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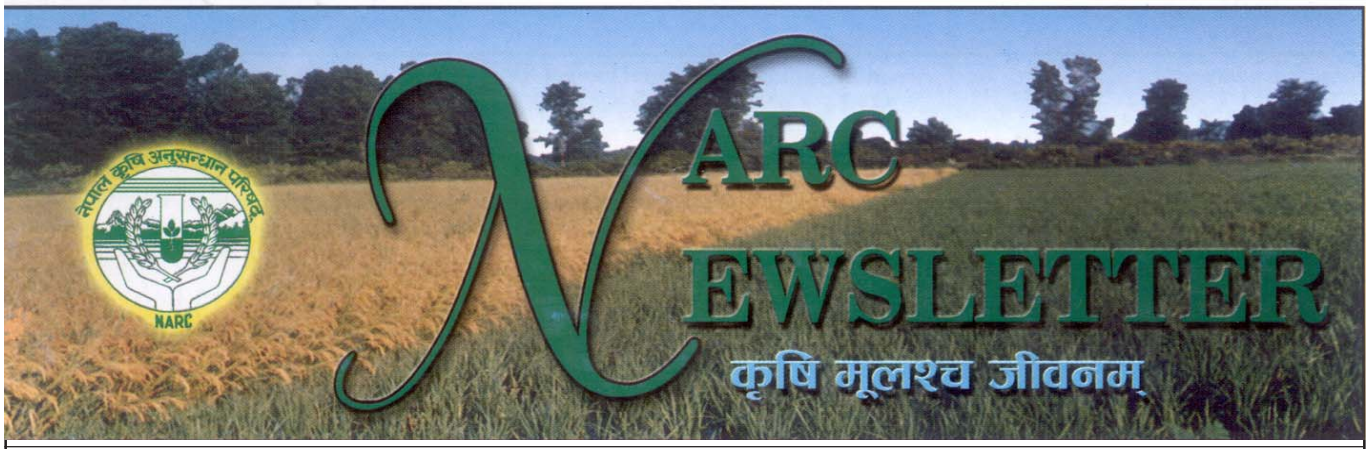

A Quarterly Newsletter of Nepal Agricultural Research Council (NARC)

Vol. 14 No.2 April-June 2007

National Summer Crops Research Workshop

The 25th National Summer Crops Research Workshop was organized by NARC at Khumaltar from 21-23 June 2007. The three-day workshop was held with the objectives to review the research activities on summer crops in the past years and their outcomes; to discuss existing problems; and to recommend technologies for release and pipeline. The workshop was participated by scientists/researchers from National Commodity Research Programs, Regional Agricultural Research Stations, Disciplinary Divisions of NARC; Department of Agriculture, District Agriculture Development Offices of Department of Agriculture; I/NGOs and Donor agencies. In the workshop, working papers about the researches on various summer crops: rice, maize, finger millet, buckwheat, summer oilseed crops, grain legumes and jute

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National Workshop on Livestock & Fisheries Research

The Seventh National Workshop on Livestock and Fisheries Research was held at NARC, Khumaltar on 25-26 June 2007. The theme of the workshop was "Productivity Enhancement through Livestock and Fisheries Research"

The three-day workshop was held with the objectives to:

- Review research activities/ outcomes in livestock and fisheries research

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National Outreach Research Workshop

With the theme "Participatory technology development and promotion for sustainable rural livelihood", the Eighth National Outreach Research Workshop was held at Khumaltar on 19-20 June, 2007. The workshop organized by Outreach Research Division of Nepal Agricultural Research Council (NARC) had the objective to bring many organizations and stakeholders both in private and public sectors together to share

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National Rice Day 2064

National Rice Day 2064 was observed with different functions on 29 June 2007(15 Ashar 2064). A special function was held at NARC, Khumaltar that was attended by Hon'ble Minister for Agriculture and Cooperatives Mr. Chhabi Lal Bishwokarma, Executive Director and other officials/scientists, representatives from Ministry of Agriculture and Cooperatives, Department of Agriculture and farmers. The Minister accompanied by others initiated rice transplanting in the research farm at Agronomy Division. An exhibition on rice was also held on the occasion at NARC, Khumaltar.

Similarly, a function was held in farmers' field at Mulpani, Kathmandu. The function was attended by the Minister, NARC Executive Director, representatives from Ministry of Agriculture and Cooperatives, Department of Agriculture, NARC, farmers' groups, and local farmers. Some farmers' groups making significant contribution in seed multiplication were awarded by the Minister.

Ashar 15 of Nepali Calendar has been a special festival day for farmers in the country since the time immemorial. The Government in 2004 declared the day as National Rice Day to be observed every year. The 2004 was observed as International Year of Rice as declared by the UNO.

Photo: RenukaShrestha

Hon'ble Minister Chhabi Lal Bishwokarma initiating Rice trans-planting (1), giving speech (2) and observing exhibition (3)

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.

NARC Review Workshop

Nepal Agricultural Research Council (NARC) organized a workshop on 26-27 April 2007 to review the research activities conducted in the last eight months of the current Fiscal Year 2006/07.

In the meeting, status papers from different divisions, commodity research programs, regional research stations and other entities under NARC were presented. Discussion on current issues, and problems was held. The meeting was chaired by Executive Director Dr. Nanda Prasad Shrestha.

Research activities on different subjects like crops, horticulture, livestock, fishery, food technology, agri-environment, biotechnology, outreach and communications are under operation in the current year.

In the current year, 'Khumal-8', ''Loktantra', 'Mithila', 'Ram', 'Barkhe 3004'., ''Pokhareli Jethobudho' varieties of rice; 'Deuti' and 'Shitala' of maize; 'Kalyan' and 'Pratiksha' of mungbean; 'Puja' of soybean along with complete package of practices for each were officially released for farmers after years of research and experiments.

World Environment Day Observed

The World Environment Day, June 5, 2007 was observed with different programs in Nepal. On the occasion, a three-day environmental Exhibition was organized in Kathmandu from 4-6 June 2007.The Exhibition was inaugurated by Hon'ble Minister for Peace and Reconstruction Ram Chandra Poudel. Different institutions including governmental, non-governmental and international organizations participated in the Exhibition. NARC actively participated in the Exhibition.

Nepal Science and Tech. Expo 2007

Nepal Science and Tech. Expo 2007 was held in Bhrikuti Mandap Kathmandu on 7-10 June 2007. Main objective of this exhibition was to create a platform for all the individuals, institutions and organizations to show their innovations to a greater mass.

The Expo was organized by Global Exposition & Management Services Pvt. Ltd. with support by Ministry of Environment, Science and Technology; Nepal Academy of Science & Technology (NAST), Council for Technical Education & Vocational Training (CTEVT), Nepal Agricultural Research Council (NARC).

NARC Website Shifted to New Address

The Official Website of Nepal Agricultural Research Council (NARC) with new updates has been shifted to new URL **www.narc.org.np**

Training on Weed Management in Rice

A three-day training on weed management in rice was held on 25-27 April 2007 at NARC, Khumaltar, Lalitpur. The training was organized by IRRI-Nepal Office that was participated by scientists, Technical Officers from different offices of NARC; Agriculture Extension Officers from District Agriculture Offices, Kathmandu and Bhaktapur; IAAS; and Seed Production Manager from SEAN.
In the training, the trainees were given conceptual and practical knowledge on non-chemical and chemical control of weed.

NARC Officials on Radio Interview

Executive Director Dr. NP Shrestha gave interview on NARC activities and achievement to Radio Sagarmatha on 8 May. Similarly, Chief of Communication, Publication and Documentation Division Mr. Bhola Man Singh Basnet gave interview to Radio Nepal and Radio HBC 94FM about NARC activities, achievements, impact of the research in the field and so on.

NARC Visit

Hon'ble Minister for Agriculture and Cooperatives

Hon;ble Minister for Agriculture and Cooperatives Mr. Chhabi Lal Bishwokarma visited Khumal Complex of Nepal Agricultural Research Council (NARC) on 17 April 2007. Dr. Nanda Prasad Shrestha, Executive Director of NARC briefed about the NARC activities to the Minister. Secretary of Ministry of Agriculture and Cooperatives, Ganesh Kumar KC was also present at the moment. Hon'ble Minister inspected the NARC activities and the exhibit room.

SAARC Secretary General

His Excellency Secretary General of South Asian Association for Regional Cooperation (SAARC), Dr. Lyonpo Chenkjeb Dorji visited NARC, Khumaltar on 16 May 2007. Dr. Dorji observed research activities at Plant Pathology Division, Mushroom Research Program and the Exhibit Hall.

Farmers' field Visit on Lentil

The Farmers' field visit and interaction on lentil was organized by Outreach Research Division on 2 April 2007 at Agronomy Division, Khumaltar. The program was participated by 30 farmers from Kathmandu, Lalitpur, and Bhaktapur and scientists from Outreach Division, Agronomy Division, Plant pathology Division, Entomology Division, Agri-Botany Division, Communication, Publication and Documentation Division; development/extension officers from District Agriculture Development Offices, Kathmandu, Lalitpur & Bahktapur.

The group visited the lentil trials/demonstration plots and had interaction on different issues related to lentil cultivation.

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experiences and knowledge and formulate a suitable strategy in agriculture research and development, to strengthen coordination and collaboration among stakeholders to work on effective implementation of Research and Development programs for the benefit of resource poor farmers and disadvantaged groups. The workshop after presentation and discussion on different research and development activities, made out recommendation on technologies for release and promotion of verified technologies and also on strengthening participatory outreach research.

The workshop was participated by over 100 delegates that include NARC scientists, representative from MOAC, DOA, DLS, Livestock Development Project, IPM Project, SSMP, IAAS, CIMMYT, CEAPRED, LIBIRD, Water Users Associations, Plan Internationals, CARE Nepal. The workshop was inaugurated by Hon'ble Minister for Agriculture and Cooperatives Mr. Chhabi Lal Bishwokarma. The workshop concluded with the following suggestion and recommendations.

Recommendation

Proven technologies for release

- Wheat variety WK 1204
- ICP 7035 of pigeonpea
- Avarodhi, Tara and Chandra of chickpea
- ILL 7723 of lentil, ILL 7982 and ILL 6829 for mid-hills and ILL 7164 for the Terai be released & promoted.

Proven technologies for dissemination

- Recommended variety Gautam for the Terai should also be promoted for river basin and foot-hills through FATs
- Released rust resistant variety of wheat Pasang Lhamu should be adequately multiplied to meet the seed demands
- Ramdhan (OR 367) should be promoted as a substitute of Masuli in blast-prone areas of Inner Terai
- Mass up-scaling of RCTs in Rice-Wheat Systems is necessary
- IWM package in chickpea, pigeonpea & lentil should be widely up-scaled through Extension
- Application of Borax , Sulphur and Zinc @ of 10, 20 and 5 kg/ha in addition to recommended dose 60-40-20 kg/ha of NPK is recommended for Toria crop in Chitwan
- Potato seed treatment with 2% Boric acid is recommended for Black scurf disease and *Trichoderma harzianum* treatment in soil and tuber for controlling black scurf of potato.
- Janakdev and NPI 106 to replace wart susceptible potato variety MS 42-3 is recommended for Pokhara valley
- TPS family CFK69.1 x TPS 67 is recommended for seedling tuber production for central Terai
- Extensive and Multi-disciplinary technology verification & IPM component of Club root disease in crucifers should be done in collaboration with DOA partners
- Club root disease of crucifers is managed by spraying Nebijin (Flusulfamide)
- HNPV production and application at local levels should be promoted
- Pigeonpea and lentil need to be pushed in mid-hills in maize and rice based cropping systems, respectively.
- Site details of OR sites in terms of soil characters need to be documented

General Suggestions

- Guidelines for OR Workshop paper writing need to be revised and circulated in advance
- Creation and allocation of Livestock and Fisheries related human resource in Outreach Research Division
- Identify suitable Outreach sites in different geo ecological regions
- Outreach Research (Crop, Livestock and Fisheries) should get higher priority
- Livestock and Fisheries Outreach Research integration with Crops and Horticulture in suitable places and commodities. eg. Rice cum Fish integration, Horto-Pastoral System for Livestock production
- Collaborative and participatory Outreach Research in participation with stakeholder should be envisaged
- Outreach Research should take the approaches to benefit value chain through linking farmers to Global market, approaches of poverty alleviation, gender empowerment and sustainable environment
- Coordination with DOA, DLS, I/NGOs, farmer organizations, input and market agencies
- Mechanism for coordination at various level (central, regional, district and village)
- Synergy and alignment of activities with partners
- Partnership roles, responsibilities should be specified
- Mandatory ownership of NTWG, RTWG, DTWG of respective research and extension organizations
- Institutionalization and behavioral change of partner organizations
- More partnership with extension (multi stakeholder)
- Research partnership with private sector (industries)
- Capacitate Agriculture sub-centre for research collaboration
- Close communication and sharing of experience
- Joint priority setting, execution, monitoring and evaluation
- Working in complimentarity and common goal
- Join hands with multi-partners
- Involve more farmers and local extension agents in technology generation

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were presented and discussions on different issues were held followed by group presentation on the recommendations on technologies for release, pipeline technologies, and some system and management issues. The workshop was inaugurated by Secretary for Ministry of Agriculture and Cooperatives Mr. Ganesh Kumar KC.

Recommendation

The workshop after deliberate discussions in three groups made out the following recommendations.

RICE

Varieties for release

- Lalka Basmati for Eastern Terai (Parsa to Morang) condition
- NR274-10 and PR101 for spring season
- BRRI Dhan –29 and DR-11(Boro) for winter (Hiunde) season
- NR601-5-1-1 for rainfed medium duration

Varieties in pipeline

- IR67015-49-2-6-3: Fine and aromatic genotype
- IR58115-103-3-1-1 and BR4684-13-1-1-6-3: For irrigated and normal conditions
- NR1824-21 and B6149F-MR-7: Rainfed early maturity
- IR55435-5 for upland condition
- NR1190 for rainfed medium duration
- BRRI Dhan-36 and DN5-3-2 for winter season
- Judi-572 and Pusa 834 for Terai in Far and Mid Western
- NR10492-7-2-2 and NR10515-69-1 for Mid hill

Other Technologies

- PSBRC 2, BR 4684, NR 1190, IR 55539-2, IAASR 16, CNT 87040-33-1-1-1, Barkhe 2014, Judi 567 were found promising with respect to Blast and Bacterial blight at different locations
- NR 10513-5-3-3-3, NR 10513-5-3-3-1, NR 10513-5-2-2-3, NR 10515-69-1, NR 10515-69-1-3 resistant to moderately resistant to blast (Kathmandu)
- BR 4962-12-4, Barkhe 2001, Masuli/MT4#69, BRRI Dhan 26, NR 1488-2-3-5, IR 7699-44-3-3-1, Judi 508#23 and Barkhe 2045 were resistant to bacterial blight (Bhairahawa)
- WAT316-WAS-13-51, RHS 392/3X-3CX-OZA, SPR 85163-5-1-2-4, ITA 410, BR 4684, NR 1894-10-3-2-3, BRRI Dhan 28, NR 10488, NR 10375 were resistant to Blast and Bacterial blight (Parwanipur)
- NR 10288-015J-7 and NR 10262-9-2-3 were resistant to Sheath brown rot and sheath blight (Jumla).
- ICM in rice (*promotion in large scale as a campaign*)
- Direct seeded rice - Aerobic condition including PTD and ZTD (*promotion in large scale*) is recommended for Central Terai
- Pre-emergence application of PRETILACHLOR @1.25- 1.50 lit/ha + one hand weeding for DSR
- 50% of the recommended fertilizer dose should be supplemented from mineral source and remaining 50% from organic source
- Application of 300 kg oilcake + 40:20:20 NPK kg/ha in rice, 300 kg oilcake + 60:30:30 NPK kg/ha in potato and 300 kg oilcake + 40:20:20 NPK kg/ha in maize is recommended
- Beam 75 WP was found effective also in Jumla as seed dressant for controlling blast.
- Rice genotypes is ASD-7, Chinsaba, CI7CU87-4-SM-SM, IR 59682-106-2-3, IR 60916-93, PANCHAMI and PAVITHRA were scored resistant to BPH infestation.
- Hitler (accephate 25% and fenvelerate 3%) was found effective against brown plant hopper (BPH) management.
- 4 rice genotypes, Eswarakora, velluthacheora, PTB-21 and Aganni were identified good source of resistant to BPH which could be used in breeding program as a resistant donor.
- Maize genotypes S97TLYGHAYB(3) recorded resistant to maize stem borer.
- Neem seed powder, Neem oil and custard apple seed powder effective to check pregnancy for one year in house rat (mouse)
- Light trap study reveled that insect population dynamics depend upon Lunar phase and crop growth stages.
- Loss assessment study in maize caused by moths and weevil showed that there were more loss in lower hills (21%) followed by mid hills (15.5%) and high hills (2%).
- A field marketing survey of Tanahun and Kaski districts showed that local aromatic rice, (Basmati) are highly demanded for better price and consumption
- Baseline survey in Mrigauliya VDC of Morang indicated that Farmer facing severe drought for rice cultivation and need irrigation facility. Major rice cultivation areas falls under Kanchhi Mansuli followed by Radha 12, Masuli, Radha 17 and Sugandha in that area.

MAIZE

Varieties for release

- Hill Pool White, Hill Pool Yellow and Population-45C10 for Mid hill, S99TLWQ-HG-AB (QPM) for Mid hill (For full season)
- Arun-4 for Mid Hill and Terai (For early season)
- Pool-17E for 3 cropping systems for Mid hill and Terai (Extra early)

Varieties in Pipelines

- Across-9942 x 9944 and ZM-421 for Mid hill, Ac.9331 for Terai, S99TLYQ-AB, S03TLYQ-AB-01 and S03TLYQ-AB-02 (QPM) for Terai, Corralejo S99SIWQ, S01SIWQ-2, S01SIWQ-3 and S99TLYQ-B (QPM) for Mid hill (For full season)
- Arun-1EV and Z97EWB for Mid hill and Terai (For early)
- RML-4 xNML-2 and RL-111 x RL-189 (Hybrid) for Terai and Inner Terai

Other technologies

- Inter/relay cropping of Maize + Ginger, Maize + Tomato, Maize + Soybean, Maize + Cauliflower, Maize + Garlic with the spacing of 1.0 m X 0.5 m and double plant of maize per hill in the mid-hills region
- Application of 300 kg oilcake + 40:20:20 NPK kg/ha in rice, 300 kg oilcake + 60:30:30 NPK kg/ha in potato and 300 kg oilcake + 40:20:20 NPK kg/ha in maize is recommended in the Eastern Terai
- Fusarium graminearum pathogen isolated from maize, rice and wheat can produce ear rot disease in maize. The strain was found to produce toxins (Deoxynivalenol and Nevalenol mycotoxins). Therefore resistant maize variety to this pathogen be developed to avoid toxic effect in food and feed.

- CAO 310, CAO 314, RL 12, RML 18, RML 55, RL 36, NML 1, CML 165, RL 5 (inbred) resistant and promising against Southern Leaf Blight (SLB):
- Bangalore 9745, Population 45 C10, Early Mid Katuwani - tolerant genotypes
- RamS03 F02, RamS03 F08, Ram S03 f06, RamS03 F04 - tolerant synthetics
- S99TLYQ-A, DRACON F1/DRACON F2, S99TLWQ-GHA, S00TLYQ-B, Celaya S91SIWQ, S99TL GH-A, Deuti, AC42 X AC9944, RamS03F06, RamS03F02, Shitala, SIS-IBP-UTYF (QPM), RL 47, RL 12, RL 31, CA00310, RL 57, CML 172, RL 16, CML 65, CML 164. (Inbreds), RL 111 X RL189, RL 193 X RL 111, RL 160 X RL 176, RL 128 X RL 169, RL 105 X RL 168, RL 130 X RL 169, RL 83 X RL 155, RL4 X RML 3 (Hybrids) tolerant to Northern Leaf blight

Soyabean

- Soyabean genotypes like PK-327 and PK-7394 found excellent against multiple disease resistance to yellow mosaic virus, bacterial pustules, rhizoctonia aerial blight, Cercospora and pod blight, anthracnose disease of soyabean
- However several entries like AGS 87-4, PI94159, Pi 388055. G 1873, CINA-2, G-8514, PI 200 451, G-1871 were recorded resistant and need to promote for advance varietal trial

OILSEEDS

Groundnut

Varieties in pipelines

- ICGV 91058 (early) for Terai , Inner Terai and Mid hill
- ICGV 91089 (normal season) for Terai , Inner Terai and Mid hill
- IGCV-95004 and Chico found resistant to leaf spot , rust, and bud necrosis

Niger

- 60:40:20 NPK kg/ha is recommended

HILL CROPS

Finger millet

Varieties for release

- GE-5016 for High hill and GE-5176 for Mid hill

Varieties in pipeline

- ACC#-523-1 and ACC#-2311 for High and Mid hills
- Finger millet genotypes KLE 101, KLE 154, KLE 178, KLE 192, GE-519 and DR 2 were found as disease resistant

Buckwheat

For release

- GF-5063 (Mithe) and Acc#-2223 (Tite) for High and Mid hills

Varieties in pipeline

- GF-5289 and GF-5099 (Mithe) for High and Mid hills

GRAIN LEGUMES

Soybean

Varieties for release

- PK327 for mid hill and Terai

Pipelines

- TGX-1519-ID and IARS-87-1 for Mid hill and Terai

Pigeonpea

Varieties for release

- ICP7035 (long duration) for Terai
- Pusa 9 and Pusa 14 for rabi season in Terai

Pipelines

- ICPL-99087 and ICPL-95008 for Mid and Far Western Terai

JUTE

Varieties for release

- JRO-524 and JRO-632

Other technologies

- Jute – potato and Jute – Gobhi sarson cropping sequence found profitable in upland condition of eastern terai
- Targa super (Quizalofop ethyle 5% EC) herbicide application @ 2 ml + 1 ml Dhanuvit per lit at 15 – 20 days after emergence is found economical

MUSHROOM

- Substrate of saw dust (90%) were found suitable to grow *Ganoderma lucidum* (Red mushroom)

General Suggestions

- Technologies recommended for certain specific areas be verified in multi-locations for wider adoption and concerned commodity program should take a lead role
- Inclusion of cattle urine in FYM, covering the FYM with black polythene sheet and/or keeping FYM under thatched shed increased the quality of FYM
- Rainwater harvest technology (pond reservoir) in community level need to be promoted
- Community based seed production be institutionalized
- Sulphur containing fertilizers (Single Super Phosphate, Ammonium sulphate) that reduces ***methane*** production in wetland rice system need to be promoted and imported
- SRI technology in rice needs further study in detail under diverse conditions (soil, environment, irrigation)
- Power Tiller Drill and Zero Till Drill machines need to be made available locally by encouraging local manufacturer/supplier
- Subsidy in agricultural equipment and tools need to be emphasized
- Single Super Phosphate, Ammonium Sulphate, Potassium Sulphate be imported
- Separate Breeding Faculty, decentralized breeding, Gene bank facility, Integration of biotechnology tools for research, Strengthening quality laboratory for WTO requirement, infrastructure, pilot plant to promote value added products
- Focus on hybrid, seed production, biofortificaton research
- Implementation of project system (authority to project leader), Incentive and equal opportunities for researchers, Regular promotion of staff
- All the R/ARS, Commodity Programs and Disciplinary Divisions should be fully equipped with staffs, Recruitment and promotion process should go side by side in NARC
- Soil and Seed Testing Laboratories of all the stations, programs and divisions need to be strengthened
- Communication, Publication and Documentation Division should lead the publishing all the seminar and workshop proceedings
- Training on paper writing, statistical analysis, project concept note and full proposal writing need to be organized annually

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NTWG Meeting

With the objectives of bringing together all concerned partners involved in agro-technology generation, verification, and dissemination, for sorting out problems and opportunities with respect to agriculture Research and Development (R & D) in Nepal, to review linkage and coordination among R & D partners, identify constraints and prepare different mechanisms for more effective research on crops, horticulture, livestock and fisheries, the 5th National Technical Working Group (NTWG) meeting was held at NARC Building, Kathmandu on 25 April 2007.

The meeting was attended by about 75 delegates from NARC, Department of Agriculture, Department of Livestock Services, Department of Food Technology and Quality Control, Department of Forest and Soil Conservation, Institute of Agriculture and Animal Science/TU and different institutions (public, private, I/NGOs) around the country and media personnel. Based on the Regional Technical Working Groups (RTWGs) meetings held at Regional Agricultural Research Stations, different papers focusing on recent viable technology, researchable issues, opportunities and shortcomings on technology transfer; sustainable linkages & coordination mechanism for participatory technology generation and, verification were presented.

The meeting was chaired by Executive Director Dr. Nanda Prasad Shrestha and Secretary of Ministry of Agriculture and Cooperatives Mr Ganesh KC was the Chief Guest.

The workshop, after interactive discussions in three separate groups made out suggestions and recommendations on different policy issues regarding improved linkages and coordination for agriculture research and development. The recommendations include:

Recommendations

- Proposed "ATWGs Implementation Guidelines" with necessary amendments needs to be approved from MoAC
- Outreach Research Division of NARC needs to be upgraded to directorate level with necessary resources and Outreach research at regional level needs to be equipped with manpower, vehicle and other resources
- Research should be focused more on crops & horticulture of national priority commodities. e.g. Cereals, potatoes, legumes, vegetables and fruits (citrus, tea, coffee etc.) and livestocks
- Technology package for newly released varieties/technologies be provided to stakeholders. Technical brochure on newly developed varieties/technologies should be updated & published periodically.
- Indexing of viable crops & horticultural technologies.
- Identified technologies should be scaled–up through OR sites in strong collaboration with concerned stakeholders
- Training on newly generated technologies/methods be organized for PTD partners and trainers (SMSs of stakeholders)
- Periodic meetings of central level stakeholders for enhancing ToT/dissemination & feedback
- Number of OR sites should be increased
- Organize joint monitoring of national level experts/planners to potential centers
- Directorates of ToT (DoA, DoLS), should be strengthened for effective technology delivery (Posters, pamphlets - in local language, DISSPRO programs etc)
- Preparation of database jointly by NARC & DoA for developing of horticultural crops (citrus, tea & coffee)
- DoA farms, NARC centers should evaluate crop varieties introduced informally from neighboring countries by the farmers & monitor their performance
- Provision of livestock and fisheries human resources should be built in outreach research at different levels
- A strong program should be developed in DoLS, DoA and NARC for effective and result oriented program
- Define the role and responsibilities of the stakeholders in relation to outreach research and development.
- A separate and specific RTWG meeting be conducted at different level in crops, livestock and fisheries sectors
- In all three levels, resources should be equally shared among stakeholders particularly DoA, DoLS and NARC in operating outreach research and development program
- A governing body should be formulated at the ministry level to facilitate the adoption of the generated technologies
- Reform and update National policy on Linkage and coordination
- Resource (Land, labor and other facilities) sharing by NARC, DOA/DLS, DFTQC, NGOs, Private sector for verification and demonstration of technology
- Identification and prioritization of problems, issues, survey/study, feedback collection, and reporting in collaboration with DADO/DLSO, and other partners in OR sites
- Develop program and activities in their respective stakeholders' programs by fixing target as proposed linkage flow (stakeholders).
- Develop participatory technology dissemination activities and implement (Joint monitoring, farmers' day, demonstration, publication and communication media etc.)
- Conduct technical and management training at different levels (OR site, district, regional and national level)

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- Identify appropriate technologies at hand and in pipelines and find ways to transfer them to farmers, industrialists and entrepreneurs.
- Discuss and suggest for future plan in livestock research and development

The workshop was inaugurated by Mr. Ganesh KC, Secretary, Ministry of Agriculture and Cooperatives in a special function chaired by Dr. Nanda Prasad Shrestha, Executive Director, NARC.

In the workshop, about one hundred different policy and technical papers and research reports on livestock production and management, fisheries, animal nutrition, animal breeding, pasture, forage and agro-forestry, and animal health were presented. The workshop reviewed the technologies in use and recommended for further actions/ activities to improve livestock sector. The workshop after discussion in three different groups namely, Increase production for food security, Commercialization of livestock industry, Livestock, Birds and Fish Biodiversity, made out recommendations as follows.

Suggestions and Recommendations

- Resource allocation (at least 30%) for livelihood improvement research
- Coordinated approach and development of cooperatives
- Subsidies for productivity improvement
- Holistic technology package to improve productivity
- Identification of potential production area/commodity
- Establishment of Inventory of native flora and fauna
- Ex-situ and In-situ conservation of indigenous flora and fauna
- Development of productive animal breeds, drugs, vaccine, seeds, diagnostic reagents, nutritional package
- Development of quality parameters for commercialization of livestock industry
- Proper policy for subsidy, taxation, insurance
- Skill development of commercial farmers
- Initiation for patenting
- Technical and scientific manpower in each and every discipline of LFR
- Training in new fields of sciences (genetic engineering, bio-technology, IT, Bio-metrics)
- Upgrading of technical and scientific staff, manpower at regional and other research stations
- Functional linkage be developed with public and private sectors (industries, organized sectors)
- Sharing of resource, facilities and expertise among stakeholders for research and development
- Commodity-wise coordination committees be developed at the national level with representation from DLS, DOA, NARC, Universities, NGOs, INGOs and private organizations
- Linkage with DLS, DOA, NGOs and INGOs right from the programme planning
- Programme be inbuilt jointly
- Selected service centres be developed as Livestock and Fisheries outreach programme centres
- Collaboration be established/strengthened both at policy and working levels
- Institutional technical working group meeting for research and extension programme
- Academic opportunities, Training and further study

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TRAINING WORKSHOP/SEMINARS, STUDY & TOURS ABROAD (April - June 2007)

SN.	Name	Position	Subject	Duration	Country
1.	Dr. Jwala Bajracharya	S-4, Agri-Botany Division	Laboratory visit on molecular analysis	April 23-May16	U.K.
2.	Mr. Bhim Nath Adhikari	T-6, Legume,Rampur	Training on lentil in Aleppo	April 1-May10	Australia
3.	Dr. Renuka Shrestha	S-4, Agronomy	Visit in CSIRO,Perth	April 15-22	Australia
4.	Mr. Parshuram Lal Karna	Director, Crops & Hort	International network for genetic evaluation of rice INGER TAC Meeting	May 8-11	Thailand
5.	Mr. Dev Prasad Sharma	T-6, FRS, Begnas	Training on aquaculture for asia-pacific	April 25-June 25	China
6.	Mr. Sudarshan Bista	T-7, Agri-Botany Division	Training course in hybrid rice	May 25-Sept. 25	China
7.	Dr. Ananda Kumar Gautam	S-4, NRRP, Hardinath	Developing & disseminating water soaking rice technology in South Asia	April 3-5	Bangaladesh
8.	Mr. Tufel Akhtar	S-4, NRRP, Hardinath	Developing & disseminating water soaking rice technology in South Asia	April 3-5	Bangaladesh
9.	Dr. Sambhu.Prasad Khatiwada	S-4, RARS, Tarahara	Developing & disseminating water soaking rice technology in South Asia	April 3-5	Bangaladesh
10.	Mr. Ram Bahadur Bhujel	S-4, RARS, Tarahara	Developing & disseminating water soaking rice technology in South Asia	April 3-5	Bangaladesh
11.	Mr. Hari Krishna Shrestha	S-4, Planning, NARC	Developing & disseminating water soaking rice technology in South Asia	April 3-5	Bangaladesh
12.	Dr. Ananda Kumjar Gautam	S-4, NRRP, Hardinath	International workshop on temperate rice research consortium	May 2-4	Korea
13.	Mr. Rajendra Darai	T-7, NMRP, Rampur	First GLTTP Workshop	April 20-26	France
14.	Mr. Janma Jaya Gairhe	S-1, NMRP, Rampur	Specialised training on soil bio-physics	April 16-July 16	Scotland
15.	Mr. Surendra P. Shreebastav	S-4, NGLP, Rampur	Visit ICARDA in Aleppo	May 12-18	Syria
16.	Mr. Kailash Prd. Bhurer	S-4, RARS,Parwanipur	Study on Boro Rice	April 24-27	India
17.	Mr. Tara Bdr. Ghimire	S-4, JRP, Itahari	Reference collection on integrated weed management, retting technique & mechanization	June 27-July 7	India

Source: Training and Scholarship Division, NARC

NARC Annual Day Observed

Sixteenth Annual Day of the establishment of Nepal Agricultural Research Council (NARC) was observed with a special function at NARC, Singh Durbar Plaza, Kathmandu on May 8, 2007. The function was inaugurated by the Hon'ble Minister for Agriculture and Cooperatives Mr Chhabi Lal Bishwokarma and Chaired by Hon'ble Member of National Planning Commission Mr. Bhim Neupane. The function was attended by representatives from different government and non-government institutions, ex-agriculture scientists and experts, journalists from print and electronic media, NARC officials, employees and others. The Minister for Agriculture and Cooperatives Mr Chhabilal Bishwokarma in his inaugural address said that the agricultural research has to play a very important role in improving socio-economic status of people through agricultural development in the country and assured that the Government will give priority. The Secretary of Ministry of Agriculture and Cooperatives Mr Ganesh Kumar KC highlighted the contribution of research in agriculture development. Mr. Bhim Neupane from the chair stressed the need to focus research in new areas to better address the local conditions of different agro-ecozones of Nepal.

Executive Director of NARC, Dr Nanda Prasad Shrestha welcoming all the guests and participants in the function presented highlights of activities and achievements of the NARC in the past year. Mr. Padam Prasad Shrestha, retired horticulturist and Dr Bhoj Raj Joshi, Senior Scientist, spoke on behalf of the recipients of honor during the occasion. Mr Shree Krishna Adhikari, Director of Administration conveyed the vote of thanks to the participants.

Launching of New NARC Website: Hon'ble Minister Chhabilal Bishwokarma opened the new Website of NARC (**www.narc.org.np**). Mr. Kul Prasad Aryal, Scientist in NARC demonstrated the website to the Minister and the participants.

Honour and Plaque Distribution: Thirty one NARC employees having completed 25 years of their service were honored with plaques and certificates by the Chief Guest. Seven other NARC employees: Dinesh Pariyar (S-5), Tara Bahadur Ghimire (S-4), Sarala Sharma (S-4), Dr. Hira Kaji Manandhar (S-3), Bimal Prasad Singh (S-3), Santa Bahadur BK (T-7), Baudha Kumar Neupane (A-5), Min Raj Dangol (A-5) and Kapil Khadka (A-4) were given certificate of best performance in their services. Three ex-agriculture experts: Mr. Padam Prasad Shrestha, horticulturist; Late Dr. Toya Nath Mishra, Maize Breeder; Late Mr. Sambhu Nath Pyakurel, Livestock Expert were honoured with *doshalla* by the Minister. Doshalla for the experts honoured posthumously were received by their surviving best halves.

Exhibition: A special exhibition showing the NARC's activities/achievements was held on the occasion.

Press conference on NARC Day

Earlier on the eve of the 16th NARC Annual Day, a Press Conference was organized at NARC, Ramshahpath on 7 May. In the program Executive Director Dr Nanda Prasad Shrestha 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 livestocks 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. The program was coordinated by the Chief of Communication, Publication and Documentation Division, Mr Bhola Man Singh Basnet.

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