GOVERNMENT OF INDIA
AGRICULTURE
LOK SABHA

STARRED QUESTION NO:267
ANSWERED ON:12.12.2005
RESEARCH WORK IN AGRICULTURE
Singh Deo Smt. Sangeeta Kumari

Will the Minister of AGRICULTURE be pleased to state:

(a) the amount spent by the Government on research work in agriculture sector during the last three years;

(b) the details of the research work undertaken and the achievements made in this regard; and

(c) the steps being taken to make further improvement in this regard?

Answer

THE MINISTER OF AGRICULTURE (SHRI SHARAD PAWAR)

(a) to (c): A Statement is laid on the Table of the House.

STATEMENT IN RESPECT OF PARTS (a) TO (c) OF LOK SABHA STARRED QUESTION NO.267 TO BE ANSWERED ON 12TH DECEMBER, 2005 REGARDING "RESEARCH WORK IN AGRICULTURE".

(a) The Department has incurred Plan Expenditure of Rs. 680.56 crore during 2002-03, Rs. 701.80 crore during 2003-04 and Rs. 859.00 crore during 2004-05 on Agricultural Research.

(b) The major focus of research has been on productivity enhancement, resource conservation technologies and efficient management of energy, water, nutrients, insect pests and diseases. The achievements made in the recent past are given in Annexure - I.

(c) The Department is making efforts to promote cutting edge research in frontier areas like bio-technology; enhance input use efficiency; increase farm mechanisation; reduce post harvest losses; produce quality seeds; standardize production technologies for organic farming; manage abiotic and biotic stresses; evolve improved strains of crops, animals and fish; and to produce first rate human resource.

Annexure - I

SALIENT ACHIEVEMENTS IN THE RECENT PAST

Varietal Improvement and Plant Protection Technologies

Ã˜ Developed and released 132 new varieties and hybrids in crops with improved quality, higher yield and resistance to disease and drought, in the last one and a half year.

Ã˜ Developed and validated a Forecasting model for Central zone of the country in order to manage a cosmopolitan pest like American bollworm (Helicoverpa), which is playing havoc with major crops.

Ã˜ Developed effective bio-control agent for the management of rhinoceros beetle in coconut and oil plantations.

Resource Conservation Technologies

Ã˜ Resource Conservation Technologies (RCTs) in form of Zero Till Technology now cover about 2 million hectares resulting in a resource saving of about Rs. 600 crores annually to the farmers. The technology when disseminated to nearly 10 mha in Indo-Gangetic Plains can result in a net saving of Rs 2500 crore p.a.

Ã˜ Prepared District level soil resource maps for 24 districts of Madhya Pradesh and Andhra Pradesh to facilitate rational land use planning.

Ã˜ Developed Sloping Agricultural Land Technology (SALT) for restoration of degraded lands of Jhum fallow/degraded lands in eastern Himalayas.

Ã˜ Developed an Intensive Integrated Farming System (IIFS) in NEH region to achieve improved input use efficiency for higher returns.

Ã˜ Developed technologies for recycling/reuse of vast quantities of agro and industrial residues for making pulp, paper, boards, briquette etc. from jute.

Ã˜ Developed an Integrated National Agricultural Resource Information System (INARIS) involving state of the art Data Warehousing and GIS techniques into a national database.

Farm Mechanization

Ã˜ Designed proto-types for promoting farm mechanization.

Ã˜ Developed a low cost, reliable and an efficient low energy precision application (LEPA) irrigation system working at low pressure for irrigating close-growing crops.

Ã˜ In biasi system of cultivation, tifal plough and wedge plough resulted in higher yields (additional yield of 48 per cent) than the local plough.

Ã˜ Developed a low-cost push-type safflower harvester and a standard recipe for dyeing cotton with pigment from safflower petals.

Ã˜ Designed a machine for making integrated feed blocks out of agricultural residues having one tonne/hr capacity.

Ã˜ Developed a low cost feed pelleting machine costing Rs. 12000/- making pellet at Rs. 30/- per quintal of feed.

Animal Sciences

Ã˜ Developed technology for preparing different milk products like cheese, paneer, khoya and ice cream with goat milk in a profitable way.

Ã˜ Standardized for the first time in the world, a competitive −inhibition ELISA (Enzyme Linked Immunosorbant Assay).

Ã˜ Developed antibody qualification kits for infectious bursal disease, infectious bronchitis and egg drop syndrome viruses.

Ã˜ Sequenced complete genome for 2 Asia 1 field isolates for Foot and Mouth Disease.

Ã˜ Successfully tested a potential effective alternative to vaccination for control of animal virus.

Ã˜ Developed a PCR assay for effective diagnosis of Johne's disease in small ruminants.

Ã˜ Characterized Bovine viral diarrhea (BVD), and developed a monoclonal antibody based ELISA for specific detection of the disease.

Ã˜ Developed rapid Polymerase Chain Reaction based diagnostic for buffalo pox virus, for different serovers of Salmonella in equines and of Johne's disease in Caprine.

Ã˜ Four goat kids were born through in vitro fertilization (IVF) process, one female calf was born through Embryo transfer technology in Yak.

Ã˜ Method for making cottage cheese from Yak milk standardized. Mozzarella type cheese developed using buffalo skim milk and vegetable fats employing direct acid method.

Ã˜ Technology for area specific mineral mixture to increase productivity of bovines in Tarai and hill region of Uttaranchal and Uttar Pradesh commercialized.

Fisheries

Ã˜ Developed technology to achieve production of 675 kg/ha of prawn and carp within 130 days in Pen culture. The technology offers opportunities for additional employment, income generation and also improving the nutritional security.

Ã˜ Produced in vitro marine pearls successfully in Indian Pearl Oyster Pinctada fucata and in the abalone Haliotis varia through tissue culture.

Ã˜ Bred two species of sand lobster (Thenus orientalis, Scyllarus rugosus) successfully in captivity and larval cycle completed in three to four weeks time.

Ã˜ Domesticated and bred in captivity Kuruma shrimp Marsupenaeus japonicus.

Ã˜ Perfected a technology of marine pearl production with respect to production of colored marine pearls, development of protocol pearl nuclear production from indigenous shells, mapping and quantification of black-lip pearl oyster, and setting up of small-scale pearl oyster hatchery.

Ã˜ Bred in captivity Giant Freshwater Prawn, Macrobrachium rosenbergii using inland saline water and post larvae raised with

suitable ionic amendments without the use of sea water.

Ã˜ Carried out National Marine Fisheries Census − 2005 in all the maritime states excepting Tamil Nadu and Pondicherry, covering 5.9 lakh fishermen households, 2,445 fishing villages, spread over a distance of 6,200 km coastal length of India.

Ã˜ Achieved captive spawning of three varieties of damsel fishes namely Dascyllus trimacultus, Pomacentrus coelestis and Dascyllus aruanus and honey comb grouper Epinephelus merra

Ã˜ Developed RT-PCR (Nested diagnostic kit) for the early diagnosis of white muscle disease in the post- larvae of scampi, Macrobrachium rosenbergii.

Ã˜ Demonstrated technology of selective breeding for growth enhancement to the tune of 17% per generation in Rohu Labeo rohita.

Frontline Transfer of Technologies

Ã˜ Sanctioned 107 new Krishi Vigyan Kendras (KVKs) during the last one and a half year against 386 KVKs sanctioned in past 29 years. Thus total number of KVKs stands at 493 in fulfillment of the target of establishing KVKs in each of 588 rural districts including 10 newly created rural districts. Made provision of soil and water testing facilities in 326 and e-linkage in 200 KVKs. Organized for the first time a national conference of the Krishi Vigyan Kendras (KVKs) to improve their relevance and effectiveness in the process of technology assessment, refinement and dissemination.

Ã˜ Provided complete technological backstopping to the national efforts in rehabilitation of areas devastated by Tsunami.