NEWSLETTER

ICAR RESEARCH COMPLEX FOR GOA

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From the Director's Desk....

Rabbit rearing as a hobby

Rabbit, guinea-pig, poultry and Japanese quail are some of the non-conventional sources of meat being popularized in recent times. Goa offers a good scope for meat producing animals because of the food habits of the local population as well as the demand due to heavy international and domestic tourist inflow. Compared to other types of livestock, rabbits have a rapid growth rate and may reach marketable weight within 120 days from birth. Since rabbit rearing as a source of meat is being popularized in other parts of the country, a project was initiated at the Research Complex to introduce some of the exotic meat rabbit breeds with a view to study their performance under the local climatic condition and to evolve suitable management practices. A rabbit unit was established with four exotic breeds viz., Soviet chinchilla, Grey giant, White giant and New Zealand white from CSWRI, Avikanagar, Rajasthan in 1986.

In the experimental unit of the Research Complex, it was observed that Soviet chinchilla had higher growth rate among all the four exotic breeds studied under the local climatic condition. To identify the effect of cross breeding on the production performance, local non descriptive rabbit was crossed with the exotic Soviet chinchilla breed. It was noticed that even under the local climatic condition the exotic breed, Soviet chinchilla performed better as compared to the local and their crosses.

Mortality among young rabbits was high due to lack of milk secretion (agalactia) by the doe. With a view to identify suitable management practices to reduce the incidence of agalactia, a concentrate feed with higher CP and digestible energy was formulated which reduced the incidence of agalactia from 53.33 to 28.57 per cent.

Pelleted feed is essential for rabbits to avoid wastage and to activatee proper exercise to their teeth. The existing pelleting machines available in the market are expensive and not suitable for small scale production. Hence, a pelleting machine operated with a 5 HP motor was fabricated right at the Institute which is ideal for small scale production in a rabbit unit.

To identify the feed requirement of young rabbit voluntary intake was recorded and this helped in estimating the feed requirement for a unit to raise the rabbits up to the age of slaughter. The voluntary feed intake indicated that the roughage concentrate ratio was higher at 30 days than at 120 days indicating that as the age advanced roughage intake increased.

Low cost feed was formulated incorporating various by-products and waste in rabbit diet to evolve economic diet. Prawn head waste, mushroom straw, cashew apple waste etc. are some of the by-products used. Locally available agro-waste was biodegraded and enriched with filamentous fungi for enhancing the utility value of the waste for animal feeding.

Effect of various factors viz., sex, breed, age and weight on blood biochemistry was studied and it was observed that age has significant effect on phosphorus level. Oral calcium supplementation a week before and after kindling improved kit survival rate as well as serum calcium levels of pregnant and lactating does.

Litter size in rabbits was recorded by mating them on the day of kindling. In rabbit does mated on the day of kindling or within 24 hours after kindling the average litter size was increased and there was no reduction in survival of kits. By increasing the remating interval i.e. 15 to 45 days there was no increase in average litter size. From single rabbit doe, twenty six young ones were obtained in a short period of eight months by mating the doe on the day of kindling.

An improvised artificial vagina (A.V.) for rabbit semen collection was developed employing cheap and easily available materials. Breeding of rabbits artificially by collecting semen through A.V. yielded encouraging results and the technique has been standardized.

Studies were carried out on semen quality of rabbits. Motility of sperm was better in New Zealand White than that of Soviet Chinchilla when diluted with sodium citrate-egg yolk diluter. Total sperm count was $35x\ 10^6$ in New Zealand White and $32x\ 10^6$ in Soviet Chinchilla. Dead sperm count was 15 to 20 percent in these breeds.

An attempt was made to improve kit survival by

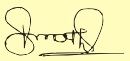
feeding "jaggery' to the lactating does from the day of kindling for a period of ten days. Jaggery is a rich source of energy as well as important minerals like calcium and phosphorous which are essential for lactation. Control group showed average litter size of 4.33 at birth and 2.00 at weaning i.e. survival of 46%, where as group fed with jaggery showed 4.88 average litter size at birth and 4.02 litter size at weaning, indicating 82.4% kit survival.

Results of the studies showed that there was no adverse effect on the fecundity and fertility of rabbits if bred continuously. Adopting simple techniques of ovulation increased the litter size in rabbits.

Common diseases like mange and pasturellosis were recorded. Effective control and treatment measures were identified. The occurrence of viral haemorrhagic disease was reported for the first time in India. Ivermectin was comparatively suitable than benzyl benzoate treatment for controlling ear mites in rabbits.

Of late, rabbit rearing is gaining momentum as a commercial enterprise in and around Goa. A number of training courses on rabbit rearing as an enterprise have been conducted on consultancy basis at this institute. Entrepreneurs are coming forward to start new rabbitries on commercial scale. A Rabbit Farmers' and Breeders' Society has also been established for creating an organized infrastructure for marketing of rabbits.

Rabbit production is gaining importance as a subsidiary occupation for the farmers and rural unemployed youths. In the recent years more than 200 farmers have undergone training and 2000 animals were distributed for breeding to the interested farmers. The package of practices identified by research as suitable for local conditions are being adopted by the farmers. Rabbit meat is available in the locality. Rabbit rearing besides providing gainful employment to farm youths can be promoted as a hobby for the sheer love of care and amusement.



V.S. Korikanthimath

RESEARCH HIGHLIGHTS

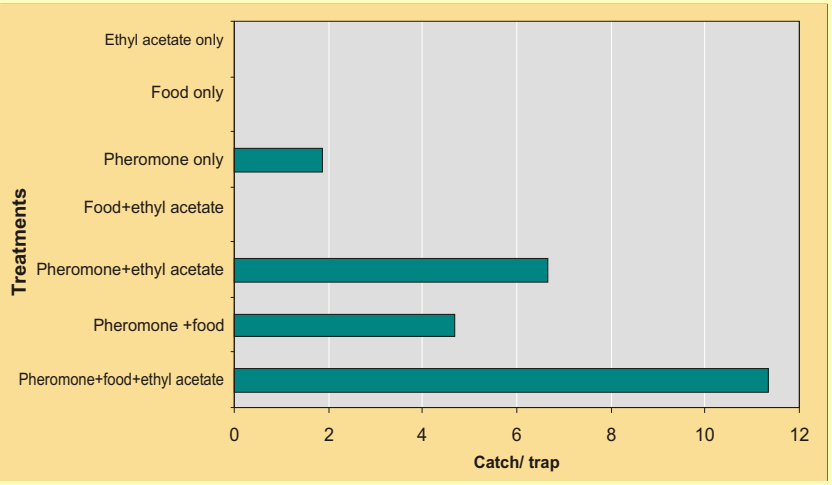
Field evaluation antagonistic bacteria on brinjal wilt

Nursery and main field were treated with talc based formulation of antagonistic bacteria. Twenty one isolates characterized bio-chemically as *Pseudomonas* and *Bacillus* were evaluated for the efficiency in controlling bacterial wilt of brinjal. Plants treated with RP7 were free from disease. Isolates namely ERG1, EB69, RCH6 and RBG4 reduced the incidence of wilt significantly and the highest yield was recorded in RP6 (34.38t/ha.). ERG1, EB69, RBG4, RCH6, RP7, RSH9 and ET17 performed well when overall performance were considered.

Mechanism of antagonism of these isolates was studied and from the results it was evident that the effective antagonistic bacteria possessed more than one mechanism of pathogen inhibition. Most of the isolates produced IAA and solubilized phosphate resulting improved plant growth.

Ethyl acetate enhances the efficiency of food baited pheromone traps of red palm weevil, *Rhynchophorus ferrugineus* in coconut

Red palm weevil, *Rhynchophorus ferrugineus* causes heavy losses in coconut plantations. Trapping adult weevils with food baited pheromone traps has been widely used to mange this pest. Field trials conducted at the Institute farm revealed that Ethyl acetate, when dispensed with the help of plywood blocks (approximately 5x 5x 1.2cm) that were soaked overnight in 2ml ethyl acetate and were also recharged in the field every alternate day with 1ml ethyl acetate, increased captures of *R. ferrugineus* in food baited pheromone traps by 2.33 times as compared to traps loaded only with pheromone + food bait.



Influence of ethyl acetate on *R.ferrugineus* captures in food baited pheromone traps

MAJOR EVENTS

Inauguration of Farm Office cum Field Laboratory

Shri Shripad Naik, Honourable Member of Parliament, North Goa, Government of India visited the Institute on 9th January 2007 and took a brief account of the research activities in the Institute. Shri Naik also inaugurated the farm office cum field laboratory on the occasion.

Inauguration of Store cum Field Laboratory

Shri Eduardo Faleiro, Commissioner, NRI Affairs, Government of Goa visited the Institute on 10th January 2007. He evinced keen interest in the latest development of the campus and research activities. Shri Faleiro inaugurated the store cum field laboratory on the occasion.

Inauguration of Glass House

Shri Nitin Kunkolienker, President, Goa Chamber of Commerce and Industries, Panaji visited the Institute on 10th January 2007 and was briefed about the research activities of the Institute. Shri Kunkolienkar inaugurated glass house (Plant Pathology) on the occasion.

Training on value added fish products held

A sensitization training programme on value added fish products was organised at the Institute from 21-23 February, 2007. Subject Matter Specialists including Dr. S. Basu from Post Harvest Division of CIFE, Mumbai delivered lectures and conducted practicals on the subject. About 40 trainees from different self help groups of Goa participated in the programme.

Inauguration of New Facilities

A field laboratory for horticulture and a high tech glass house was inaugurated by the Dr. J.S. Samra, DDG, NRM ICAR, New Delhi on 24 February, 2007. This glass house is equipped with foggers, fan and pad system for cooling, air conditioners, timers and lighting system so that research on propagation / multiplication aspects can be taken up. He also inaugurated newly constructed Director's residence and staff canteen.

Inauguration of Poultry Hatchery and Slaughter House

Rev. Fr. Inacio Almeida, Pilar Society inaugurated poultry hatchery and slaughter house constructed at the Institute on 9 January, 2007. The facility houses egg hatching incubators of 500 and 3000 capacity. The facility is used to hatch eggs for providing day old chicks to farming community and for experimental purposes.

Workshop on production and marketing of Mankurad mangoes organised

A workshop on production and marketing of mankurad mangoes was organised at the Institute on 26th March, 2007 in collaboration with Goa State Horticultural Corporation Limited and Directorate of Agriculture, Government of Goa. Shri Girish Chodankar, Chairman, Goa State Horticultural Corporation Limited was the Chief Guest. Shri R.P. Pal, Secretary, Agriculture, Government of Goa was the Guest of Honour. Shri. P.P.Kumbhare, Director of Agriculture, Government of Goa presided over the function. Over 80 mango growers form different villages of Goa participated in the programme.

Workshop on Fisheries and Aquaculture Policy held

A Zonal Workshop on "Fisheries and Aquaculture Policy: Responsible Fisheries and Sustainable Aquaculture Perspectives for West Coasts of India" was organized by Central Institute of Fisheries Education, Mumbai, in collaboration with ICAR Research Complex for Goa and Department of Fisheries, Government of Goa during 21-23 June 2007 in which 150 participants from five West Coast States participated. Participants were from state fisheries departments, MPEDA, NIO, College of Fisheries, FSI, CIFT, CMFRI, CIBA, NABARD, funding agencies, fish processing industry, fishermen, boat owners, progressive fish farmers, etc.

PARTICIPATION IN SEMINAR / SYMPOSIA / WORKSHOPS

V S Korikanthimath
National seminar on new trends in biotechnology held at NIO, Donapaula on 11 January, 2007.
National seminar on plant and fungal biodiversity and bioprospecting held at Goa University, Bambolim during 18-19 January, 2007.
State level credit seminar held at Hotel Mandovi, Panaji on 7 February, 2007.

S Subramanian
Review meeting for Scientists working in other Agricultural Institutes of ICAR held at CIFRI, Barrackpore on 14 April, 2007.
Peer review meeting of the PFZ validation project held at INCOIS, Hyderabad on 12 April, 2007.

M S Ladaniya
2nd National Horticulture Congress held at ICAR Research Complex for NEH Region, Barapani, Meghalaya during 18-21 April, 2007.

J R Faleiro
National conference on organic waste utilization and eco friendly technologies for crop protection held at Hyderabad during 15-17 March, 2007.

H M Wasnik
National conference on eco - restoration of derelict mined lands held at National Institute of Oceanography, Dona Paula, Goa during 1-2 March, 2007.

S P Singh
94th Indian Science Congress held at Annamalia University, Chidambaram, TN during 3-8 January 2007.
Seminar on Water Technology held at Hotel Marriot, Panaji, Goa on 28 February 2007.
2nd National Horticulture Congress held at ICAR Research Complex for NEH Region, Barapani, Meghalaya during 18-21 April, 2007.

S B Barbuddhe
XVI International Symposium on Problems of Listeriosis (ISOPOL XVI), held at Savannah, Georgia, USA, during 20-23 March, 2007.

B K Swain
National Symposium on "Poultry Production for Rural Employment and Nutritional Security" held at GADVASU, Ludhiana, Punjab during 25-27th April, 2007.

K N Mohanta
International Symposium on New frontier in Marine National Product Research held at NIO, Dona Paula, Goa on 23 February, 2007.
Seminar on current trends in drinking water and waste water analysis held at Hotel Fidalgo, Panaji-Goa on 3 March, 2007.
Workshop on intellectual property rights for public R and D institutions held NIO, Dona Paula, Goa during 12-13 March, 2007.
Workshop on Indian Estuaries held at NIO, Goa on 25 June, 2007.

S Manivannan
VIII Agricultural Science Congress held at Tamil Nadu Agricultural University, Coimbatore during 15-17 February, 2007.

M Thangam
2nd National Horticulture Congress held at ICAR Research Complex for NEH Region, Barapani, Meghalaya during 18-21 April, 2007.

PERSONALIA

Foreign Deputation

Dr. J. R. Faleiro, Principal Scientist (Entomology) was deputed by ICAR/DARE on invitation of King Faisal University, Hofuf, Saudi Arabia to deliver key note talk entitled "Management of red palm weevil *Rhynchophorus ferrugineus* Olivier: Issues and strategies" at the Fourth Symposium on date palm in Saudi Arabia, from 5-8th May, 2007 and also chaired a session on the pest control session (red palm weevil).

Appointments

Dr. Ram Ratan Verma was appointed as Scientist (Soil Science - Physics / Soil & Water Conservation) w.e.f. -8-01-2007

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