

A Quarterly Newsletter of Nepal Agricultural Research Council (NARC)

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MOU BETWEEN NARC AND JICA ON FISHERY DEVELOPMENT

Nepal Agricultural Research Council (NARC) and Japan International Cooperation Agency (JICA) Nepal Office signed an agreement on 'Soft Type Follow-up Project on Natural Water Fisheries Development', a four-month project beginning November 27, 2006.

The objective of the project is to enhance the livelihood of the hill community through scaling-up of rainbow trout (*Oncorhynchus mykiss*) farming in the central Nepal and to increase trout production through participating the hill community. According to the agreement, NARC will implement the project in coordination with Directorate of Fisheries Development/

Department of Agriculture, District Agriculture Offices of Lalitpur, Nuwakot and Rasuwa. The JICA will provide financial assistance for the project. As per the agreement the project has targeted to develop at least 3 private trout breeders to distribute about 2,00,000 fry and establish at least two mechanisms for sustainable trout seed distribution and marketing. A modality of trout production so far developed will also be demonstrated and publicized. The agreement was signed on 27 November 2006 by Dr. Nanda Prasad Shrestha, Executive Director of NARC and Dr. Shinji Yoshiura, Resident Representative, JICA Nepal Office.



NATIONAL WORKSHOP ON RAINBOW TROUT

First National Workshop on Rainbow Trout Farming Scaling-up Strategies in Nepal was held at Godawari, Kathmandu on October 27.

The workshop was participated by farmers, entrepreneurs, I/NGOs, financial organization, economist, market expert, policy maker, planner, social scientist, extensionist, researchers and journalists. The objective of the workshop was to link

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AGRO-EXPO-2006 HELD

A five-day Agribusiness Fair "AGROEXPO 2006" was organized by Federation of Nepalese Chambers of Commerce and Industries (FNCCI)/Agro Enterprise Center (AEC) in BICC, Kathmandu from 12-16 October 2006. Different agricultural products and technologies were exhibited in the Fair. The NARC actively participated in the exhibition. The Exhibition was inaugurated by Deputy Prime Minister Khadga Prasad Oli.

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Hon'ble Deputy Prime Minister Khadga Prasad Oli observing the NARC's stall in the 3rd Agro-Expo 2006

MONITORING OF DIRECT SEEDED RICE IN FARMERS FIELD

With an objective of making awareness on the status of direct seeded rice in the farmers' fields, a special monitoring was held at different places in Bara and Parsa districts.

The program was organized by Agricultural Implement Research Centre, Ranighat under Regional Agricultural Research Station, Parwanipur of Nepal Agricultural Research Council (NARC) on 18-20 October 2006. The monitoring team led by Director of Crop and Horticulture Research, Mr. P. L. Karna included 32 different scientists and experts from NARC and Department of Agriculture. The team observed the direct seeded rice in the farmer's fields sown with Zero-till-seed drill, Chinese power-tiller seed drill and also the normal transplanted rice in the locality at Fattepur and Kalaiya of Bara district and Belwa of Parsa. The area coverage of direct seeded rice under the supervision of ARS, Ranighat is 27.00 hectare. Most of the farmers have been using the direct seeded rice technology in Sona Mansuli variety. No any variety has yet been released specially for this technology.

The initiation of adoption process of the direct seeded rice technology by the farmers is showing positive impacts and big farmers are interested in such semi-mechanization of rice cultivation. Interaction with farmers and experts on different issues of the technology was held at each of the sites. With the feedbacks from the farmers and the observations of the experts, some suggestions have been made for the NARC and DoA to initiate in addressing the problems.

THE WORLD FOOD DAY 2006 OBSERVED

The 26th World Food Day 2006 was observed on 16 October 2006 in Kathmandu with an interaction about the food situation in Nepal.

The World Food Day is observed with different themes every year on 16th October, the day on which The Food and Agriculture Organization of the United Nations was founded in 1945. The World Food Day and TeleFood theme for 2006 was "**Investing in agriculture for food security**". The theme for the World Food Day 2007 has been set as "The Right for Food" whereas in 2005 the theme was "Agriculture and Intercultural Dialogue".

The Food and Agriculture Organization (FAO) of the United Nations is a global institution that leads international efforts against hunger all over the world. It helps developing countries and countries in transition to modernize and improve agriculture, forestry and fisheries practices and ensure good nutrition for all. It is also a source of knowledge and information.

HMRP REVIEW AND PLANNING MEETING

Annual Review and Planning Meeting of the Hill Maize Research Project (HMRP) was conducted on 12-13 December 2006 at Khumaltar, Lalitpur.

The meeting had the objective to review maize research and dissemination results of 2006 and plan for 2007. In the meeting, maize and maize-based research and dissemination efforts were reviewed and the stakeholders were oriented. Reports of different on-station and outreach research and development activities on different aspects of maize conducted under the HMRP at different stations were presented and programs for the next year were proposed. The aspects of the program activities include maize varietal investigation; agronomy, soil fertility, resource conservation and post-harvest; seed production, crop protection (disease, insects, weed), and seed production.

The Hill Maize Research Project (HMRP) was initiated in 1999 with the goal of improving maize production and productivity in the hills of Nepal. The first Phase of the Project was accomplished in 2002 with some achievement in germplasm development, local training in breeding, soil fertility, entomology, GIS and social sciences and also in community-based seed production.

The Second Phase of HMRP (2003-2007) is underway that has the objective to develop a sustained capacity within the National Maize Research Program of NARC and in its research partners to generate maize production technologies; to develop technologies with and for poor maize farmers; to facilitate the dissemination of appropriate maize technologies through extension and input delivery channels.

BOOK AND TECHNOLOGY FAIR ORGANIZED ON INTERNATIONAL MOUNTAIN DAY

Book and Technology Fair with the theme "Sharing Mountain Knowledge" was held on 11-12 December 2006. In the Fair, different publications, agro-products and technologies were exhibited. The Fair was organized by International Centre for Integrated Mountain Development (ICIMOD) and The World Conservation Union Nepal (IUCN).

Several government and non-government organizations participated the program. NARC participated in the Fair to exhibit the technologies developed in different fields of agriculture. The Fair was held on the occasion of The Fourth International Mountain Day 2006.

The 11th December is observed every year as The International Mountain Day since 2003. United Nations General Assembly (UNGA) in 1998 had declared 2002 as the International Year of Mountain and to celebrate December 11 every year as International Mountain Day all over the world.

SCAVENGING TURKEY FARMING AT CENTRAL TERAI

- Sagar Paudel

AGRICULTURAL RESEARCH STATIONS AND OUTREACH SITES OF NARC OBSERVED

A team of Communication, Publication and Documentation Division led by Bhola Man Singh Basnet, Chief of the Division had observation visits to different research stations and outreach sites in the Eastern Development Region of Nepal during 3-7 November 2006.



The team observed the research activities at Agriculture Research Station, Pakhribas; National Citrus Research Program (NCRP), Paripatle; Jute Research Program, Ithari and different outreach sites in Saptari, Siraha and Sunsari districts under the command of RARS, Tarahara.

EASTERN HILL REVIEW WORKSHOP HELD AT ARS PAKHRIBAS

In order to review the research works conducted in the eastern hills of Nepal, a workshop was organized at Agriculture Research Station, Pakhribas during 3-4, November, 2006. In the workshop, report of the researches during last three years on crop, horticulture, soil, science, plant pathology, entomology, livestock, agro-forestry etc. were presented and discussed. The workshop was participated by stakeholders of the region.

The turkey (*Meleagris gallopavo*) is a varying plumage colored nice bird that produces very good quality lean meat and brings price much more than chicken meat in international market. This bird was introduced in Nepal in 2001. Farmers who reared turkey birds getting from Research Station (RARS) Parwanipur under Nepal Agricultural Research Council (NARC), reported that the meat price of turkey is Rs.150 per kg live weight and Rs 200 Per kg of flesh is higher in comparison to goat meat. The carcass yield is more from turkey (81%) as compared to chicken (68%).

Country like Nepal with low per capita consumption of animal protein could increase animal protein level by introducing turkey in one hand and on other hand the tourism industry may get much benefit. Like chicken production enterprises in the rural areas, the turkey production can also be taken as an important agri-business and to help reduce poverty level of the rural people.

Initially, fifty turkey birds were distributed to the farmers in Fattapur, Bindavasini and Saruhatta Village Development Committee of Bara, Parsa and Rautahat District in central terai of Nepal to rear in the local condition. The results have been found quite encouraging and the demand of the birds among the farmers is growing.

Because of the meat price that is about Rs 250 per kg of live weight and the scope of market, the farmers are highly encouraged to rear turkey.

Feeding studies conducted at RARS, Parwanipur and in farmers' field reported that turkey are found good feeder of chaffing oat and berseem and have given better results than other feeds.

It is reported that turkeys are good foragers and also having well adaptability under semi-intensive and scavenging rearing system. Substantial work has been done in utilization of green leaf meal on poultry ration. Green leaf meal from legumes contains protein as well as pigment and can be used for non-ruminants rations. Profit from per bird is Rs 750 in farmer's field at scavenging condition.

In this context, strategy should be given equally in alternatives commodity having low input and cost effective nature so as to fulfill not only the protein deficit but also help to raise the income of resource poor farmers.

Turkey farming has been found as a suitable business for the poor farmers to get higher income because of the following reasons.

- Management for turkey farming is similar to chicken and found hardy than chicken.
- Performing well under scavenging and local feeding condition.
- Showing good foraging with efficient kitchen waste utilizing ability.
- Male and female gained average 12 kg and 7.47 kg body weight at 10.5 month of age under scavenging condition.
- Dressing percentage was found to be increased with age i.e. 73.69% at 16 week and 77.87% at 24 week of age. Meat bone ratio is high with increased age.
- Turkey meat is preferred by consumers for its less fat content, low cholesterol, high percent fleshy parts and good taste.
- Meat price higher than that of chicken.
- Female started to lay at 46.4 weeks of age and eggs are about 1.5 times larger than chicken eggs which takes about 28 days to hatch. Total number of eggs laid by female poultry is 60-90 in farmers' field.



GRAIN LEGUME WORKSHOP

With a view to help increase the production and productivity of Lentil, Chickpea and Pigeonpea in Mid and Farwestern Terai, a workshop was organised at NARC on October 26.

The workshop was participated by different stakeholders from government, nongovernmental, private organization and individuals. Chief Guest and Secretary of MoAC Mr Ganesh Kumar KC focused the issue of disease and stress management on legumes production in Nepal. Dr Nanda Prasad Shrestha, Executive Director of NARC viewed that NARC is conducting research to mitigate the problems of legume production in Nepal basically for Varietal improvement, disease and insect problem.

Research paper entitled "Promotion of Wilt Management Technology in Lentil, Chickpea and Pigeonpea in Mid and Farwestern Terai" was presented by Mr Ram Krishna Neupane, Senior Scientist, NARC. Mr Neupane focused that wilt resistant varieties and Integrated Wilt Management (IWM) have shown better yield and benefited farmers to reduce cost and increase income at local level. Therefore, agricultural extension system should provide resistant variety on time to the farmers.

Mr Bhola Man Singh Basnet, Chief, CPDD advocated that the proven technology should be disseminated through agricultural extension system as well as from electronic and print media plus exhibition so that rural farmer can implement the recommended technology for better agricultural growth. Further, the workshop has recommended:

- IWM technology of Lentil, Chickpea and Pigeonpea is important for increasing the yield of these crops. It should be promoted to other districts through DADOs and other R&D organizations
- NARC should provide source seeds of the resistant varieties to DADOs
- NARC should provide inbuilt training program to update knowledge and skills of extension workers
- Technology should be promoted through mainstream extension system to potential pockets in the Mid and Farwestern terai and other alike areas
- Farmers group should encourage multiplying seed and distribution at local level

TRAINING ON SEED HEALTH TESTING

A training program on seed health testing (Mycology) was held at Plant Pathology Division of NARC on 11-20 December 2006.

The training held under the joint Capacity Enhancement Project of Plant Pathology Division/NARC and Danish Seed Health Institute for Developing Countries/Royal Veterinary and Agricultural University was participated by 12 officers from Department of Agriculture, Quarantine, Department of Forestry, and 2 researchers from NARC working in seed production and seed testing at different Seed Testing Laboratories.

A similar training was organized at the same place one month ago on 9-18 October 2006 that was participated by 11 scientists and technical officers working in seed production, agronomy and pathology in NARC and 3 Master's and Bachelor's level students in agriculture from Institute of Agriculture and Animal Science, TU.

The training included different aspects of seed health testing and seed production of rice, maize, wheat, mustard, soybean, millet, vegetables and fodder crops. Testing methods employed in the training are dry seed inspection, washing test, embryo count, incubation methods (standard blotter and deep freeze blotter) etc. The training was coordinated by the Seed Pathology Unit of the Pathology Division under NARC. The training sessions on different aspects were conducted by eight senior scientists at the Division.

In order to develop skills and provide training on seed health and plant disease, a teaching laboratory at Plant Pathology Division was established in 2005 under this project with an endeavour of Dr. Hira Kaji Manandhar, Senior Scientist in NARC.

SAIC DIRECTOR VISITED NARC

Director of SAARC Agricultural Information Centre (SAIC) Mr Wasim Kabir visited CPDD of NARC on November 16. The objective of the visit was to exchange and share experiences of SAIC to implement agricultural research in SAARC region. He was impressed with the Exhibit Room established by CPDD and promised to set up such exhibit room at SAIC center too.

NARC SCIENTISTS IN RADIO INTERVIEW

Mr. Bhola Man Singh Basnet, Chief of Communication, Publication and Documentation Division and Dr. Dhruva Thapa, Senior Scientist at Agri-Botany Division had a radio interview about wheat farming in Sagarmatha FM on 10 November 2006. The scientists gave information on different aspects of wheat research and development and also answered the questions on the issues related to wheat farming.

The wheat crops in Kathmandu valley have been severely affected by yellow rust diseases that can be overcome by alternative resistant varieties or by some agronomic practices.

Similarly, Mr. Bhola Man Singh Basnet gave interview on Winter Crops in Radio HBC on 26 November 2006.

Nepal Agricultural Research Council (NARC) have been disseminating information about new technologies and current issues in agriculture through different print and electronic media.

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various agencies concerning commercialization of trout production in the country. The theme of the workshop was to develop strategies for reducing poverty and unemployment through enhancing trout farming in hills and mountains by utilizing cold water resources. The workshop was focused on the new technological innovation, market, social and economical information related to rainbow trout production in hills and mountains. The topics in oral and poster session included were:

- Trout breeding and nursery management
 - Farming technology and systems
 - Nutrition, feed formulation and supply mechanism
 - Trout production potentialities through marketing and Geographical Information Systems (GIS) perspectives
 - Economic and financial analysis of trout farming
 - Financial arrangement for deprived and poor farmers for trout farm establishment
 - Sustainable seed supply and marketing mechanism
 - Means of transportation for trout farmers
 - Farmers view: prospects and constraints of trout farm
 - Environment, tourism, social, poverty and gender perspective of trout farming commercialization
 - Farm establishment policies, rules, regulation and code of conduct
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HMRP WORKSHOP AT PAKHRIBAS AND LUMLE

Regional Workshops of the Hill Maize Research Project (HMRP) were conducted at ARSs Pakhribas and Lumle on 1-4 November 2006. The workshop reviewed the activities and achievement conducted under the project in respective regions and worked out planning for the next year.

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WORKSHOP ON ORGANIC AGRICULTURE AND FOOD SECURITY

Organic agriculture and food security Workshop was organised by Nepal Permaculture Group (NPG) on Dec 31 in Kathmandu. Agricultural experts from different national and international organizations working in the field of organic agriculture participated the workshop Mr. Bhola Man Singh Basnet, Chief of Communication, Publication and Documentation Division participated the workshop on behalf of NARC. The workshop reviewed the activities conducted in organic agriculture and made out recommendation for promoting organic agriculture.

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TALK PROGRAMS

RURAL DEVELOPMENT: WHY AND WHAT

Nepalese Agricultural Economics Society (NAES) organised a Talk Program on "Rural Development: Why and What?" by Prof. Dr. John Mellor on November 21 at NARC Hall, Singhadurbar Plaza Kathmandu. Prof. Mellor was a consultant to develop 20 year agriculture Perspective Plan (APP). He had worked in Nepal for more than 10 years since mid 1980s as consultant from different INGOs and Government. The talk program was organised to review 10 years of APP implementation in Nepal.

CITRUS HLB DISEASE

Nepal Academy for Science and Technology (NAST) organised a Talk program on Citrus HLB Disease by Prof. JM Bove on December 5 at NAST Hall Khumaltar.

PERI

Nepal Academy for Science and Technology (NAST) organised a Talk program on PERI (Program for Enhancement of Research Information) on December 5 at NAST Conference Hall, Khumaltar. The talk was given by Ms. Ramila Raut of NAST.

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TROUT IN AGRO-TOURISM : NARC'S ACHIEVEMENT

- NS Thakur, D Gauchan and KP Aryal

Rainbow trout (*Oncorhynchus mykiss*) production in Nepal is a recent initiative started around Kathmandu-Trishuli-Rasuwa road corridor and government farm in Godawari and Trishuli. Fingerlings were introduced in 1969 for the first time from India but could not succeed due to management technology. Later in 1988, NARC started research collaborating with Japanese government on cultural practices and breeding at Fishery Research Division, Godawari and Fishery Research Station, Trisuli.

NARC has developed a package of production technology (breeding and culture) that the farmers/entrepreneurs having convenient year round water resource with suitable temperarurew are adopting. However, the pace of adoption is slow and investment is not concentrated for commercialized farming. The risk associated with infrastructure may be the reason for this.

A study on emerging trends and effectiveness of trout fish farming to contribute to the farmer's income showed that:

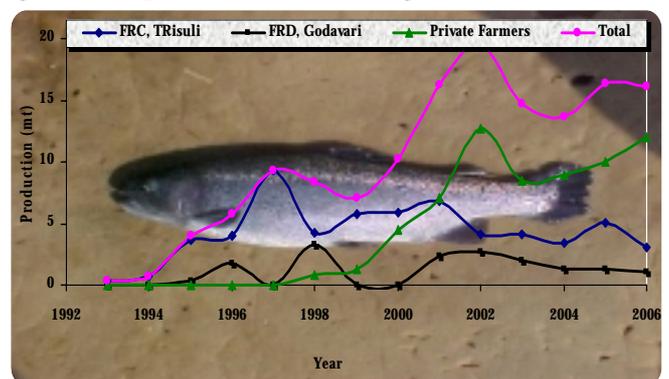
- There are eight farmers/entrepreneurs in the business for last 5 years using their terraced marginal land.
- Farmers are successful in mid hill (1100-1950 masl) conditions with cold running fresh water
- Family labor has contributed 62% involvement for trout fish farming in different aspects eg. production (68%), marketing (26%) and hatchery (5%).
- In 1998, private sector share to production was 10% and until 2006, the share has increased to 75% and the total volume supplied by private sector reached 12 mt.
- NARC has been supplying fingerlings to the farmers because trout breeding requires intensive care, technique and knowledge that lacks in private sector.
- The estimated mortality rate of fingerlings is about 20% in the normal situation of research stations but in farmers condition it is reported more than 50% due to poor management and technical know-how.
- The average number of fingerlings stocked per farm was 10000 with stocking rate 65 fingerlings/sq m however research has recommended 100 fingerlings/sq m with sufficient water volume and demanded oxygen contains in the running water for trout production.
- Fingerlings supply was limited due to physical problem (siltation and sand deposition) at FRC, Trisuli; therefore FRC has started breeding at the ponds of farmers (Mr. Daman Lama and Mr. Padma Lama in Nuwakot and Mr. Lwang Gyalbo Ghale in Rasuwa) and supplying to farmers. Targeted fingerlings production was 100 hundred thousand and 500 thousand from Nuwakot and Rasuwa respectively. Dunchhe, Rasuwa is the best location for breeding due to favorable climate and temperature having below 13°C. The trout fish farming is suitable at 600-2000 masl.



Photo: N S Thakur

- Farmgate price ranges Rs. 450-750/kg according to the location and demand. The average price is Rs.568/kg. Some of the farmers have started cottage restaurant at the where customer can take refreshment with trout fish. Farmers reported that demand in Kathmandu (star hotels, departmental stores and individual consumers) is very high but very little of the demand is supplied.
- Most of the fishponds are constructed in marginal lands with high steep slopes where cold fresh stream is available. The valuation is of the land is very low as compared to plain land for the collateral to get loan and poor farmers have small holding of land. There is no insurance policy of constructed physical assets for re-evaluation for loan. At the same time interest rate is higher (12.5%) than for other unproductive investment like housing and vehicle loan.

Figure: Trout production trend during 1993-2006



Trout fish production is new in Nepal, and the species are still unknown. It finds suitable agro-climatic conditions in hills and mountains wherever adequate fresh cold running water is available. The socioeconomic context is encouraging for trout farming in Nepal. Both men and women can contribute in various levels of production and marketing activities. Technology is at hand therefore, promotion of these technologies in suitable agroecological regions is urgently required. Trout fish farming particularly in the corridor of Kathmandu-Trisuli-Rasuwa has rapidly changed not only in trout tourism of new areas but also increased income with employment, utilization of marginal lands and unused water resources. Other hill road corridors can also be developed as agro-tourism with trout fish. The foreigners from tropical region can be attracted by this intervention in economic development of the nation.

Many young, adults and wealthy family visit this area for having fun and recreation and taste new species of trout fish in farmers' restaurants. They are enjoying trout fishing by themselves in farmer's pond. This situation provides a healthy business atmosphere and, in reality, it has a magnetic effect on the economic condition of the rural people because both the owner and non-owner derive income from the same area and later it creates more jobs and income to farmers, restaurant business and workers. However, there is still ample scope for enhancing trout production in the study area as well as in other suitable hill and mountain areas of Nepal.

Currently there is a small production and small-scale supply and integrated in the vicinity of production site and two three hotels and restaurant at Kathmandu. Therefore, this requires strong technological, policy, institutional and integrated approach of rainbow trout farming linking with agro-tourism development in the country.

TRAINING WORKSHOP/SEMINARS, STUDY & TOURS ABROAD (October - December 2006)

SN	NAME	POSITION/OFFICE	SUBJECT	DURATION	COUNTRY
1.	Mr Shiva Om Makaju	Technical Officer/Planning Division	Biometrics in Agriculture Research	Oct 3 – Nov 30	India
2.	Dr Dil Pd. Sherchan	Chief/Soil Science Division	2 nd International Rice Congress	Oct 9-13	India
3.	Dr. Ananta Pd. Regmi	Senior Scientist/NWRP, Bhairahawa	2 nd International Rice Congress	Oct 9-13	India
4.	Mr Raj Kumar Niraula	Scientist/Bio-tech Unit	2 nd International Rice Congress	Oct 9-13	India
5.	Mrs Sarala Sharma	Senior Scientist/Plant Pathology Division	Rust initiative	Oct 9-11	Egypt
6.	Dr Nanda Prasad Shrestha	Executive Director	10 th annual meeting (CORRA)	Oct 13-14	India
7.	Dr Diwas Adhikari	Scientist/ARS, Bandipur	Annual Convention on Goat	Oct 14-21	USA
8.	Mr Kailash Prasad Bhurer	Senior Scientist/RARS, Parwanipur	Study Tour	Oct 31–Nov 2	India
9.	Mr Kailash Prasad Mahato	Senior Scientist/NSRP, Jeetpur	Study Tour	Oct 31–Nov 2	India
10.	Mr Iswari Prasad Upadhayay	Scientist/AIRC, Ranighat	Study Tour	Oct 31–Nov 2	India
11.	Mr Jamuna Thakur	Senior Technician/AIRC, Ranighat	Study Tour	Oct 31–Nov 2	India
12.	Mr Dwarika Chaudhary	Senior Technician/AIRC, Ranighat	Study Tour	Oct 31–Nov 2	India
13.	Dr Binaya Kumar Batsa	Senior Scientist/Plant Pathology Division	The Royal Veterinary & Agriculture Unit Capacity Enhancement	Nov 1-9	Denmark
14.	Mr Bedananda Chaudhary	Senior Scientist/NRRP, Hardinath	The Royal Veterinary & Agriculture Unit Capacity Enhancement	Nov 1-9	Denmark
15.	Mrs Deepa Singh	Scientist/Horticulture Research Division	Hybrid Seed Production Technology in Vegetable	Nov 1-30	India
16.	Mr Ram C Munankarmy	Senior Scientist/Soil Science Division	Fourth Research Coordination Meeting	Nov 6-10	Austria
17.	Dr Madhav Prasad Acharya	Technical Officer/Animal Health Res. Division	Diploma in Medical Microbiology	Nov 6-April '007	Malaysia
18.	Dr Madhusan Prasad Upadhyay	Senior Scientist/Agri-Botany Division	Genetic Resources Policy Initiative Meeting	Nov 8-10	Kenya
19.	Dr Hari Prasad Bimb	Senior Scientist/Bio-tech Unit	Genetic Resources Policy Initiative Meeting	Nov 8-10	Kenya
20.	Mr Hari Krishna Upreti	Senior Scientist/Agri-Botany Division	Development of Cooperative Research Project	Nov 13-22	Korea
21.	Mr Mahendra Jung Thapa	Senior Scientist/Food Research Unit	Seminar on Improved Food Security	Nov 13-17	Indonesia
22.	Mr Shambhu Bahadur Panday	Director/Planning & Coordination	National Academy of Agri. Res. Management	Nov 14-21	India
23.	Mr Ram Narayan Chaudhary	Senior Scientist/NORP, Nawalpur	DFID Indo-UK Collaboration on Oilseeds Project	Nov 20-24	India
24.	Mr Bahuri Prasad Chaudhary	Senior Scientist/NORP, Nawalpur	DFID Indo-UK Collaboration on Oilseeds Project	Nov 20-24	India
25.	Mr Gautam Buddha Manandhar	Senior Scientist/Agri-Engineering Division	Technical Meeting	Nov 20-21	Korea
26.	Mrs Sabita Mohini Shrestha	Technical Officer/Outreach Research Division	Leadership Course for Asian Women in Ag. R&D	Nov 27–Dec 8	Philippines
27.	Mr Sunil Aryal	Technical Officer/Entomology Division	Pesticide Residue extraction and analysis procedure	Dec 1-30	India
28.	Mr Sanjaya Bista	Sr. Technical Officer/Entomology Division	Taxonomy and Identification of Insects of Agricultural Importance	Dec 1-30	India
29.	Mr Bimal Kumar Baniya	Chief/Agri-Botany Division	Study Visit	Dec 3-29	India
30.	Mrs Sudha Sapkota	Scientist/Training and Scholarship Division	Seminar on Best Practices of Agricultural Technology Transfer and Commercialization	Dec 4-8	Pakistan
31.	Mr Shambhu Bahadur Panday	Director/Planning & Coordination	Rejuvenation of Forum for hills of Nepal	Dec 11–8Jan '007	Israel
32.	Dr Chet Raj Upreti	Chief/Animal Nutrition Division	Rejuvenation of Forum for hills of Nepal	Dec 11–8Jan '007	Israel
33.	Mr Purushottam Khatiwada	Senior Scientist/Horticulture Research Division	1 st International Conference on Indigenous Veg. & Legumes	Dec 12-17	India
34.	Mr Ram Krishna Neupane	Senior Scientist/Outreach Research Division	1 st International Conference on Indigenous vegetables and legumes & Joint planning Meeting of the South Asian NARS	Dec 12-17	India
35.	Dr Nanda Prasad Shrestha	Executive Director	1 st International Conference on Indigenous vegetables and legumes	Dec 12-17	India
36.	Dr Bindeshwar Prasad Sah	Senior Scientist/Bio-tech Unit	Bio-technology Training	Dec 15–15Jan'007	Sweden
37.	Dr Nanda Prasad Shrestha	Executive Director	ICAR and IARI visit	Dec 18-22	India
38.	Mr Tek Prasad Gotame	Scientist/Horticulture Research Division	New Technology in Fruit Sorting	Dec 20–28Jan'007	Australia
39.	Mr Ram Kumar Shrestha	Sr. Technical Officer/ ARS, Pokhara	Study Visit	Dec 31–7Jan' 007	India

Source: Training & Scholarship Division

**DR NP SHRESTHA: NARC ED
CONFIRMED**



Dr. Nanda Prasad Shrestha, Principal Scientist (S-5) was appointed on to the position of Executive Director of Nepal Agricultural Research Council (NARC) by the Government on October 31 as per Nepal Agricultural Research Council Act, 1991. Dr. Shrestha was born in Lamjung, Nepal. He has been working in the field of agriculture research and development for the last thirty-five years with various managerial and technical positions and capacities. Dr. Shrestha had Post Graduate Diploma from University of Edinburgh U.K and Ph.D with major in Animal Breeding, Statistics & Genetics from University of Philippines at Los Banos (UPLB), Philippines. He has more than hundred paper/articles published in different national and international journals, proceedings and other. Dr. Shrestha has already had the positions of Director for Livestock and Fishery Research, Administration and Finance, Regional Director and Division Head. The Executive Director is the Administrative Head of the Organization, Chairman of Executive Board and Member-Secretary of the NARC Council.

POTATO TUBER MOTH (PTM) RESISTANT LINES

Potato is one of the world's major food crops, and is widely grown over many latitudes and elevations in 130 of 167 countries. It is used both for local consumption and, increasingly, for export and processing industries.

Potato has a narrow genetic base, reproduces asexually, and is therefore difficult to introduce desirable traits, such as pest resistance, by conventional breeding. Potato Tuber Moth (*Phthorimaea operculella*) is the most serious pest of potato production worldwide, and is most prevalent in sub-tropical and tropical latitudes.

PTM causes damage to growing plants by mining leaves in the field, and infesting potato tubers held in storage, allowing for bacterial infection, which makes them unfit for consumption or use as seed. It makes losses ranging from 26 to 85 percent in stored tubers. Highly toxic insecticides are commonly used for controlling potato tuber moth in field and storage conditions. Host plant resistance is the key component of integrated pest management programs to reduce pesticide usage in storage. This is a very costly approach so that farmers are sometimes incurred heavy losses from potato farming.

PTM resistant lines would be the best alternatives to the farmers to reduce cost and increase income from farming. Entomology Division of NARC has been conducting research to explore resistant lines in Nepalese context. Field experiment and farmers' field trial showed that potato lines Q132.53, Q115.6 and NY 323 are indicatively possessing comparative resistant to PTM, besides, Q115.6 and L 235 have shown a good standing capacity against late blight in field crop. Therefore, scaling up of these potato lines are necessary to mitigate PTM losses. Side by side, farmers need adopt better cropping practices like composting, crop rotation, field sanitation, green manuring, intercropping, soil tillage and Trap cropping.



Adult Potato Tuber Moth

Patron: Dr. Nanda Prasad Shrestha, Executive Director
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