



## A Quarterly Newsletter of Nepal Agricultural Research Council (NARC)

Volume 15 No. 3

July-September 2008

### RESEARCH/TECHNOLOGY

#### Coffee Pulper Machines Released

Different types of coffee pulper machines designed by the Agriculture Engineering Division under NARC were released with a special function at Khumaltar on 11 March 2008. The coffee pulpers designed in order to cater the needs of small scale as well as medium scale pulping were formally released by Mr. Bhim Neupane, Hon'ble Member of National Planning Commission; Mr. Tek Bahadur Thapa, Secretary of Agriculture and Cooperative, and Mr. Huta Ram Vaidya, first agriculture engineer in Nepal. During the occasion, Mr. Shreemat Shrestha, Senior Scientist who has been involved in developing the machines, briefed about the new designs of coffee pulper. The models of pulpers developed by the Division were demonstrated.

During the occasion, representatives from Ministry of Agriculture and Cooperatives, Department of Agriculture, private manufacturers, coffee farmers from Kavre and Sindhupalchowk and media persons were present. (See article on page 5)

#### New Aromatic Rice Variety Released

Variety Approval, Release and Registration Sub-Committee under National Seed Board that met on 20 March 2008 officially released a new rice variety named 'Sunaulo Sugandha' along with complete package of practices for farmers to cultivate in terai, inner terai and foothills up to 500 masl in Nepal.

The new rice variety released after 10 years' research and experiments at different research stations and farmers' fields at different locations coordinated by Local Initiative for Biodiversity, Research and Development (LIBIRD) in collaboration with National Rice Research Program under Nepal Agricultural Research Council (NARC), CAZS-Natural Resources, Bangor University, UK and Jaskelo Youth Club (JYC), Chitwan. This was developed using client oriented breeding (COB) approaches. The variety has been released to cultivate in terai and inner terai under both irrigated and rain-fed conditions in cropping patterns: Rice-Winter vegetables-Mungbean/Maize/Chaite rice/vegetables; Rice-Fallow-Mungbean/Chaite rice/Spring rice; Rice - Potato-Maize/Chaite rice;

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Newly released rice variety 'Sunaulo Sugandha'

## Training on Advanced Rice-Wheat Systems

A short term training course on Advanced Technology in Rice-Wheat Systems was organized by National Agricultural Research Institute (NARI), NARC at Khumaltar from 20-25 January 2008. A total of 25 agricultural graduates and post graduates working as agriculture extensionists in Department of Agriculture and researchers in NARC.

The objectives of the training program was to deliver and promote dissemination of the advanced technology in rice-wheat system; to integrate both the theoretical and practical aspects of relevant learning in rice-wheat system; and to review, discuss and share information on different aspects of sustainable rice and wheat production management systems.

The training was concluded with a special program organized at Soil Science Division, Khumaltar. The program was chaired by Dr. Nanda P Shrestha, Executive Director of NARC. Mr. Bharat P Upadhayay, Director General of Department of Agriculture was the Special Guest in the program.

The training course content included general introduction of Rice-Wheat Systems, molecular techniques for rice and wheat improvement, varietal improvement initiative to achieve new emerging challenges, quality source seed supply systems in Nepal and steps to ensure delivery mechanism of quality seeds of rice and wheat, weeds of rice and wheat and their effective management systems, major soil and foliar biotic constraints associated with rice-wheat systems, major rice diseases and their management under rice-wheat systems in Nepal, insect-pests of rice and their management in field condition under rice-wheat systems.

The resource person in the training were Dr. Madhav Joshi, Dr. Hari P Bimb, Dr. Dhruva Thapa, Mr. Hari K Upreti, Mr. Ram B Prasad, Mr. Madan R Bhatta, Dr. Jwala Bajracharya, Dr. Jagat Devi Ranjit, Ms. Sarala Sharma, Mr. Gopal Parajuli, Dr. Yajna G Khadka, Dr. Shree Baba Pradhan, Dr. Bharatendu Mishra, Mr. Ashok Mudwari, Dr. Devendra Gauchan, Dr. Madhusudan P Upadhayay.

## World Meteorological Day 2008

World Meteorological Day 2008 was observed with a theme 'Observing our planet for a better future'. A seminar on the occasion of the Day was held at Department of Hydrology and Meteorology, Babar Mahal, Kathmandu on 23 March 2008.

In the Seminar, 30 year rainfall and rice production in Nepal was presented. The seminar was participated by officials from different organization including NARC. NARC representative Mr. Bholan Man Singh Basnet made comment on the subject.

World Meteorological Day is celebrated annually after 23 March 1950 when the World Meteorological Organization (WMO) a specialized agency of the United Nations entered into force the date to be observed.

## Training on E-Government

A training/orientation on concept and practices of electronic government and related ICT issues was held in Kathmandu on 8-10 March 2008.

The three-day training had the objectives to: sensitize key designated officials from e-Governance implementing agencies on the role of ICTs on organizational efficiency and on strengthening the tenets of good and accountable governance; provide the participants with foundation concepts of e-Governance including a sensitization on a wide range of technological issues, take stock of eGovernment best practices; help participants analyze critical success factors influencing e-Governance implementation and sustainability.

About 60 officials IT focal points representing different ministries and government organizations participated the training. NARC was one of the participants in the training.

A training was organized by High Level Commission on Information Technology (HLCIT). HLCIT is an apex body formed under the Chairmanship of Rt. Hon. Prime Minister of Nepal with a view to providing crucial strategic direction and helping formulate appropriate policy responses for the development of ICT sector in the country as well as harnessing these technologies to meet key developmental challenges including governance reform and catalyzing economic growth for poverty reduction.

## Workshop on Bio-security

Nepal Agricultural Research Council (NARC) organized a workshop on 'Bio security – SPS Legislation and Capacity Building Assessment: The Way Forward' in collaboration with the Food and Agriculture Organization (FAO) on 31<sup>st</sup> January 2008 in Kathmandu.

In the workshop, different working papers on bio security capacity building were presented by national and international experts. Ms. Cristina Tirado, FAO International Food Safety and Veterinary Consultant presented the SPS capacity building assessment in Nepal: first result; Ms. Carmen Bullon, FAO International Legal Consultant presented on strengthening the national legal framework. Dr. Uttam Bhattarai, Director General of Department of Food Technology and Quality Control; Dr. Prabhakar Pathak, Department of Livestock services; Dr. Suraj Pokharel, Department of Agriculture; and Dr. Hira Kaji Manandhar, Chief of Planning Division, NARC presented on the existing capacity and future needs on respective sectors.

The workshop concluded that the existing physical facilities, human resource, legal provisions be assessed and actions taken for strengthening and implementing with appropriate legal provisions.

Bio-security is the practices and procedures which if implemented are likely to prevent or greatly reduce the likelihood of the spread of an infectious disease.

## Field visit on 'Yellow Rust' in Wheat

In order to observe the farmers' field and to share experiences on the Yellow Rust disease in wheat that has wide spread for the last some years, and to make out strategies against the disease for coming years, a field visit to Ramkot, Kathmandu was organized by Plant Pathology Division of Nepal Agricultural Research Council (NARC) on 28 March 2008.

During the visit, NARC scientists, representatives from Department of Agriculture and NGOs had interactions on the issues related to the incidence of disease and control measures. NARC Scientist gave information about the disease and research activities conducted on it. As reported by scientists, extensionists and farmers, there are several varieties that had been found resistant to yellow rust disease.

The yellow rust disease that passes through air has come as disaster to wheat crops in the last some years after about two decades in the country. The new resistant varieties (WK 1204 and Pasanglhamu) of wheat has given hope to get rid of the disease and make the 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 districts of the country.

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Rice-Wheat-Fallow; Rice-Mustard-Maize/Chaite rice/Mungbean.

This variety has been released as it is high yielding and has good aroma and eating quality that gives higher market price. It is non-lodging and responsive to applied fertilizers, has long panicles, gives high straw yields, has high milling recovery. It is also found resistant to leaf and neck blast diseases. It has an yield potential of 5.5 t/ha and maturity period of 151 days from seeding.

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

A total of 215 varieties of 45 different crops alongwith complete package of practices have been released so far since 1960. The number of rice varieties released in the last 47 years is 56, of which twenty two varieties released after the establishment of NARC as an autonomous organization in 1991. Seven varieties of rice for different agro-ecological zones were released in last one year.

## Bio-tech Research on Hybrid tomato

A research work on developing tomato hybrid variety through biotechnology is underway at Biotechnology Unit, NARC Khumaltar.

Dr. Bindeswor Sah, Senior Scientist working at Biotechnology Unit reported that the Nepali farmers will get seed of two hybrid tomato varieties developed in Nepal and the seeds can be replicated by themselves that can be used for next 5-6 years.

The varietal development through conventional crossing method takes 12-15 years for seed production. However it is possible to develop variety in three years through biotechnology.

Hybrid tomato varieties have many advantages compared to open-pollinated varieties. Hybrids usually produce higher yields. They generally mature earlier and more uniformly. Many hybrids have better fruit quality and disease resistance. With all of these advantages, many farmers prefer to sow hybrid seeds in spite of the higher seed costs.

Presently, the farmers are using tomato seeds imported from India, Sweden, Netherland, Spain, USA and other countries.

## ATWG Guidelines Approved

Implementation Guideline for the Agricultural Technical Working Group (ATWG) has been recently approved by Ministry of Agriculture and Cooperatives, Government of Nepal. The Guideline was signed by the Secretary of Agriculture and Cooperatives on 14 February 2008.

The Guideline is a detailed procedure for implementing Agricultural Technical Working Group (ATWG) at district, regional and national level among concerned stakeholders in general and NARC, Department of Agriculture (DoA) and Department of Livestock Services (DLS) in particular.

The Guideline is a norm for executing the ATWG in order to disseminate technologies to clients and receive feedback to update research.

ATWG is a venue where researchers, extension personnels and technology users share ideas with respect to generation, verification and up-scaling of agro-technology to enhance livelihood.

ATWG has been in action since almost a decade ago with initiation from NARC and active involvement of other stakeholders was ever sought. This Guideline has given a clearcut role of other partners including NARC, DoA, and DLS for agriculture R & D as well. As the Guideline envisions, the ATWG creates a linkage among research, extension and clients in carrying out R&D activities for increasing production and productivity.

## Feeding Value and Toxic Elements of Nimaro (*Ficus roxburghii*)

### Background

Nimaro (*Ficus roxburghii*) is one of the important fodder tree species in Nepal. It is versatile and can be used as fodder, fuel wood, and green leaf plate for ceremonial occasion. The tree can be easily established on a wide range of soil type at a variety of altitude and in a range of rainfall zones (800-5,000 masl). Most favorable altitude to grow Nimaro is 1650 masl (wood *et al* 1994). There is a need of a more systematic study on fodder production and quality for ruminant feeding. Information on the feed composition will help to formulate the ration. Similarly, information on the toxic elements will help for safe feeding to ruminant animals. Therefore, review was done to present feeding value and toxic elements of Nimaro as a fodder tree in the hills of Nepal.



A mature Nimaro tree

species and reduce the nutritional value of the fodder. These may be potential for selecting times or condition where tannins are less active and thus improve the nutritive value of feed. There also may be potential to manipulate tree metabolism by simple means such as watering or shading to improve feed quality (wood *et al* 1994).

### Nutrient Contents

Crude protein (CP) content is the most important criterion for fudging feeds & fodder. Nimaro is rich in protein sources. Edible fodder twigs were moderate in CP content that ranged from 11.95 to 13.35 percent. CP level of  $13.2 \pm 1.2$  was reported (Wood *et al* 1994 Shakya, 1990). Further, Upreti and Shrestha 2006 reported CP of  $11.95 \pm 2.39$  % in vigorously matured leaves. This showed that Nimaro contained moderate level of CP. Crude protein in fodder tree ranging 10.01 to 19.99% is considered moderate, and more than 20% high (Upreti & Shrestha, 2006). Other nutritional parameters with their concentration are presented in the box.

Parameter	Nutritive value (%)
DM	26.61
CP	11.98
TA	11.3
EE	2.7
CF	15.38
NDF	44.0
ADF	37.98

### Minerals

A complete chemical status of Nimaro leaves has been illustrated in the following boxes. Seven major minerals and 15 trace minerals are presented with their median values.

Macro minerals		Micro minerals	
1. Calcium (mmol/kg)	664	1. Boron (mg/kg)	21.4
2. Chlorine (mmol/kg)	40.8	2. Chromium ( $\mu\text{g}/\text{kg}$ )	1201
3. Magnesium (mmol/kg)	179	3. Cobalt ( $\mu\text{g}/\text{kg}$ )	223
4. Phosphorus (mmol/kg)	58.8	4. Copper (mg/kg)	12
5. Potassium (mmol/kg)	390	5. Flourine (mg/kg)	5.7
6. Sodium (mmol/kg)	4.5	6. Iodine (mg/kg)	610
7. Sulphur (mmol/kg)	38.0	7. Iron (mg/kg)	16
		8. Manganese (mg/kg)	234
		9. Molybdenum ( $\mu\text{g}/\text{kg}$ )	251
		10. Nickel ( $\mu\text{g}/\text{kg}$ )	1940
		11. Selenium ( $\mu\text{g}/\text{kg}$ )	138
		12. Strontium ( mg/kg)	302
		13. Sulphate (mmol/kg)	16.8
		14. Vanadium ( $\mu\text{g}/\text{kg}$ )	361
		15. Zinc (mg/kg)	22.5

### Tannin

Nimaro recorded lower level of extractable tannin (2.89%) and apparent total 3.85 tanning of (2.6) percent, which is safe to feed animals. Fodder tree containing tannin more than 5% is considered low in feed quality (Barry & Manley 1984). Tannin content in tree foliage varies mainly due to altitude and climatic condition i.e. rainfall, temperature and sunlight. Under certain weather conditions, tannin levels may rise sharply in some

### Lignin

Nimaro recorded moderate level of lignin containing 14.2 percent. Fodder tree containing more than 20% ADL is considered as low in quality as mane ADL containing fodder are lignified and difficult to digest by the ruminant (Upreti & Shrestha 2006). Crude lignin are collective aggregation of non-carbohydrate components of the cell wall that are insoluble in 12 M sulphuric acid (van soest, 1985).

### Toxic Elements

Nimaro was evaluated for its toxic level in leaves. Major toxic contents are presented in the box and some of them are described as follows.

Toxic Elements	Content (median)
1. Aluminum (mg)	195
2. Arsenic ( $\mu\text{g}/\text{kg}$ )	60
3. Lead ( $\mu\text{g}/\text{kg}$ )	560
4. Mercury ( $\mu\text{g}/\text{kg}$ )	66
5. Nitrate (mmol/kg)	27.1

**Arsenic:** Nimaro recorded median 60  $\mu\text{g}$  arsenic/kg leaves. Goats require this element. In deficiency, the growth is affected. Animal exhibits rough skin. But if fed in excess, the toxicity causes vomiting, diarrhoea and sever abdominal pain. In normal feeding to ruminant species, the chance of toxicity is low.

**Aluminum:** This element appears in milk co-incident and required to the suckling young. But it is critical if fed in excess amount. Nimaro recorded median value of 195 mg/kg. If excess amount appears in milk, toxicity may affect the neonate.

**Nitrate:** Nimaro recorded median 27.1 m mol/kg leaves on DM basis. Nitrate itself may not be toxic to animals, it is converted to nitrate in rumen under favorable condition, which is toxic. Green oat contains large amount of nitrate. Nitrite, as sodium nitrite, should not be more than 60 mg/kg DM (12% moisture content) in animal diets which is equivalent to 14 mg nitrite nitrogen/kg DM (McDonald, 1995).

### Conclusion

Crop as such is moderate in status of nutrient level. Nimaro is moderate in tanning and lignin content and therefore the crop is safe to feed ruminant animals. Toxic element in Nimaro might be in safe level to the ruminant feeding.

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-Dr. Chet Raj Upreti  
-Basanta Kumar Shrestha

## Coffee Pulpers Developed by AED, NARC

### Background

In Nepal, coffee is specialty cultivated in steep, marginal and shady land at the altitude range of 800-1600 m and it is cultivated in more than 1400 ha in 22 hill districts. Since the production cost is found to be comparatively less and income per tree can range from \$ 1-6 per annum, it is considered to be an attractive cash crop for small and poor farmers of mid hills. There has been significant increase in specialty coffee export from negligible amount in 2002 to 112 mt in 2007. To enhance the quality of coffee for international export, wet processing technology was introduced in Nepal few years back. Pulping is one of the important processes of wet processing and hence, more than 350 coffee pulping centers are established. Different types of coffee pulpers viz. wooden roller, metallic roller, metal disc and drum types etc were introduced in Nepal. **Wooden roller Pulper** was introduced in Nepal (brought from Indonesian Museum) in 2003. This pulper consists of wooden roller wound helically with GI wire over the roller surface. The cost per unit of pulper ranges Rs. 4500-Rs.5500 (without stand). Majority of pulping centers use wooden pulpers. The average capacity of the pulper is 34 kg of fresh cherry per hour. The major problems of this type of pulper are low capacity and low pulping & cleaning efficiency; high breakage of beans & frequent maintenance requirement.



Wooden roller Pulper

**Drum Pulper** was imported from UK in 2004. It consists of stainless steel abrasive drum and fluted nylon roller to pulp coffee. It can be operated manually as well as with electric motor. The capacity of this pulper (electrically operated) is about 210 kg/hr. This prototype is successfully replicated by AED, NARC with the support from CoPP in Nepal with similar performance as UK prototype. China made similar drum pulper is recently imported and the cost is about Rs. 18000 per unit (without stand & electric motor). The major problem of this type of pulper is high cost and difficulty in repair & maintenance.



Drum Pulper

### Coffee Pulpers Developed by AED, NARC

To cater the needs of small scale as well as medium scale pulping, AED has designed, fabricated and tested the following type of pulpers. A team of engineers & technicians of this division led by Mr. Shreemat Shrestha and other members Mr. Rabi G Rasaily & Mr. Shailendra Khatri contributed in this innovation. Genuine Engineering Workshop and General Mechanical Works Contributed in fabrication of these prototypes.

#### AED Roller Type Hand Operated Coffee Pulper

This hand operated pulper is designed by AED, NARC to address the problems of wooden and metallic roller pulper for small pulping centers. After several modifications, it was comparatively tested with the wooden roller pulper in field

condition. The operating capacity of this pulper is 60.kg/hr with pulping and cleaning efficiency above 99 and 96 percent respectively. Similarly the broken parchment and parchment loss is less than 0.33 and 0.44 percent respectively. The capacity of the modified roller pulper is found to be increased by 76 percent than the wooden pulper. Similarly pulping and cleaning efficiency is found to be increased by 2 and 6 percent in modified roller pulper. However the broken percentage of parchment and loss of parchment along with pulp is found to be reduced by 62 and 75 percent in this type of pulper. Other specific features of this type are as follows.

- The high precision in pulper fabrication due to exact height of worm gear on roller from roller surface resulting better performance.
- The pulper is robust in construction and maintenance cost is negligible compared with wooden roller pulper.
- The weight of pulper with stand is about 25 kg
- The cost of the pulper with stand is Rs. 7500.



Roller type hand operated Pulper

#### Cycle Roller Pulper

Cycle coffee pulper is designed for medium scale pulping centers with out electricity facility. It consists of double roller connected by a coupling and it is operated by using pedal power. The pulper is ergonomically designed so that it is easy to operate and the seat is adjustable as per operator's body size & preference. The capacity of the pulper is 100-120 kg/hr. It is with high precision roller resulting better performance in terms of cleaning and pulping efficiency. Compared with hand operated roller pulper, it requires 50 % less manpower for its operation to operate the pulper. The weight of the pulper is 50 kg per unit. It is not yet manufactured in commercial scale.



Cycle Roller Pulper

#### Electrically Operated Pulper

Electrically operated pulper is similar to that of hand operated roller pulper but it is with robust frame to fit the electric motor. The capacity of this type of pulper is at the range of 120-150 kg/hr. The pulping and cleaning efficiency is similar to that of hand operated roller pulper. The weight of pulper with stand and without electric motor is 28 kg and its cost is Rs. 9000 per unit.



Electric Pulper

#### For further information:

Agricultural Engineering Division (AED)  
Nepal Agricultural Research Council (NARC)  
Khumaltar, Lalitpur, Nepal PO Box No. 399, Lalitpur  
Ph. No. 5521307, 5524351, Fax: 977-1-262500/5521197  
Email : aednarc@wlink.com.np , aed@narc.gov.np

### NARC Scientist on media

NARC actively participates and contributes in regular print and electronic (radio, FM, TVs) media. NARC scientists/researchers also participate in live interview in different media. Some of the interviews during the last three months were as follow.

- Mr. Ram Chandra Adhikary in Star FM 95.2 about "Potato" on 9 January 2008.
- Mr. Ghanashyam Malla in NTV on Climate Change and Agriculture on 15 Jan 2008.
- Mr. Bhola Man Singh Basnet in Star FM 95.2 about "Early Paddy" on 16 January 2008.
- Mr. Bhola Man Singh Basnet in Sagarmatha FM 102.4 about "Food Security" on 25 January 2008.
- Mr. Gopal Parajuli in Star FM 95.2 about "Rice Disease" on 30 January 2008.
- Ms. Sarala Sharma in Nepal 1 TV about "Yellow Rust Disease of Wheat" on 19 February 2008.
- Mr. Bhola Man Singh Basnet in Ujyalo FM 92 about "Prevailing Food Crisis" on 25 February 2008.
- Mr. Bhola Man Singh Basnet in TNW about "Agriculture and Climate Change" on 27 February 2008.
- Dr. KD Joshi in Star FM 95.2 about "Sunaulo Sugandha": An Aromatic Variety of Rice" on 26 March 2008.
- The news about the release of 'Sunaulo Sugandha': An aromatic variety of rice was covered by almost all the national dailies (Gorkhapatra, Kantipur, Samacharpatra, Annapurna Post, Himalaya Times, Naya Patrika, The Rising Nepal, The Kathmandu Post, The Himalayan Times) and electronic media (Radio Nepal, Nepal Television) during 20-21 March

### NARC Researcher Participated Seminar on Climate Change

A seminar on 'Climate Change: Causes and our Role for Solution' was held at Lalitpur on 26 April 2008. The program organized by Yuresia Reyukai (11<sup>th</sup> Section) was participated by scientists and experts from different organizations. Mr. Ghanashyam Malla, Technical Officer in Agriculture Environment Unit of NARC represented NARC in the Seminar.

### Visits of International Scientists

- A team of IRRI Scientists visited NARC during 19-22 February 2008 and discussed about developing a project for developing drought tolerant rice varieties for Nepal, India, Bangladesh and some African countries. The team consisted Dr. Arvind Kumar, Rice Drought Expert; Dr. Stephen M. Haefida, CURE Coordinator; Dr Rachid Serraj, Agronomist.
- Dr. Peter Kosina, Coordinator for Knowledge and Capacity building, CIMMYT visited on 5 Feb 2008. Discussion about Rice/Cereal Knowledge Bank was held.
- Dr. Zbigniew Mikolajuk, Program Manager, Knowledge Management, Practical Action visited on 12 February 2008.
- A team of Bangladeshi Scientists visited NARC on 26 March. The team observed Exhibit Room and Learning Centre at Khumaltar.

## NARC and CFR -New Zealand Agreement Signed

A memorandum of understanding (MoU) was signed on 9 March 2008 between Nepal Agricultural Research Council (NARC) and Institute for Crop and Food Research Limited (CFR) to implement the project 'Sustainable Animal Fodder System for Improving Household Incomes'.

The objective of the project is to build technical capacity and familiarization for on-farm fodder extension packages among established clusters of farmers; to improve the quality of on-farm winter and summer fodder crop production and animal feeding systems; to improve animal health, fertility and milk yields; to reduce the heavy work loads of women farmers; and to sustain long-term improvements for the livelihoods of farmers and their families. Essentially the projects aims, in participatory way, to change farmers from gatherers of low quality fodders into producers of high quality fodder on their current land holdings, utilizing fallow winter fields between summer grain crops.

NARC is the primary delivery agent for the project in Nepal with support from the Department of Livestock Services. Mr. Dinesh Pariyar, Principal Scientist is the principal representative of NARC and will coordinate in-country project activity. The NZ based Project Leader is Mr. Keith Armstrong, Scientist of CFR, New Zealand and CFR oat breeder.

According to the agreement, NARC, in collaboration with NZ based Project Leader will: identify and organize the formation of appropriate farmer cluster groups, oversee organization of training needs and media materials for training of extension field staff and farmers, coordinate the technology transfer process to farmers, identify and manage potential soil sustainability issues, facilitate ongoing reviews of the technologies in accordance with the agreed project objectives, modify the technologies where and when appropriate, and facilitate the collection and collation of technical and social impact data for the monitoring, evaluation and reporting requirements of NZAID.

Although the primary purpose of this MoU is to implement the project, the parties will also explore the development of other scientific, technological and business cooperation between NARC and CFR.

The agreement was signed by Dr. Nanda Prasad Shrestha, Executive Director, NARC and Mr. Keith Armstrong, representative of the New Zealand Secretary of Foreign Affairs and Trade at NARC, Singhdurbar Plaza, Kathmandu.

The duration of the project is for three years beginning from 1 January 2008 to 31 December 2010. The project links with the Nepal Government's three year interim plan and the rural extension activities of NARC and DLS which focus on the alleviation of rural poverty and establishing effective roles for women within the rural economy.

## Participation of NARC Scientists/ Researchers in Training/Workshop/Seminar/ Observation & Study Abroad

S.N.	Name	Position	Subject	Duration	Country
1.	Dr. Nanda Pd. Shrestha	ED, NARC	The 4 <sup>th</sup> session of Governing Council of Centre for Alleviation of Poverty through Scondary Crop's development in Asia and the Pacific	4-5 Feb	Indonesia
2.	Dr. Nanda Pd. Shrestha	ED, NARC	14 <sup>th</sup> regional seering committee of the Rice-Wheat consortium	11-12 Feb	Philippines
3.	Mr. Shambhu Raut	T-6, Soil Science Div.	Travelling Seminar	25-30 Feb	India
4.	Mr. Baitulh Khan	Technician, NWRP, Bhairahawa	Travelling Seminar	25-30 Feb	India
5.	Dr. Renuka Shrestha	Co-ordinator, NGLRP, Rampur	South Asian Traveling Workshop on Food Legumes in Inda	3-10 March	India
6.	Mr. Mahesh Lal Vaidya	Chief, ARS, Jumla	South Asian Traveling Workshop on Food Legumes in Inda	3-10 March	India
7.	Mrs. Deepa Singh	S-1, HRD, Khumal	Plant Breeding and Seed production	3-14 March	Egypt
8.	Dr. Dil Pd. Sherchan	Director, Crop & Hort	Stress tolerant rice for poor farmers of Africa and South Asia	16-18 March	India
9.	Dr. Devendra Gauchan	S-4, SARPOD	Stress tolerant rice for poor farmers of Africa and South Asia	16-18 March	India
10.	Mr. Krishna K. Mishra	T-7, RARS, Nepalgunj	Stress tolerant rice for poor farmers of Africa and South Asia	16-18 March	India
11.	Mr. Ram K. Neupane	Director, RARS, Nepalgunj	Stress tolerant rice for poor farmers of Africa and South Asia	16-18 March	India
12.	Mr. Surya N. Sah	S-4, NRRP, Hardinath	Stress tolerant rice for poor farmers of Africa and South Asia	16-18 March	India
13.	Dr. Ram B. Prasad	Coordinator, NRRP, Hardinath	Stress tolerant rice for poor farmers of Africa and South Asia	16-18 March	India
14.	Dr. Hira Kaji Manandhar	S-4, NARC	Stress tolerant rice for poor farmers of Africa and South Asia	16-18 March	India
15.	Dr. Nanda Prd. Shrestha	ED, NARC	Stress tolerant rice for poor farmers of Africa and South Asia	16-18 March	India
16.	Mrs. Sarala Sharma	S-4, PPD, Khumal	Ug 99- stem rust baseline survey workshop	10-11 March	Syria
17.	Mr. Hari Krishna Shrestha	S-4, NARC	IRRI-IFAID Project Annual Meeting	26-29 March	India
18.	Mr. Ram Pd. Yadav	T-7, NRRP, Hardinath	IRRI-IFAID Project Annual Meeting	26-29 March	India
19.	Mr. Yajnegajadhar Khadka	S-4, SSD, Khumal	Soil Acidification Workshop	25-28 March	Thailand
20.	Mr. Buddhi Prakash Sharma	S-4, NPRP, Khumal	Third International conference on late blight	1-9 April	China
21.	Mr. Bishweswor Pd. Wagle	T-5, NGLRP, Rampur	Training on lentil improvement	13 April-14 May	Syria
22.	Mr. Bholam Singh Basnet	Chief, CPDD, Khumal	Technical workshop on developing & maintaining decentralized ARD information resources of national agricultural research information officers & managers	19-20 April	Thailand
23.	Dr. Nanda Pd. Shrestha	ED, NARC	APAARI Steering Committee meeting	19-20 April	Thailand
24.	Mr. Devendra K Chaudhari	S-4, NRRP, Hardinath	Developing & dissemination of water saving rice technologies in South Asia	19-21 April	India
25.	Mr. Ram Krishna Mahato	S-4, RARS, Tarahara	Developing & dissemination of water saving rice technologies in South Asia	19-21 April	India
26.	Mr. Ram Bd. Bhujel	S-4, RARS, Tarahara	Developing & dissemination of water saving rice technologies in South Asia	19-21 April	India
27.	Mr. Ram Pd. Sah	T-6, NRRP, Hardinath	Developing & dissemination of water saving rice technologies in South Asia	19-21 April	India
28.	Mr. Shadhu Ram Basnet	S-4, ARS, Trishuli	Technical training course on aquaculture for Asia & Pacific	25 April-23 June	China
29.	Mr. Bal Krishna Joshi	S-1, Bio-technology Unit	PhD	2008-2013	Japan
30.	Mr. Bhim Bdr. Khatri	S-3, NPRP, Khumal	PhD	6 months ext-7 July	Australia

Source: Training and Scholarship Division, NARC

## The International Year of the Potato 2008

With the view to raise awareness of the importance of the potato - and of agriculture in general - in addressing issues of global concern, including hunger, poverty and threats to the environment, the 2008 is being celebrated the International Year of the Potato (IYP).

The General Assembly of the United Nations on 25 November 2005 had decided to declare the year 2008 to be celebrated as IYP on request of the Food and Agriculture Organization (FAO) of the United Nations. Noting that the potato is a staple food in the diet of the world's population and affirming the need to focus world attention on the role that the potato can play in providing food security and eradicating poverty in support of achievement of the internationally agreed development goals, including the Millennium Development Goals, FAO had made the request in April 2005.

The FAO is facilitating the implementation of the International Year of the Potato, in collaboration with Governments, the United Nations Development Programme, the Consultative Group on International Agricultural Research Centres and other relevant organizations of the United Nations system, as well as relevant non-governmental organizations.

The mission of the International Year of the Potato is to increase awareness of the importance of the potato as a food in developing nations, and promote research and development of potato-based systems as a means of contributing to achievement of the United Nations Millennium Development Goals.



In Nepal, the IYP is being celebrated with different activities. National Potato Research Program under NARC is releasing two new varieties of potato for farmers to grow commercially. Some promotional materials like booklet and brochures are being prepared. Printed and electronic (Radio, FM, TV) media plus exhibition will be used for the promotion.

Potato is one of the most important food crops in Nepal. It occupies the fifth position in area coverage, second position total production and first in productivity among the food crops grown in the country. Potato was grown in an area of 153,534 hectare of land with production 1,943,246 mt. in Nepal in 2006/07.

World potato production has increased at an annual average rate of 4.5 percent over the last 10 years, and exceeded the growth in production of many other major food commodities in developing countries, particularly in Asia. While consumption of potato has declined in Europe, it has increased in the developing world, from less than 10 kg (22 lb) per capita in 1961-63 to almost 22 kg (48.5 lb) in 2003. Consumption of potato in developing countries is still less than a quarter of that in Europe, but all evidence suggests it will increase strongly in the future (FAO 2007).

### National Potato Working Group Meet

Potato Working Group Meeting of the National Potato Research Program under NARC was held during 21-22 January to review the progress of the last years research and to make strategy for next year. In the meeting different 13 topics including potato varietal development, soil fertilizer management, potato disease and insect management, TPS, and seed production were reviewed and discussed. The meeting was attended by scientists from National Potato Research Program, different disciplinary divisions, regional agricultural research stations and agri-extension. The meeting also discussed about implementing the IYP in Nepal.

**Patron:** Mr. Parshuram Lal Karna, Executive Director  
Nepal Agricultural Research Council (NARC)  
Singhadurbar Plaza, P.O. Box No. 5459, Kathmandu, Nepal  
**Phone:** (977-1) 4256837, 4262650, **Fax:** 4262500,  
**Email:** ednarc@ntc.net.np  
**Website:** www.narc.org.np

**Published by:**  
Communication, Publication and Documentation Division  
Khumaltar, Lalitpur, P.O. Box 3605, Kathmandu, Nepal  
**Phone:** (977-1) 5523041, 5525704, **Fax:** 5521197  
**Email:** cpdd@narc.org.np

**Technical Editor:** Dr. Krishna Prasad Poudel, Division-Chief

**Editor:** Manoj Kumar Thakur

To

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