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# NARC NEWSLETTER

कृषि मूलश्च जीवनम्

A Quarterly Newsletter of Nepal Agricultural Research Council (NARC)

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## RWC-RSC and NTCC Meeting Held

The 14th Regional Steering Committee (RSC) meeting and National Technical Coordination Committee (NTCC) meetings of the Rice-Wheat Consortium for the Indo-Gangetic Plains (RWC-IGP) was held in Kathmandu on 14-15 February 2007. The meetings were chaired by Dr. Nanda Prasad Shrestha, Executive Director of NARC.

In the RSC meeting, National coordinators of each of the countries presented country reports and the rice-wheat research and development works and achievements in the regions were reviewed. In the NTCC meeting, the rice-wheat research works and activities under Rice-Wheat Projects

*contd. on page 8*

## Development Exhibition on Japan-Nepal Relation

A two-day development exhibition was organized on 5-6 March 2007 by JICA Alumni Association of Nepal (JAAN) at Birendra International Convention Centre, Baneswor to commemorate Golden Jubilee of Japan-Nepal Diplomatic Relation. The exhibition was inaugurated by Hon'ble Minister for Housing and Physical Planning Mr. Gopal Man Shrestha.

The main objective of the exhibition was to acquaint the new generation of the Nepalese people with the contribution of Japanese fund for the development of Nepal in various field within the last 50 years. Nepal Agricultural Research Council (NARC) participated in the workshop to exhibit different agricultural technologies developed specially with Japanese assistance or partnership. Japan has been assisting Nepal for the last 50 years in technology development and capacity building for research and development in the agriculture sector.

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## Rice Variety Released

Variety Approval, Release and Registration Sub-Committee under National Seed Board that met on 28 January 2007 officially released and registered a new rice variety named 'Khumal-8" (NR 10353-8-2-1) along with complete package of practices for farmers to cultivate in different agro-ecological condition in mid and low hills.

The new rice variety released after 15 years' research and experiment at different research stations, disciplinary divisions and farmers' fields at different locations coordinated by Agri-Botany Division of NARC. The variety has been recommended to cultivate in foot-hills, tar, river basin and mid-hills under semi-irrigated and irrigated condition in fertile soil. .

*contd. on page 8*

### IN THIS ISSUE




Minister for Housing and Physical Planning Mr. Gopal Man Shrestha

Nepal Agricultural Research Council (NARC) is an apex body for agricultural Research in the country with the goal of poverty alleviation with sustainable growth of agriculture production through development of appropriate technologies in different aspects of agriculture.

## WORKSHOP ON RAINBOW TROUT FARMING SCALING-UP STRATEGIES

First National Workshop on Rainbow Trout Farming Scaling-up Strategies in Nepal was held at Pulchowk, Lalitpur on 18-19 January 2007.

The two-day workshop was organized jointly by Fisheries Research Division of Nepal Agricultural Research Council, Directorate of Fisheries Development under Department of Agriculture, Nepal Fisheries Society and Japan International Corporation Agency (JICA), Nepal. The workshop focused on linking various agencies concerned with commercialization of trout production in the country. The workshop was participated by farmers, entrepreneurs, I/NGOs, financial organization, economist, market expert, policy maker, planner, social scientist, extensionist, researchers and journalists.

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 workshop was formally inaugurated by the then Hon'ble Minister for Agriculture and cooperatives Mr. Mahantha Thakur in a special function chaired by Secretary of Ministry of Agriculture and cooperatives, Mr. Ganesh Kumar KC. The function was attended by Director General of Network of Aquaculture Centres in Asia-Pacific (NACA), Dr. Sena De Silva; FAO Resident Representative; JICA Resident Representative; Executive Director of NARC; Director General of Department of Agriculture and representatives from different organizations. Dr. Tek Bahadur Gurung, Chief , Fisheries Research Division highlighted the objective of the workshop.

The workshop reviewed existing research facilities, human resource, organizational and institutional strength and weaknesses, existing fishery extension agencies and structural setup and other issues related to trout production and also made out recommendations for appropriate research and extension strategies and approaches for production enhancement of trout in potential areas of Nepal. Some of the recommendations are as follows.

**Recommendations:**

- Expand trout farming in feasible areas and explore market for trout in country and abroad, establish trout hatcheries in private sector
- Enforcement of Aquatic Life Protection Act and code of conduct for responsible aquaculture at national level
- Special credit scheme for trout farmer (valuation of land in accordance with the annual turn over of the trout farm etc.) and provision of subsidy in interest on loan for capital investment
- Public-private partnership (farmers' cooperatives, I/NGOs) approach to promote commercialization of trout
- Develop input delivery mechanism in trout growing pocket areas, initiative on establishment of fish feed industry in private sector
- Prepare database on fish production, demand, consumption, export and import
- Develop curriculum for farmer training, develop human resources, infrastructure, facilities required for the rapid expansion of trout
- Develop/strengthen feedback mechanism and communication system for all stakeholder
- Research on year round supply of trout seed, quality feed based on local ingredients, fish health management, reproductive performance,
- Feasibility study in different development regions from commercial and livelihood perspective, participatory trout farming research in new locations
- Technology on low-cost pond/raceway construction
- Establishment and study on different strains of rainbow trout, maintenance of genetic variation, genetic purity
- Study on socioeconomic and environmental impact with trout establishment in hydel reservoirs impounded

## WORLD WATER DAY OBSERVED

The World Water Day 2007 was observed all over the world on 22 March. The theme of the Day this year was "Coping with Water Scarcity". On this occasion, an interaction on efficient water use in farm was held at the Department of Agriculture, Harihar Bhawan.

Dr. Luke A Colavito, Agriculture Program Coordinator, Winrock International, South Asia and Team Leader, USAID Smallholder Irrigation Market Initiative (SIMI) presented on "Efficient Farm Water Use: Micro Irrigation and Value-Chains". Different water technologies developed and refined in Nepal like drip irrigation, sprinkler systems, modified Thai Jar, multi-use water systems (MUS) and Treadle Pump were presented in the interaction.

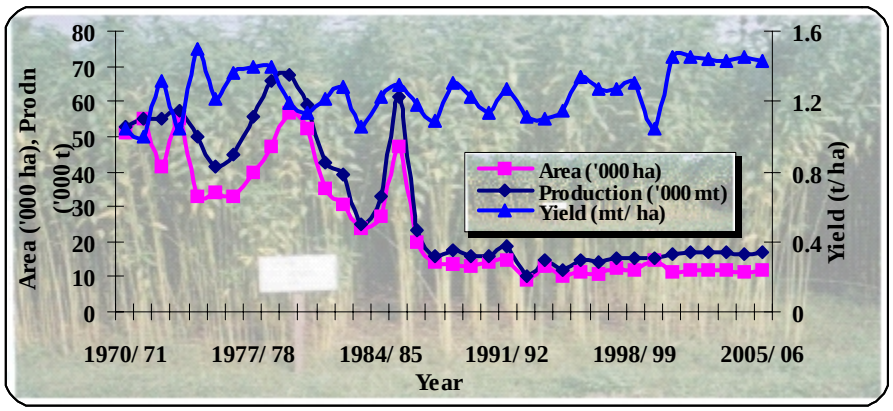
Some recommendations were also made in the interaction that include expanding use of micro irrigation, low cost water storage and multi-use water systems with a focus on high-value horticulture and special crop opportunities; applying the value-chain approach in public-private partnership; prioritizing investment in efficient water saving technologies.

The program was attended by Secretary of Ministry of Agriculture and Cooperatives, Ganesh Kumar KC, Director General of Department of Agriculture, agriculture expert and scientists from DoA, NARC and I/NGOs.

# Jute Production and Its Technology

-Tara Bahadur Ghimire & Kul Prasad Aryal

Jute Research Program is one of the commodity programs of Nepal Agricultural Research Council. Historically Jute Research and Development Program was initiated in 1970 with the establishment of the Nepal Jute Development Board (NJDB). Prior to 1973 the research works on Jute crop were carried out at the Tarahara Agriculture Station which covered a few varieties of Jute, agronomic trials and seed multiplication. In 1974, the Nepal Jute Development Board was replaced by the Jute Development and Trading Corporation (JDTC). This organization was primarily responsible for the over all development of jute sector in the country. With the set up of the Jute Research Centre (JRC), Jute Development and Trading Corporation started all research activities at Itahari in the year 1978. Subsequently, JDTC dissolved in July 1993. Jute Research Centre was handed over to the Nepal Agriculture Research Council (NARC) and all the responsibilities of Jute Research and Development program was given to the Jute Research Program (JRP) and started its research activities under NARC umbrella system since July 1993.




Jute is a tropical crop which produces best fibre. The fibre is obtained from two closely related annual herbaceous species i.e. *Corchorus capsularis* L and *C. olitorius* L. belonging to the family tiliacea. Jute is an important cash crop for subsistence farmers in Nepal. It has major share in the economy of the country. It is grown in terai belt and concentrated in the eastern part of Mechi, Koshi and Sagarmatha Zones (Jhapa, Morang, Sunsari, Siraha, Saptari and Udaypur Districts). It is believed to be a traditional crop of these areas. Nepal produces 17100 metric tons of raw jute from 11975 hectares of land in 2005/06. The average productivity of jute is 1.5 t/ha but in research station average yield is 4.8 t/ha. In India the Intensive Jute Development Project obtained upto 5 t/ha. The large variations in fibre yields are mainly due to input constraints which includes crop management, timely irrigation and use of fertilizers. The package of practices developed based on research work done at JRP Itahari and at different Jute Research Institute of India and Bangladesh are given below for use by the farmers to increase production and to reduce cost on cultivation.

Area, production and productivity of jute in Nepal during last 37 years is depicted in figure. Now-a-days, jute production in Nepal has been affected due to competition against spring rice, sugarcane, maize, tea, vegetables etc. Research activities on jute are the utmost importance because the area and production have remained on the decreasing trend due to uneconomic return from jute. The existing cultivars are of age old, narrow genetic bases, low adaptability to agro-ecological settings. With the advancement of research, high yielding varieties could be developed and introduced for the replacement of existing low yielding varieties and emphasize on crop management research so as to make remarkable increase in the productivity of jute fibre.

The technologies developed by JRP Itahari are as follows:

- **Itahari - 1** (IJO/LISA): *Corchorus capsularis* (Sada Jute) originated from Brazil, recommended for Jute-Rice-Wheat, Jute-Vegetables and Jute-Rice-Fallow system under low and mid-highland areas of eastern terai of Nepal. It has less branching, tolerance to moisture stress in early stage, water logging condition, diseases and insects incidences, fine fiber quality (proper length and have low breakage character) and high yielding capacity: 1.7 t/ha (1.1-3.5 t/ha), quick retting ability.
- **Itahari - 2** (IJO/T-86): *Corchorus olitorius* (Tossa Jute) originated from Taiwan, highly suitable in moisture stress area at the time of sowing. Recommended for Jute-Rice-Wheat, Jute-Vegetable and Jute-Rice-Fallow systems under upland and mid-lowland conditions of eastern terai of Nepal. It is less branching in habit, tolerance to moisture stress at early growth stage and water logging conditions. Quick retting ability, good fiber quality (proper length and low breakage). It has average fibre yield of 1.6 t/ha (0.9-3.3 t/ha).
- Planting of Jute on 30th Chaitra to 15th Baishakh for Sada Jute was found optimum for fiber production. Tossa performed better if sown after 15th of Baishakh.
- Harvesting of Jute at the age of 120 days after sowing for both *Corchorus capsularis* and *Corchorus olitorius* was found optimum for fiber production.
- 60:30:60 NPK kg/ha for *C. capsularis* and 40:20:40 NPK kg/ha for *C. olitorius* has been recommended.
- Application of FYM along with recommended fertilizer increases the fibre yield of Jute.
- Rice straw mulching or Targa super herbicide is effective in weed management in Jute.
- Jute bundle pressed with plastic bag filled with sand or gravel or cover with old gunny fabrics or water hyacinth plants improves the quality fibre.
- Jute ribbon retting treated with 0.02% urea (20g/lit of water) or 0.2% EM (200 ml/lit of water) resulted superior fibre quality in Itahari-1.
- Ribbon retting fibre fetch higher price in the market as there were minimum root content and foreign materials.
- Ribbon retting fibre was more suitable and economical for manufacturing handy craft.
- De-topping at 30 and 45 days after sowing in Sada Jute and, 30, 45 and 60 days after sowing in Tossa Jute has been found beneficial in higher seed production.

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## Workshop on 'Jobs in Agriculture'

In order to explore development activities and interventions and policies that can help maximize increasing farmer incomes and employment activities, Ministry of Agriculture and Cooperatives and Nepal SIMI (Winrock International/IDE) jointly organized the workshop on 'Jobs in Agriculture' at Department of Agriculture, Harihar Bhawan, Lalitpur on 23 March 2007.

The specific objectives of the workshop were to explore: opportunities to increase farmer cash incomes through commercial production of smallholders; employment opportunities supporting agriculture production including input supplier networks (agrovets), specialized service providerand output marketing; employment in formal agro processing industries (salary jobs); policies and investments needed to increase farmer incomes and agricultural employment; training required to increase incomes and agricultural employment.

In the workshop different papers on opportunities in high-value commercial agriculture to increase farmer incomes and secondary impact of job creation from increasing farmer incomes; employment opportunities in agro-processing industries; and government policies for investment to increase farmer incomes and agricultural sector employment were presented.

Discussions in different four groups on productivity and incomes; employment in agro-industry; policies and investment for employment; and training programs for employment were held.

The workshop was chaired by Mr. Ganesh KC, Secretary of Ministry of Agriculture and Cooperatives in which Dr. Luke A Colavito, Agriculture Program Coordinator, Winrock International, South Asia and Team Leader, USAID Smallholder Irrigation Market Initiative (SIMI); Joint Secretaries and Senior Officers of MoAC, Mr. Bhairab Raj Kaini, Mr. Dala Ram Pradhan, Dr. Hari Dahal, Mr Suresh Kumar Verma, Dr. Siddhi Ganesh Shrestha, Mr. Yogendra Kumar Karki, Mr. Bhimsen Gurung , SIMI, and Mr. Suraj Vaidya, Agro-entrepreneur presented concept papers and group discussion reports. The workshop was participated by delegates from MoAC, Department of Agriculture, NARC and different I/NGOs.

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## Workshop on Organic Farming

A workshop to promote the organic farming was organized by Kathmandu District Agriculture Office on 28 March at Balaju. The workshops was participated by representatives from organic farmers, NARC, school/ colleges, hotels and sellers. Three working papers on different aspects of organic farming were presented. Interaction on different issues of organic farming was held.

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## Field Monitoring and Observation on Yellow Rust Disease in Wheat

With the view to share research experiences on the Yellow Rust disease in wheat that has wide spread in the last four years, and to make out strategies to manage the disease, a field monitoring and observation program was organized by Plant Pathology Division of Nepal Agricultural Research Council (NARC) on 21 March 2007.

The monitoring team consisting NARC scientists and chiefs of different disciplinary divisions and commodity research programs, agriculture development experts from Department of Agriculture, CIMMYT-Nepal, agriculture development officers from District Agriculture Development Offices, Kathmandu, Lalitpur and Bhaktapur had field observation of Poly-house established for the study of disease at Plant Pathology Division and wheat trial plots at Khumaltar and farmers' field at Jhor Mahankal, Kathmandu. Interactions on the issues related to the incidence of disease and control measures were held on the field. Information about the disease and research activities conducted was given to the participants and the local farmers present in the field.

The yellow rust disease that passes through air has come as disaster to wheat crops in the last few years especially in the hilly regions of country. Now the farmers seem to seek alternatives to wheat crops. Some varieties have been found resistant to yellow rust disease that are Pasang Lhamu and WK1204. The new resistant varieties of wheat has given hope to get rid of the disease and make farmers continue wheat planting.

Wheat is one of the most important cereal crops ranked third in production and consumption in Nepal. It is grown in all the regions of the country.

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## National Policy Draft on Library and Information Submitted

National Policy Draft on Library and Information was submitted to Ministry of Education on 4 January 2007. A team coordinated by Mr. Dasarath Thapa, Chief of Nepal National Library, Harihar Bhawan was formed for preparation of the draft. The team consisted of Chiefs of Central Library of TU, Government and Non-government organizations. Mr. Bhola Man Singh Basnet, Chief of Communication, Publication and Documentation Division, represented in the team from NARC.

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### Snowfall in Capital Valley

The Kathmandu Valley saw snow fall with a sudden surprise on February 14, 2007 after 62 years. The last record of snow fall in the valley was in 1945.

## WORKSHOP ON PEST DATABASE PREPARATION

The Workshop on Methodology Development for Pest Database Preparation of some export commodities like Mandarin Orange, Ginger, Lentil, Chiraito and Tea was organized at Entomology Division, Khumaltar, on 14 – 15 January, 2007.

The workshop jointly organized by NARC and Department of Agriculture was participated by scientists and researchers from different divisions/ stations of NARC; National Academy of Science and Technology (NAST); Plant Protection Directorate (PPD), National Plant Quarantine Program (NPQP) of Department of Agriculture and IAAS/TU. The workshop focused on norms and parameters required for pest database preparation based on National Plant Quarantine Program (NPQP) and International Standards (WTO), preparation of format for survey and surveillance in insect pests, plant diseases, weed science etc.

The International Standards for Phytosanitary Measures (ISPM) are prepared by the Secretariat of the The International Plant Protection Convention (IPPC) so as to follow the standard, guidelines & recommendations to achieve international harmonization of phytosanitary measures with the aim to facilitate trade & avoid the use of unjustifiable measures as barriers to trade. The Internantional Plant Protection Convention (IPPC) has been the premier international instrument for the protection of plant health by the movement of plants & plant products since 1952. ISPM has particular importance as WTO members are required to base their phytosanitary standards developed by the IPPC. The provision of official information regarding pest status is an obligation under the IPPC. The reliable pest records or information and the determination of pest status are vital components in phytosanitary trade to be used by importing countries to conduct a pest risk analysis (PRA) on a pest in another country, establish phytosanitary regulations to prevent the entry, establishment or spread of a pest, conduct a PRA on a non-quarantine pest in their own territory with a view to regulating it.; by exporting countries to comply with import regulations by not exporting consignments infested with the regulated pests of the importing country, meet requests for information from other countries for the purpose of PRA on pests in their territory; and all other countries for PRA purposes, national, regional or international pest management planning, establishing national pest lists, establishing and maintaining pest free area, GIS mapping of pest distribution of the country, and ensuring early detection of introduced pests.

Pest Database is an electronic documentation of pest status information, major output that has a significant long term impact on pest survey activity & pest status data collation, pest records on the basis of many sources as surveys, findings of general surveillance, scientific publications, journals etc. The information on the status of a pest in areas, countries and regions may be used to establish the global distribution of a pest.

In Nepal, a server driven National Phytosanitary Database (NPD) System under NPQP has been initiated for the pest status data compilation & computerization along with other required information related to phytosanitary trade. Data entry of pest list of 21 commodities has been into the database of NPD (Lentil, ginger, mustard, potato, onion, radish, wheat, citrus, mango, tea, coffee, cardamom, linseed, paddy, maize, coriander, pea, tomato, cabbage, banana & chiraito). NPD has features for generating reports for decision makers and has the potential to be used as an integrated information management system for the NPPO in future. Lists has been provided to India to facilitate safe trade between 2 countries & also notified in website for WTO contracting members. Apple and garlic pest list has been prepared and is in process of final stage for pest record. A national executive & steering committee for PRA & PFA under Ministry of Agriculture and Cooperatives has been formed to develop strong networking capacities between the various agencies involved in such activities.

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### TALK PROGRAMS

'Improving Crop Water Productivity is the Key for Sustainable Farming for Nepal: Research Perspective by Dr Surya Prasad Bhattarai, Central Queensland University, Rockhampton, Australia on 20 February 2007 at NARI Conference Hall , NARC, Khumaltar

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'Improving the Yield and Rainfall Use Effeciency of Dry-Land Crops: The Australian Experience' by Prof. Neil C Turner, Director Centre for Legumes in Mediterranean Agriculture, The University of Western Australia on 25 January 2007 at NARI Conference Hall , NARC, Khumaltar.

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### RADIO INTERVIEW ON AGRICULTURE

- Ms. Bharati Moktan and Gopal Lama, Trout farmers gave interview to Radio Sagarmatha about trout culture on 18 January 2007
- Mr. Rumba, trout farmer and Mr. Mulmi, technician at Fisheries Research Division, Godavari gave interview to Radio HBC about trout culture on 26 January 2007
- Mr. Bhola Man Singh Basnet, Principal Scientist and Chief of Communication, Publication and Documentation Division, NARC gave interview to Radio Sagarmatha and Radio HBC 94 about RWC-Regional Steering Committee meeting on 16 February 2007.
- Mr. Hari Krishna Upreti and Kedar Shrestha gave interview to Radio HBC 94 about Khumal-8 variety of rice on 2 February 2007.

# Goat Production and Marketing in Western Hills of Nepal

- Megh Bahadur Nepali

Goat farming is an important component of subsistence farming system in the western hills of Nepal for cash generation of resource poor farmers who are unable to invest for large ruminants. Most farmers in the western hills raise goats because the demand is year round. Economic return from goat is comparatively easy and higher than other sector of livestock. Animal protein is supplied by the goat to human being, without competing with humans for cereal grains. The goat is a prolific animal and can be raised cheaply by the farming households. Goat population is about 6.6 million though Nepal imports 300-500 thousand goats annually either from India or Tibet to fulfill the demand of goat meat. When there is high demand, question arises why it is not possible to fulfill the demand domestically?

The study conducted at comand area of Regional Agricultural Research Station, Lumle reveals that:

- Farmers are raising indigenous Khari, Sinhal, or improved breed like Jamunapari, Barbari, and crossbreed is commonly practiced under the traditional management either in sedentary or migratory system in the rural Nepalese condition.
- Most of the farmers are raising their goats either in grazing or stall feeding.
- Parasitic problem was the major production constraints. Both external and internal parasites were found infest the goats.
- Farmers are getting 11% household income from goat production.
- In the hill context, most of the farmers are poor and they can't wait for a long time because they have to fulfill their numerous necessities to support their life. Therefore, they have to sale whatever the price they get.
- Farmers are getting less profit from goat farming though consumers are paying high price for the goat meat due to broker. It is because of the poor marketing mechanism.
- Farmers reported that middlemen/butcher visit frequently in the villages for goat marketing.
- The goat marketing channels in western hill is: farmer/ village level market - middleman/butcher/wholesaler - Retailer/consumer.
- The average price of Rs 155 per kg buck meat was found in Arghakhachi District, whereas highest average price of Rs 220 per kg was found in Kaski District. The middlemen reported that they have Rs 10 extra margin per kg in case of buck meat.
- Goat raising farmers were selling average 2.27 goats per annum ranging 1 to 4 per households and getting average Rs 3800 per annum per households by selling their goats.
- In general, most of the Nepalese people preferred to consume goat meat even it is more expensive as compared to buffalo meat, pork and chicken. Nepalese consumers are generally fresh meat eaters. The prevailing economic situation in the country is a constraint on purchase of goat meat that is notoriously elastic with respect to price. The demand of goat meat in different occasions (festivals like Dashain, Tihar, Maghe Sakranti, Chaite Dashain, Saune Sakranti and others) and ceremony (Marriage) was found higher than in other times. Goats with black colour are preferred for religious ceremonies, and traders reported that costumers were willing to pay Rs 500 more to the black coloured buck. Goat meat consumption average 25 kg per household per annum was found in western hills.
- Goat meat consumption average 25 kg per household per annum was found in western hills.

**Recommendation:**

- Goat breed of the villages need to improve. It is because the farmers do not have knowledge about selection. Khari goats were found prolific in the hills of Nepal but due to lack of selection, the breed improvement is not followed. The continuous inbreeding has become the major limitation for goat breeding. Selection of healthy and vigorous buck *is* done for sacrificing in the holy-rituals and the castration of good individual is done for meat production. To minimize such type of activities, awareness program is necessary at farmers' level.
- There is lack of goat collection centres for marketing so that government should develop goat marketing centers at each VDCs and district headquarters.
- Parasitic problem is the major production constraints of goat production that needs to be controlled through District Livestock Service Office, Livestock Development Service centres and NGOs have to play vital role for parasite and viral disease control through extension program.
- Introduction of different types of nutritive species of fodder and forage at farm level
- Farmers need to be trained for proper goat raising management regarding such as goat health, goat breed, fodder and forage for goat, feed and feeding management, goat fattening management and goat marketing. ●

## Improvement of Microtuber Number and Potato size

- Shambhu Prasad Dhital, Ph D

Virus-free in vitro plantlets of potato cultivars 'Superior', 'Early Valley', 'Golden Valley', and 'Winter Valley' were used to investigate the effect of an addition of MS liquid medium containing sucrose, inorganic nutrients (KNO3, NH4H2PO4, Ca(NO3)24H2O, MgSO4), plant growth regulators (succinic acid 2,2-dimethylhydrazide; B 9), 6-benzylaminopurine; BAP) and different cultural conditions on the production of higher number and larger size of microtubers. An addition of inorganic nutrients-2 (IN-2) on ½MS liquid medium containing 8% sucrose just before dark incubation or 60 days old culture led to the production of the highest numbers (1.4/plantlet) and the higher rate (50%) of large sized (e"500 mg) microtubers. In another experiment, an addition of ½MS liquid medium with 8% sucrose, IN-2 and BAP (10 mg l–1) plus B 9 (200 mg l–1) produced the highest numbers (1.5/ plantlet) and yield (971 mg/plantlet) with the highest rate (66%) of large size (e" 500 mg) microtubers. Furthermore, an addition of ½MS liquid medium supplemented with 8% sucrose and IN-2 together with BAP (10 mg l–1) and B 9 (200 mg l–1) one week before dark incubation contributed to the highest numbers (1.6/plantlet) and yield (1208 mg/plantlet) with the highest rate (64%) of large size (>500 mg) microtuber. Addition of ½MS liquid medium with 8% sucrose, IN-2, BAP and B 9 in the pre-existing culture one week before dark incubation and then renewal of 50% liquid medium by volume two weeks after dark incubation gave rise to the greatest increment in microtuber number by 10.5% and yield by 84.4% with large sized microtuber (>700 mg average). This culture medium and condition showed better performance in a broad range of potato genotypes. ●

## AGRICULTURE EXHIBITION ON PEOPLE'S SAARC

On the occasion of People's SAARC Assembly hosted in Kathmandu on 23-24 March 2007, an agriculture exhibition on local land races was held at Jawalakhel, Lalitpur. Nepal Agricultural Research Council (NARC) demonstrated agriculture technologies developed and local landraces of Nepal in the exhibition. During the exhibition Mr. Bhola Man Singh Basnet, Principal Scientist (Agronomist) of NARC) briefed the participants concerning rice of national, regional and international level.

The People's SAARC is a focal point and platform for sharing, forging and strengthening solidarity linkages among like-minded action groups, resources agencies, progressive individual. It aims to promoting the movement for democracy, justice and building people' resistance against the forces of globalization across nations. The People's SAARC Assembly was participated by representatives from Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Srilanka.

## CONSULTATIVE DISCUSSION ON EXTENSION OF LIFELINES

'Consultative Discussion on extension of lifelines: Interactive Voice Response System (IVRS) based Information Service Delivery to Farmers in Selected Municipalities of Nepal' was organized in Lalitpur on 1 March 2007. The meeting was chaired by Joint Secretary of Ministry of Local Development and participated by representatives from different organizations including NARC.

In the meeting, 'Lifelines-IVRS based Information ServicesDelivery on Demand' was presented and discussion on the need for customization in the system was held. The Lifeline is the system to use the power of voice as the primary means of information dissemination that facilitates the exchange of critical and timely information among marginalized communities so that it helps in improving their quality of life. It aims to provide connectivity, content and capability via a phone-based service. It is believed it will become a useful tool for the largest section of the population, the farmers at their doorstep, with need-based information on basic agricultural practices which is also expected to help improve production, storage, marketing etc.

A committee for implementing the extension of Lifeline Service was formed on 1 March 2007 that is coordinated by Mr. Narayan Bahadur Thapa, Ministry of Local Development. The members in the Committee are Dev Bhakta Shakya, AEC/FNCCI; Hari Babu Tiwari, MoA; Bhola Man Singh Basnet, NARC; Bijaya Roy, NTA; Allen Bailochan Tuladhar, FIT - Nepal; Ramesh Adhikari, RUPP; and Suresh Dhoj Shrestha, RUPP.

## TRAINING WORKSHOP/SEMINARS, STUDY & TOURS ABROAD (January - March 2007)

| SN | NAME | POSITION / Discipline | | DURATION | COUNTRY |
|---|---|---|---|---|---|
| 1. | Shiva Om Makaju | T-6, Planning Division, | MSc. Ag. Economics | Jan 11-11Jan2010 | USA |
| 2. | Surendra Srivastava | S-4, GLRP, Rampur | Global conservation strategy meeting for Legumes | Feb.9-22 | Syria |
| 3. | Mrs. Sarada Joshi | S-4, Plant Pathology | International Lentil Traveling Workshop | Feb13-20 | Bangladesh |
| 4. | Mr. Ram Krishna Neupane | S-4, Outreach Research | International Lentil Traveling Workshop | Feb13-20 | Bangladesh |
| 5. | Dr. Renuka Shresta | S-4, Plant Pathology | International Lentil Traveling Workshop | Feb13-20 | Bangladesh |
| 6. | Shree Nawal Kishor Yadav | S-4, Agronomy | International Traveling Workshop on Lentil. | Feb13-20 | Bangladesh |
| 7. | Mr. Parshuram Lal Karna | Director, Crops and Hort.Res. | CURE annual meeting 2007 and workshop on socio- economic aspect in unfovourable rice environments | Feb21-23 | Laos |
| 8. | Mr. Man Bahadur Shrestha | T-7, Food Unit, Khumaltar | Workshop on nutrition survey methodology | Feb19-23 | India |
| 9. | Dr.Devendra Gauchan | S-4, SARPOD | GRPI - International wokshop on economic valuation of genetic resources | March6-8 | Zambia |
| 10. | Dr. Shree Baba Pradhan | S-4, Entomology | Advanced International Training Programme on Strategies for chemical management | March12-30 | Sweden |
| 11. | Mr. Yagya Prasad Giri | S-4, Entomology | Advanced International Training Programme on Strategies for chemical management | March 12-30 | Sweden |
| 12. | Mr. Ram Baran Yadav | T-6, NRRP, Hardinath | To develop cold tolerant parental lines and analysis of cold tolerant gene | March17-26 | Korea |
| 13. | Mr. Netra Prasad Osti | S-4, Animal Nutrition | 4th World Poultry Conference in Egypt | March27-30 | Egypt |

*Source: Training & Scholarship Division*



*Source: Training & Scholarship Division*

## INTERACTION ON CLUBROOT DISEASE

With the view to share experiences on the Clubroot disease in Cole crops that has spread in Kathmandu Valley and surroundings causing serious problem in cauliflower and cabbbage cultivation in the last 4-5 years, and to make out strategies against the disease for coming years, an interaction program was organized by Plant Pathology Division of Nepal Agricultural Research Council (NARC) on 9 Feb 2007 at District Agriculture Development Office, Bhaktapur.

The program participated by 30 farmers from Bhaktapur, Agriculture Development Officers and extensionist from DADO Bhaktapur and scientists from Plant Pathology Division/NARC. The participants had interactions on the issues related to the incidence of disease and control measures. During the occasions, Dr Ram Devi Timila, Senior Scientist at Plant Pathology Division gave out information about the disease and research activities conducted to manage it. Farmer representatives presented their experiences on the disease and the disease management measures.

Cole crops: cauliflower, cabbages, radish and broad leaf mustard are the major winter vegetables of Nepal that give good profit to the farmers. However, Clubroot disease has been a serious for cole crops cultivation. Plant Pathology Division of NARC has recommended some measures to control the disease that include use of a fungicide, change in cropping pattern and soil treatment.

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conducted at different sites in Nepal were presented Reports on Rice-Wheat activities in three different sites: Naldung, Bhairahawa and Parwanipur were presented

The Consortium is a forum composed of partners from the four national agricultural research systems (NARS) in South Asia - Bangladesh, India, Nepal and Pakistan that grow wheat after rice in 10.5 million hectares of land. Other members include several international research centers including CIMMYT (convening center), IRRI, ICRISAT, CIP and IWMI. There are also a number of institutions including Cornell University, IACR Rothamsted, CABI International, IAC Wageningen and others. The goal of the consortium is to provide a forum for sharing/ exchange of ideas and research results related to improving the sustainability and production of the rice-wheat systems of the Indo-Gangetic Plains and Mid-Himalayan hills.

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The rice variety: 'Khumal-8' was developed in Nepal with cross between 'Jumli Marshi' and 'IR-36' and was evaluated at the Division, research stations and in multi-location testing sites with Coordinated Varietal Trial (CVT), Coordinated Farmers' Field Trials at locations in different districts. It has small sized grain, short plant height, good milling recovery and good taste similar to Pokhareli Mashino that gives high price. It is resistant to insect pest and lodging. It has an yield potential of 9,776 kg/ha and maturity period of 158 days from seeding.

The meeting of the Sub-Committee was held under the Chairmanship of Dr. Nanda Prasad Shrestha, Executive Director of NARC in Lalitpur.

Newly released Khumal-8 variety of rice

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