



Equine Production Newsletter

ICAR-NRCE, EQUINE PRODUCTION CAMPUS, BIKANER

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The Director's Desk

It is a matter of great pleasure for me to put forward this newsletter for the esteemed stakeholders to look into the programmes, efforts and initiatives taken up by the Campus

for increasing the income of the farmers. Equines are still the integral part of the social system and are second to none in their demand for performing the social rituals in the country. They have proved their utility in transporting the arms & ammunition, food & utility items and in supporting the pilgrims to reach destinations. The equestrian sports are also getting greater attention now a days. In view of this, the Centre is committed for the development of the equines, through innovations and technology development.

The Centre is focusing on technologies like equine cloning, assessment of fertility and infertility in mares and stallions. Very soon the Centre is going to release the area specific mineral mixture for the equines. Exploring the possible etiologies of colic and lameness in equines in the region is also on priority of the Centre. Initiative has also been taken up to analyse the genetic markers associated with fertility and endurance in Indian equine breeds for their possible use in early selection of animals.

This Centre is also providing services like artificial insemination with frozen thawed semen, pregnancy diagnosis using ultrasound machine and dissemination of equine frozen semen doses free of cost to the veterinarians working in the area of equine reproduction. The Centre is making indomitable efforts for conservation and propagation of the indigenous equine breeds by collecting and cryopreserving their germplasm. In an effort to take this programme a step further, the Centre has recently initiated an innovative programme called "**Equine Ecotourism**" to acquaint masses with the equines and the Centre's activities. Active collaboration from all the stakeholders for overall equine development is solicited.

Our aim is to grow and prosper on our strengths through precious feedback and continuous support for the welfare of the equines and equine owners of the nation. Hence in this regard, we welcome critical suggestions and innovative thoughts from the readers and stakeholders for the betterment of the equine production system in the country. I sincerely acknowledge the efforts of the scientists and staff of the Equine Production Campus in bringing out the third successive Newsletter of the Campus.

B N Tripathi
B N Tripathi

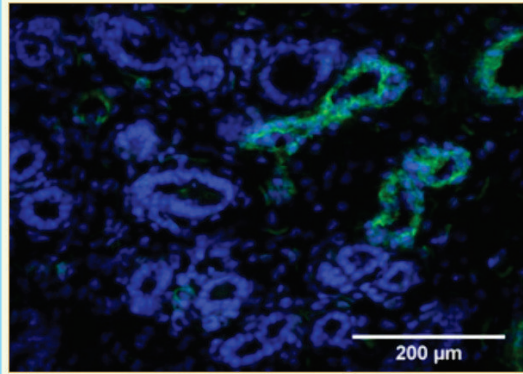
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Sectoral News

Stem cell isolation from mare uterus



Equine endometrium by fluorescence microscope analysis

Mesenchymal stem cells are multipotent cells found in a number of tissues that can develop into various cell types, providing enormous potential for regenerative medicine. Stem cells have been used therapeutically in horses for about 15 years as a treatment option for tendon and joint injuries. They are commonly obtained surgically from bone marrow or fat tissue. Researchers from the University of Veterinary Medicine, Vienna, have for the first time managed to harvest them from the mucous membrane of the equine uterus through non-invasive procedures. This avoids the need for surgery, providing an alternative with reduced pain and stress for the animals. These cells were identified as potential stem cells through various laboratory analyses, such as immunohisto-chemistry, genetic analysis and flow cytometry.

Research News

Use of antioxidants as mitigation strategy to combat ROS production during semen cryopreservation

Freezing and thawing of spermatozoa accelerate the production of ROS (reactive oxygen species) molecules in semen that can damage motility, plasma membrane functionality, viability, acrosome integrity and induce sperm chromatin damage. There are neither protection nor repair systems for sperm integrity and therefore the addition of exogenous antioxidants is required to reduce this ROS-mediated damage. A study was designed to

determine the post-thaw semen qualities of Marwari horses with addition of different antioxidants like Alpha-tocopherol, Pentoxifylline and Taurine in semen extender. Among these three Pentoxifylline was found to show improvement in the motility, HOST, Acrosomal integrity and DNA integrity which may probably increase the breeding success rate.

Digitization of Livestock Records

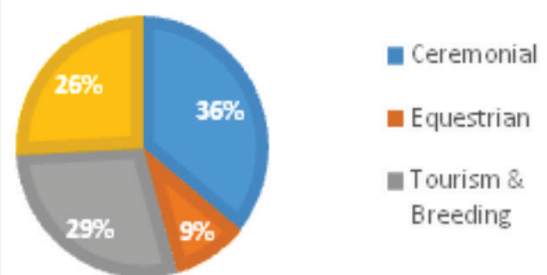
The digitization of inventory and growth performance of all the animals viz. horse, donkey, mules, born at the Centre or purchased by the Centre since its inception in 1989 has been done for better monitoring and analysis.

In-situ Conservation and Propagation

Looking at the dwindling population of horses in the country, the Campus took initiative to document the current uses of the species.

In the current year, sixteen districts of Rajasthan and Punjab states were covered and it was observed that the backbone of rearing the horses by the people in this country is its Ceremonial use (36%) followed by tourism & breeding (28.6%), breeding (25.8 %) and equestrian sports (9.6 %). A total of 613 horses belonging to 95 owners were examined for health, reproductive disorders and infertility. Also, nutritional regimes were suggested for better health and vigour of the animals.

USES OF HORSE IN PRESENT TIME



Awareness

In order to protect the interest for the equine farmers and the common man, the awareness about the spread of Glanders in equines and the precautionary measures to be taken, was created through the Newspapers and the FM radio programme.

Germplasm Generation and Distribution

The scientists at EPC are making strenuous efforts in conservation of indigenous equine germplasm and also distributing the semen doses freely to the field veterinarians. In the current year a total of 300 semen doses were cryopreserved and 140 doses of semen were freely distributed to the field veterinarians. A total of 21 farm mares conceived and 14 foals born in the current year from previous year conceptions.

Transfer of Technology

Semen Cryopreservation

The technology of cryopreservation of stallion semen at farm and field level has been perfected by the scientists of ICAR-NRC on Equines, Bikaner. On the request of staff of Equine Breeding stud, Hisar this technique was demonstrated and taught to the officers and staff of EBS, Hisar through the cryopreservation of the semen collected from Thoroughbred stallion and exotic jacks being maintained at EBS, Hisar.

Events Organised

Foundation Day Celebration

The 29th Foundation Day of the campus was celebrated with great enthusiasm on September 28,



Release of Campus Newsletter

2017. A workshop on "Conservation and propagation of equines through tourism" was organised on the eve. Hon'ble Mayor of Bikaner City, Shri Narayan Chopra, graced the occasion as Chief Guest. He appreciated the initiative taken up by the Campus to start ecotourism along with the research for propagation of equines and added that the equine ecotourism will be a matter of pride for the city; it will help in making it as the choice destination of National and International tourists. Lt. Col. Ashok Singh Rathore, NCC Raj R & V,

Bikaner and Ms. Bharati Naithani, Assistant Director, Rajasthan Tourism, Bikaner graced the occasion as guests of honour. The guests released the 2nd issue of the Newsletter of the Campus and applauded the efforts being taken for the cleanliness and maintenance of greenery of the campus as well as the different breeds of horses at the farm.

Release of Technical Bulletin

A technical bulletin entitled "Artificial insemination and Pregnancy diagnosis in equines" authored by T. R.Talluri, S. K. Ravi, J. Singh, R.A.Legha, Yash Pal



Release of technical bulletin

and B.N.Tripathi was released on the occasion of the foundation day. This bulletin covers the procedures involved in performing Artificial insemination and Pregnancy diagnosis in Equines.

Scientist-Farmer Interactive Meet

On the occasion of EPC foundation day a scientist-farmers' interactive meet was organised under the chairmanship of Dr. R. A.Legha. All the scientists of the campus and Director's nominee Dr. R. K.Vaid participated in this interactive meet and discussed on various issues related to equine farmers and suitable sustainable solutions were provided.



Interactive meet with equine owners

Training to equine farmers

Equine Production Campus, ICAR-NRC on Equines, Bikaner in collaboration with "Society for Agriculture and Arid Ecology Research" has organized three (two days) farmers training programme on "शुष्क क्षेत्र में समन्वित फसल प्रणाली पर दो दिवसीय कृषक प्रशिक्षण कार्यक्रम" on 8-9, 10-11th and 26-27th February 2017. In this training scientists from ICAR-NRCE, ICAR-CIAH and ICAR-CAZRI delivered lectures to farmers to enhance their skills in modern agriculture practices in farming and agriculture. For this training programme, 30 farmers from various villages of Bikaner district took part and learned many things about general livestock rearing, farming and innovative methods of agriculture in the arid region of Rajasthan. This programme was sponsored by ATMA, Bikaner.

Training to Para-veterinarians

There is an increased demand for the artificial insemination (AI) in equines at field level. Looking at this interest some of the para-veterinarians were identified in the equine populated areas of Haryana, Rajasthan and Uttar Pradesh and were imparted training on AI and PD in Equines from 21st -27th of August 2017. They were trained for the production of mules using frozen semen of the jacks using AI.

Swachchhata Abhiyan

The Swachh Bharat Abhiyan is the most significant cleanliness campaign initiated by the Government



Same place: before and after Swachchha Bharat Abhiyan

of India. Under this programme various activities were planned and accomplished to make the campus clean and green. As a part of this, the staff of the campus actively participated in cleaning the areas near the guest house, main building and made significant efforts in remodeling of the museum of the campus. About one Acre unattended land was cleaned leveled and the Herbal Park was developed in the same land.

Tree plantation and Van Mahotsav

A tree plantation programme was organised by Mahavir International, Bikaner on 26th July 2017. Director Dr. B N Tripathi, Incharge EPC, scientists and all technical staff actively participated in this programme by planting one thousand plants.

Under the Van Mahotsav programme 200 plants of the species Dalbergiasissoo (North Indian rosewood) were planted near the Guest house and car parking area of EPC on 08th Aug 2017. All the scientists and technical staff of EPC participated enthusiastically in this programme by planting the same.



Plantation by Director, ICAR-NRCE

हिंदी सप्ताह

परिसर पर हिंदी राजभाषा से सम्बन्धित कार्यक्रम पूर्ण निष्ठा के साथ संचालित किये गए। हिंदी दिवस, दिनांक 14 सितम्बर से 20 सितम्बर 2017 तक हिंदी सप्ताह मनाया गया। हिंदी दिवस पर परिसर प्रभारी डॉ शरतचंद्र चन्द्र मेहता ने अपनी बात प्रसिद्ध हिंदी -उर्दू कवि इकबाल की कविता "हिंदी हैं हम वतन है हिन्दोस्तां हमार, सारे जहाँ से अच्छा हिन्दोस्तां हमार..." के माध्यम से कही। सप्ताह के दौरान राज भाषा अधिकारी डॉ संजय कुमार रवि ने हिंदी श्रुतिलेख, हिंदी अनुवाद, हिंदी आशुभाषण, शुद्ध लेखन आदि प्रतियोगिताएँ आयोजित की जिनमें परिसर के अधिकारियों एवं कर्मचारियों ने बढ़ चढ़ कर हिस्सा लिया एवं विजेताओं को पुरस्कृत किया गया। सप्ताह के समापन कार्यक्रम के मुख्य अतिथि डॉ त्रिभुवन शर्मा, अधिष्ठाता, पशुचिकित्सा एवं पशु विज्ञान महाविद्यालय, बीकानेर ने इस अवसर पर कहा कि हमारी भावनाओं की पूर्ण अभिव्यक्ति मातृभाषा में ही होती है। इस अवसर पर साहित्यकार श्री राजेन्द्र जोशी एवं काजरी, बीकानेर के प्रभागाध्यक्ष डॉ. एन. डी. यादव विशिष्ट अतिथि के रूप में उपस्थित थे। प्रभारी अधिकारी डॉ शरत चन्द्र मेहता ने हिंदी सप्ताह के दौरान हिंदी को बढ़ावा देने के दिशा में लिए गए महत्वपूर्ण निर्णय लिए जिनमें कृत्रिम गर्भाधान विषय पर हिंदी में संकलन, परिसर के आगामी समाचार पत्र में हिंदी में सारांश जोड़ना एवं परिसर के सभी प्रदर्शन पट्ट को द्विभाषीय करना सम्मिलित है।



हिंदी दिवस पर पुरस्कार वितरण समारोह

हिंदी कार्यशाला

परिसर पर "राष्ट्रीय एकता में हिंदी पत्रकारिता की भूमिका" विषय पर कार्यशाला का आयोजन किया गया। कार्यशाला के मुख्य वक्ता प्रसिद्ध साहित्यकार श्री मधु आचार्य थे। श्री आचार्य ने अपने उद्बोधन में बताया कि देश का सबसे बड़ा अखबार हिंदी भाषा का है एवं विश्व के तीन बड़े अखबारों में से एक हिंदी भाषा का अखबार है। इस अवसर पर मुख्य अतिथि प्रोफेसर पी. एल. सरोज, निदेशक, केन्द्रीय शुष्क बागवानी संस्थान ने कहा कि "हिंदी में जो हमने सपने में देखा वह तुमने ख्वाबों में देखा, चीज तो एक ही थी", इसलिए भाषा को लेकर विवाद नहीं होना चाहिए एवं दिखावे के लिए अंग्रजी भाषा नहीं बोलना चाहिये। परिसर के प्रभारी अधिकारी डॉ. एस. सी. मेहता ने अपने उद्बोधन में कहा कि "मानवधर्म" ही सबसे बड़ा धर्म है एवं "मानवता ही सबसे बड़ी भाषा है"। अतिथियों ने अश्व अनुसन्धान केंद्र पर चल रहे अनुसन्धान एवं हाल ही में प्रारंभ किये गए अश्व पर्यटन की सराहना की। इस कार्यशाला में उष्ट्र अनुसन्धान अनुसन्धान केंद्र, केन्द्रीय शुष्क बागवानी संस्थान एवं परिसर के अधिकारियों एवं कर्मचारियों ने भाग लिया।

Initiatives

Equine Ecotourism facility created

The Equine Production Campus, Bikaner is committed for *in situ* conservation and propagation of the elite equines in the country. Due rapid mechanization, population of horses in the country is dwindling. It has been felt that there is disconnect between man and its' age old companion, the horse. In order to strengthen this relationship, the campus has taken a novel initiative to conserve and



Inaugural ceremony of Equine Ecotourism

propagate equines by popularising them through Equine Ecotourism under the leadership of Dr. S. C. Mehta, Officer In-charge of the Campus. This programme was opened to public on 29th October 2017 at the Campus. The launching ceremony as graced by Hon'ble Parliamentary Secretary, Govt. of Rajasthan Dr. Vishwanath, Director, ICAR-NRCE, Hisar Dr. B N Tripathi, Lt. Col. Ashok Singh Rathore, NCC Raj R & V, Bikaner, Dr. N. D. Yadav, Head, ICAR-CAZRI, RRS, Bikaner and Dr. S. C. Mehta, Officer In-charge, ICAR-NRCE, EPC, Bikaner. The Scientists of the ICAR institutes, local people, students and

business-men attached to tourism were present in good number to witness the grand opening. Tent pegging, show jumping and horse racing were organised on the eve in association with NCC Raj R & V, Bikaner.

Through the equine ecotourism, now the tourists will be allowed to visit the campus and enjoy the Tonga Riding, Horse Riding and Buggy Riding at the campus on payment of nominal fees. The scholars and farmers will continue to have free access to the premises.



Souvenir shop complex at EPC

Creation of Souvenir Shop Complex

A Souvenir Shop Complex has been created at the Campus to facilitate the visitors to have the fragrance of the art and culture of the state.

Creation of Equine Information Centre

Equine Information Centre has been created to display the technical details of equine husbandry at one place for the education of visitors, scholars and farmers.

Creation of Equine Museum

Equine Museum for showcasing various items used in caring and rearing of horses and to publicise various activities of the campus was developed.



Inauguration of Equine museum

Website of the Campus

In order to share the research and developmental activities of the campus with the stakeholders, a business website with the URL <http://national-research-center-on-equines-bikaner.business.site/> has been created and is being updated regularly.

Campus in Social Media

Keeping pace with the time and to connect with the youth of the country a Facebook page has been created with the URL <https://www.facebook.com/Horse.Ecotourism/>. Regular sharing of programmes and news pertaining to the campus is being shared through this page. The information about the Campus has also been updated on Wikipedia.

Campus in Print and Electronic Media

The campus with its limited manpower is doing best efforts to conserve and propagate equines in the country. In order to apprise the citizens with the



work and achievements of the campus, time to time the information has been shared with the print and electronic media to reach to the masses.

Release of Equine Ecotourism Pamphlet

A pamphlet on Equine Ecotourism for canvassing the tourist-attractions at the campus was released by the Hon'ble guests during the opening ceremony of equine Ecotourism.



Release of pamphlet on Equine ecotourism

Herbal Park Initiation

Dr M C Sharma, Chairman, Veterinary Hospital Planning & Surgical Instruments Sectional Committee, Bureau of Indian Standards, visited the



Inauguration of Herbal park

campus on Dec. 14, 2017. The Herbal Park of the campus was inaugurated by him by planting *Tulsi* (*Ocimum tenuiflorum*), the most useful medicinal plant as per Ayurveda. This herbal Park is being developed in one acre of land and so far about twenty different plants have been planted in it. An interactive meet was organised on "Importance of medicinal plants and doubling the farmers' income by equine ecotourism". Dr. Sharma gave an excellent deliberation on the use of various herbs and their extracts in the treatment of ailments of man and animal.

Extension Activities

Health Camps and Field Visits

Scientists of the campus regularly makes field trips to acquaint with the problems encountered during the equine rearing by the equine farmers at field level and to provide suitable solutions there itself and update them with the health care, knowhows of the emerging diseases in equines, new feeding and breeding technologies related to horses. The scientists of the campus visited Jodhpur, Jalore, Udaipur, Ganganagar, Kota, Hanumangarh, Jaipur, Dundlod and surrounding equine populated areas for this purpose.

Awards and Honors

Dr. R. A. Legha was bestowed with Outstanding Achievement award-2017 by the All India Agricultural Students Association for his outstanding contribution and recognition in the field of Livestock Production and Management on 07.10.2017 at RAJUVAS, Bikaner, Rajasthan.



Dr. R A Legha receiving the award

Services Rendered by the Campus

As a part of rendering services to the farmers, scientists of the campus adopted 4 villages surrounding the campus under MGMT (MeraGaoMeraGauav) programme and compulsorily visited once in a month and with latest technical knowledge of agriculture and animal husbandry practices through *kisangosthis* and by distributing the relevant literature to the farmers. The Centre offers free AI and PD services to the farmers and also addresses various equine related issues *via* toll free number. During the current year a total of 49 AI field mares were done and 25 mares were diagnosed for pregnancy checkup free of cost. A total of 165 equine farmers visited this Centre, 25 Internee students have undergone training and 208 students visited the campus during the current year.

Visit of Dignitaries

Visit of Chairman ASRB

Dr. Gurbachan Singh, Chairman, ASRB, visited Equine production Campus, Bikaner on 21st Jan 2017. Welcoming Dr. Singh, Dr. B. N. Tripathi,

Director, ICAR-NRCE appraised about the various research activities being done for the conservation of the indigenous equine breeds by EPC, Bikaner. Dr. Singh encouraged the scientists to reap benefits of early promotions through direct selection. He congratulated the scientists for their efforts in conservation and propagation of indigenous equine breeds and encouraged them to carry out cutting edge research in equine production to make them global imprint.



Visit of Chairman, ASRB, New Delhi

Visit of Ex-DDG (AS) Dr. M. L. Madan

Dr. M. L. Madan, Ex. DDG (AS) visited campus Centre on Oct 27, 2017. He applauded the scientists for taking valid initiations in the direction of conservation and propagation of precious indigenous equine germplasm through artificial insemination and cryo-conservation of germplasm of elite stallions. He also suggested for developing technologies which are much of use at field level to the equine farmers.

Joinings and Transfers

Dr. S C Mehta, Principal Scientist, joined at ICAR-NRCE, EPC, Bikaner on July 4, 2017 and taken over the charge of Officer In-charge on September 2, 2017.


Dr Vijay Kumar, Scientist, has been transferred to ICAR-CSWRI, Avikanagar and was relieved on March 31, 2017.

Shri Kamal Singh, Senior Technical Officer, has been transferred to ICAR-NRCE, Hisar and was relieved on April 15, 2017.

The Officer In-charge's Desk

I am happy to be a part of this prestigious ICAR Institute working for the research and development of equines in the country. Getting the opportunity to implement the ideas, thoughts and vision for the betterment of the countrymen is a matter of privilege for which I sincerely express my gratitude to my superiors in the system. The production campus of the Institute has state-of-art research laboratories and is maintaining the elite germplasm of diverse equine species and breeds. Nevertheless, in order to strengthen the research, the scientists have been asked to submit the research proposals to National Livestock Mission and Department of Science research, the scientists have been asked to submit the research proposals to National Livestock Mission and Department of Science & Technology or Department of Biotechnology for funding.

A disconnect between general public and the equines was perceived by the analyses of equine census figures of last few decades of the country. In order to overcome this, the Equine Ecotourism has been initiated at the campus with creation of several new attractions like the Souvenir Shop Complex, Herbal Park, Desert Photoshoot Point, Information Centre and the Museum. The impact of this initiative has so far been excellent. In a very brief period of two months, about 3000 visitors, 500 school students and 150 farmers visited the campus. They could see the elite equine genetic resources of the country and could know about them through the technical information displayed at the Information Centre of the campus. Apart from this, several of them did horse riding and Tonga riding for their amusement but supporting our efforts of sustaining the species in-situ. Through equine ecotourism, the campus could earn more than 2.00 lakh Rupees in just two months. I congratulate the scientists and the staff of the Equine Production Campus for bringing out the third successive Newsletter of the campus.


S C Mehta



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