the year 2009 as the IYNF was to raise the profile of natural fibres and to emphasize their value to consumers while helping to sustain the incomes of the farmers. The IYNF was officially launched on 22 January at the headquarters of the UN Food and Agriculture Organization in Rome. Natural fibres are renewable and biodegradable and have energy costs far lower than those of synthetic fibres. In many developing countries, proceeds from the sale and export of natural fibres contribute significantly to the income and the food security of poor farmers and those working in fibre processing and marketing. Producers and processors of natural fibres derived from sheep, goats and rabbits face the challenge of developing and maintaining markets in which they can compete effectively with synthetic fibres. Inspite of advantages of natural fibres over synthetic fibres, basic research and development is still needed to make them cost-effective and facilitate their use in new applications. As part of the IYNF, the Indian Council of Agricultural Research organized an international conference at Central Institute for Research on Cotton Technology, Mumbai during April 16-18 on *Emerging trends in production, processing and utilization of natural fibres*. The ISSGPU has also planned to organize an Interactive Meet and a National Seminar to highlight all the latest research activities on small ruminants with emphasis also on developing marketing strategies for substantial value addition from commodities prepared from natural fibres of sheep, goat and rabbit origin. The society also needs active participation of researchers, developmental workers and non-government organizations in this endeavour and we will take all initiatives to significantly increase the Life & Sustaining Members of the society during this year.

Jai Hind! **S.A. Karim**

TRAINING ON ADVANCES IN MANAGEMENT AND PRODUCTION ENHANCEMENT IN ANIMALS

CIRG, Makhdoom organized training for the Veterinary officers of Animal Husbandry Department of Uttar Pradesh from 16-25 March, 2009. A total of 17 Veterinary officers participated in the training programme. Dr. Nem Singh, former Director, IVRI, Izatnagar was the chief guest of the inaugural function. Dr. M.C. Sharma, Director of the Institute emphasized the importance of capacity building and regular interaction among the scientists and field veterinarians.

Valedictory function of training programme

Contributed by: *Shalender Kumar, CIRG, Makhdoom*

INTERNATIONAL WORKSHOP ON THE *FecB* (BOOROOLA) GENE

The Helen Newton Turner Memorial International Workshop on 'Using the *FecB* (Booroola) gene in sheep breeding programs' was organized jointly by the Nimbkar Agricultural Research Institute (NARI), Phaltan, National Chemical Laboratory (NCL), Pune and University of New England (UNE), Armidale, NSW, Australia from 10-12 November 2008 at National Chemical Laboratory, Pune. There were eighty two participants in total including 17 invited speakers (5 Indian and 12 from other countries) and 55 registered delegates (including 7 foreign delegates and 11 students of agriculture and veterinary colleges in

Opening ceremony of international workshop

India). The international participants were from Australia, Bangla Desh, China, France, Indonesia, Israel, Kenya, New Zealand, Netherlands, Poland, South Africa and U.S.A. The Workshop covered the history and discovery of the *FecB* mutation, the theory of its mechanism of action, the influence of genetic and environmental factors on its action, its consequences on the physiology of the ewe and the lamb and the application of the *FecB* mutation to increase lamb production and incomes of poor sheep rearers.

Contributed by: *Chanda Nimbkar, NARI, Phatan*

EMBRYO TRANSFER TECHNOLOGY IN SHEEP INTRODUCED

Dr Dean Angles, President Canadian Sheep Genetics International Institute, Alberta, Canada visited CSWRI, Avikanagar in April 2009 and informed that embryo transfer technology has been introduced in Jammu and Kashmir to increase the meat and wool production. High quality frozen embryos from three breeds; Dorper, Ramboillete and Corriedale were implanted into indigenous recipients at sheep breeding farm, Panthal, Udhampur by a team of scientists / veterinarians from the Canadian Sheep Genetics International Institute, Alberta, Canada.

Contributed by: *S.M.K. Naqvi, CSWRI, Avikanagar*

SURROGATE RAMS THROUGH STEM CELLS

Australian researchers Dr Muren Herrid and his associates at the CSIRO have used spermatogonial stem cells to develop surrogate rams - animals that produce the viable semen of another individual. This is the first report on successful production of surrogate rams. Numerous lambs have now been born and as surrogate father DNA tests proved that up to 10 percent of the lambs sired by the surrogate ram in fact carry the genetics of the donor. The scientists conducted research at Armidale, NSW have described this technique more significant than artificial insemination or cloning for livestock industries. It paves the way for the rapid expansion of superior genetics and is likely to revolutionize sheep industry because (i) Stem cells implanted in recipient rams produce the semen of the donor (ii) Has the potential to rapidly increase production of superior genetics and (iii) Lambs on the ground provide proof of concept. Research is still in the experimental phase with results yet to be formally published.

The experimental approach proven so in sheep involves irradiating the testes of ram "A" whilst placing stem cells from ram "B" into the testes of ram "A". Over the following weeks ram "A" produces semen the usual way, using the stem cells of ram "B" and therefore producing semen carrying the genetics of ram "B" rather than that of his own. He effectively becomes a surrogate ram. The viable semen is then implanted in the ewe and lambs born through this process are normal and healthy. The radiation therapy used to temporarily sterilize rams was similar to that used in cancer therapy and lasted between three and six months before the animal regained the ability to reproduce its own sperm. The research finding has the potential to radically change the way commercial breeders access genetic change. It will allow availability of the most appropriate animal for markets in a locally adapted form that delivers the semen. With superior genetics able to be more rapidly distributed through the use of more males, new business opportunities for the sheep industry may emerge.

Contributed by: *S.M.K. Naqvi, Anil Joshi and Davendra Kumar, CSWRI, Avikanagar*

BREEDING LOW-EMISSION SHEEP

New research is under way to breed sheep with low methane emissions. The Sheep Co-operative Research Centre at Armidale is trying to find out if improving meat and wool production efficiency is enough to reduce emissions. It's not so much about looking at an individual animal's performance, but how the whole flock is managed. If it is done correctly with an understanding of the production system, it will reduce the greenhouse impact while improving the efficiency and productivity of sheep.

Contributed by: *Chandan Paswan and Davendra Kumar, CSWRI, Avikanagar*

TOOL TO TRANSFORM SHEEP BREEDING

A NEW genetic tool, launched on January 14th 2009, is set to transform the future selection and breeding of sheep around the world. **The** cutting-edge tool called the **Ovine SNP50 BeadChip** by the CSIRO would pinpoint the small genetic differences that produce a variety of commercially important traits in sheep such as improved growth rate, fertility, parasite resistance, and healthier meat products. The International Sheep Genomics Consortium (ISGC) is undertaking research in developing a range of publicly available genomic resources to help scientists find the genes and develop DNA markers associated with traits critical to the sheep meat and wool industries. According to Dr James Kijas, ISGC Secretary and CSIRO Livestock Industries molecular geneticist, the use of the tool will speed the development of genetic markers, which will fast-track genetic gain for providing benefits to the sheep producers. In addition, scientists will use the chip to help unravel the process of sheep domestication and impact of selection. The major aim of the ISGC is to use the chip to collect data from over 60 breeds of sheep and their wild relatives. This will tell us a lot about the history of the species and reveal which parts of the genome have been under selection for economically important traits.

Contributed by: *Anil Joshi, S.M.K. Naqvi, Davendra Kumar and Chandan Paswan, CSWRI, Avikanagar*

A NEW SHEEP BREEDING INDEX

A NEW breeding index has been developed, which will help lamb producers to improve the genetic

progress of their flock through increasing parasite resistance and muscle for achieving optimal birth weight. The new **Lambplan Lamb index** will replace the Carcass Plus terminal sire index. The Lamb 2020 index builds on the success of the Carcass Plus index with a broader range of desirable traits including birth weight and improved internal parasite resistance. According to Don Heately, Chairman Meat and Livestock, Australia, more emphasis on early growth will also mean that commercial producers can more successfully turn off their lambs at 16 to 20 weeks and meet the current market specifications for muscle and fat. Using rams on the Lamb 2020 index will produce lambs that are up to $18/head more profitable than progeny from an average ram. The new index is best suited to producers supplying 20 to 24 kg carcass weight lambs, especially Merinos, but also crossbreds.

Contributed by: *Chandan Paswan and Davendra Kumar, CSWRI, Avikanagar*

AUSTRALIA TO OPEN WORLD'S FIRST GOAT MUSEUM

The WORLD'S FIRST GOAT MUSEUM is to be opened in outback Australia. The museum, dedicated to the humble goat, is being planned at Barcaldine town in the dry western reaches of Queensland. The tiny town having a population of 1,800 hopes to lift its fortunes with this museum and has formed a committee to raise £150,000 for the funding and sponsorship of this unique project. The goat museum will be built next to the town's other tourist attraction, the Workers' Heritage Centre, which commemorates a sheep shearers' strike of the 1890s that led to the birth of the Australian Labour Party. The museum will display old photographs and archive film footage of goats. It will also feature a Goat Racing Hall of Fame, which will tell the history of the unorthodox sport of goat racing, in which goats pull specially designed carts large enough to accommodate adult jockeys. The heyday of goat racing in Australia was the 1920s and 30s but the sport still remains a highlight of the Barcaldine social calendar, forging a sense of community.

Contributed by: *Anil Joshi, S.M.K Naqvi and Davendra Kumar, CSWRI, Avikanagar*

FDA APPROVES FIRST DRUG MADE FROM GOAT'S MILK

The FDA has approved "ATryn", the first drug made from a genetically modified animal. The drug is obtained from the milk of a GM goat, and is used to treat a blood-clotting disorder called hereditary antithrombin deficiency. This drug, sold by a company called GTC Biotherapeutics, is just the beginning. A company called Farming plans to apply for approval of a drug that's made in the milk of transgenic rabbits and is supposed to treat a hereditary protein deficiency, while another company is developing a treatment for nerve gas poisoning in the milk of transgenic goats. These developments will lead to manufacture of lot of new transgenic drugs at a very low price to treat a myriad of diseases all across the human spectrum.

Contributed by: *Davendra Kumar, Anil Joshi and S.M.K. Naqvi, CSWRI, Avikanagar*

SMS TO REPLACE SHEEP HERDING?

An unusual experiment is being executed in Húsavík in the remote Strandir region in the West Fjords. GPS equipment with a GSM transmitter has been placed in a collar around the neck of 13 ewes, which sends daily SMS messages with their locations. The purpose of the experiment is to investigate the interaction between sheep while grazing in the mountains in summer, mainly to see whether related sheep stick together. The 13 ewes belong to three family groups. Each of their collars transmits one SMS message per day with their locations every three hours (eight locations in one message). If the ewe remains motionless for three hours the collar sends a warning signal in case the animal might be ill or dead. Apparently sheep can be trained to respond to certain sound signals. The current experiment in Strandir is a follow-up of a project undertaken on the family-relations of sheep.

Contributed by: *Chandan Paswan and Davendra Kumar, CSWRI, Avikanagar*

NOVEL SHEEP DRENCH LAUNCHED AFTER 27-YEAR GAP

A new novel sheep drench has been launched that will unwind the rate of drench resistance on farms saving farmers hundreds of millions of dollars. Declining levels of efficacy with existing drenches

combined with increasing resistance in parasitic worm populations has been a global problem that has significantly decreased productivity in sheep. Novartis Animal Health has launched Zolvix, the first new class of sheep drench in more than 27 years. Dr Ronald Kaminsky and his team after screening 700 molecules discovered montepantel, the active ingredient of the new drench. Zolvix is the first product of a new class of resistance-breaking anthelmintics called the Amino-Acetonitrile Derivatives (AADs). It has a unique mode of action and it is highly effective against sheep gastro-intestinal nematodes, including those resistant to other anthelmintics. Montepantel paralyses nematodes by attacking a previously undiscovered receptor (Hco-MPTL-1) found only in nematodes. The receptor opens and shuts to allow cations to flow through which creates movement. When the montepanel molecule attaches to the receptor it forces it to stay open and causes paralysis. Novartis claim that the drench has 99.9% efficacy and impressive safety profile with a very short withdrawal period. The use of Zolvix in a management programme has the potential to revolutionize sheep worm control by avoiding the resistance problems which previous drenches encountered.

Contributed by: *Davendra Kumar, Chandan Paswan, Anil Joshi and S.M.K. Naqvi, CSWRI, Avikanagar*

IRAN CLONED A GOAT: 5TH COUNTRY IN THE WORLD

Iranian Scientists have cloned a female goat, named Hana on 16th April 2009. Dr Mohammed Hossein Naser e Isfahani, Head of the Royan Research Institute said, " with the birth of Hana, Iran is among five countries in the world cloning a baby goat". In 2006 Iran became the first country in the Middle East to announce it had cloned a male sheep. The cloned sheep is healthy after two and half year. The main aim in cloning the goat is to produce medicines for treatment of stroke patients.

Contributed by: *S.M.K. Naqvi, Anil Joshi and Davendra Kumar, CSWRI, Avikanagar*

REVEALING THE HISTORY OF SHEEP DOMESTICATION USING RETROVIRUS INTEGRATIONS

The domestication of livestock represented a crucial step in human history. Scientists at the University of Glasgow have unravelled the history of sheep domestication by examining endogenous retroviruses (ERV) preserved in the animal's DNA. ERV are like genetic fossils; remnants of ancient infections caught by sheep and their ancestors thousands of years ago whose DNA has been integrated into the genetic code of the animal and then passed on to subsequent generations. By using tiny pieces of virus DNA integrated into the sheep DNA over time as genetic markers, a team of 33 Scientists representing 20 countries and 27 institutions lead by Dr Massimo Palmarini of Faculty of Veterinary Medicine, University of Glasgow have reported for the first time that sheep differentiated on the basis of their "retrotype" and morphological traits dispersed across Eurasia and Africa via separate migratory episodes. They were able to pinpoint two distinct domestication events that moulded the sheep genome. Their study suggests that most likely, breeding of sheep for products such as wool also occurred first in southwest Asia before spreading to Europe through secondary migrations that shaped the great majority of present-day sheep. In coming to their conclusions, scientists examined the presence of a particular group of ERV within the DNA of 1,362 sheep from 133 different breeds of domestic sheep and their closest wild relatives. The sheep were tested for the presence of six ERV and by comparing the prevalence of the different viruses amongst the sample group it was possible to differentiate primitive breeds from the more recently domesticated animals and also offers a rationale for identifying and preserving rare gene pools. This research finding has been published in the 24 April 2009 Vol 324 issue of Science.

Contributed by: *Anil Joshi, S.M.K. Naqvi, Davendra Kumar and Chandan Paswan, CSWRI, Avikanagar*

NATIONAL SEMINAR ON RURAL INDIA DEVELOPMENT

A National Seminar on 'Rural India Developmental Alternatives: Sectoral Convergence for Livelihood Security' was jointly organized by CIRG, Makhdoom and MOBILIZATION Society, New Delhi on January 16–18, 2009. Dr. C.D. Mayee, Chairman, ASRB graced the occasion as the Chief Guest and Dr. M.L.Madan, Vice-Chancellor, DUVASU as Guest of Honour. Dr. M.C. Sharma, Director, CIRG presided over the inaugural function. About Three hundred delegates comprising Scientists, Academicians, Entrepreneurs, Commercial farmers, representatives from Meat Industry, State Animal Husbandry departments, Non Government Organizations,

students, and development workers from different States of the country attended the Seminar. In all, 9 Lead and 163 contributory papers were presented. On this occasion a number of progressive farmers, practitioners and scientists were honored for their contribution by Dr. J.P. Sharma, President, MOBILIZATION Society.

Contributed by: *V. S. Vihan, CIRG, Makhdoom*

NATIONAL TRAINING PROGRAMME ON COMMERCIAL GOAT FARMING

The CIRG, Makhdoom organized 38th National Training Programme on Commercial Goat Farming from 17-26 February, 2009. A total of 75 goat farmers and entrepreneurs from 15 different states participated in this training programme. The main objective of this training course was to increase the knowledge and skill of the goat farmers, entrepreneurs, unemployed youth and farm women in commercial goat farming. Dr. U.C. Sharma, Former National Coordinator (NATP), New Delhi graced the occasion as Chief Guest, in inaugural function. Dr. R.M. Acharya, Former DDG (Animal Science) was Chief Guest of valedictory function. Prof (Dr.) M.C. Sharma, Director of the Institute called upon the trainees to adopt various improved goat production technologies to make goat farming a profitable enterprise. Dr. R.L. Sagar, Principal Scientist coordinated the training programme.

Contributed by: *Shalender Kumar, CIRG, Makhdoom*

MODEL TRAINING COURSE ON COMMERCIAL GOAT FARMING

A Model Training Course on 'Commercial Goat Farming' from 3rd to 10th November, 2008 for the Veterinarians and Animal Husbandry Officers working in State Animal Husbandry Departments was organized at CIRG, Makhdoom, Mathura. The Training Programme was sponsored by the Directorate of Extension, Ministry of Agriculture, Govt. of India, New Delhi. A total of 18 veterinarians including Veterinary officers, Assistant Directors and Deputy Directors of Animal Husbandry from 11 states of the country participated in the training programme. Dr. S.K. Garg, former Vice-Chancellor, UP PDDU Veterinary University and Cattle Research Institute, Mathura was chief guest of the inaugural function. Dr. Kiran Singh, former DDG (Animal Science), ICAR was chief guest on the occasion of valedictory function of the Training programme.

Contributed by: *Shalender Kumar, CIRG, Makhdoom*

NEW ELECTED EXECUTIVE COMMITTEE OF ISSGPU

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		S.K. Singh, Makhdoom
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		Jitendra Kumar, Mathura

SHEEP THAT ARE 15% HUMAN!

Scientists have created the world's first human-sheep chimera, which has the body of a sheep and half-human organs. The sheep have 15 per cent human cells and 85 per cent animal cells, and their evolution brings the prospect of animal organs being transplanted into humans one step closer. Professor Esmail Zanjani, of the University of Nevada, has spent seven years and £5million perfecting the technique, which involves injecting adult human cells into a sheep's fetus. He has already created a sheep liver, which has a large proportion of human cells and eventually hopes to precisely match a sheep to a transplant patient, using their own stem cells to create their own flock of sheep. The process would involve extracting stem cells from the donor's bone marrow and injecting them into the peritoneum of a sheep's foetus. When the lamb is born, two months later, it would have a liver, heart, lungs and brain that are partly human and available for transplant

Contributed by: *V.P.Maurya and V. Sejian, CSWRI, Avikanagar*

WINTER SCHOOL ON WOOL PRODUCTION AND VALUE ADDITION

The CSWRI, Avikanagar organized a winter school on "Innovations in Wool Production and Technologies for Value Addition" from December 4-24, 2008 for college teachers/research workers

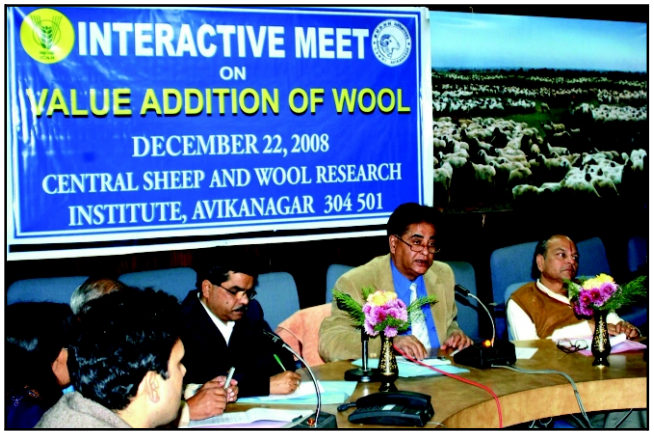
Inaugural function of winter school

engaged in the field of animal science and textile technologies. The Indian Council of Agricultural Research, New Delhi, sponsored the school. Dr S.A. Karim, Director, CSWRI was Course Director and Dr D.B. Shakyawar and Dr Anil Joshi were Course Coordinators. Lectures based on latest developments in wool production, processing and product development were delivered by experts from premium Institutes like IIT-Delhi, IICT-Badohi, CIRCOT-Mumbai. Sixteen participants from different institutes were attended the school.

Contributed by: *D.B. Shakyawar, and L. Ammayappan, CSWRI, Avikanagar*

AN INTERACTIVE MEET ON VALUE ADDITION OF TEXTILES

Division of Textile Manufacture and Textile Chemistry, CSWRI, Avikanagar organized an interactive meet on "value addition of textiles" on 22nd Dec, 2008. Eminent scientists and experts from various institutes like IICT-Badhoi, IIT-Delhi delivered lectures and nearly 50 participants attended the meet.



Inaugural function of Interactive meet

Contributed by: *D.B. Shakyawar, and L. Ammayappan, CSWRI, Avikanagar*

FOUNDATION DAY OF CSWRI CELEBRATED

Exhibition during foundation day celebration

The Foundation day of CSWRI was celebrated on 4th Jan, 2009. Sh Ranbir Pahalwan, MLA, Malpura was the chief guest of the function. Dr B.K. Joshi, Director NBAGR and Dr Anwar, Director NRCSS were guest of honour. Kisan Mela/ Bhed Mela, animal judging and exhibition of products and technologies from different ICAR Institutes, SAUs and NGO were the main attractions of the day. Director, CSWRI emphasized on the more need of interactions between scientists and farmers.

Opening ceremony of foundation day celebration

Contributed by: *J.S. Mann, CSWRI, Avikanagar*

REFRESHER TRAINING PROGRAMME ON ADVANCES IN SHEEP PRODUCTION

The CSWRI, Avikanagar organized three Refresher Training Programme on Advances in sheep production during Jan to March 2009. A total of 95 technical officers/ field assistants from Gujrat Sheep and Wool Development Corporation Ltd., Gandhinagar participated in these training programmes. Gujrat Sheep and Wool Development Corporation Ltd sponsored the training programmes. The main objective of this training course was to refresh the knowledge and skill of the technical officers/ field assistants regarding advances in sheep and wool production.

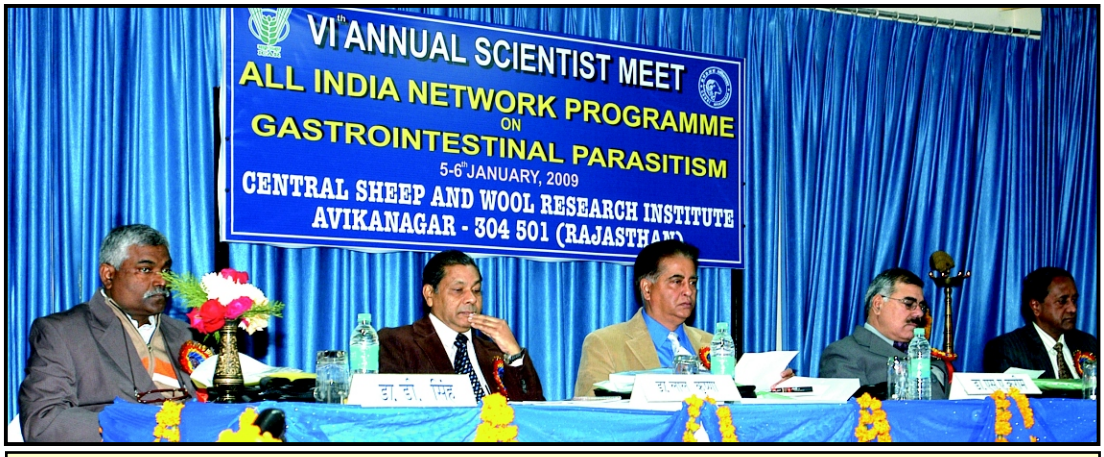
***Contributed by**: R. Gulyani, CSWRI, Avikanagar*

Inaugural function of refresher training programme

VI ANNUAL SCIENTIST MEET ON ALL INDIA NETWORK PROGRAMME ON GI PARASITES

VI annual scientist meet on all India network programme on GI parasites was organized at CSWRI, Avikanagar from 5th – 6th Jan, 2009. The dignitaries Dr B.K. Joshi, Director NBAGR, Dr Lal Krishna, ADG (AH), Dr S.A. Karim, Dr CSWRI, Dr J.K. Malik, JD & PC, IVRI addressed the inaugural session. A total of 45 participants attended the meet. Emphasis was given on the importance of GI parasites in sheep, role of epidemiology and new challenges emerged in the form of anthelmentic resistance.

***Contributed by**: C.P. Swarnkar, CSWRI, Avikanagar*



Inaugural function of scientist meet

1. **Kindly contribute to ISSGPU Newsletter about latest discoveries, news on sheep, goat and rabbit.**
2. **You are requested to kindly send you email addresses and phone numbers**

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