



A Quarterly Newsletter of Nepal Agricultural Research Council

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Annual Budget for Agricultural Research

His Majesty's Government has allocated a total of NRs 486586000 to NARC for the fiscal year 2000/001. It is 0.53% of the total National Budget (Rs. 91621335000) and 14% of total budget in agriculture sector (Rs. 3360573000). (The budget in agricultural research was 0.48% of the total national budget in the last fiscal year.). The sources of the budget are:

HMGN	8.5 %
KR-2(JICA)	12.1 %
AREP(World Bank)	63.2 %
HARP	15.5 %
LeaseHoldForestryProjects	0.7%

The budget will be spent on about six hundred research and other programs and infrastructure development. Details of the programs will be presented in the next issue.

Ninth NARC Annual Day observed

Ninth Annual Day of the NARC establishment as an autonomous organization was observed with a special function held at Khumaltar on May 7, 2000.

The function was inaugurated by Hon'ble Minister of State for Agriculture and Cooperatives and the Chief Guest Mr. Bal Deo Sharma Majgaya, Mr. Hari Shankar Tripathi, Hon'ble Member of National Planning Commission Chaired the function.

Review & Commitment

As the Executive Director Mr. Dhruva Joshy called, it's a formal day to recall the spirit, review and evaluate the past works/achievements and reassert commitment for further advancements. The Hon'ble Minister outlined the constraints of agriculture development in the country, i.e lack of infrastructure, electric power to run a fertilizer factory, lack of road access to

most of the rural parts of the country etc. He remarked that the agriculture research has given positive impacts in the fields at some parts of the country and underlined the need to extend the research works to meet the need of the farmers in hills and high-hills ensuring alternatives for their livelihoods and income. He assured that agriculture research will have better environment. Mr. Hari Shankar Tripathi remarked the eight years period is not so long in development. Agriculture is the only source for poverty alleviation in Nepal. The increase in GDP from Agriculture sector is positive. Few years ago people in cities had difficulties in getting milk, and vegetables had to be imported. But now situation has changed. Dr. Mukti Narayan Shrestha Secretary of Ministry of Agriculture and Cooperatives said the contribution from research is remarkable but the population growth has

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ISSUE HIGHLIGHTS

- Planning meeting on breeder and foundation seeds
- Coordination workshop at Nepalgunj
- National workshop on livestock and fisheries research
- Agronomists' workshop
- NARC outreach research workshop
- Avian health research workshop
- Horticulture research workshop
- Agriculture scientists and press interaction

NARC Website:
www.narc-nepal.org



Minister of State Mr. Baldeo Sharma Majhgaya at the Function (Sitting in the middle)

Agriculture Scientists & Press Interaction

At the completion of Eighth Year of NARC as an autonomous organization, an interaction between NARC Scientists and Journalists was held at Khumaltar on 5 May 2000.

In the program Executive Director Dhruva Joshy briefed about achievements of NARC and impacts of the research in the field. He pointed out that NARC has recommended high yielding and location-specific varieties of different crops with total package of practices to farmers, and in the fiscal year 2055/56, the coverage of the recommended rice, maize, and wheat varieties was 66, 65 and 88 percent of total cultivated areas of the crops respectively. Due to short duration varieties developed, it has been possible to cultivate 80-90 % of the land that used to remain fallow in winter, he added. The Executive Director said that NARC is trying to get resources from agro industries in the research. Five different sugar factories have been providing resources for the problem-oriented

Coordination Workshop and RTWG Meeting at Nepalgunj

With the view to discuss and recommend on the process of technology generation and dissemination in different agricultural areas together with scientific and technical manpower of Regional Agricultural Research Station (RARS), Nepalgunj and from NGOs, the Coordination Workshop was organized by the RARS, Nepalgunj on 11 May 2000. The Workshop was participated by representatives from RARS/NARC, Nepalgunj, Regional Directorate Offices of Surkhet and Dipayal, District Agricultural Offices, Agricultural projects and NGOs in the region.

Similarly, Regional Technical Working Group (RTWG) Meeting was held on 12 May 2000. In the meeting, reports and researchable constraints and programs were presented from District Agricultural and Livestock Offices, Reports from Seed and Plant Protection Laboratories, Training Centre, Cotton Development Board were also presented. Discussions were held on the points: Technology generation, Dissemination, Impact of the existing technologies, Gap between technology generation and dissemination, Role of NGOs in technology generation and dissemination etc.

research on sugarcane. Resource from oil industries for the research in new oilseed crops (Niger and Sunflower) is being tried through Agro-Enterprise Centre (AEC).

In the program, the Executive Director and Scientists from different sectors answered the questions raised by the Journalists.

Brief News

NARC Gender Mainstreaming Workshop

NARC Gender Mainstreaming Training Workshops was held at Khumaltar, on 19-21 & 26-28 June 2000.

The workshop was held to increase gender awareness amongst participants, to acquire skills in gender analysis and to use these skills to integrate gender questions into agricultural research.

Dr. Christine Okali, AREP Gender Consultant was the resource person for the training.

Management Training to NARC Senior staff

General Management training to NARC's Division Chiefs and Coordinators was held at Jawalakhel from 16 to 30 June 2000. The training was given by Nepal Administrative Staff College.

Training on Mycorrhizae

A basic training on Mycorrhizae was organized by Plant Pathology Division of NARC at Khumaltar on 8-12 May 2000.

Programs on World Environment Day

On the occasion of the World Environment Day 2000, an Exhibition was held at Birendra International Convention Centre, Baneswor from 5-7 June 2000.

Various environment related stalls were set from governmental, non-governmental organizations, educational institutions and private companies. NARC also participated the Exhibition.

Planning Meeting on Breeders and Foundation Seeds of Food crops

The planning meeting on breeder and foundation seed of food crops was organized by Agriculture Botany Division, NARC at Khumaltar on 9 June 2000.

The Meeting was participated by representative from Ministry of Agriculture, NARC, Agriculture Input Corporation (AIC), Seed Producing Research Stations and Private Seed Entrepreneurs. Objective of the meeting as highlighted by Mr. R.P Sapkota, Chief of Agri-Botany Division were to make aware about NARC's breeder and foundation seed production programs; to discuss the burning issues and problems in seed production system and to come up certain agreements with recommendations and actions ensuring the availability of source seed for further multiplication in support of National Seed Program; to develop the balance sheet of produced seeds and their distribution.

In the meeting station-wise seed programs about crops and their varieties were presented. Similarly DOA and AIC

presented their seed demands for FY 2057/58. The purposed seed production programs of individual stations with crops and their varieties were discussed in detail. During the discussion the following points were raised and agreed:

- Planning for seed production should be made in advance
- NARC should produce the seed of variety of a crop based on the demand of AIC, DOA and others
- There should be well-established process to collect the seed demand
- Because of limited source seed of wheat, certified first or second generation (C_1 or C_2) seed will be used for minikit, demonstration, production blocks by DOA

The meeting was held in two divided sessions Chaired respectively by Dr. S.K. Shrestha, Joint Secretary for Ministry of Agriculture and Cooperatives and Mr. Dhurva Joshy, Executive Director, NARC.

National Workshop on Livestock and Fisheries Research

The Fourth National Workshop on Livestock and Fisheries Research was held at Lumle on 24-26 April 2000.

The three days workshop was held to review research activities in livestock and fisheries, the technologies at hand in pipeline, and to discuss and suggest for future strategy.

In the workshop forty different strategic papers and research reports were presented. Discussions were held in six divided groups namely Livestock Production and Management; Forage Pasture and Agro-Forestry; Animal Nutrition; Animal Health; Animal Breeding; Genetics and Genetic Resources; and Socio-Economics. The group discussion reports and recommendations were presented at the conclusion.

Recommendations

Animal Breeding

At hand/pipeline technologies

- Selection of hill goat
- Pakhribas Black Pig
- Characterization of Lime and Parkote Buffaloes
- Heat synchronization in local cattle
- Buffaloes breeding strategy
- Characterization of native terai goats
- Chinese and German Angora (F₁ Line)

Suggestions

- Research on draft power (Mule, Chauri, Sheep)
- Bio-technology (ET, Reproduction Physiology)
- Disease resistant breed development
- Eco-farm Park
- Sire evaluation
- New entry should be encouraged

Animal Nutrition

At hand/pipeline technologies

- Green grass supplementation on pig and poultry
- Buffalo calf rearing (milk replacers)
- Possible use of banmara feeding on goats
- Urea molasses for bovine
- Better utilization of crop residues in ruminants (straw feeding) and fodder tree leaves

- Chemical analysis of different types of feed stuff

Suggestion

- Low cost feeding package using locally available resources
- Efficient utilization of food resources (conventional/non-conventional feeds)
- Formation of feeding standards for different types and stages of animals
- Determine safe levels of feeding tannin rich tree fodders
- Investigate principles in fodder plants causing deleterious effects to farm animals
- Research on enzymes, post-ruminal digestion and absorption of nutrients, and metabolisable energy
- Multi-disciplinary inter-relationship in research.

Livestock Production Management

At hand/pipeline technologies

- Early weaning of cross-bred calves
- Steaming up of dairy animals at advanced pregnancy period
- Feeding management in early maturing and milk production
- Milk replacer for calves rearing

Suggestions

- Technology development in feeding management for higher milk production
- Quality meat production from male buffalo calves
- Induction of lactation in dairy cattle and buffalo

Animal Health

At hand/pipeline technologies

- Anthelmintic drenching strategy against fasciolosis (liver fluke) on cows and buffaloes
- Treatment measures to control mastitis in cows and buffaloes
- Anthelmintic drenching against foot rot in sheep
- Treatment strategy against asciriasis in Pigs using local herbal plant
- Preventive measures against EDS, AE Mareks diseases in poultry
- Treatment measures against ear mites

Suggestions

- Isolation, identification and characterization of pathogens in the country
- Development of preventive measures against economically and zoonotically important diseases
- Research on herbal drugs, drug residues and toxins and drug resistance
- Multi-disciplinary approach for the management of diseases

Pasture and Fodder

Technology at hand/pipeline

- Identification of winter fodder crops (Kent, Swan, Omhi for high hills; Kent, Swan Charisma, 83INC 19 D3, Taki for terai)
- Identification of different native grasses/legumes/fodder species for their productiveness at different agro ecological zones
- Use of M.P.T.S., Tanki, Ipil ipil, Koiralo, Kimbu, Badhar in agro-forestry system
- Identification of Murpa, Sirmurpa, Angari, Dhade, Lekh Gurans, Pra, oryzopsis spp. Piptanthus poisonous plants in pasture land of Rasuwa and Mustang
- Quality seed production technology and cultivation practices of Berseem & Oat

Suggestions

- Identification of dual-purpose fodder spp.
- Interface study with commodities
- Evaluation of rangeland
- Breeder seed production
- Minikit distribution

Fishery

Technology at hand/pipeline

- Package of practices of high value fish (Trout in cold water)
- Rice-fish farming package of practices for terai/hill region
- Fish seed nursing practices in cage farming system
- Feed and feeding packages for fish seed and brooder fish.
- Intensive nursing of fish seed in pond condition.

Suggestions

- Establishment of commodity program for pond, lake & riverine fish
- Fish pathology management

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Agronomists' Workshop Held

With a view to provide a platform for agronomists to share experiences, review past agronomical research and development works and suggest for future strategies, the Agronomy Society of Nepal (ASON) organized National Agronomists' Workshop at Khumaltar on June 6-7, 2000.

At the opening session of the workshop Hon'ble State Minister for Agriculture and Cooperatives, Mr. Baldeo Sharma Majgaiya, as the Chief Guest, stressed the need to develop technologies that address farmers' problems and increase food and income of farmers of the country.

The Secretary for Ministry of Agriculture and Cooperatives Dr. Mukti Narayan Shrestha who Chaired the function emphasized on environmentally-friendly and cost-effective technologies, conservation and utilization of bio-diversity and market management.

President of the Society Mr. Shambhu Lal Shrestha welcoming all the invitees and agronomists at the function explained the leading role of the Agronomists in promoting agricultural productivity to help food security and poverty alleviation.

At the function Executive Director of NARC Mr. Dhruva Joshy; FAO Representative Mr. W.R. Rudder; Representatives from Department of Agriculture, Dr. Stephen Biggs, ASON Vice President Mr. Govinda Prasad Pandey spoke on the contribution, need and scope of Agronomy in Nepalese agricultural research and development.

The workshop was participated by about 150 Agronomists and others from NARC, Ministry of Agriculture; Department of Agriculture; Department of Irrigation, different national and international non-governmental organizations; IAAS; RONAST and different media representatives.

Fifteen different working papers were presented and discussions were held in technical sessions. The workshop in three groups made recommendations as follows:

Recommendations

I: Agronomical Research and Development; past, present status and future perspectives

- Registered seed company should coordinate the seed business
- Seed multiplication program at VDC level with revolving fund
- Seed technologists to certify seeds at NARC stations.
- Need to initiate integrated research on insect-pest, disease, nutrients and weeds

- Integrations among crops, livestock and forestry sector
- Appropriate cropping pattern for maintaining crop diversification
- Use of local landraces and farmers' participation necessary for crop diversification
- Judicious use of inputs to minimize production cost
- Research on minimizing cost of production from domain to domain
- Timely availability of production inputs to minimize cost
- Mechanization in irrigated tracts of Terai
- High value low volume crops in hills, post-harvest & processing facilities
- Water harvest technology in the hills
- Small scale on-farm irrigation
- Research on water requirement for crops
- Priority to research on water, fertilizers & climates
- Registered fertilizer company to handle fertilizer supply
- Combination of organic and inorganic sources
- Quality test of fertilizer
- Priority on green manure and bio-fertilizer
- Fertilizer policy for hill farmers
- Balanced use of fertilizer
- Conservation of bio-diversity and local land races
- Holistic and system perspective research approach in a participatory manner

II: Food Security/Commercial Agriculture/ Industrial crops

- Minimum support price and marketing for commercial/industrial crops
- Encouraging for agro-enterprises
- Buffer stock
- Collaborative research with industries
- Minimizing cost of production through mechanization, multiple cropping including agro-herbs cultivation (Every project must present the ways of minimizing cost in project proposals)
- Food security by increasing production and increasing purchasing power
- Role of Agronomists for implementing participatory approach for solving food security problem of Nepal particularly high hills/remote areas e.g. Karnali zone
- Situation analysis by team of Agronomists and other farmers' circumstances and

understand constraints of the area e.g. stress environment

- Make search for modern crop/varieties and practices, indigenous crop/varieties and indigenous knowledge
- Demonstration with farmers
- Decentralization for seed multiplication of preferred variety
- Backstopping for technical support & capability building of farmers

III: Linkage and Technology Transfer

- Strong coordination committee at every level of VDC, Ilaka, region, central with leadership of DADO/Agronomist
- National and regional research/commodity programs should supply seed/technology through extension offices (Minikits be continued)
- ASON should take lead in publishing recommended technologies in simple Nepali language for farmers and extension workers
- Researchers themselves should involve in giving trainings to technicians and farmers
- Exchange of scientists for teaching and experience-sharing between NARC and IAAS
- Joint visit programs of NARC/DOA/NGOs/INGOs and CBO representatives to different research stations
- Research stations should organize annual functions "Farmers' Day" to improve linkage with farmers and extensionists
- For Karnali Special Program, need-based technological support be provided jointly by research and extension. However, high value commodities should be gradually promoted in longer run

Meeting of the General Committee

The General Meeting of the ASON held on June 7, 2000 reformed the Executive Committee.

New Executive Committee

President : Mr. Shambhu Lal Shrestha, NARC
Vice-President: Mr. Govinda Prasad Pandey, DOA
General Secretary: Ms. Jagat Devi Ranjit, NARC
Deputy General Secretary: Dr. Kali Das Subedi, SSMP
Treasurer: Mr. Mauje Lal Prasad Jaiswal, NEW ERA
Members: Mr. Bholu Man Singh Basnet, NARC
Dr. Krishna Raj Regmi, NARC
Mr. Mahesh Man Shrestha, DOA
Ms. Renuka Shrestha, NARC
Mr. Purna Bahadur Shakya, NARC
Mr. Ashok Mudwari, NARC
Advisors: Dr. Kamala Bhakta Rajbhandary
Dr. Mahesh Bharati
Mr. Bhadra Vilas Pant

Avian Health Research Workshop

The Animal Health Research Division of NARC organized the Avian Health Workshop on 12 June 2000 in Katmandu. The overall objective of the workshop was to explore and discuss about the avian health problems and identify and prioritize the avian health researchable areas. The workshop provided an excellent forum for interactions between scientists, private, commercial poultry entrepreneurs, poultry farmers and extensionists on the different aspect of avian health.

In technical session of the workshop a total of 9 papers on poultry development & health policy and research needs, status of poultry farming in different regions of Nepal, major diseases in poultry and vaccines and vaccination in poultry in Nepal were presented.

After the presentation working groups were formed on four different themes to discuss and recommend their suggestions for further steps to be included in future strategy of poultry research and development in the country. Following were specific themes:

Group 1: Research needs for the promotion of poultry production.

Group 2: Research needs for the control of avian zoonotic diseases and drug residues in poultry production

Group 3: Research needs to support the special poultry program for Far-western development region.

Group 4: Linkages for identification of problems, technology generation, dissemination and coordination (NARC, DLS, Private Sector, NGOs, INGOs)

Recommendations

- Research on commercial poultry breed selection based on adaptability in the different ecological zones of Nepal
- NARC should provide technical packages on good management practices and bio-security measures for the hatcheries, commercial poultry farms and feed manufacturing companies.
- Need for development of national strategies for control and eradication of economically important poultry diseases such as Marek's disease and Gumboro diseases

- Isolation and characterization of local field strains of various infectious diseases of poultry in different regions of the country
- Establishment of national organism bank of animal pathogens
- Avian disease diagnostic laboratory should be equipped for the sero-monitoring of major economically important poultry disease in poultry pockets of the country
- There should be a mandatory body for monitoring, supervision and law enforcement of quality control in the hatchery, commercial farms and feed industries
- The efficiency of imported poultry vaccines should be evaluated and there should be provision for getting prior permission from Department of Livestock Services while importing vaccines
- Establishment of a quality control division in the Department of Livestock Services for the quality control of veterinary drugs, biological vaccines, and chicks and feed additives
- Need for research on drug residue and resistant problem and zoonotic diseases in the country
- To support the special poultry program for Far-western region, DLS and NARC should play an active role. Following suggestion has been made to make this program most successful:
 - baseline survey for poultry pocket selection
 - Six to eight weeks old New Hampshire and Black Australorp breed poultry be provided to the pockets
 - poultry resource center in Far-western region
 - Feeds prepared locally with locally available raw materials
 - Vaccine, medicine supply should be through co-operative revolving fund
 - Design of poultry houses based on local materials and conditions
 - Technical support services through training for farmers
- Special technical specialist group should be allocated for this program. Women participation should be given priority
- There should be research back-up for local feed formulation, performance study of the poultry, and epidemiological study of the diseases
- There should be establishment of national poultry development board with major participation of private sector
- Establishment of national poultry development fund with contribution from private and public sector for research/development in poultry sector
- The national poultry and livestock industry should be protected while introducing in WTO
- There should be active participation from private sector for solving problems in poultry sector
- Dissemination of technology on poultry production should be promoted in Nepali language on regular basis
- National poultry production and marketing centers (as mentioned in 9th Plan) should be implemented

Talk Programs Held at NARC

- "Sustainable livelihood Approach" by Ms. Sarah Montagu, Asst. Sustainable Livelihoods Advisor, DFID, London; Mr. Karim Hussein, Research Fellow, Overseas Development Institute, on 4 May 2000.
- "Image Processing Technology in Agriculture" by Prof. Masateru Nagata, Miyazaki- Japan, on May 5, 2000.
- "Participatory Approach to Plant Breeding and Varietal Selection", by Dr. John Witcombe, DFID, Plant Sciences Research Program, University of Wales, on May 10, 2000.
- "Agriculture Mechanization and Post-Harvest Technology" by Dr. B.S.Bisht; Dr. S.D. Kulkarni, and Dr. M.M.Pandey (ICAR Scientists, India) on May 26, 2000.
- "Natural Resource Management and Cropping System Research in ICAR" by Dr. P.C. Bhatia, Asst. Director General, ICAR; Dr. R.L. Yadava, Project Director, Director, Cropping System Research, Modipuram, Meerut, India on July 18, 2000.

Fifth NARC National Outreach Research Workshop

With the theme “Strategy for Enhancing Participatory Technology Development (PTD) and Linkages”, the Outreach Research Division of Nepal Agricultural Research Council organized the Fifth National Outreach Research Workshop on May 30-31 at NARC, Khumaltar. The overall, objective of the Workshop was to discuss and suggest for developing a NARC new strategy for enhancing participatory technology development (PTD) and linkages with Public Sector, NGO and Private sector research and development (R&D) agencies.

The Workshop inaugurated by Hon’ble State Minister for Agriculture and Cooperatives Mr. Bal Deo Sharma Majgaiya was participated by representatives from NARC, DOA, DLS, NGOs, INGOs, and Private sectors. Following the inauguration, key invited papers were presented by the representatives from major public (DOA, DLS, NARC and developmental projects such as IPM and TLDP) and Private Sectors (LIBIRD and SSMP/HELVETAS), R & D institutions involved in agriculture and natural resource management and groups were formed in four different themes to discuss and recommend suggestions for NARC PTD strategy and linkages.

The first day of the workshop was devoted for invited papers presentation and discussion for national level NARC Strategy and the second day was allotted for NARC regional/location-specific strategy.

The synthesis of the recommendations after groups’ presentation and discussion is as follows:

Recommendations

National Level

- NARC should take a leading role in coordination and supporting PTD and linkages activities in agriculture in the country (should act functionally as NARS)

- Resumption and regularization of existing meeting at the Departmental / Institutional level (NARC-DOA, DLS etc.) and its mandatory feed-back for technology generation and transfer
- NARC ORD at the center should develop guidelines on the proposed new PTD strategy and circulate to all NARC Stations, Commodity Programs and the Central Disciplinary Divisions
- Information base of institutions involved in PTD in the country should be prepared and updated and circulated to all concerned
- NARC needs to develop inventory of potential technologies available and be adapted in the country
- Documentation and dissemination of successful technologies and institutional models and methodologies of PTD and linkages in agricultural sectors
- Demand-driven collaborative research with other public and private sectors need to be developed
- Technology releasing committee at the national level should be formed for release of non-varietal (e.g. crop management) and non-crop technologies (e.g. livestock and fish breed, etc.)
- Training and capacity building of NARC researchers in new way of managing and conducting PTD with partnerships
- Improve facilities, incentives and working environment in NARC institutions for problem-oriented participatory technology development
- NARC should also initiate consultation with relevant agro-entrepreneurs and agro-input dealers for enhancing linkages with them
- Networking and linkage with relevant public and private sector agencies for PTD and related policy advocacy e.g. subsidy for the promotion of farm mechanization

Regional/Location-Specific

- Each R/ARS need to develop PTD Plan along the line of NARC’s new strategy/Policy
- Each R/ARS should develop information base for all R & D stakeholders of the command area
- Location-specific guidelines and strategy on PTD should be developed
- Linkages should be enhanced at NARC OR sites and DOA/DLS PPS sites with mandatory participation of researchers and SMSs including ASC levels
- Regional Technical Working Group (RTWG) meeting need to be systematized and the participation of I/NGOs and Private Sectors need to be encouraged
- Emphasis should be given for the integration of technology to minimize technology gap through large plot on-farm demonstration (LPD) or on-farm front line research (FLR)
- Regional Stations (R/ARS) should be authorized and encouraged to release promising agro-technology at the regional level
- Delegation of authority to R/ARS to conduct collaborative PTD/research with the private and public sectors
- Enhance the documentation and communication roles of R/ARSs in PTD/linkage activities
- Successful generated technology should be scaled up through different network of stakeholders coordinated by NARC R/ARSs and other institutions
- NARC R/ARSs should emphasize on systems oriented participatory research such as crop-livestock-forestry integration, water management and post-harvest value adding technology development
- Women farmers’ involvements in participatory on-farm PTD activities need to be encouraged
- Regional station should coordinate all on-farm research activities under command districts

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TRAINING WORKSHOP/SEMINARS, STUDY & TOURS

(April - June 2000)

S.N	Name	Position/Faculty	Subject	Duration	Country
SEMINAR/WORKSHOP					
1.	Mr. Dhruva Joshy	Executive Director	Competitive Grants in the New Millennium: A Global Workshop	15-18 May	Brazil
2.	Dr. Bholu Ram Pradhan	Director, Planning	Competitive Grants in the New Millennium: A Global Workshop	15-18 May	Brazil
3.	Mr. Dhruva Joshy	Executive Director	Strengthening Partnership in Agricultural Research for Development	21-24 May	Germany
4.	Mr. Naresh Singh Thakur	S-3/Econo.	GIS Economic Valuation of Environmental Impact and Stat. Technique	24-29 April	Thailand
5.	Mr. Niranjana P. Adhikary	S-3/Agron.	Rice Study Travelling Tour	21-28 May	China
6.	Mr. Ram Bahadur Maskey	S-3/Soil	Annual Review and Planning Meeting	5-8 June	China
7.	Dr. Nanda Prasad Shrestha	Director/Livestock	Fourth Meeting of the Asia Pasture and Fodder Network	21-25 June	Pakistan
8.	Mr. Subarna Man Pradhan	S-3/Livestock	Fourth Meeting of the Asia Pasture and Fodder Network	21-25 June	Pakistan
9.	Mr. Dhruva Joshy	Executive Director	Nepal India Joint Agriculture Working Group Meeting	21-23 June	India
10.	Mr. Dularchan Sahu Pathik	Director/Crops	IJO First Meeting and Fourth Special Session of International Jute Council	27-29 June	Bangladesh
OBSERVATION TOUR					
11.	Mr. Sadhu Ram Basnet	S-3/Fish.	Study Visit	5 Apr.-5 months	Papua New Guinea
12.	Dr. Bishnu P. Kushwah	S-3/Vet.	Observation Tour at IVRI, Bareilly	2-15 May	India
13.	Mr. Tulsi P. Poudel	S-3/	Observation Tour to NDRI, IVRI	2-15 May	India
14.	Dr. Bhava Prasad Tripathi	S-3/Soil.	Observation Tour	26 May-4 June	India
15.	Mr. Govinda Prasad Acharya	S-3/Agron.	Observation Tour	26 May-4 June	India
16.	Mr. Jit Lal Shrestha	T-6/	Observation Tour	26 May-4 June	India
17.	Mr. Rishi Ram Upadhyaya	A-7/Finance	Observation Tour to IARI	4-10 June	India
18.	Mr. Bishwo P Regmi	S-3	Tour to IARI	15-24 May	India
19.	Dr. Vijaya Chandra Jha	S-3/Vet.	Observation Tour to IVRI	11-21 May	India
20.	Dr. Ram P. Shah	S-4/Agron.	Tour to BRRI	10-20 June	Bangladesh
21.	Mr. Shambhu Lal Shrestha	S-4/Agron.	Study Visit	26 Jun.-5 July	India
22.	Mr. Chiranjivi Adhikari	S-3/Agron.	Study Visit	26 Jun.-5 July	India
23.	Ms. Bimala Sharma	T-6/Econ.	Study Visit	26 Jun.-5 July	India
TRAINING					
24.	Mr. Dili Prasad Bhattarai	T-6/	Propagation training course	23 Apr.-4 May	Bangladesh
25.	Ms. Nita Pradhan	T-6/Fish.	Fresh Water Aquaculture	11 Jun.-12 Aug.	Thailand

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- Outreach research system in fisheries sector
- Development of package of practices for Catfish, Prawn, Ornamental fish, Pearl culture, Frog culture etc

Socio-Economics

Technology at hand/pipeline

- Socio-economic verification process in different OR sites
- On-farm testing of recommended/pipeline technologies under farmers management conditions
- Model for lease hold forestry through participatory research

Suggestions

- Socio economic database and Gender issues
- Integrated and multidisciplinary approach
- Research on health hazards aspect
- Research focused on market-led industrial and commercial aspects

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- Farmers' indigenous technologies, knowledge and experiences should be explored and capitalized.

As part of the follow-up of this workshop, PTD strategy for NARC horticulture sector were also presented and discussed in the Third National Horticulture Workshop held at Khumaltar. Some valid recommendations were made on NARC and GOs and I/NGOs / Private Sector linkages and partnerships for PTD in Horticulture sector as well. Further in this line, NARC is planning to hold a National Consultation Meeting with Agro-entrepreneurs and Agro-input Dealers at NARC headquarters some time towards the end of July, 2000.

- Collaborative research with line agencies and other actors
- Manpower development on socio-economic statistical analysis technique

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CAULIFLOWER

- Madhuri variety promising for late season in Pokhara valley
- Farm Machinery: About 22% Cauliflower (Kathmandu local) yield increased due to magnetized irrigation system

BRINJAL

- Bacterial wilt resistant lines identified: E6 203, EG 190, E6 195 (For cultivation purpose)
- TS 87, TS 5613, TS-90 (for genetic purpose)
- PS1 good in on-station, needs some coordinated on-farm trials

GARLIC

- Satra Saya Local for early maturity,
- Mallaj and Ghandruk Local for mid and high hills

TOMATO

- Use of Trichogramma as a bio-control agent to *H. armigera* and increased 50% yield of tomato

Horticulture Research Workshop

Horticulture Research Division of NARC organized the Horticulture Research Workshop from 7-8 June 2000 at Khumaltar.

The two-day workshop was participated by representatives from NARC, DOA, NGOs, INGOs and thirty-two papers on different aspects of horticulture were presented followed by discussions and recommendations.

Recommendations

POTATO

Technologies for release

Varieties: NPIT/0012 (for hills);
Pericholi (for plains)

Desprouting: Recommended for mid hills
Detrimental to low-hills
Not necessary for high hills

Control of common scab: Tubers dipping for 20 min in acetic acid @ 30 ml/l + Zinc sulphate @ 30g/l or Blitox 50 @ 3g/l solution

Pipeline

Varieties: Clones 389660.9, 388572.1k and 388574.6D (for the plains)
Clones 389708.3, CE2 69.1 and LT-5 (for the hills)

- Four new TPS Progenies are found promising and are further verified in farmers' fields through DOA network

GINGER

- Variety Z1-9721 (very good in yield and quality)

CITRUS

Pummelo

- All year round bearing tree identified, needs promotion
- Six genotypes found suitable for promotion
- Four times higher income than cereal crop

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Invitees to the NARC Annual Day Function

urged for more. Now a committee has been formed for Agro-bio Diversity. NGOs and private sectors are being involved in agriculture research and development. Mr. Huta Ram Baidhya a veteran scientist over viewed the evolution process of agriculture research system and said the agriculture research has now taken a proper direction. Mr. Dhurva Joshy, NARC Executive Director outlined the achievements of agriculture research and

new programs being brought forth. He expressed commitment that in consideration of past experiences and time's needs, the agriculture research system will be updated for effective outputs.

Directive & Suggestions

At the function the Hon'ble Minister giving his direction said that some special research should be made in food deficit areas to give new alternatives to farmers specially in western hills. NRAC should also make research on tea, coffee, herbs etc. Hon'ble Member of NPC Mr. Tripathi said research should also be made in drought and flood prone areas. Secretary of Agriculture Dr. Mukti Narayan Sharetha stressed the need to make research in local level too. Mr. Huta Ram Vaidhya suggested for special program and budget for poverty alleviation.

Veteran Scientist felicitated

Hon'ble Minister felicitated with DOSALLA to some veteran scientists for their contribution in agriculture research and development. Those felicitated were Mr. Huta Ram Vaidhya, Dr. Deepa Raj Sharma, Messers S. Mohin Shah, Pursottam Amatya, S.N. Regmi, Krishna Gopal Rajbansi, and Late Amresh Man Pradhanang.

NARC Employees Honored

Twenty-Four NARC employees having completed 25 years of their service were honored with plaques by Hon'ble Minister.

Mandarin

- 15-30% yield increment by adopting recommended technology

BEAN

- Pole bean variety S-9 ready for release
- Gulmi local Polebean variety promising for grain purpose in the western hills of Nepal

CABBAGE

- 45x30 cm spacing for summer season

BROAD-LEAF-MUSTRAD (RAYO)

- Tankhuwa Rayo- ready for national release (Western hills farmers liked it for its late bolting and softness)

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