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Vol. 8 No. 4

October - December 2001

As declared by United Nations General Assembly (UNGA) earlier in 1998, the International Year of Mountains 2002 is beginning with an aspiration of new initiatives for sustainable mountain development.

Nepal is a mountainous country with most of the land covered by mountains and inhabited by majority of poor people of the country. The natural resources in the mountains are abundant that, because of poor transportation and communication system, could not have been properly utilized. In this high time to think about the mountain issues, the UN declaration has been an exhortation for seeking sustainable approach to mountain development. Various events taking place in different countries in 2002 as the Year of Mountain will certainly draw attention towards mountain issues. Some events are being held in Nepal. (See on page 8)

- International Maize symposium
- International Year of Mountains 2002
- Rice-Wheat research in Nepal
- Wheat variety replacement
- Community-based seed production: An experience
- Seminar on Chiraito
- *In Vitro* Embryo Culture of *Tite* and *Mithe* Buckwheat- *Bal K Joshi and Hari P Bimb*
- WTO and Agricultural Biodiversity: Policy Issues and Options - *Devendra Gauchan*
- Outstanding R & D Paper Award to NARC Scientists

The Nepal Agricultural Research Council (NARC) and the International Maize and Wheat Improvement Centre (CIMMYT) under the collaborative Hill Maize Research Project (HMRP) organized the International Maize Symposium in Kathmandu from 3-5 December 2001. The Symposium formally began with a stimulating inaugural session marked by Hon'ble Minister for Agriculture and Cooperatives Mr. Mahesh Acharya that was followed with technical sessions of presentations and discussions in the three successive days.

The Symposium was participated by 120 scientists and researchers from Nepal, India and Mexico and 53 papers were presented in six consecutive sessions each followed by deliberate discussion.

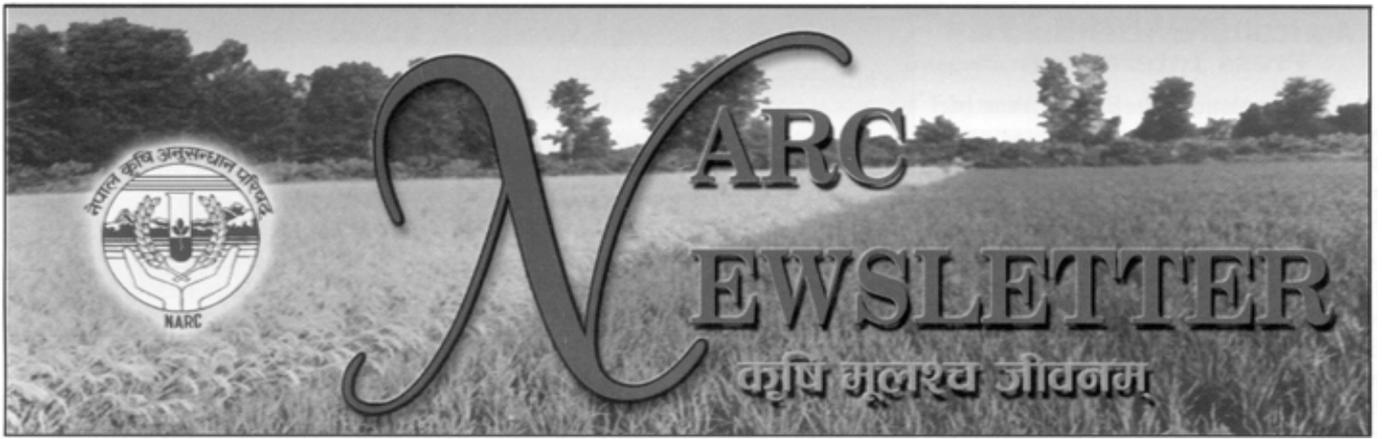
The symposium provided a forum for

interaction among the scientists/researchers involved in maize development work in Nepal that has the objective to increase the productivity and profitability of maize-based cropping systems in Nepal in a sustainable manner while protecting the fragile natural resource base.

Some specific goals, by the means of improved varieties and better crop management have been anticipated in Nepal to increase maize production from the current level of 1.4 m tons to 2.5 m tons with a productivity level from 1.8 t/ha to 3 t/ha in 5 years; and to improve the profitability of the maize-based cropping systems.



Contd. on page 2



**International Year of
Mountains 2002**

International Maize Symposium held

ISSUE HIGHLIGHTS



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



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Contd. from page 1

The symposium at conclusion made out some recommendations that have been summarized below.

Improved varieties and hybrids

- While improved OPVs will continue to play a significant role in Nepal for the immediate future, hybrid maize technology has great potential in Nepal and should be adopted immediately
- A strong commitment and support from the government and policy makers towards the popularization of hybrids
- Improved seed in quantity and quality should be made available to farmers
- Cultivars that show tolerance to various biotic and abiotic stresses should be tested in on-farm trials and promoted
- Collaboration between NARC, Nepal and DMR, India should be formalized and strengthened
- A system of exchange of germplasm between the two programs should be formalized. Eg. Him129 promising in Nepal
- A gender perspective is required in the R & D process and gender-neutral technologies should be promoted aggressively
- Quality protein maize (QPM) technology should be aggressively promoted QPM = nutritional security for women and children

Seed Issues

- Seed is the biggest bottle-neck. All avenues for producing improved quality seed in sufficient quantity should be explored
- The replacement rate which is very low currently should be increased
- For remote areas, community-based seed production should be promoted
- For favorable areas, build partnership with private sector
- Small-scale seed industry should be encouraged
- Training in seed production should be intensified

Contribution due to crop management

- Intercropping of maize with other crops have shown good promise. Results are

- scattered and needs to be consolidated
- Maize + groundnut, maize + soybean, and maize + cowpea has shown highest returns. Further validation in farmer's field and promotion of this technology needs to be intensified
- System perspective in cultivar identification is needed
- Screening for shade tolerance adapted to agro-forestry system is needed
- Maize seed priming for 12-18 hrs has shown good promise. This needs to be validated and aggressively promoted
- The appropriate time and dose of application of fertilizer as identified in the trials should be validated in farmer's field and promoted
- Experience from the farmer participatory research obtained by various agencies need to be integrated in the R & D process
- Cultural practices to prevent or reduce soil erosion need to be implemented

Policies, priorities and research impact

- More investment needed on R & D
- Productivity increases required to meet demand
- Constraints to productivity (seeds and inputs) need to be removed
- Extension needs to be strengthened

Maize is the second most important cereal crop in Nepal grown in 825,980 ha and it is the first most important in the hills. Given the importance of maize in food security for the hill areas of Nepal, Hill Maize Research Project (HMRP) funded by Swiss Agency for Development and Cooperation (SDC) and technically supported by CIMMYT is being implemented by National Maize Research Program of NARC for the last three years. Achievements of the Project were reported at the Symposium.

In the symposium presentation and discussion on recent advances in the development of maize technology in India and elsewhere in the World. Quality Protein Maize (QPM) first developed by CIMMYT in Mexico and being adopted and promoted throughout Asia was also highlighted. The QPM varieties are currently being tested in the hills and terai of Nepal with the support of the HMRP.

Based on the participatory variety selection (PVS) at different places in the valley, seed delivery to farmers for wheat variety replacement was conducted with a special function at each of the sites in Goldhunga of Kathmandu, Lamatar of Lalitpur and Katunje of Bhaktpur during in October 2001.

The farmers earlier provided with a basket of choices (different new varieties + local existing varieties + promising lines) selected the "BL-1473" variety of wheat that has bold grain and gives higher yields, has no sterility problem.

About 60 farmers, @15 kgs./farmer, were delivered wheat seed of BL-1473 to replace the existing ones including RR-21 that have declined productivity due to diseases like yellow rust, leaf rust and loose smut.

At the functions, farmers of each of the localities and surrounding, Agriculture Development Officer of respective districts, representatives from Ministry of Agriculture, Department of Agriculture, scientists/researchers from NARC and CIMMYT.

Seed is one of the most important component that affects the yield of any crops. The farmers often are short of quality seeds with a result of low production level. In order to ensure improved quality seed in sufficient quantity, community-based seed production needs to be promoted. The initiation taken by a group of farmers at Pithuwa in Chitwan district organized themselves as Bij Briddhi Kisan Samuha (BBKS) is praiseworthy. The Group established with technical assistance of District Agricultural Office some seven years ago with maize seed production is now involved in other cereal and legume seed production too. National Maize Research Program (NMRP) of NARC has been providing technical assistance and foundation seed for multiplication. The Group coordinates and assists farmers with loan from its small fund for seed production and procures the product for supply. This approach needs to be extended to other areas in the country.

Wheat Variety Replacement

Community Based Seed Production: An Experience



Rice and wheat are the two major food crops in Nepal that contribute to seventy per cent of the cereal calories consumed. Rice-wheat cropping system is extremely important for the food security in Nepal. In the early 1960s, the rice-wheat system occupied 0.1 million hectares. Due to advent of new high yielding genotypes, fertilizer responsive short-duration rice and wheat genotypes in early 1970s made growing rice and wheat in sequence feasible. Now this system constitutes the major cropping system in the terai and mid hills of Nepal covering 0.52 million hectares at present. In spite of adoption of this system the productivity levels remain quite low. The major constraint to expansion of rice-wheat rotations appears to be the short period available for sowing of wheat after rice and availability of year-round irrigations. Average yield of rice rarely exceeds 3 t ha⁻¹ and yield remain within 1-2 t ha⁻¹. These yields are compared to other rice-wheat growing countries. However, system yield of 9 t ha⁻¹ has been reported by some farmers of mid-hills especially Kathmandu and Kavre.

Nepal Agricultural Research Council (NARC) assisted by CIMMYT (International Maize and Wheat Improvement Centre) and Rice-Wheat Consortium (RWC) has been conducting researches at different sites in the low lands and mid-hills where rice-wheat system is important. The research focuses on issues critical to the future sustainability and productivity of rice-wheat cropping systems including tillage and crop establishment, integrated nutrient management, integrated pest management, farmer monitoring and outreach, irrigation and farm equipment.

Objectives:

- To improve resource conserving technologies and increase crop diversification in rice-wheat system that maintain or increase crop production and result improved farmers' livelihood.

Current new technologies:

Chinese hand tractor: gaining popularity in terai region, midhills and (CHT) Kathmandu valley for drilling wheat/lentil/ rice/ mungbean

Zero-till drills: farmers having four wheel tractors are more interested in zero-till drills. Total 12 zero-till drills are in use at Bhairahawa and Parwanipur

Bed planting: started with resourceful farmers at Rupandehi and Parsa districts. Experiments at Birgunj, Sugauli and Belwa showed the superiority of bed planting system

Surface seeding: Surface seeding of wheat is popular at Dhanusha, Rupandehi, Nawalparasi, Kapilvastu, Bara, Rautahat and Parsa districts. The low-lying areas having *kharif* fallows are the most potential

Direct seeding: Direct seeding of rice by chinese seed drill (CSD) and furrow irrigated raised bed (FIRB) is showing encouraging results in Rupandehi and Parsa districts. Some damage was done through heavy floods at Belwa

Single seedling: Single seedling rice produced 20-25 % higher yields over the conventional practice at research stations and farm trials

Current acreage under the technologies:

Technology	Area (ha)
Minimum tillage in wheat	200
Zero-till in wheat	35
Bed planting	13
Surface/relay wheat sowing	200
Direct seeded rice by CSD	Experimental
Direct seeded rice on bed	Experimental
Bed planting with legumes(lentil)	Experimental
Single seedling transplanting	Experimental
Tillage and crop	Transplanting

Potential areas that can be covered by the technologies:

The potential areas for minimum tillage are in Terai and mid hills. Zero-till is becoming popular in Rupandehi, Kapilbastu, Bara, Parsa and Rautahat districts. The potential of bed planting is yet to be seen in fields. Surface seeding is having good potential in eastern and central terai region and lower hills with excessive soil moisture.

Technical backstopping from IARC for fine-tuning:

- Support is needed for local manufacturing of hand tractors and attachments, FIRBs, zero-till drills
- Relevant package of practices for wider dissemination of the technologies
- Improved exchanges of information among scientists by visits and training

New bilateral programs initiated at NARS level:

- CRSP (Cornell University): Soil Management
- IRRI: Nutrient Management
- ADB/RWC: Resource conserving Technologies
- Massey University, New Zealand: Zero tillage
- IAEA: Integrated soil, water and nutrient management in R-W system
- IFS: N dynamics and balances in R-W system
- NARC-IRRI MoU signed and workplan developed for further collaboration
- NARC-CIMMYT Workplan signed for collaborative works

Support received from RWC/IARCs in 2001

- RWC competitive grant was received by Dr. Raj K Shrestha to work on "C sustainability of R-W System".
- Twelve Zero-till seed drills, three zero-till cum bed planter, one cone bed planter, four animal drawn seed drills and three CHTs received
- Two NARC scientists participated in the Travelling Seminar and four scientists trained for Boro rice cultivation in 2001.

New emerging researchable issues:

- Development of technologies for effective Carbon sequestration in soil
- Weed management in different tillage technologies
- Development of permanent bed planting in rice-wheat areas

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(As reported by Dr. Raj K Shrestha)

Rice-Wheat System in Nepal: An Overview

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www.narc-nepal.org

Input to PRISM-WISARD

PRISM (Project and Research Information System Module) developed and coordinated by Rice-Wheat Consortium of the CIMMYT is an internet-based platform for sharing and managing information in the field of Research and Development (ARD) on “who is doing what where and with what results”. The system provides search options on:

- Organizations, partners, funding agencies
- Projects/Activities by country, theme, institutions and transects
- Contact persons and experts
- In-depth search for agriculture and natural resource management specific keywords
- Details of organizations including home page and projects

You can register yourself as a user to enter data online at:

<http://www.wis.cgiar.org/rwc> or <http://www.wisard.org> or go through NARC website: <http://www.narc-nepal.org>

Communication, Publication and documentation Division (CPDD), of Nepal Agricultural Research Council (NARC) works as the National Focal Point (NFP) for PRISM in Nepal. Organizations/institutions (national, international, regional, public and private sector, NGO's and farmer) working in the field of research, education and development in Nepal are invited to join this global platform. If you have any queries or wish to put information about:

- Organization
- Projects
- Experts

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Papers called for Journal

Nepal Agriculture Research Journal (Nepal Agric. Res. J.) is a regular publication of the Society of Agricultural Scientists/Nepal (SAS/Nepal) that began in 1997. Papers can be submitted any time to the following address. Authors are requested to submit an electronic copy on floppy (in word format) and two hard copies of each article double-spaced in English. Consult the latest issue of Nepal Agric. Res. J. for details of manuscript preparation. As you all know, each of the submitted manuscripts will be reviewed by at least two peer reviewers. Manuscripts with comments will be returned to the respective author/s. Author/s are responsible for correction according to the comments/suggestions made. The corrected version of the manuscript, both hard copy and electronic copy must be submitted in time.

For details you can correspond to Dr. C.B. Karki <plpatho@wlink.com.np> or BK Joshi <joshibalak@rediffmail.com>.

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The Participatory Action Planning (PAP) Workshop is being held at RARS, Bhairahawa from 7 to 12 January 2002. The objectives of the workshop are to develop a participatory action plan for farmer groups as per project documents; and provide the tools and experience to project scientists to be able to conduct a PAP on their own in the future.

It is being organized with support from CIMMYT, Nepal, New Zealand, Asian Development Bank, System-Wide PR&GA (Participatory Research and Gender Analysis), and CIAT.

With the view to interact on issues relating chiraito conservation, research and development, a seminar was organized by Nepalese Forum of Environmental Journalists (NEFEJ) on 21 November 2001.

Dr. Tanka Prasad Barakoti, Senior Scientist at Agriculture Research Station, Pakhribas of NARC reported research activities conducted under the project "Developing propagation and management techniques for the domestication of Chiratio (*Swerta chirata*) of Hill Agriculture Research Project (HARP) that began in 1998.

Chairato, a high value medicinal plant that has been a source of income to many people in eastern hills, is now going to extinct. Therefore, attempts for its domestication and conservation are being made.

Contd. from page 5

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**Participatory Action Planning
Workshop**

**Seminar on Chiraito Research
and Development**

RESEARCH HIGHLIGHTS

- Bal K Joshi and Hari P Bimb

Biotechnology Unit, Agriculture Botany Division, NARC

Buckwheat is an irreplaceable crop in the mountainous agro-ecological regions of Nepal. Research on buckwheat in Nepal was initiated in 1973; however, high yielding variety has not yet been released. Conventional breeding techniques have not been successful in crossing between *mithe* (common) and *tite* (tartary) buckwheat. Suggestion is made using plant cell and tissue culture techniques as means to overcome breeding barriers in buckwheat which has complex breeding system. (Joshi and Bimb, 2001). Embryo and ovule culture systems have been used in a number of studies in relation to the potential of inter-specific hybrids to overcome cross incompatibility. Ujihara et al. (1990) reported the successful buckwheat ovule culture. Uchinomiya (1990, cited by Adachi, 1990) succeeded in ovule culture just three days after pollination. Hybridization of tartary buckwheat with common buckwheat at the diploid level has been accomplished and resulting ovules were cultured in media to obtain plants (Campbell, 1995). Woo et al. (1999) used the embryo rescue to develop five hybrids from *F. cymosum* with other species: *F. esculentum*, *F. tataricum*, *F. homotropicum*, *F. pilus*. To overcome the post-zygotic barriers, ovule culture has facilitated the production of inter-specific hybrids (Woo and Adachi, 1997; Wang and Campbell, 1998). Thus, ovule culture became an easy and effective tool for obtaining wide-inter-specific hybrids in the genus

Fagopyrum (Woo et al., 1999). Effective and efficient embryo culture techniques are necessary for embryo rescue that helps to develop hybrids within genus *Fagopyrum*. The *in vitro* culture of embryo to increase the number of growth cycles per year is one of the strategies to break the dormancy period in breeding programs. With this objective the Biotechnology Unit at Khumaltar initiated works to develop the efficient methods of *in vitro* embryo culture in 2001.

The experiment was laid out in 3² factorial completely randomized designs. Three factors, species (*tite* and *mithe*), culture media (tap water and ½ MS) and culture vessels (petri dish and jam-bottle) were taken in this study. Seeds at dough stage (after becoming seed coat black) from the field were collected for embryo culture. Seeds were surface sterilized with 70% ethyl alcohol for 5 minutes and 0.1% sodium hypochloride for 15 minutes and then rinsed 3 times with sterile distilled water. Half strength MS media (Murashige and Skoog, 1962) and tap water were sterilized in an autoclave at 121°C for 15 minutes prior to use. Filter paper was used in the tap water treatment. Embryos dissected from the surfaced sterilized seeds were placed according to the combinations of treatments. Embryos were cultured in constant light at 21°C temperature. Growth patterns of the embryos were measured after 6 days of culture. Data were analyzed using MSTAT

software and DMRT were applied to separate the means.

Tite and *mithe* buckwheat responded differently to growth of embryo *in vitro* for number of germination, length of main root, seedling height and number of root branches (Table 1). Significant differences between ½ MS media and tap water were found for length of main root, seedling height and number of root branches. Significant interaction between species and vessels and between media and vessels was only for number of root branches. Highest numbers of embryos were germinated in jam-bottle with 1/2 MS media for *mithe* buckwheat. However, *mithe* buckwheat cultured in petri dish with ½ MS media had longest root and seedling height and highest number of root branches. Results indicated that embryos cultured in petri dish responded very well. Media is necessary for *in vitro* culture of embryo as compared to tap water that could not supply the necessary nutrients for growing embryos. Wang and Campbell (1999) found the similar results. Thus, culturing mature embryos in 1/2 MS media in a petri dish is a simple, rapid and economic technique. This technique can also be applied to other crops for culturing mature and immature embryos as well as for embryo rescue in wide hybridization.

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Table 1. Growth response of buckwheat embryos cultured *in vitro* in different conditions

Treatments		Embryo growth response [†]				
Species (S)	Culture media (M)	Culture vessel (V)	No. of germination	Length of main root, cm	Seedling height, cm	No. of root branches
<i>Tite</i>	Tap water	Petri dish	0.67 d	0.00 c	0.17 c	0.00 c
		Jam-bottle	1.00 cd	0.97 bc	0.55 c	2.33 ab
	½ MS	Petri dish	2.00 bcd	1.60 bc	1.59 bc	0.33 c
		Jam-bottle	1.00 cd	2.00 ab	1.68 bc	0.00 c
<i>Mithe</i>	Tap water	Petri dish	4.33 ab	1.63 bc	1.57 bc	2.31 ab
		Jam-bottle	4.67 ab	1.35 bc	1.14 c	3.20 a
	½ MS	Petri dish	3.67 abc	3.63 a	3.47 a	3.42 a
		Jam-bottle	5.33 a	2.36 ab	2.92 ab	1.23 bc
	F (S)	**	**	**	**	
	F (M)	ns	ns	**	*	
	F (SxM)	ns	ns	ns	ns	
	F (V)	ns	ns	ns	ns	
	F (SxV)	ns	ns	ns	**	
	F (MxV)	ns	ns	ns	**	
	F (SxMxV)	ns	ns	ns	ns	

[†] Means followed by the same letter/s are not significantly different at 5% level as explained by DMRT.

***In Vitro* Embryo Culture of *Tite* and *Mithe* Buckwheat**



WTO and Agricultural Biodiversity: Policy Issues and Options

- Devendra Gauchan
Outreach Research Division, NARC

Agricultural biodiversity is fundamental to agricultural production and food security, and is a critical component of environmental conservation. It is a creation of humankind whose food and livelihood security depend on the sustained management of those diverse biological resources that are important for food and agriculture. Small-scale farmers in Nepal since time immemorial have nurtured and maintained diverse crop and animal biodiversity for their immediate food needs and survival. For a developing country like Nepal, conservation of agricultural biodiversity is more important than anywhere else because of the importance of agriculture in the national economy and dependence of more than 80 percent of population in agricultural sector for their direct livelihood.

Loss of Agro-biodiversity and Local Knowledge

Agro-biodiversity, which is the national economic and social capital of Nepal, is facing new challenges from the complex liberal and global market forces. While liberal and open economic policies are likely to bring new opportunities to spur economic growth and development, these will not occur without accompanying negative effects. The biological diversity, which sustains the locally diverse and sustainable agricultural production systems are under threat and, with them, the accompanying local knowledge, culture and skills of the farmers and local communities. An important concern is that a handful of modern crop varieties is replacing the numerous native varieties at a fast rate. Agro-biodiversity of one time period can be conserved in *ex situ* in gene banks and botanical gardens if they are in threat but loss of knowledge and evolutionary process of gene pools are difficult to conserve unless we provide enabling policy environment to conserve these valuable gene pools and knowledge held by rural communities.

Prerequisite to WTO Membership

Nepal's proposed entry to World Trade Organization (WTO) and enforcement of Trade-Related Aspects of Intellectual

Property Rights (TRIPS) in WTO have brought new policy challenges and issues that need increasing concern and internal preparation. According to WTO rules, without development of legislation by the applicant country on intellectual property rights in the form of either patents, *sui generis* systems or combination of both, full membership can not be granted. However, Nepal has not made any functional initiatives in the preparation of appropriate policy and legal frameworks in relation to sustainable conservation and utilization, biosafety, farmers' rights and *sui generis* systems for the protection of valuable genetic resources from biopiracy, equitable access and fair share of benefits arising out of the use of agrobiodiversity on-farm.

Policy Issues

The multilateral agreement on trade liberalization tabled by the world trade organization (WTO) will definitely impact on farming communities and national economy. Bio-trade is growing rapidly worldwide in the recent years due to development of free trade, biotechnological innovations and legal infrastructures on Intellectual Property Rights (IPR) systems after the creation of WTO. As a country rich in genetic resources, the major policy issues that will have profound implications on Nepal's future agricultural and economic development will be intellectual property rights, farmers rights, biosafety, trade, exchange, equitable access and benefit sharing, and sustainable utilization of available wide genetic diversity in the country.

Preliminary finding of on-going policy research of the Nepal component of global *in situ* agro-biodiversity conservation on-farm project has indicated that the policies geared for conserving local agrobiodiversity have not received the same level of attention from national and international decision-makers as the conservation of "wild" biological diversity. Despite Nepal's ratification of Convention of Biological

Diversity (CBD), 1992 in 1993, policy makers and common public alike are less informed and aware of the potential benefits of agrobiodiversity conservation. As a result the country lacks overall national vision, policies and action plans for the sustainable conservation, utilization and equitable sharing of benefits arising from the use of rich bio-wealth of the country.



Policy Options

Considering the importance of agriculture in the local and national food security and livelihood of the Nepalese people, agricultural biodiversity must form a key dimension of any sustainable agriculture strategy and policy. The present policy options that have major concern for Nepal in the context of changing free global economies and in line of Nepal's preparation for joining in WTO are (i) to enhance local and national capacity in protecting, conserving and sustainable utilization of diverse genetic resources for stimulating agricultural and economic development of the country and (ii) devise appropriate mechanisms for local community level registration of agricultural biodiversity and Intellectual Property Rights (IPR) Systems such as *sui generis* systems or farmers' rights legislation that best work for a least developed agricultural based country like Nepal.

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Contd. on page 7



(October - December 2001)

S.N.	Name	Position/Faculty	Subject	Duration	Country
<u>SEMINAR/WORKSHOP/MEETING</u>					
1.	Dr. Kedar Budhathoki	S-4/Horticulture	International Symposium on Environmentally Sound Tropical Fruit Technology	11-14 October	China
2.	Mr. Raghunath P. Sapkota	Act. Executive Director	GFAR Annual General Meeting	26 Oct.-2 Nov.	USA
3.	Mr. Ram Bahadur Maskey	S-3/Soil Science	Training Workshop on Managing Soil Erosion Conservation	22-26 October	Laos PDR
4.	Mr. Suresh Kumar Rai	S-3/Soil Science	Training Workshop on Managing Soil Erosion Conservation	22-26 October	Laos PDR
5.	Mr. Raghunath P. Sapkota	Act. Executive Director	5th Annual Meeting of the Council & 6 th Executive Committee Meeting (CORRA)	10-14 November	Thailand
6.	Mr. Bimal Kumar Baniya	S-4/Ag.Botany	International Symposium on Managing Bio-Diversity & Agri-Eco-System	8-12 November	Canada
<u>OBSERVATION</u>					
7.	Mr. Anil Kumar Jha	T-6/Soil Science	Observation tour on tea research program	4 - 21 October	India
8.	Mr. Mahesh Lal Vaidya	S-3/Agronomy	Observation tour on grain legumes research	8 - 19 October	India
9.	Mr. Ram Krishna Neupane	S-3/Agronomy	Observation tour on grain legumes research	8 - 19 October	India
10.	Dr. Tanka Prasad Barakoti	S-3/Agronomy	Observation tour on Chiraito in China	8 - 12 October	China
11.	Mr. Krishna Prasad Paudel	S-3/Horticulture	Observation visit on lemon research	28 Oct. - 9 Nov.	India
12.	Mr. Yam Raj Pandey	S-3/Horticulture	Study visit on Saffron research	8 Nov. - 2 Dec.	India
<u>TRAINING</u>					
13.	Mr. Chiranjivi Adhikari	S-3/Agronomy	BORO Rice Training	10 - 12 October	India
14.	Mr. Mishri Lal Sah	S-4/Agronomy	BORO Rice Training	10 - 12 October	India
15.	Mr. Beda Nanda Chaudhary	S-3/Agronomy	BORO Rice Training	10 - 12 October	India
16.	Mr. Nilam Kumar Shakya	T-6/Agronomy	BORO Rice Training	10 - 12 October	India
17.	Mr. Krishna Prasad Gautam	T-6/Fishery	Training program on Tilapia	22 Oct. - 5 Nov.	Thailand
18.	Mr. Govinda Prasad Sedhai	S-3/Ag.Ext.	Regional course on agricultural research management	4 Nov. - 6 Dec.	Srilanka
19.	Mrs. Shanti Bhattarai	S-3/Soil Science	Regional course on agricultural research management	4 Nov. 6 Dec.	Srilanka
20.	Dr. Ek Mohan Bhattarai	S-2/Soil Science	Training of trainers on rice	10 Nov. - 9 dec.	Philippines
21.	Mrs. Sarala Sharma	S-3/Pathology	Training on fungi identification in Rice-Wheat	5 Nov. - 1 Dec.	U.K.
22.	Mr. Roshan Manandhar	T-6/Entomology	Biological control of green-stick bug	15 Nov. - 15Dec.	India
23.	Mr. Rabindra Prasad Shah	T-6/Agronomy	Chikpea Improvement and Pathology	1 - 31 December	India
24.	Dr. Sita Ram Aryal	S-3/Veterinary	Training on <i>Salmonella</i> Antigen preparation and standardization	3 Dec. -1 Jan. '02	India
25.	Dr. Raj Kumar Shrestha	S-3/Soil Science	Nutrient dynamics and balance in Rice-Wheat	3 Dec. -18 Jan '02	Philippines
<u>STUDY</u>					
26.	Mr. Shambhu Prasad Khatiwada	S-3/Agronomy	Ph.D. in Plant Breeding	1 Nov. - for 2 yrs. & 4 months	India

Contd. from page 6

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TRAINING WORKSHOP/SEMINARS, STUDY & TOURS ABROAD

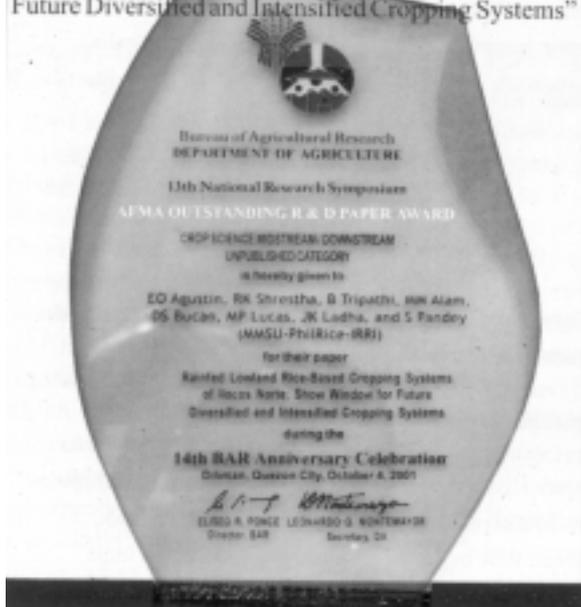
VISITS

A Chinese team on Agro-Machinery visited NARC on November 1, 2001. A talk program and press conference was also held. The visit was organized by CIMMYT, Nepal.

A group of five Bhutanese agriculture scientists visited NARC on 21 November 2001. The Group from the Ministry of Agriculture, Bhutan was on a study tour from 19 November to 5 December 2001. The group also visited the research stations at Lumle

Outstanding R & D Paper Award to NARC Scientists

Dr. R. K. Shrestha and Dr. B.P. Tripathi, Senior Scientists in Nepal Agricultural Research Council (NARC) have been conferred the AFMA Outstanding R & D Paper Award (Crop Science Midstream/Downstream unpublished category) for the joint research paper "Rainfed Lowland Rice-Based Cropping Systems of Ilocos Norte: Show Window for Future Diversified and Intensified Cropping Systems"



Upcoming Events

Participatory Action Planning Workshop

The Participatory Action Planning (PAP) Workshop is being held at RARS, Bhairahawa from 7 to 12 January 2002. The objectives of the workshop are to develop a participatory action plan for farmer groups as per project documents; and provide the tools and experience to project scientists to be able to conduct a PAP on their own in the future.

It is being organized with support from CIMMYT, Asian Development Bank, New Zealand, System-Wide PR&GA (Participatory Research and Gender Analysis), and CIAT.

FAO Regional Conference

26th FAO Regional Conference for the Asia and the Pacific is being held in Kathmandu, Nepal on 13-17 May 2002. Conference Management Committee and various Sub-Committees have been formed under Ministry of Agriculture and Cooperatives.

Asian Regional Maize Workshop

8th Asian Regional Maize Workshop is going to be held in Bangkok, Thailand on 5 - 8 August 2002. It is being organized jointly by CIMMYT, DOA, Thailand and Kasetsart University.

PRISM-REWIN Workshop

2nd REWIN (Regional Working Group on Information Management) Workshop on Project and Research Information Management System Module (PRISM) is being held in New Delhi, India from 26 - 31 January 2002. The Workshop is being organized by Rice-Wheat Consortium coordinated by CIMMYT.

Events on International Year of Mountains 2002

International Seminar on Mountains organized by Royal Nepal Academy of Science and Technology (RONAST) in collaboration with Ev-K2-CNR and support of His Majesty's Government of Nepal, FAO, ICIMOD, IUCN, WWF, KMTNC and various other organizations, in Kathmandu from 6-8 March 2002. During the Seminar, a special exhibition is also being held. NARC is actively taking part in the seminar and the exhibition

Celebrating Mountain Women: International Conference from 28-31 May 2002 in Kathmandu.

Geographic Information System Forum South Asia 2002 from 11 to 15 November 2002.

Booking the Mountains: A Book Fair and Exhibition organized by International Centre for Integrated Mountain Development (ICIMOD) from 26-28 September 2002. NARC is also involved in the program.

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Raghunath Prasad Sapkota
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Published by :

Communication, Publication and Documentation Division

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To



