



A Quarterly Newsletter of Nepal Agricultural Research Council (NARC)

Vol. 21 No.1

January-March, 2014

## Agriculture Development Minister Visited Nepal Agricultural Research Council

Honourable Minister for Agriculture development Mr. Hari Prasad Parajuli visited NARC main administrative office at Singhdurbar Plaza on March 17, 2014 (3 Chaitra, 2070).

During his visit to NARC the Director of Planning and Co-ordination of NARC briefed about overall activities, program budget, human resource status and major problem and constraints of the NARC. Earlier, Executive Director of NARC Dr. Dil Bahadur Gurung welcomed to Honourable Minister and urged for the overall development of agricultural research in the country on

the esteemed leadership of newly appointed Agriculture Development Minister.



*Agriculture Development Minister Mr. Hari Prasad Parajuli participated in the interaction meeting, NARC, Singhdurbarplaza, Ktm*

Honourable Minister Mr. Parajuli said in his remarks that the NARC is a important institution of agriculture development and the researchers should deliver their professional expertise for the development of rural poors and the whole country. Minister for Agriculture Development is the Chairman of Nepal Agricultural Research Council (NARC).

## First National Agricultural Machnization Exhibition held

A four-days exhibition (2070/11/9-12) on Agricultural Mechanization was held at the Bank of Narayani River in Narayangarh, Chitwan, Nepal which was organized



*Agriculture Dev. Secretary Mr. JM Khanal observing Agri-Mechanical Exhibition stall at Narayangarh, Chitwan, Nepal contd in page 8*

### IN THIS ISSUE

- Agriculture Development Minister visited Nepal Agricultural Council
- First National Agricultural Mechanization Exhibition held
- Regional Planning Workshop Organized
- DoAD Workshop held
- Farmers Training Organized
- Entomologist Working Group Meeting held
- HMRP-IV Annual Review, Planning and Scientific Meeting Organized
- Weed Science Training Organized
- Nepal, One of the Center of Diversity for Buckwheat
- Training, Workshop/Seminar, Study and Tours
- Minister of Agricultural Development visited RARS, Khajura, Banke

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

---

## **Regional Planning Workshop Organized**

RARS, Parwanipur, Bara organized a two-days planning workshop and 1<sup>st</sup> quarterly review meeting in Parwanipur which held on Falgun 18-19, 2070. The Chief Guest was Dr. MN Paudel, Director (Admin), NARC. Regional Director Mr. KP Bhurer welcomed to all the participants and highlighted the objectives of the workshop. Dr. BN Mahato was also present in the workshop and also inaugurated the workshop. A number of the Scientists and Technical Officers (NARC) and Office Chiefs from the mid-region of Nepal participated in the workshop.

## **DoAD Workshop held**

Regional Directorate of Agriculture Development, Pokhara, Ministry of Agriculture, Department of Agri. Development organized a 5 days' workshop on "First Quarterly Progress Review Meeting for the year 2070/71 and Programme Planning for the year 2071/72" in the Regional Directorate of Agriculture Development, Western Region, Pokhara. The workshop was chaired by Dhurma Dutta Baral, Regional Director of Agri. Development. The Chief Guest of the workshop was Mr. Mohan Chapagain, Joint Secretary, Ministry of Agri. Development. Regional Director of Regional Agricultural Research Station, Lumle, Mr. Ram Chandra Adhikary; Division Chief Mr. Bishnu Hari Adhikary, Communication, Publication and Documentation Division (CPDD), NARC; Regional Livestock Director Mr. Bamsidhar Mishra; Director of Regional Irrigation, Pokhara; and AIC Chief; Chief of Salt Trading Ltd.; PACT and NARDF representatives; ED from LiBIRD; Chief of Radio Nepal; SK Wagle, Chief of Fisheries Division, NARC and all DADO's and DLSO's from Different districts participated in the workshop. Mr. Bamsidhar Mishra welcomed to all the participants. The workshop was inaugurated by Mohan Chapagain, Joint Secretary, MoAD by irrigating the water to the flower in Gamala. The workshop was continued for 5 days by presenting the progress report of the respective districts and during the period budget and programme planning was also accomplished.

## **Farmers Training Organized**

Seed Science and Technology Division, NARC organized a two-days training for the farmers which was held at Entomology Division Seminar Hall at Khumaltar, Lalitpur held on Falgun 5-6, 2070 (16-17 Feb. 2014). More than 15 farmers from different districts (Kathmandu, Lalitpur, Bhaktapur, Kavre and Dhading districts) participated in the training. The training was held in the topic "Farmers level Training on Technology for Quality Seed Production of Food Crops" which was chaired by Crop and Hort. Director of NARC Mr. Yagya Prasad Giri. Division Chief Mr. Anisur Rahaman Ansari, Entomology Division, NARC; Mr. Daya Nanda Mandal, for NARI Director; Dr. Renuka Shrestha, Senior Scientist, Agronomy Division, NARC and Bishu Hari Adhikary, Chief, CPDD, NARC participated in the Inaugural Session. Dr. Jwala Bajracharya, Division Chief of Seed Science and Technology Division, NARC highlighted the objective and scope of the training programme.

## **Entomologists Working Group Meeting held**

Entomology Division (NARC) organized a 3 days working group meeting for Entomologists in Entomology Division Hall, Khumaltar, Lalitpur which was held on 24-26 Poush, 2070. The meeting was chaired and inaugurated by Mr. YP Giri, Crop and Horticulture Director, NARC. The Division Chief Mr. AR Ansari highlighted the objective of the workshop and welcomed to all the participants. Reshem Bahadur Thapa, Prof and Assist. Dean, Agriculture and Forestry University (AFU), Rampur and Communication, Publication and Documentation Division (CPDD) Chief Mr. Bishnu Hari Adhikary were also present in the meeting. Discussions on entomological problems, prioritize national problems and way forward for management of different insects (fruits, cereals, vegetables, coffee, grain legumes, potato, cardamom, sugarcane etc.) was held during the meeting. Different institutions under NARC have been declared lead intuitions for particular insect management and research priorities shall be established accordingly.

---

## **HMRP-IV Annual Review, Planning and Scientific Meeting Organized**

Hill Maize Research Project-IV organized a 4 days “Annual Review, Planning and Scientific Meeting” at NARI Hall, Khumaltar which was held on 07-10 January 2014. The meeting was chaired by Dr. DB Gurung, Executive Director, Nepal Agricultural Research Council (NARC). National Maize Research Programme (NMRP) Coordinator Dr. KB Koirala welcomed to all the participants of the meeting. Dr. G. Ortiz-Ferrara, Team Leader, CIMMYT highlighted the objectives of the meeting and HMRP impacts, deliverable achievements and future course. Mr. Suraj Pokhrel, Program Director, CCD/DoA addressed on the problems and prospect of maize technology dissemination for food security in the hills of Nepal. Mr. Jean-Francois, Head of Cooperation (SDC) briefed about the collaboration with HMRP. USAID representative Mr. John Stamm, Director, GDO (USAID) also highlighted the collaboration works with HMRP. Mr. Lila Ram Poudel, DG/DoA discussed on the collaboration with HMRP, DoA and NARC focusing on the maize seed requirement of the country and role of HMRP in this matter. During the inaugural session, Crop and Horticulture Director Mr. YP Giri (NARC), Finance Director Mr. NK Yadav, Communication,

Publication and Documentation Division Chief Mr. Bishnu Hari Adhikary (NARC) were also present. Similarly, Khumaltar based NARC Division Chiefs, high ranking officials from DoA, NARC Scientists and DADOs of the concerning districts were also present.

During the inaugural ceremony, five entrepreneur and seed companies including DADO, Palpa were awarded for better performance in maize seed production. NARC ED Dr. DB Gurung claimed that 24 maize varieties have been developed for different ecological zones, focusing on hybrids, stress tolerant maize varieties under development, he further said that seed vision has been developed in the support of CIMMYT, 8 or 9 maize varieties developed since 1999-2012 due to the collaboration works of NARC with HMRP (CIMMYT-Nepal) and approximately 37% maize productivity was found enhanced. During the meeting, more than 40 technical papers were also presented. At the end of the final day (4<sup>th</sup> day), discussion on programme planning and budgeting was done after discussion on community based seed production, seed marketing and linkage with private sector including reflections (technical and managerial) on SGP implemented in 2013.

---

## **Weed Science Training Organized**

Agronomy Division (NARC) organized 3 days training programme (2070/10/6-8) for SMS, Scientist and Technicians working in Department of Agriculture (DoA), District Agriculture Offices (ADO Office) and NARC Regional Research Stations and Agriculture Research Stations with an objective of strengthening the capability for the agriculturist on the weed control and its management in agriculture. The training was held at the Seminar Hall, Agronomy Division (NARC), Khumaltar, Lalitpur. The Chairperson of the training was Mr. DN Mandal (for NARI Director) and Chief Guest was Dr. Suraj Pokhrel, Programme Director DoA). Dr. MN Paudel was chaired as special guest of the Training Programme. The training was jointly inaugurated by Dr. Suraj Pokhrel and Dr. MN Paudel. Division Chief Dr. BN Mahato (Plant Pathology Division), Mr. SP Khatiwada (Agri Botany Division), Dr. AK Gautam (Agri. Environment Division), Dr. Jwala Bajracharya

(Seed Science Technology Division), and Dr. PN Sharma, Senior Scientist (Entomology Division) were present in the Training. Similarly, Mr. Bishnu Hari Adhikary, Division Chief from Communication, Publication and Documentation Division also participated in the training programme. Division Chief Dr. Jagat Devi Ranjit highlighted the objective of the training programme. Speaking on the closing session, Dr. DB Gurung, Executive Director, NARC said that this kind of training might be very useful for the SMS and Agriculturists if it can be organized jointly by NARC and DoA in coming days. More than twenty participants (trainees) participated in the training programme and were awarded with the certificates. The certificates were awarded jointly by Executive Director NARC Dr. DB Gurung and Dr. Suraj Pokhrel, Programme Director, DoA.

# Nepal, One of the Centers of Diversity for Buckwheat

Bal K. Joshi

Genebank, NARC, Khumaltar

Buckwheat (*Fagopyrum* spp) has been cultivated since ancient time in High Hill and Mid Hill agroecological zones of Nepal (Baniya 2001). It is suitable to different cropping patterns and adapted to diverse and very adverse climatic conditions (Baniya 1990, 1999). Due to the variation within High and Mid Hills as well as variation on farmers' needs, different types of landraces have been developed and maintained over the time across the country (Adhikary et al. 1995, Baniya et al. 1999, Vaidya et al. 1999, Joshi 2008). Buckwheat is grown from 60 m in Jhapa to 4200 m altitude in Mustang all over the country and all year round. It is being cultivated in 61 districts out of 75 districts (Figure 1, Joshi 2008). The value of this crop increases as altitude increases (Subedi et al. 2001). In Nepal, about 34 different kinds of food items are made from buckwheat. Locally it has been used against more than 30 different kinds of human health problems (Joshi

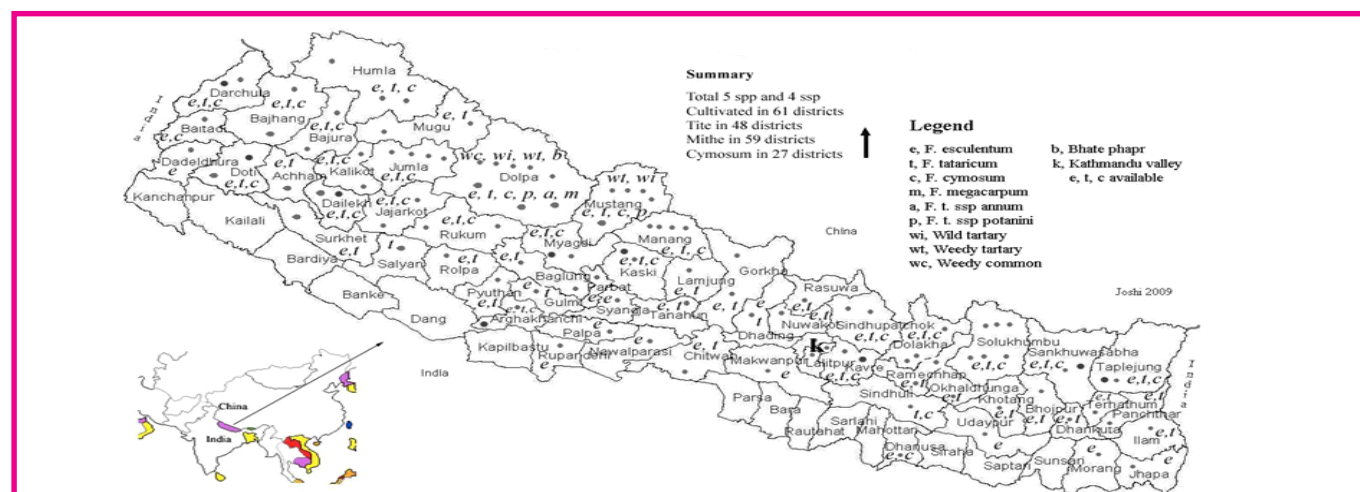
et al. 2008). Farmers also treat sick goat and small animal with buckwheat.

A total of five species and four sub-species are reported from Nepal (Table 1). Wild and weedy forms of Tartary and weedy form of common buckwheat are also reported. Two species, *F. esculentum* (common buckwheat) and *F. tataricum* (Tartary buckwheat) are under cultivation. Among these two species, Tartary has different landraces with different local names but common buckwheat is generally called Mithe Phapar in most of the locations (NHCRP 1993, Joshi 2008). Significant variation within species and landraces are reported for many characters eg plant height, maturity period, branching ability, flower color, seed shape, size and color at morphological, biochemical and DNA levels (Ujihara and Matano 1982, Joshi et al. 2010, Joshi 2011).

**Table 1. Cultivated and wild species of buckwheat found in Nepal**

SN	Species /subspecies	Genome	Distribution	Local name
<b>Cymosum spp group</b>				
1.	<i>Fagopyrum esculentum</i> Moench (Syn. <i>F. emarginatum</i> Moench, <i>F. sagittatum</i> Gilib)	2n=2x=16	Mid and High Hills	Mithe, Chhendrung, Ghyabre
2.	<i>F. tataricum</i> Gaertn (Syn. <i>F. suffruticosum</i> Fr. Schmidt)	2n=2x=16	Mid and High Hills	Tite, Dhup, Dop
3.	<i>F. cymosum</i> (Trev) Meissn (Syn. <i>F. dibotrys</i> (D.Don) Hara, <i>F. kashmirianum</i> Munshi)	2n=2x=16, 4x=32	Mid and High Hills	Banbhade, Dhukupa, Bhande, Bommande
<b>Urophyllum spp group</b>				
4.	<i>F. gracilipes</i> Dammer†	2n=4x=32	Eastern Nepal	-
5.	<i>F. megacarpum</i> Hong	-	Dolpa	Bhande Sag, Banbhade
<b>Subspecies</b>				
6.	<i>F. esculentum</i> ssp <i>esculentum</i> Moench	2n=2x=16	Mid and High Hills	Mithe, Chhendrung, Ghyabre
7.	<i>F. tataricum</i> ssp <i>tataricum</i> Gaertn	2n=2x=16		Tite, Dhup, Dop
8.	<i>F. tataricum</i> ssp <i>annuum</i>	-	Western-North	Jhura, Thima
9.	<i>F. tataricum</i> ssp <i>potanini</i> Batalin	2n=2x=16	Western-North	Jhura
<b>Wild and weedy type</b>				
10.	Weedy Tartary buckwheat	-	Western-North	Jhura
11.	Wild Tartary buckwheat	-	Western-North	-
12.	Weedy common buckwheat	-	Western-North	-
<b>Closely related spp</b>				
13.	<i>Rumex acetosella</i> L	-	Western-North	
14.	<i>Fallopia convolvulus</i> (L) Holub	-	Western-North	Khora Hyoppa
15.	<i>Persicoria hydropiper</i> (L) Delarbre	-	Northern part	-
16.	<i>Persicoria senticosum</i> (Meisn) H Gross ex Nakai	-	Northern part	-

† The existence of *F. gracilipes* needs to be reconfirmed.



**Figure 1. Buckwheat growing districts in Nepal indicated by dots. District with more dots means more diversity at species, varieties and genetics levels (Joshi 2011).**

The highest number of diversity was found in Dolpa followed in Mustang, Manang, Jumla and Solukhumbu districts. A wild species, *F. cymosum* is distributed in 27 districts and main districts are Dolpa, Kaski, Dolakha, Solukhumbu, Jumla, Dhanusa and Kathmandu valley. *F. megacarpum* is located only in Dolpa. Mustang district revealed extensive distribution of the wild form of Tartary buckwheat for example Khora Hyoppa, Kibre type, Khora Chhang, Khora Dhup, Dhukupa, Nene, Tungben and Khora Ghyabre.

Diversity are locally classified on different bases, for example, based on adopted area, growing season, growth habit, maturity, taste, uses, flower color, seed shape, seed size, grain color and groove number (Figure 2, 3, 4, Joshi 2011). Nepalese farmers generally recognize the different types of buckwheat based on their agromorphology, taste and habitat. For example, there are two types, namely Sathiya and Gyabre based on days to maturity. Two landraces Madane and Barhamase, reported from Taplejung are high yielding with large seed size, and wrinkled with black seeded respectively.



Figure 2. Seeds of different buckwheat species and landraces



Figure 3. Variation in seed color



Figure 4. Variation in seed shape

Nepal possesses very unique buckwheat genotypes. Some of unique cultivated landraces are Bhate (also called Kishe) Phapar, Lal Kande Phapar, Chuchche Phapar, Barhamase Phapar, Sathiya, Kabre Tite. Others are different mutants, the highest grain yielder in the world, high rutin content landraces, landrace with high radical scavenging activity, etc. Within Tartary species, different landraces having different degrees of bitterness are found. For example, Bhadule Tite Phapar is less bitter compared to other Tite Phapar. The level of bitterness in local landraces as reported by farmers is Chuchche> Bhadre> Kalo Kishe> Seto Kishe > Syangre > Mithe (Adhikary et al. 1995, Joshi et al. 2007). Bhate (Kishe, also called rice Tartary buckwheat) Phapar is Tartary landrace, only reported in Nepal, Bhutan and China around the world. Kalo Kishe and Seto Kishe are important rice Tartary buckwheat in Dolpa. Bhate Phapar, which has a non-adhering hull, allows the use of it as a rice replacement in the staple diet.

Nepalese buckwheat differs from other countries and a lot of variability within and among species and populations are reported by many scientists indicating Nepal as one of the centers of diversity. The superior traits of Nepalese landraces have been reported in the world as a good source for improving buckwheat quality. Therefore, exploration and collection of different types of buckwheat were started from 1971. More than 534 buckwheat landraces are stored in Kabre, 288 common buckwheat cultivars in Kirtipur, some in Rampur and Godawari. A total of 441 accessions, consisting of 153 accessions of common buckwheat and 288 accessions of Tartary buckwheat were collected from 44 districts and conserved ex-situ in Genebank-NARC, Khumaltar (Joshi 2011). The highest numbers of collections (79) of common and Tartary buckwheat were from Mustang. The altitude range of collections was from 90 to 3870 m. Many buckwheat scientists from the world visited buckwheat growing areas and collected seed samples which are stored and studied in Canada, China, Europe, India, Japan, USA and USSR. Local diversity is enriched by introducing about 250 exotic landraces of common buckwheat from 14 different countries. Some of the introduced common buckwheat genotypes are of self compatible, determinant and tetraploid type.

Nepal is rich in buckwheat diversity however; evaluation research is mostly limited to introduced genotypes of common buckwheat (Baniya 2001). Loss of diversity in Jumla, Lamjung, Rasuwa and other districts is reported. Government should facilitate for providing buckwheat growers access to national and international markets. Its values for food, medicine and environmental protection should be understood and considered by each farmers, consumers and policy makers to get benefit from as well as to conserve the buckwheat diversity.

# Training, Workshop/Seminar, Study and Tours

January- March 2014

SN	Name	Position	Office	Subject	Duration	Country
<b>January</b>						
1.	Dr. Bhim Bd. Khatri	S-4	National Potato Research Program, Khumaltar	SIAC Project Activity 2.1 Planning and Inception Meeting	15-16 January, 2014	Thailand
2.	Dinesh Babu Thapa Magar	S-1	Socio-economic Division, Khumaltar	AgMIP Regional Research Team Finish Line Workshop.	January 30-Feb . 04, 2014	Tanzania
3.	Dr. Madav Acharya	S-2	Animal Health Division, Khumaltar	Nucleic Acid Sequencing	16 Jan.-5 Feb. 2014	India
<b>February</b>						
1.	Ram Bd. K.C.	S-4	ARS, Horticulture, Malepatan Pokhara	IPM South Asia Regional Review and Planning Meeting	4-8 Feb., 2014	India
2.	Jaya Dev Bista	S-4	ARS,(Fish), Begnas, Pokhara	Taking Aquaculture to New Heights Through Technology, Marketing Collaboration	6-14 Feb. , 2014	USA
3.	Dr. Dhojraj Khanal	S-4	Animal Health Division, Khumaltar	GIS Application and Modeling in Tropical Diseases	18-25 February, 2014	China
4.	Dr. Swyam Prakash Shrestha	S-4	Animal Health Division, Khumaltar	GIS Application and Modeling in Tropical Diseases	18-25 February, 2014	China
5.	Dr. Narayan Poudel	S-1	RARS, Nepalgunj	GIS Application and Modeling in Tropical Diseases	18-25 February, 2014	China
6.	Dr. Dinesh Kumar Yadav	S-1	Sheep & Goat Res. Program, Guthichour, Jumla	GIS Application and Modeling in Tropical Diseases	18-25 February, 2014	China
7.	Bibek Sapkota	S-1	Crops and Hort. Directorate, Singhdurbarplaza	Development of Effective Farmer Centered Strategies for Rapid Multiplication and Dissemination of Stress Tolerant Rice Varieties	26 Feb.-6 March, 2014	India and Bangladesh
<b>March</b>						
1.	Ram Chandra Adhikari	S-4	RARS, Lumle	Livestock, Climate Change	4-13 March, 2014	India
2.	Purushottam P. Khatiwada	S-4	Horticulture Research Division, Khumaltar	Establishment of Network and Model on Postharvest Technology of Horticultural Crop in Asia	11-15 March, 2014	Vientiane, Lao PDR
3.	Dr. Dil Bahadur Gurung	S-4	Executive Director, NARC	Borlaug Global Rust Initiative (BGRI) Technical Workshop and the Borlaug Summit on Wheat for Food Security	22-28 March, 2014	Mexico
4.	Dr. Dhruva Bahadur Thapa	S-4	Agri- Botany Division, Khumaltar	Borlaug Global Rust Initiative (BGRI) Technical Workshop and the Borlaug Summit on Wheat for Food Security	22-28 March, 2014	Mexico
5.	Mrs. Sarala Sharma	S-4	Plant Pathology Division, Khumaltar	Borlaug Global Rust Initiative ( BGRI) Technical Workshop and the Borlaug Summit on Wheat for Food Security	22-28 March, 2014	Mexico

SN	Name	Position	Office	Subject	Duration	Country
6.	Dr. Nutan Raj Gautam	S-3	NWRP, Bhairaha	Borlaug Global Rust Initiative ( BGRI) Technical Workshop and the Borlaug Summit on Wheat for Food Security	22-28 March, 2014	Mexico
7.	Yam Raj Pandey	S-4	RARS, Nepalgunj	Characterization of Rice Growing Environments for Dissemination of Stress Tolerant Varieties in South Asia	27-29 March, 2014	Bangladesh
8.	Dr. Tanka Pd. Barakoti	S-4	Outreach Division, Khumaltar	Characterization of Rice Growing Environments for Dissemination of Stress Tolerant Varieties in South Asia	27-29 March, 2014	Bangladesh
9.	Dr. Tara Bd. Ghimire	S-4	ARS, Shurkhet	Characterization of Rice Growing Environments for Dissemination of Stress Tolerant Varieties in South Asia	27-29 March, 2014	Bangladesh
10.	Abhiram Jha	T-6	NRRP, Hardinath	Characterization of Rice Growing Environments for Dissemination of Stress Tolerant Varieties in South Asia	27-29 March, 2014	Bangladesh
11.	Kulanand Mishra	T-6	NRRP, Hardinath	Characterization of Rice Growing Environments for Dissemination of Stress Tolerant Varieties in South Asia	27-29 March, 2014	Bangladesh
12.	Dr. Dil Bhadur Gurung	S-4	Executive Director, NARC	Consultative Meeting and agreement signing on the safety duplication of Nepal's Plant germplasm at the World Safety Vault, the RDA Genebank	10-14 March, 2014	Republic of Korea
13.	Madanraj Bhatta	S-4	National Agricultural Genetic Resource Center	Consultative Meeting and agreement signing on the safety duplication of Nepal's Plant germplasm at the World Safety Vault, the RDA Genebank	10-14 March, 2014	Republic of Korea
14.	Tek Prasad Gotame	S-1	Horticulture Research Division, Khumaltar	Raspberry physiology and gene expression profiles	3-24 March, 2014	Denmark
15.	Bhola Sah	T-7	NRRP, Hardinath	Rice Technology Transfer Systems for Stress-prone Environment in South Asia	20-22 March, 2014	Pokhara
16.	Yukti Prasad Sah	T-7	RARS, Tarahara	Rice Technology Transfer Systems for Stress-prone Environment in South Asia	20-22 March, 2014	Pokhara
17.	Ram Bahadur Khadka	S-1	RARS, Nepalgunj	Rice Technology Transfer Systems for Stress-prone Environment in South Asia	20-22 March, 2014	Pokhara
18.	Pradip Sah	S-1	RARS, Parwanipur	Rice Technology Transfer Systems for Stress-prone Environment in South Asia	20-22 March, 2014	Pokhara
19.	Bihani Thapa	T-6	RARS, Lumle	Rice Technology Transfer Systems for Stress-prone Environment in South Asia	20-22 March, 2014	Pokhara
20.	Ujjal Kumar Singh Kuswaha	T-6	RARS, Doti	Rice Technology Transfer Systems for Stress-prone Environment in South Asia	20-22 March, 2014	Pokhara
21.	Sanjaya Bista	T-8	Entomology Division, Khumaltar	Establishment cooperation system of sericulture technology in Asia	17-21 March, 2014	Thailand
22.	Giridhari Subedi	S-4	ARS, Rajikot, Jumla	Siyau Mulya Shreenkhala Samandhi	17-21 March, 2014	India

contd. of page 1

by Agriculture Engineering Directorate, DoAD, Hariharbhawan, Lalitpur; Agriculture Engineering Division, NARC and Center for Agri-Enterprise, Teku, Kathmandu, Nepal. The Chief Guest of the ceremony was Mr. Jaya Mukunda Khanal, Secretary, Ministry of Agriculture Development and inaugurated the exhibition by making starting the engine of a Tractor. Dr. DB Gurung, ED NARC; Mr. UK Bhattarai, Joint Secretary, Agriculture Development Ministry; NR Sharma, CDO, Chitwan; BB Hamal, DDG, DoAD; RR Sharma, ADO Chitwan; MS Singh, Agri. Engineering Directorate; Dr. HK Manandhar, Planning Director, NARC; I Risal, Chief of Agri. Information Center, DoAD; Srimat Shrestha, Chief of Agri. Engineering Division, NARC; Mr. Bishnu Hari Adhikary, Chief, CPDD/NARC; Mr. MR Dawadi, Chairman of Seed Association, Nepal; Journalists and so many others participated in the opening ceremony. Mr. BB Hamal, DDG, DoAD welcomed all the participants and highlighted the objectives of the exhibition/expo. The Chairman of the opening ceremony was Mr. Kalyan Joshy, Chairman of the Commerce and Industry, Chitwan.

Secretary Mr. JM Khanal in his speech said that development and change of Agriculture is not possible without mechanization. It helps in reduction of labour in Agriculture and further said that Agri. Mechanization policy is ready to launch for the welfare of the farmers. More than 50 thousand people have observed the exhibition where more than 4 cored Rupees was dealt in the business. Speaking on the closing session Mr. Sesh Nath Adhikary (Parliament Member) emphasized on the use of machines in Agriculture for the modernization of Agriculture. Winners of Cultural programme and stalls were also awarded in the ceremony. Ganesh Krishi Machinery, Chitwan was awarded with the 1<sup>st</sup> prize.

## Minister of Agricultural Development visited RARS, Khajura, Banke

Minister of Agricultural Development (MoAD), Mr. Hari Prasad Parajuli has visited Regional Agricultural Research Station (RARS), Khajura, Banke on 28<sup>th</sup> March, 2014 (i.e. Chaitra 14, 2070 B.S.). During his visit Mr. Ram Bahadur Khadka, Scientist (S-1) gave presentation on activities, achievements, challenges and



*Agriculture Development Minister Mr. Hari Prasad Parajuli observing barley field at RARS, Khajura, Banke*

opportunities of RARS, Khajura. The honourable minister, Mr. Parajuli gave keen interest on the presentation of RARS, Khajura. The honourable minister Mr. Parajuli observed all field trials and production programme with keen interest. The honourable minister directed RARS scientists to make effort on hybrid varieties development and technical package development to gain optimum yield from those varieties. The honourable minister advised to work enthusiastically as ministry is going to implement the performance based reward and punishment system in near future. He made a trip around the research station on foot. Scientists and technical officers involved in different research activities briefed him about the ongoing research activities. Director from regional agricultural directorate, chief of district agricultural development office, and district livestock service office, Banke were also present during the visit.

**Patron** : Dr. Dil Bahadur Gurung, Executive Director  
**Nepal Agricultural Research Council (NARC)**  
Singh Durbar Plaza, P.O. Box No. 5459, Kathmandu, Nepal  
**Phone** : (977-1) 5523041, Fax : 4262500  
**Email** : ednarc@ntc.net.np

**Published by**  
Communication, Publication and Documentation Division (CPDD)  
Khumaltar, Lalitpur,  
**Phone** : (977-1) 5523041, Fax : 5521197  
**Email** : cpdd@narc.gov.np  
**Website** : www.narc.gov.np

**Editorial**  
Mr. Bishnu Hari Adhikary : Chief (Senior Scientist S-4)  
Mr. Manoj Kumar Thakur : Senior Scientist (S-3)

**Compile/Layout/Design**  
Rishi Ram Adhikari : Com. Officer (T-6)

To :

---

---

---