



A Quarterly Newsletter of Nepal Agricultural Research Council (NARC)

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National Rice Day Observed

National Rice Day was observed with a special function at NARC Khumaltar on 29 June 2005.

The function was Chaired by Dr. Ram Prasad Chaudhary, Hon'ble Member of National Planning Commission, the Chief Guest in the program. Participated by NARC officials, researchers, representative from Ministry of Agriculture and Cooperatives, Department of Agriculture, Department of Livestock Services and farmers representatives, the Program was also attended by Mr. Kajuyuki Tsurumi, FAO Representative in Nepal; Dr. Julian Lapitan, Manager, International Programme Management Office, IRRI.

On the occasion Hon'ble Member of NPC, Dr. Chaudhary, FAO Representative Mr. Kazuyuki, IRRI Program Manager Dr. Julian, Representative from Department of Agriculture Mr. Krishna Chandra Sharma, Joint Secretary of Ministry of Agriculture and Cooperatives Dr. Krishna Bahadur Shrestha, Chief of Agronomy Division Mr. Govinda Prasad Koirala and Farmer Representative Ms. Ishwori Khanal spoke on the importance of Rice Day celebration. Dr. Surya Laxmi Maskey, Director of Crop and Horticulture Research welcomed the participants and Mr. Bhola Man Singh Basnet, Chief of Communication, Publication Division deliberated the program. During the occasion, Hon'ble Member of NPC and other guests initiated rice transplanting in the research farm at Agronomy Division.

An exhibition on different aspects of rice was also held.

Regional Review and Planning Meeting on Wheat Cropping System

The Third South-Asia Regional Review and Planning Meeting on the DFID-funded project "Participatory Research to Increase the Productivity and Sustainability of Wheat Cropping Systems in the Eastern Subcontinent of South Asia" was held in Kathmandu from 27 June to 1st July 2005.

The five-day meeting had the objectives to review research results and major accomplishment of the three years of the project in Bangladesh, India and Nepal; and develop work plan of each of the country for the year 2005/06. Sharing

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Exhibition on World Environment Day



Photo: Rajendra Bajracharya

A special environmental exhibition was held in Kathmandu on the occasion of World Environment Day on 5 June 2005. The Exhibition was inaugurated by His Royal Highness Crown Prince Paras Bir Bikram Shah. Different governmental, non-governmental and international organizations including NARC participated in the Exhibition. (Photo above: Crown Prince observing NARC's Exhibition)



Photo: Rajendra Bajracharya

His Majesty's Government had last year declared National Rice Day to be observed every year on Ashar 15.

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Socioeconomics & Agricultural Research Policy Division in NARC Established

NARC has recently established Socioeconomics and Agricultural Research Policy Division (SARPOD) at NARC building, Khumaltar to focus, consolidate and strengthen its socioeconomics and policy research activities and programmes. The division was approved by the council meeting of NARC in April 29, 2004 and it has been made functional with a new office in Khumaltar since June 20, 2005. The main focus area of the new division will be to:

1. Conduct demand driven socio-economics, agricultural marketing and policy research and analysis in agriculture
2. Support NARC research planning in prioritizing research programs, projects and allocating resources in priority sectors based on the criteria of economic efficiency, social equity, gender and poverty focused research dimensions
3. Conduct ex-post studies to evaluate uptake, adoption and impact of agricultural research
4. Make contribution to the formation of a nation's agricultural research policy and strategy as guided by the national policies and NARC Vision (2021).

The responsibility of this division is to lead, coordinate and implement a substantive work programmes on NARC socioeconomics & policy research and analysis in agriculture. It aims to facilitate work through network of social scientists scattered in different NARC research divisions, programmes and Regional Agricultural Research Stations (RA/RSS). Dr. Devendra Gauchan, Agricultural Economist (Scientist-4) has been given the responsibility of the chief of the Division.

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Dr. Soon Kwon Kim Visited NARC

Professor Dr. Soon Kwon Kim, Chairman of International Corn Foundation and Director General of International Agriculture Research Institute, Kyungpook National University visited NARC, Khumaltar and National Maize Research Program, Rampur, Chitwan on 28-29 June 2005. Dr. Kim also visited farmers' maize pockets in Kathmandu and Chitwan. Dr. Kim was on an official visit to Nepal from 27 June to 5 July.

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of experiences and discussion on the participatory approaches (participatory plant breeding (PPB), participatory variety selection (PVS) for dissemination of released varieties with technologies and seed multiplication and distribution), concepts, trial evaluation, data collection/analysis, institutionalization of process, output into the system etc. among the wheat scientists and development workers from Bangladesh, India and Nepal were held during the meeting. The review meeting also considered other practices like resource conservation technologies (zero/minimum/reduced tillage), in other words integrated crop management (ICM) as a whole, post-harvest, processing, value addition, consumer taste, linkage with industries and market etc.

The meeting was participated by representatives from National Agricultural Research Systems (NARSs) of India, Bangladesh and Nepal, International Maize and Wheat Improvement Centre (CIMMYT), wheat scientists and development workers from different institutions, Governmental and non governmental organizations of the three countries and farmers from Nepal..

The wheat is one of the most important crops in this region. Demand of wheat in the seven SAARC countries in 2020 is estimated to be 147 million metric tonnes and production, with the present trend growth, 127 metric tonnes. No other than new innovative and sustainable technologies can help to meet this challenge.

Press conference

Earlier on the eve of the 14th NARC Annual Day, a Press Conference was organized at NARC, Ramshahpath on 6 May.

In the program Acting Executive Director Mr. Dularchan Sahu Pathik briefed about the works and achievements of NARC in the last one year and the impacts of the recommended high yielding and location-specific varieties of different crops, breeds of livestock and fish species with total package of practices for farmers that have significantly covered the farmers' fields.

Journalists from different print and electronic media had interactions with the NARC scientists on various issues related to agriculture. During the interaction, Scientists from different Disciplines and Directors answered the questions raised by journalists. About twenty journalists were present in the program. The program was coordinated by the Chief of Communication, Publication and Documentation Division, Mr. Bholu Man Singh Basnet.

TALK PROGRAM HELD

Talk on "Evaluation: To achieve and to Measure Impact of Technologies" by Dr. Deborah Templeton, Socio-economist, International Rice Research Institute (IRRI), Philippines on 19 June 2005, was organized by NARC and Nepal-IRRI Office at NARI Conference Hall, Khumaltar. The talk program was attended by NARC officials scientists and socio-economist from different organizations.

Fourteenth NARC Day Observed

Fourteenth Annual Day of the establishment of Nepal Agricultural Research Council (NARC) as autonomous organization was observed with a special function at NARC, Singh Durbar Plaza, Kathmandu on May 8, 2005. The function chaired by the then Hon'ble Member of National Planning Commission (NPC) Dr. Hari Krishna Upadhyaya was inaugurated by the Rt. Hon'ble Vice-Chairman of the Council of Minister Mr. Kirti Nidhi Bista. The function was attended by representatives from different government and non-government institutions, donors, financial institutions, foreign agencies, print and electronic media, NARC officials, employees and others. The Vice-Chairman of the Council of Minister in his inaugural speech said that the agriculture research has a vital role in addressing the ever current issues and challenges in the agriculture sector that is the mainstay of country's economy and source of livelihood of the people.

Dr Hari Krishna Upadhyaya, the then Hon'ble Member of National Planning Commission said there are remarkable achievements in technology generation that is indicated by the increased productivity but it needs to be doubled to meet the food requirement of the nation and to diversify the agriculture with cost benefit prospects so that it can compete in the global market that is major challenge in present context. The Secretary of the Ministry of Agriculture and Cooperatives, Mr. Govinda Prasad Pandey said the research, one of the major components of the agriculture development, has to be strengthened to cope up with the increasing demand of food in one hand and the need for boosting economic growth of the country. The technologies should be sufficiently and equitably transferred to farmers level, he added.

Acting Executive Director of NARC, Mr. Dularchan Sahu Pathik welcoming all the guests and participants in the function presented highlights of activities and achievements of the NARC in the past years and future

Training in Pigeonpea Cultivation

A field-based training program on Integrated Disease Management of Botrytis Gray Mold (BGM) in pigeonpea was organized by Outreach Research Division of NARC during 15-22 June 2005 at different places in Banke, Bardiya Dang and Kanchanpur districts of Western Nepal.

The training participated by 41 agricultural technicians and 200 farmers involved in pigeonpea cultivation was aimed to scale up the developed technologies and impart knowledge and skills in different aspects of integrated disease management: identification of disease, control measures like seed treatment, rotation in cropping pattern, adoption of resistant variety etc. In addition, the trainees were also given knowledge on cropping system, soil nutrition, biological treatment of seed, pod borer control measures.

The trainees were given folder prepared about the disease resistant variety, ICP 7035 and its cropping method. This variety gave an yield of 2.5 m/ha in farmers' field last year where as national average is 866 kg/ha.



Photo: Rajendra Bajracharya

strategies. Dr. Jagat Devi Ranjit, Senior Scientist, spoke on behalf of the recipients of honor plaques during the occasion. Mr. Ram Bahadur Maskey, Director of Administration conveyed the vote of thanks at the end.

Honour and Plaque Distribution

Thirty seven NARC employees having completed 25 years of their service were honored with plaques and certificates by the Chief Guest.

Special Exhibition

An exhibition showing the NARC's activities/achievements was held on the occasion of NARC Day.

Workplan Meeting on Chickpea ICM Technologies

Workplan meeting on "Scaling-up Chickpea ICM Technologies for Enhancing the Income of Resource poor Farmers of the Terai/Inner Terai" was organized on 24 May 2005 at NARC Ramshah Path Kathmandu jointly by Nepal Agricultural Research Council (NARC), International Crops Research Centre for Semi-Arid Tropic (ICRISAT), Natural Resource Institute (NRI) of the University of Greenwich Chatham, UK with funding by DFID-CIP, UK

The main objective of the meeting was to review scaling up strategies and to prepare workplan for 2005-06. The meeting reviewed the available chickpea technologies and discussed on the approach in scaling up chickpea ICM technologies. Program for the FY 2005/06 was finalized.

The meeting was participated by NARC scientists working in chickpea research, NARC officials, extensionists from Department of Agriculture, representatives from ICRISAT, NRI.

Chickpea is one of the most important winter legume crops cultivated in 9,738 hectares, out of total legumes cultivation area of 3,11,000 hectares in Nepal with total production of 7,654 metric tonnes. The area and production has decreased in the last some decades due to some biotic and abiotic reasons. Considering these problems and recognizing the role of chickpea in human nutrition, a project on "IPM on Chickpea in Nepal" was conducted jointly by NARC, ICRISAT and NRI with funding assistance of DFID, UK from 1998-2004 that has made measurable impact on the livelihood of the poor farmers of rainfed rice ecosystem of Nepal. Major achievement of the joint research program are: Identification of BGM tolerant variety, Avarodhi; seed multiplication of improved varieties; seed dressing by rhizobium culture; seed treatment by Bavistin, pod borer insect management etc.

Fisheries Research Status and Achievements

WARMWATERAQUACULTURE (POND/RICE FIELD)

Carp (*Cyprinus carpio*, *Ctenopharyngodon idella*, *Hypophthalmichthys molitrix*, *Aristichthys nobilis*)

- Breeding and Nursing: technology developed and disseminated
- Integrated Rice fish farming: technology developed and under the process of dissemination (Terai and hills)
- Polyculture: IMC up to 3.0 mt/ha, Chinese carp 5.0 mt/ha (under verification)

Tilapia (*Oreochromis niloticus*)

- Cage cum pond culture of mixed sex tilapia: 4.4-8.0 mt/ha (under dissemination)
- Controlled breeding for monosex of GIFT strain tilapia using steroid hormone (under research)

Prawn (*Macrobrachium rosenbergii*)

- Fresh water prawn has shown growth potential in terai region
- Seed production: partially success within the country (under research)

catfish (*Clarias batrachus*)

- Breeding technology developed
- Nursing and rearing under research

Ornamental fish

- Breeding and nursing technology of guppy and Fancy carp developed

COLDWATERAQUACULTURE (RACEWAY/POND)

Sahar (*Tor putitora*, *Tor putitora*)

- Breeding and nursing technology developed
- Culture possibility in different system under research

Asala (*Schizothorax* spp.)

- Breeding technology developed
- Nursing and culture technology under research

Katle (*Neolissocheilus hexagonalepis*)

- Breeding technology developed
- Nursing and culture technology under research

Trout (*Onchorhynchus mykiss*)

- Complete culture technology developed and disseminated

Gardi (*Labeo dero*)

- Breeding technology of riverine indigenous fish gardi developed.

NATURAL WATER FISHERIES AND AQUACULTURE

Lakes, Reservoir and Swamp

- Cage fish culture package in lakes and reservoir developed
- Open water fisheries management developed
- Biodiversity conservation in lakes through participatory research

Disciplinary Research

Fish Health Management

- Surveillance and treatment methods of fish parasites identified

Fish Feed and Nutrition

- Complete pellet diet for trout developed and disseminated
- Supplementary pellet feed for carp and Sahar developed
- Micro-feed for larval rearing of carps and Sahar developed
- Low cost feed development by partial replacement of animal protein (15%) by plant protein for trout developed and disseminated

Genetics and Biotechnology

- Out of 184 indigenous fish species, 111 fish species collected at Godawari and identified
- Crossing and selection of common carp for growth (under research)

Achievement of Kaligandaki Fisheries Project

Collection and Stocking of Brood Fish

More than 200 brood fish of different species have been collected from different fisheries research centres as well as from Kaligandaki River and stocked and managed in ponds for breeding programs.

Brood fish management

Brood fish of four species of riverine fish, Asla, Sahar, Katle and Gardi are managed in Kaligandaki fish hatchery and are matured for breeding purposes.

Collection of Fish Fauna

Different species of fish have been collected to maintain and conserve the germplasm of economically important fish species. Altogether 16 different fish species from down stream near hatchery site have been collected of which 15 species are maintained alive.

Hatchery Operation, Nursing and Rearing Management of Riverine Fish

Study on breeding possibility of the fishes native to Kaligandaki river and economically important species : Asala, Sahar, Katle and Gardi at newly constructed fish hatchery.

Fingerlings produced and stocked in Kaligandaki River

Fingerlings of economically important fish species- Sahar, Asala, Katle and Gardi were released in up stream of Kali Gandaki River at different occasion.

Biological and Limnological Study of Kali Gandaki River

The biological and limnological study of Kali Gandaki River has been carried out.

Response Study of Cage Fish Culture

Study on possibility of cage fish culture technology carried out with farmers' participation for an alternative source of income to uplift livelihood of those fisher communities affected after damming the Kaligandaki River.

Growth Potential of Rainbow Trout in Raceway

Feasibility study of Rainbow trout, a cold water exotic species being successfully cultured at FRC, Trishuli and Godavary was carried out in raceways at Kaligandaki

Training to Fisher Group and Fish Grower Community

Trainings in natural water management, breeding technology of Asala, Sahar and Katle, fishing method, fishing gear, fish disease, conservation and promotion of fish species were organized.

Study on Socioeconomic of Fisher Community

Socioeconomic survey to analyze the changes in economical and social conditions of 'bote' that has been brought about by the construction of Dam in Kali Gadaki was conducted.

Development of Fishing Regulation

The draft of fishing regulation has been finalized by Kaligandaki Fish Hatchery in consultation with fishery community for conservation and promotion of riverine fish, ecosystem improvement, biodiversity conservation, improvement of livelihood of traditional fisher and prevent illegal fishing.

Pellet Feed Machine Installation and Feed Production

Pellet feed machine has been procured and installed at Kaligandaki Fish hatchery site.

Major Achievements in Fodder and Pasture Research

- Two cultivars of oat “Kamdhenu Jai” and “Netra Jai” released for the first time in Nepal. Other promising oat cultivars recommended are Kent and Swan for high hills, 346/2 and 32302, Caraville, Canadian, Awapuni, Taiko, Amouri and 83 INC 19 G3 for mid-hills and Terai.
- A technological package developed for degraded land improvement which has increased the forage production by 33 times and has reduced soil erosion by providing coverage to the land by 70%.
- Fodder tree establishment technology has resulted into 68% survivability of sapling during three year periods and highest growth rate in 2-3 years of sapling plantation. This technology has resulted into degraded land improvement at faster rate.
- Technologies packages have been developed for winter t + vetch/at cultivation. This package has resulted into reduction of cost of milk production by 50 %. The increase in household income has helped to alleviate poverty into grassroots level.
- There are over 80 cultivars of oat, 4 cultivars of dual purpose maize, 10 cultivars of Stylo including anthracnose resistant and over 50 other types of forage germplasm in the country.
- Proper oat cultivar and small-bag silage technology invented through farmer participation approach that has helped to increase household income generation of poor dairy farmers.
- Winter Fodder mixture has been recommended for higher quality and quantity fodder production. Oat must be sown with winter legumes such as vetch and pea in all agro-ecozones. This combination provides 80% more yield than control.
- In the mid hills and Terai the forage combination recommended are Teaosinte + Redbean (28 t/ha), Maize + Soyabean (22 t/ha), Sorghum+Soyabean (21 t/ha) and Bajra+Cowpea (19 t/ha).
- Proper inoculation and fertilizer application recommended for higher fodder legume production. Small pea, Bold pea and Vetch provides 36% more yield if properly inoculated and under fertilizer application.
- The promising dual purpose maize cultivars recommended for green stalk and more seed yield are NKP x 95 - 81, NPK x 95 - 10, Bahar and E V II. Mid-hill
- It is recommended that Amrisho cultivation on 100 running meter area could give an average income of Rs. 2000 per annum and this provides opportunity to alleviate fodder shortage and poverty reduction.
- The technology generated through proper combination of grass and legume seed (60: 40), proper species combinations (Oat + vetch), manure and fertilizer placement behind the plough (FYM 10 ton + 40:100:0 NPK Kg/ ha) brings about a good profit by a milking buffalo and utilizing an arable land of 600 m². It also gives more seed with good profit.
- Technology for Improving Degraded land has been developed. Open degraded grasslands and shrub lands (up to 1700 masl) can be improved through technology generated under minimum tillage and line sowing, use of starter fertilizer (34:75:0 kg/ha), inoculation and lime pelleting. With this cost effective technology an average production of 34 mt GM/ha can be achieved and soil fertility is increased due to inclusion of legume species and reduction in soil erosion has been obtained by over 70% plant coverage on barren land.
- in the high altitude belt (over 1700 masl) areas and for the moist sites, under minimum tillage, lime coating, inoculation, proper sowing depth and use of starter fertilizer 34: 75: 0 + Sulphur 30 Kg/ha, White clover (*Trifolium repens* cv. Khumaltar) has potential to produce 5 tonnes GM per ha under occasional grazing.
- Technology for Fodder Tree Establishment and Survivability in the areas upto 1700 masl altitude has been generated. The results for three years have shown that *Bauhinia purpurea*, *Leucaena leucocephala* species have attained growth over 2-3 meter in three years and over 68% survivability under proper pit size and management (50 cm x 50 cm x 50 cm + Top soil) and starter fertilizer (250 gm DAP + 150 g sulphur per pit).
- For Terrace Riser Improvement in the mid hills, the forage combination recommended for terrace riser improvements are Napier (44.4 t/ha), Napier + Desmodium (40.4 t/ha) Napier + Setaria + Desmodium (57.4 t/ha)
- Hedgerow Species found suitable in the mid hills are Sunhemp, Napier, Pigeon pea
- In the high hills, recommended cultivar of Rye Grass are Ellett (28 t/ha), Belfort (27.5 t/ha) Sommora (27.2 t/ha) and combination of pasture species recommended are White Clover + Rye grass (17.01 t/ha), White Clover +Cocks foot (20.64 t/ha), White Clover+Rye grass+Cooks foot (28.70 t/ha).
- Degraded land could well be a source of seed for its sustainable development as well as a source of income.
- A simple and affordable technology has been developed for Income generation with seed production in the low altitude belts (400-1200 masl). Suitable species, stylosanthes guianensis cv. Cook at the rate of 5 kg/ha, lime pelleting (10 kg/ha) inoculation (250g rhizobium/5 kg), line sowing under minimum tillage practice (30 cm turf cultivation and 70 cm gap i.e. one line per meter), application of DAP @ of 80 kg/ha and borax 8 kg per ha has been recommended for this. At present this technology has been very useful to the farmers and is a important source of income generation.

Sisno: A neglected resource for augmenting pig productivity in the hills of Nepal

Sisno, commonly known as stinging nettle or nettle (*Urtica dioica*), though cosmopolitan in distribution, is abundantly available throughout the hilly region of the country. Only certain hilly tribal people consume this, otherwise wasted herb as a green vegetables in their food and some farmers are reportedly incorporating some Sisnu leaves along with brewers' spent grain (Jand Ko Kat) in pig's feed. Until now, no documented work has been reported about Sisno feeding in swine.



At Livestock Farm of Agricultural Research Station, Pakhribas, Dr. D. R. Khanal and his team at preliminary study have found the beneficial effect of Sisno feeding in Pakhribas Black Pig (popularly known as Dharane Kalo Bangoor) after uncovering its dramatic effect on egg production in laying hens. In a research based at the station, a total of six piglets (four male and two females of similar age groups and same parents) were used in the investigation. They were divided into two groups, each group having two male and one female piglet. More piglets and larger treatment groups could not be included, though wished, due to limited funding. All four male piglets were castrated two weeks before the initiation of trial. The control group was receiving only 100 % commercial pig ration while the other treatment group receiving 70% pig ration and 30% green Sisno

leaves and feed served after cooking in both groups.

Blood samples and fecal samples were collected once monthly for determining any abnormality in the health status besides recording body weight. The profile of body weight gains in both treatment and control group is depicted in the figure. At the end of the feeding trial, all four males (two control and two treatment) were slaughtered for carcass evaluation. Trend of monthly body weight gain was surprisingly



higher in Sisno fed group, which was remarkable until 9 month followed by some decline at 10 month of age. Replacing commercial pig feed by 30% green leaves of Sisno apparently did not cause any side effects and in fact those pigs getting Sisno in their feed were looking more shining and healthy than their counter part.

On macroscopic evaluation of carcass, muscles were more compact in Sisno fed group besides having comparatively thicker layer of fat than in control group. Upon organoleptic test (sensory evaluation) comprised of 16 panel members, majority liked Sisno fed pork than the pork from the control pigs. Result on proximate analysis of meat sample is awaited. This team wishes to conduct further investigation on immunomodulatory aspect on the coming year.

- Reported by Dr. D. R. Khanal
Senior Scientist, NARC

NARC Review Workshop

Nepal Agricultural Research Council (NARC) organized a workshop on 8 April 2005 to review the research activities conducted in the last eight months of the current Fiscal Year 2004/05.

In the meeting, status papers from different divisions, commodity research programs, regional research stations and other entities under NARC were presented.

A total of 2,344 activities under 444 research projects on different subjects like crops, horticulture, livestock, fishery, food technology, agri-environment, biotechnology, outreach and communications are under operation in the current year. The research programs/activities are set with bottom up and top-down conversion approach on the basis of farmers' problems, national agricultural policy and NARC Vision. In the current year, "Gautam" variety of wheat, "Shital" of Lentil, "Surya" of Cowpea and "Kamdhenu Jai" and "Netra Jai" of Oat along with complete packages of practices were officially released for farmers after years of research and experiments.

The review meeting was chaired by Joint Secretary of Ministry of Agriculture and Cooperatives, Mr. Bhairab Raj Kaini who concluded the meeting with his remarks on the research accomplishment and urged to incorporate the suggested issues in the next programs.

During review meeting, Acting Executive Director of NARC, Mr. Dularchan Sahu Pathik; Director of Planning & Coordination, Mr. Sambhu Bahadur Panday; Director of Finance, Mr. Parshu Ram Lal Karna; Director of Livestock and Fisheries Research, Dr. Nanda Prasad Shrestha, Chief of Communication, Publication and Documentation Division, Mr. Bhola Man Singh Basnet and other scientists expressed their views on the need of better implementation of the projects. Timely release of budget was also emphasized during the meeting.

Selective Breeding Programme in Khari Goat (Hill goat)

Exotic breeds or their crosses not always react better in given management and climatic conditions. They might have superiority genetically over indigenous but may lack adaptability in harsh conditions of nutrition, production systems and geo-climate. Hence, crossbreeding programme might not always be an efficient means to uplift the productivity of the indigenous genotypes. It holds true in case of Khari breed in the eastern hills of Nepal. Cross breeding with Jamunapari, Barberi and Beetal from India and Kiko from New Zealand could not improve the productivity of local hill goats. Crossbreed has significantly longer kidding interval and lower litter size except in some cases of Kiko. In addition, crossbreed had late maturity and longer generation interval.

In most cases, Khari does suffered with distocia following the death of dams (when introduced imported bucks) due to the bigger litter size. Crossbreeds had high pre-weaning mortality, poorer growth performance in prevailing nutritional management and production systems as compared to the Khari and were more susceptible to the external parasites. Thus, strategy to uplift the production parameters of Khari breed by dint of exotic bloods introduced since last three decades back transgresses optimization and the plan appeared to be ambiguous. The economic analysis of meat out-put per doe per year from the local and crossbred animals revealed that the local goats produced 60 per cent more meat and thereby more income than their contemporary crossbred genotypes. Hill goats also have alluring reproductive characteristics like

more twinning, shorter kidding interval and early puberty, and are well acclimatized to different input systems and physiographic conditions.

On top of that, from the result of genetic parameter estimation (heritability, genetic and phenotypic correlation and relationships among the traits), selective breeding programme as medium to high nature of heritability of the traits and their positive correlation were observed. Selection program initiated within the Khari breed both in on-farm and station obtained encouraging results. Weight as well as reproductive traits were influenced by the selection programme. For maintaining high selection pressure two-tier open nucleus breeding scheme has been adopted. Five field sites in three eastern hill districts with more than 1228 animals from 181 households and about 400 goats from the nucleus herd were included in the programme.

The selective breeding programme achieved 2.3 and 2.9 per cent genetic gain in first generation kids for 4 and 6 months weight respectively at nucleus herd. Likewise, the response of selection per generation on-farm was 6.8 and 7.4 percent for 4 months and 6 months weight respectively. Twinning at station had been elevated from 68.0 % to 68.7 % for this period. Overall result of selective breeding programme is effective and satisfactory, and now it requires further amplification by all concerned and means.

- By Dr. Prakash K Pokharel, Senior Scientist, NARC

TRAINING WORKSHOP/SEMINARS, STUDY & TOURS (April - June 2005)

S.N.	Name	Position	Subject	Duration	Country
1.	Dr. Niranjan Prasad Adhikary	Coordinator, NRRP, Hardinath	Inception and Planning Meeting on Rice	18-20 April	Philippines
2.	Dr. Devendra Gauchan	S-4, Outreach Division	Inception and Planning Meeting on Rice	18-20 April	Philippines
3.	Dr. Hari Bahadur K.C	T-7, Agronomy	Agrobiodiversity, Biotechnology, Plant Breeding & Seed Sector Dev.	6 May-4 July	Netherlands
4.	Dr. Surya Laxmi Maskey	Director, Crop & Horticulture	Third Project Steering Committee Meeting of IFAD TAG 532 ICRISAT	12-17 May	Vietnam
5.	Mr. Nawal Kishor Yadav	Coordinator, LRP, Rampur	Third Project Steering Committee Meeting of IFAD TAG 532 ICRISAT	12-17 May	Vietnam
6.	Dr. Bharatendru Mishra	Coordinator, ORP, Nawalpur	Third Project Steering Committee Meeting of IFAD TAG 532 ICRISAT	12-17 May	Vietnam
7.	Dr. Shambhu Pd. Khatiwada	S-4, NRRP, Hardinath	Research Prioritization on Genetics	9-11 May	Philippines
8.	Dr. Jwala Bajracharya	S-4, Agri.Botany Div.	Agrobiodiversity, Biotechnology Plant Breeding & Seed Sector Dev.	9 May-1 July	Netherlands
9.	Dr. Surya Laxmi Maskey	Director, Crop & Horticulture	Third Annual Steering Committee Meeting	24-27 May	Indonesia
10.	Mr. Ram Krishna Neupane	S4, Outreach Division	ACIAR Project Review Meeting	6-7 June	Australia
11.	Mr. Nawal Kishor Yadav	Coordinator, LRP, Rampur	ACIAR Project Review Meeting	6-7 June	Australia
12.	Mr. Devendra K Chaudhary	S-3, NRRP, Hardinath	Hybrid Rice Technology Training	27 June-27 Oct,	China
13.	Mr. Ram Baran Yadav	T-6, NRRP, Hardinath	Hybrid Rice Technology Training	27 June-27 Oct	China

NARC Scientists Awarded

RONAST Science and Technology Talent Award



Mr. Dinesh Pariyar, Principal Scientist (S-5) of Nepal Agricultural Research Council (NARC) has been honored with the “RONAST Science and Technology Talent Award” for his contribution in the scientific development in agriculture sector in the country. The prize was handed over by His Royal Highness Crown Prince Paras Bir Bikram Shah Dev at a special function on 29 June 2005.

Mr. Pariyar received the first category award that carries 50,000 NRs. along with a commendation letter for his remarkable contribution in livestock production through forage and pasture research and development in different eco-regions of Nepal.

Mr. Pariyar born on 7 February 1953 in Saptari, Nepal, has been working in the field of livestock, pasture and fodder research and development for the last 30 years with contribution in rehabilitation of degraded lands and forage development for animal production.

Mr. Pariyar had his Master’s study from University of Reading, United Kingdom in 1983.

(Achievements in fodder and pasture research and development has been presented in page 5)

RONAST Science and Technology Promotion Award



Dr. Ash Kumar Rai, Principal Scientist (S-5) of Nepal Agricultural Research Council (NARC) has been honored with the “RONAST Science and Technology Promotion Award” for his contribution in fisheries research and development. The prize was presented by Vice Chairman of Council of Minister, Dr. Tulsi Giri on 15 April 2005.

Dr. Rai received the Award along with a commendation letter for his remarkable contribution in developing, promoting and creating awareness on management technologies in fish farming in lakes, reservoir and swamp.

Dr. Rai, born on 27 May 1946 in Khotang, Nepal, has been working in the field of fisheries research and development for the last 30 years for Aquaculture farm management, pond fish culture, integrated fish farming system, cage fish culture, coldwater fish culture, rainbow trout culture, breeding and feed management and limnology.

Dr. Rai had his PhD study from Kyoto University, Japan in 2000 and Master’s degree from Auburn University, Al., USA in 1987.

(Achievements in fisheries research and development has been presented in page 4)

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To

