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NARC-IRRI Workplan Meeting

A meeting on the NARC-IRRI workplan for 2006-08 was organized by Nepal-IRRI Office at NARC, Singhdurbar Plaza, Kathmandu on 10 March 2006.

The Meeting was chaired and inaugurated by Mr. Ganesh Kumar K.C., Secretary, Ministry of Agriculture and Cooperatives (MoAC), Nepal. The meeting was attended by Dr. Ren Wang, Dr. J.K. Ladha, Dr. Sushil Pandey, Dr. Edwin Javier and Dr. David Johnson from IRRI; Joint Secretaries from MoAC; Representatives from Department of Agriculture; Directors, Division Heads of NARC, Scientists from National Rice Research Programme (NRRP) and other Regional Agricultural Research Stations (RARS) and Research programmes of

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NARC-IRRI MoU Extended

Letter of Agreement Extending the Memorandum of Understanding (MoU) for Scientific and Technical Cooperation in Research and Training on Rice between Nepal Agricultural Research Council (NARC) and the International Rice Research Institute (IRRI) was signed during the NARC-IRRI workplan meeting. The MoU was first signed in January 2001 at IRRI, Philippines.

IWM Technology in Pigeonpea

With a view to help increase pigeonpea production in western terai through the promotion of integrated wilt management (IWM) technology, different activities e.g. germplasm evaluation, participatory variety selection (PVS), frontline demonstrations (FLDs), farmers and extension workers training, farmer's field days (FFDs), and joint monitoring was conducted from Nov 2003-2006 in collaboration with different stakeholders in the mid and far western region. (See detail in page 4).

Varieties of Mung Released

Variety Approval Release and Registration Sub-Committee under National Seed Board on 28 March 2006 officially released two varieties of mung for farmers to cultivate in different eco regions. The varieties are released along with complete package of practices after years of research and experiments at different research stations, disciplinary divisions and farmers' fields. The name of the varieties released are: Kalyan and Prateeksha. One variety 'Pusha Baisakhi' was released 30 years ago.

Kalyan

The Mung variety 'Kalyan' is a high yielding and early variety recommended for farmers to cultivate in Terai Inner terai, Mid-hills under rainfed, irrigated and partially

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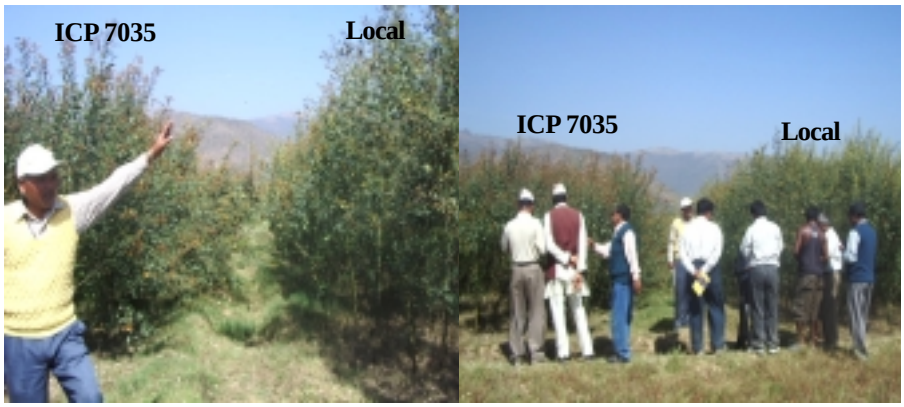

Monitoring pigeonpea PVS, Dang

IN THIS ISSUE

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

RTWG Meeting

Regional Technical Working Group meeting was held at Regional Agricultural Research Station, Lumle on 5-6 January 2006.

The objectives of the meeting were to present and review outcomes of research and development works in the sectors of crops, livestock and fisheries in the Western Development Region; present researchable problems and suggestions from districts agricultural offices and livestock service offices of different districts in the region; present experiences of people involved in agriculture research and development in the regions and strengthen coordination among the stakeholders.

The workshop was participated by representatives from NARC, Department of Agriculture, Department of Livestock Services, Regional and District Agriculture Development Offices and Livestock Service Offices and NGOs based in Western Development Region and farmers. Altogether seventeen papers (11 on crops and horticulture and 6 on livestock and fisheries) with research highlights on different aspects were presented in two parallel group sessions. The group of crops and horticulture was chaired by Mr. Bharat Prasad Upadhyaya, Regional Director (Agriculture) and the group of livestock and fisheries was chaired by Mr. Krishna Prasad Sharma, Regional Director (Livestock Services).

District reports and researchable problems / constraints and proposed programs for FY 2006 / 07 were presented from all the sixteen district agriculture development offices and livestock service offices in two separate parallel group sessions. The group session on crops and horticulture was chaired by Mr. Bhola Man Singh Basnet, Principal Scientist (Agronomist) and Chief of Communication, Publication and Documentation Division. NARC and the group session on livestock and fisheries was chaired by Dr. Shree Ram Neopane, Chief of Animal Breeding Division, NARC.

IFAD-Legume NTCC Meeting

The 4th Meeting of the National Technical Coordination Committee (NTCC) for the IFAD / ICRISAT Legumes Project "Farmer Participatory Research into Integrated Management of Grain Legumes in Nepal" was held in Kathmandu on 01March 2006.

The objective of the meeting was to present and review the findings of the researches at different sites in the year 2005 / 06 and to develop programs for the year 2006 / 07.

In the meeting, reports from different project sites were presented for review. Observation from farmer representatives on the project was also held. The meeting also worked out in preparing annual programs for the next year in each of the project sites: Regional Agricultural Research Stations (RARSs), Lumle and Nepalgunj; National Grain Legumes Research Program (NGLRP), Rampur; National Oilseed Research Program (NORP); LI-BIRD; and FORWARD.

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NARC. The meeting began with presentation of the "Highlight of Rice Research in Nepal" by Dr. N.P. Adhikari, Coordinator, National Rice Research Programme (NRRP). Dr. Ren Wang, DDG, IRRI presented "Meeting the Millennium Challenges for Rice Science: IRRI's New Strategic Plan and Research Projects". Dr. S.L. Maskey, Director, Crops and Horticulture, NARC presented Summary of Nepal-IRRI Workplan for 2006-2008. Dr. R.P. Sah, Executive Director , NARC, welcoming IRRI Guests and the participants of the Meeting, remarked the long history of Nepal-IRRI collaboration that further strengthened after IRRI opened its Office in NARC, Nepal from January 2005. Mr. Ganesh Kumar K.C. Chairman of the Meeting and Secretary, MoAC remarked that IRRI is playing a vital role in generating rice technologies to increase rice production and productivity in the world. The Chairman further emphasized that rice technologies should be developed for diverse environments to feed the hungry people of Nepal and the globe.

The three-year workplan was finalized in the meeting and signed by Dr. R.P. Sah, Executive Director of NARC, and Dr. Ren Wang, Deputy Director General of IRRI. Dr. B.P. Tripathi, Nepal-IRRI Office gave the vote of Thanks.

IRRI located in Philippines opened its office in Nepal Agricultural Research Council (NARC), Kathmandu in January 2005 to strengthen coordination and establish good linkages with all the government and non-governmental-organizations engaged in research and development on rice and rice-based cropping systems in Nepal. The office is also responsible for disseminating technologies on rice research and development. It has conducted various activities to promote research and development on rice and rice based cropping systems in Nepal.

The Nepal IRRI Office organized training on Rice Knowledge Bank (RKB) for the Scientists of NARC and extension workers of Department of Agriculture with the aim to establish knowledge resource bank on rice technologies in Nepal for the Nepal's page in IRRI-RKB Website.

IRRI Team Visited Nepal

A delegation from IRRI lead by Dr. Ren Wang visited Nepal in the second week of March 2006. The other members in the team included Dr. J.K. Ladha, Dr. Sushil Pandey, Dr. Edwin Javier and Dr. David Johnson. The team visited NARC head office, Nepal-IRRI office, Minister of Agriculture and Cooperatives in his office and also DFID, Nepal Office and had interaction on the experiences of rice research and development in Nepal and explored opportunities of funding by DFID in Nepal.

Entomological Research Findings

Research efforts of Entomology Division, Khumaltar during 2004/05 have been made on pesticide residue analysis on tomato and cauliflower, surveillance and maintenance of reference insects, mass production of bio-control agents, testing commercially available and locally produced bio-pesticides, developing management practices against stored grain pest and rodent management, and exploring and documenting indigenous knowledge (IK) of different farmers' communities on vegetable pest management. The following are the major research findings.

01 Analysis of Toxic Residues of Chemical Pesticides on Different Commodities

- The residue levels of dimethoate, chloropyrifos, Monocrotophos and methyl parathion on tomato fruits after 1 to 15 days of application were found varied from 0.63 to 0.025 ppm, 0.24 to 0.116 ppm, 0.178 to 0.087 ppm, and 1.43 to 0.005 ppm respectively. The residue levels continually decreased with the increase in time after application of pesticides. The highest levels of pesticide residues were observed in the samples collected after 24 hours of pesticide application.
- The highest residue level was found in fruits treated with methyl parathion (MP) followed by monocrotophos, dimethoate and chloropyrifos respectively in the samples collected after 24 hours of pesticide application.
- The residue levels of MP were higher than maximum residue level (MRL) (as specified for general vegetables) up to seven days of its application.

02 Evaluations of Silkworm Races Feeding on Different Mulberry Cultivars

- Sprouting of mulberry buds was observed earlier on Kanva-2 cultivar followed by K-22 while it was slowest on Khumal-3 cultivar.
- Chinese strain of silkworm (C12) mounted earlier than that of Japanese strain (J12).
- Cocoon formation was found earlier in Chinese strain feeding Kanva-2 cultivar of mulberry. While the numbers of defective cocoons were more in Chinese strain feeding Khumal-3 cultivar of mulberry.
- The shell weight of silkworm cocoon was found the highest in the Japanese strain of silkworm feeding Lon-40 mulberry cultivar while it was least on Chinese strain of silkworm feeding Khumal-1.
- The filament length of silk, its thickness and non-breakable filament length was found the highest in Chinese strain of silkworm feeding with Lon-40 mulberry variety.

03 Management of House Rat (*Rattus rattus*) Population using Botanicals

- In initial evaluation, sterility was observed in rats fed (both male and female) with castor (*Ricinus communis* L.) seed mixing diet (castor seed mixed @ 10 g per 40 g of normal diet) up to three months in the laboratory.

04 Performance Evaluation of Locally Produced Nuclear Polyhedrosis Virus (NPV) for the Management of *Helicoverpa armigera* Hubner

- Recycled HaNPV was successfully prepared in laboratory. The recycled HaNPV treatment showed 87% mortality in *H. armigera* larvae compared to 80% mortality in commercial HaNPV in laboratory condition while the mortality was 12% in control condition. Larval mortality started after 4 days of feeding virus contaminated feed materials.

05 Development of Eco-Friendly Techniques to Minimize Losses Incurred by *Sitophilus oryzae* in Stored Maize

- Shade dried leaves of different plants and stolon of sweet flag powders were used to treat maize grains infested by weevils (*Sitophilus oryzae*). Among botanicals, sweet flag stolen powder @ 10 g/kg maize grain was found effective to bring 100%weevil mortality on 12th day of treatment.

06 Development of Insect Pest Management Technique in Cabbage, Tomato, Potato and Eggplant on the Basis of Indigenous Knowledge in Hills

- Among eleven botanicals tested against potato tuber moth (*Phthorimea operculella*) in laboratory condition, sweet flag (*Acorus calamus*) extract @ 20 g fine grinded dust per liter of water and Bio-multineem 0.16% EC (neem based formulation) @ 3 ml per liter of water were found effective.
- In laboratory test of eight botanicals and Thiodan (endosulfan 35% EC) against cabbage leaf fed larvae of cabbage butterfly (*Pieris brassicae*), Bio-multineem 0.16% EC (commercial neem product) @ 3ml per liter of water and endosulfan 35% EC @1.5ml per liter of water were found effective.
- Eleven botanicals were tested against Tobacco caterpillar (*Spodoptera litura*). Among the treatments, sweet flag (*Acorus calamus*) extract @ 20 g finely grinded dust per liter of water and Bio-multineem 0.16%EC @ 3ml per liter of water were found effective.

07 Methodology Development of Mass Rearing of Parasitoids and Predators of Agricultural Importance, and Maintenance of Reference Insects Museum

- Mass rearing of different biological control agents their insect host
- 5037 larvae of *Chrysoperla carnea* produced.
- 1636 adults of *Curinus coereleus* produced.
- 152 Tricho-card each containing 25,000 *Trichogramma* mummies produced.
- More than 66010 eggs of *Corcyra cephalonica* harvested.
- Regular survey and monitoring of insects through different sources
- 48 different species of insects were collected through light trap for preservation in insect museum

08 Potato Tuber Moth (*Phthorimaea operculella* Zeller) Resistant Potato Investigation

- Potato lines Q132.53, Q115.6 and NY 323 are indicatively possessing comparative resistant to PTM.
- Q115.6 and L235 have shown a good standing capacity against late blight in crop field.

Promotion of IWM Technology to Boost Pigeonpea Yields

- RK Neupane, P Jha, DN Pokhrel, BP Mahato and RA Sah

Pigeonpea (*Cajanus cajan* L Millsp) is a very important pulse crop for the mid and far-western terai of Nepal (Neupane *et al*., 1998). It is a good source of protein to people and is indispensable to the existing cropping system due to its vital role in maintaining soil fertility and crop diversity. The plants fix atmospheric nitrogen in symbiotic association with *Rhizobia.* They have deep penetrating root system, which enable them to explore the limited moisture and nutrients from different strata of soil. The stem / stalk of pigeonpea is very popular among farmers as a source of fuel.

In recent years, the area and production of pigeonpea is declining as a result of increased biotic stresses including diseases e.g. wilt & sterility mosaic, and insect pests e.g. podborers & podfly. Among biotic stress factors, wilt is the major one which results in wilting and death of more than 50 percent plants in some years (Baniya and Neupane, 1998; NARC, 1994). Although, *Fusarium udum* Butler is mainly responsible to cause pigeonpea wilt, wilting also occurs due to root-rots, collar-rots and phytophthora blight diseases often influenced by management conditions and prevailing weather.

The crop is vulnerable to disease during the entire crop growth period. Host plant resistant alone is not adequate to control wilt damage at the field level. As a number of pathogens are responsible for wilts, the use of resistant / tolerant variety integrated with other wilt management practices is a viable option for minimizing the losses from the disease.

Wilt resistant / tolerant genotypes of pigeonpea were identified from wilt screening nursery at Regional Agricultural Research Station (RARS) , Nepalgunj. However, their yield performance under farmer's condition and farmers' acceptance was not known. With a view to help increase pigeonpea production in the mid and far western terai through the promotion of wilt management technology, a number of activities e.g. germplasm evaluation, participatory variety selection (PVS), integrated wilt management (IWM) trials, frontline demonstrations (FLDs), farmers and extension workers training, farmer's field days (FFDs), and joint monitoring was conducted from Nov 2003-2006 in collaboration with district extension offices, NGLRP, FORWARD and RARS, Nepalgunj.

In this study, IWM technology consisting of wilt resistant / tolerant variety, seed dressing with fungicides & crop rotation were selected for testing / validation and promotion in the study area. Other crop management aspects were dealt with during the trainings organized for the farmers and extension field staff.

Available pigeonpea germplasm were evaluated in wilt nursery at Regional Agricultural Research Station, Khajura Nepalgunj following the standard procedures of wilt screening. Germplasm materials were received through ICRISAT for evaluation and selection. Based on the wilt scores desirable genotypes e.g. T7, Accn 8661, ICPL99010, ICP7035, Bageshwory were selected for evaluation in farmer participatory trials during 2004 / 05 and 2005 / 06 in the study area.

Selected pigeonpea genotypes were evaluated for two years in farmers' field at Kanchanpur (Champapur, Jhalari, Suda), Bardia (Mainapokhar, Kurbinpur), Banke (Bhikharipur, Vaijayantpur), and Dang (Sonepur, Phalkapur, Sundabari). The total number of trials across the districts was 42. Recommended crop management practices were followed in all PVS trials. For the control of podborers, needbased application of Thiodan 2 ml / liter spray solution was done up to two times during the reproductive stages.

IWM trials consisting of wilt resistant / tolerant vs. wilt susceptible varieties and integrated wilt management (IWM) vs. Non-IWM practices were conducted for two consecutive years at the study area in the four districts. Wilt resistant variety ICP7035 was compared against ICPL99010 / Bageshwory. In management practices, seed dressing with a mixture of Bavistin + Thiram @ 2g / kg seed , crop rotation (growing legumes in plots where any of the legumes have not been grown for the last 4-5 years) was compared with non-integrated wilt management (Non –IWM) consisting of no seed dressing and absence of crop rotation. Forty-two IWM trials were conducted across the four districts. Plant stands, wilt scores, insect scores and seed yield was recorded from sample plants and subjected to statistical analysis.

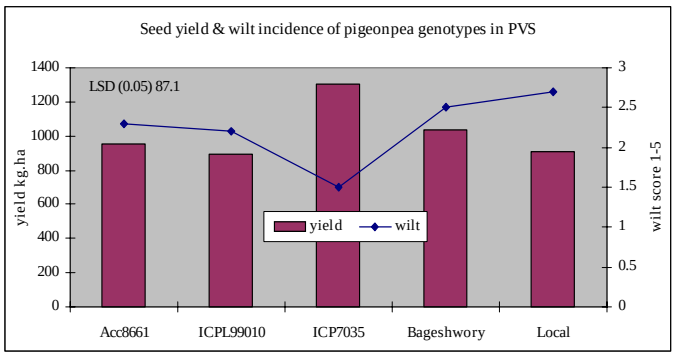
Significant differences were recorded among pigeonpea genotypes in wilt incidence and seed yield. The highest mean seed yield of 1200 kg / ha was recorded from ICP7035 followed by Bageshwory, ICPL99010, ACCN 8661 and local. Pigeonpea genotypes showed diffential reaction to wilt. Wilt score was the lowest in ICP7035 and consequently had the highest seed yield. Among the test sites, the highest wilt score was recorded in Champapur (Kanchanpur) and the lowest at Mainapokhar (Bardia). Mean yield levels showed similar trends with the highest mean yield (1400 kg / ha) at Mainapokhar and the lowest (500 kg / ha) at Champapur.

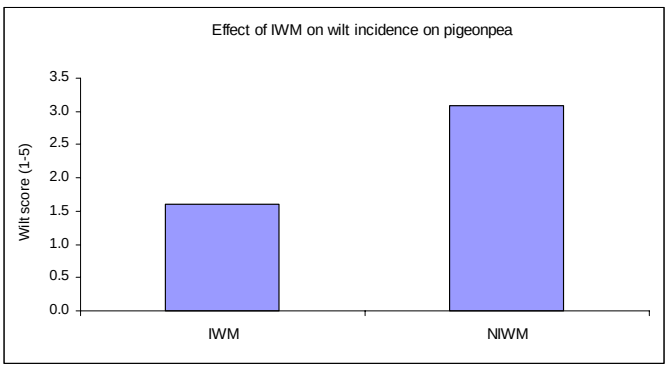
The application of integrated wilt management (IWM) technology i.e. disease resistant / tolerant variety, seed dressing with fungicides and crop rotation, resulted in considerably lowering the disease incidence and increasing seeds yield of pigeonpea. Compared to the control, IWM resulted in mean yield increases of 19.3

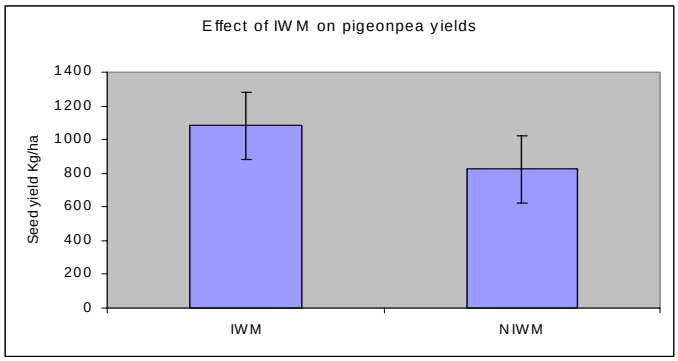
percentage. It was observed that a rotation of 4-5 years duration alone would result in minimum wilt incidence even in wilt susceptible variety Bageshwory, suggesting that crop rotation is one of the best options for the farmers to follow to minimize losses from pigeonpea wilts.

Results from two years farmer participatory trials thus indicated that to minimize the losses from wilt disease the dissemination / promotion of IWM package including crop rotation should be widely disseminated through farmers to farmer exchange, local NGOs and through extension offices. Awareness campaign for it should be launched through DADO and other line agencies in the area.

IWM technology e.g. wilt resistant / tolerant variety (ICP7035), seed dressing with a mixture of Bavistin + Thiram @ 2g / kg seed, and crop rotation (growing pigeonpea in fields where it is not grown for the last 4-5 years), should be scaled up through the mainstream extension services and other stakeholders.







Field observation on RCTs

A high level team led by the secretary of Ministry of Agriculture and Cooperatives had a field visit on 8-9 March 2006 at different locations in Bara and Parsa districts to observe the performance of resource conserving technologies (RCTs)..

The team consisting of Mr. Ganesh Kumar KC, Secretery of the Ministry of Agriculture and Cooperatives, Dr. GO Ferrara, Regional Coordinator of International Maize and Wheat Improvement Centre (CIMMYT), Dr. Raj Kumar Gupta, Coordinator of Rice-Wheat Consortium (RWC), Dr. JK Ladha, IRRI Scientist; Mr. BN Poudel, Joint Secretary, National Planning Commission; Mr. R Khanal, Joint Secretary, Ministry of Finance; Mr. Bhola Man Singh Basnet, Chief, Communication, Publication and Documentation Division visited different RCTs research sites of the Agriculture Implements Research Centre (AIRC), Ranighat, Birgunj and farmers' fields that have adopted the RCTs. The team had interaction with farmers and personnel of District Agriculture Development Offices. During the visit Mr. Ganesh Sah, Chief of AIRC, Ranighat briefed about the activitiesand achievements on RCTs. Dr. Ram Briksha Prasad, Director of Regional Agricultural Research Station (RARS), Parwanipur at his office briefed the team about the activities of the Regional Station.

Different types of resource conserving technologies so far introduced and being in practice are: Reduced till wheat by animal drawn harrow; Zero-till seed drills; Minimum-till wheat with power tiller drills; Reaper harvester in rice-wheat system; Furrow irrigated raised bed; reduced-till and zero-till lentil; Bed planted potato; Direct seeded rice by zero-till drills; direct seeded rice by power tiller drills; and Direct seeded rice by drum seeder.

Workshop on Commercialization of Agriculture

A two-day workshop on "Commercialization of Agriculture and Agri-business: Development thrust required in the Eastern Development Region of Nepal" was organized at Biratnagar on 2-3 March 2006.

The Workshop was jointly organized by Eastern Regional Chamber of Commerce and Industry Coordination Committee; Chamber of Industry, Morang; and Agro-Enterprise Centre / FNCCI.

In the workshop, different papers on agri-business promotion policy, challenges and opportunities in agriculture in the context of WTO, SAFTA and BIMSTEC trade regime and on experiences in different aspects of agriculture and livestock development, production, marketing and market information etc. The workshop was attended by representatives from Ministry of Agriculture and Cooperatives; Ministry of Industry and Commerce; Nepal Agricultural Research Council (NARC), Department of Agriculture , Federation of Nepalese Chamber of Commerce and Industries (FNCCI); Agro Enterprise Centre (AEC) and different NGOs. The workshop recommended the role of government for the promotion of Agri-business.

Agricultural Research Investment and Returns

- NS Thakur, MN Paudel, D Gauchan and B Shrestha

Agriculture is the largest sector of Nepalese economy, which contributes 39% to gross domestic product (GDP) and 65% to the employment of economically active population. Research and development in agriculture has been getting priority in the national plannings and policies. New technologies in agriculture are developed by the research institution while extension agencies take them to the end users.

In 2004, the area coverage under improved varieties of rice was 82.84%, of maize 85.02% and wheat 95.39% of the total rice, maize and wheat cultivated area respectively in the country. Income generated by the improved varieties is highlighted to understand their importance in Nepalese economy. Income generated by the impact of new technologies of these crops is around Rs 235673.54 million whereas investment on research for these crops is 0.24% of the total income generated by them. In present context, research investment for these crops should be up to 1% of the total income obtained from the impact of improved varieties of these crops. In comparison to the countries of South and Southeast Asia, productivity of agriculture in Nepal is very low for cereals (less than 2.8 t/ha) due to reduced investment on them. Investment in agriculture research in these part of the world is around 0.5 to 1.5% of GDP while in Nepal it is less than 0.1%. Contribution of rice, maize, and wheat in Nepal is around 16.8%, 3.6%, and 3.6% of GDP and 43%, 9.3%, and 9.3% of AGDP, respectively. In comparison to national budget, budget outlay for Ministry of Agriculture and Cooperatives has been increased in a small pace for seven years (1998 to 2004) whereas there is a negative annual growth rate (- 0.59%) of budget for NARC during the same period (Table 1).

Table 1. Comparison of NARC budget with national and MoAC budget ('000 NRs)

Year	National budget	MoAC budget	NARC budget	Proportion of NARC budget to national budget(%)	Proportion of NARC budget to MoAC budget (%)
1995	-	-	205382	-	-
1996	21904189	2388779	195412	0.89	8.18
1997	Not available	Not available	207393	-	-
1998	62022294	2267193	326422	0.53	14.40
1999	69693337	2350968	315706	0.45	13.43
2000	77238226	2857489	322597	0.48	13.04
2001	91621335	3360573	486586	0.53	14.48
2002	99792219	3927556	577760	0.58	14.71
2003	96124796	2423526	297780	0.31	12.29
2004	102400000	2472945	300575	0.29	12.15
2005	111689900	2692284	311249	0.28	11.56
Annual growth rate %		7.63	2.17	(-) 0.59	

Source: ITAD New Era, NARC and MoAC, 2005

Table 2. A Comparison of expenditure, return, and internal rate of return from 1995 to 2004

Crop	Research expenditure (Million Rs.)	Income obtained from improved variety (Million Rs.)	Proportion of research investment with respect to income generated from improved variety (%)	Internal rate of return (IRR) %
Rice	167.12	151036.64	0.1106	105.00
Maize	182.89	38299.17	0.4775	84.04
Wheat	209.54	46337.73	0.4522	103.02
Total	559.55	235673.54	-	-

Source: Thakur and Paudel, 2005 (unpubl.)

The internal rate of return (IRR) of these cereals for a decade (1995 to 2004) is in the range of 84 to 105% and investment on research is miniscule, which is around 0.11 to 0.47% of their income (Table 2).

Agriculture research is a continuous process. The impacts of research are only visible after a long term worthful investments. The contribution of such investments could be observed in the form of sustained national productivity encompassing natural resource management which includes environmental conservation, livelihood improvement of rural masses, and increased food security as well.

For a meaningful contribution of these cereals to the national AGDP, budget outlay for research should be at par with developing countries where around 0.56% of AGDP is provided for agriculture research. Presently in Nepal, budget appropriation to research for these crops is around 0.016% of AGDP, which indicates a low budget priority for this sector. In order to boost the national productivity and challenge of the nation for poverty reduction, agriculture research in Nepal should not be grossely under funded.

TRAINING WORKSHOP/SEMINARS, STUDY & TOURS ABROAD
(January - March 2006)

SN. Name	Position	Subject	Duration	Country
1. Dr. Ram Pratap Sah	Executive Director	93rd Indian Science Congress	3-7 Jan	India
2. Mr. Ganesh Sah	Chief Ag Engg.	2nd Annual Planning and Review Meeting of the IFAD & Livelihood	16-20 Jan	India
3. Mr. Ambika Charan Sribastav	S-4 RARS, Parwanipur	2nd Annual Planning and Review Meeting of the IFAD & Livelihood	16-20 Jan	India
4. Mr. Nareswor Ghimire	S-1, Monitor Div. NARC	2nd Annual Planning and Review Meeting of the IFAD & Livelihood	16-20 Jan	India
5. Mrs. Nirmala Panday	T-7, S&BRProgram	International diploma in Dairy Husbandry & Milk Processing	23 Jan-21July	Netherlands
6. Mr.Shambhu Bd.Pandey	Director,Planning and Co-ord.	Technical and scientific exchange regarding the project	30Jan-20 Feb	Israel
7. Mr. Netra Pd. Osti	S-4, Animal Nutrition Div.	Technical and scientific exchange regarding the project	30 Jan-20 Feb	Israel
8. Dr. Ram Pratap Sah	Executive Director	12th Regional Steering Committee Meeting	7-9 Feb	India
9. Mr. Ashok Mudwari	S-4, Agri. Botany Div.	Regional Scientific Workshop on Participatory Research on Wheat	10-13 Feb	India
10. Dr. Dhruba Bahadur Thapa	S-3, Agri. Botany Div.	Regional Scientific Workshop on Participatory Research on Wheat	10-13 Feb	India
11. Mr. Madan Raj Bhatta	S-4, NWRP, Bhairahawa	Regional Scientific Workshop on Participatory Research on Wheat	10-13 Feb	India
12. Mr. Sahab Uddin Khan	S-4.NWRP, Bhairahawa	Regional Scientific Workshop on Participatory Research on Wheat	10-13 Feb	India
13. Mr. Janmejaya Tripathi	S-4, NWRP, Bhairahawa	Regional Scientific Workshop on Participatory Res. On Wheat	10-13 Feb	India
14. Dr. Surya Laxmi Maskey	Director, Crop & Hort.	Regional Scientific Workshop on Participatory Res. On Wheat	10-13 Feb	India
15. Dr. Kishor Sherchand	Chief, Agri. Environ.Unit	Workshop on Management of Natural and Environment Resource	13-17 Feb	USA
16. Dr. Anant Prasad Regmi	S-4, RARS, Bhairawawa	Enhancing Farmers Income & Livelihood through Integrated Crop Management	14-16 Feb	Pakistan
17. Dr. Junoo Kamal Tuladhar	S-2, Soil Science Div.	Enhancing Farmers Income & Livelihood through Integrated Crop Management	14-16 Feb	Pakistan
18. Mr. Bal Krishna Joshi	S-1, Bio-Tech.Unit,Khumal	Comparision, contrast and similarities of the basic diversity	19-24 Feb	Italy
19. Mr. Nawal Kishor Yadav	S-4/Co-ordinator, GLRP	Pulses Field Day	16-19 Feb	India
20. Mr. Kailash Pd. Bhurer	S-4, RARS,Parwanipur	Training on drum seeder	13 Feb	India
21. Dr. Shree Ram Neopane	S-4, Ani. Breed Div.	Capacity Building for Sustainable Use of Animal Genetic Resources	13 Feb- 3 Mar	Srilanka
22. Dr. Surya Laxmi Maskey	Director, Crop & Hort.	CURE Annual Meeting 2006 & Natural Resources Management W/S	6-9 March	Bangladesh
23. Dr. Ram Pratap Sah	Executive Director	Strategies for research and development on underutilized plant species in Asia"	16-17 March	Srilanka
24. Dr. Ash Kumar Rai	Chief, Fisheries Res.Div.	International Symposium on the Mahseer	29-30 March	Malaysia
25. Dr. Arun Prasad Vaidya	S-1, Fisheries Res.Div.	International Symposium on the Mahseer	29-30 March	Malaysia

Exhibition on Agri Mechanization

Nepal Agro-Mechanization and Technology Development Expo 2062 was held on 2-8 March 2006 at Biratnagar, Morang, Nepal with the theme "Technology and Farm-Industry Partnership for Agricultural Transformation".

The Expo jointly organized by Chamber of Industries, Morang; Ministry of Agriculture and Cooperatives; and Farmers' Help Centre, Sunsari (NGO), had the objectives to show Agricultural technology, appropriate to the country, in transferring agriculture from subsistence focus to commercialized and market oriented. It aimed to educating the farmers, processors and producers about appropriate technology for cost effective efficient and value added production and processing; orienting the development agencies and private sector on the spectrum of agricultural technologies available in the country and in the region; promoting technology transfer through exchange of information and knowledge sharing among technology developers, promoters and manufacturers to translate in to collaboration and partnership in technology development and promotion.

The exhibition was participated by several government, non-government organizations, research and educational institutions; and technology developers, and promoters, manufacturers and suppliers from Nepal and India.

Major focus of the Expo was on energy efficient, labour productive and cost effective agricultural technology including machines, equipments and tools for agricultural production (tillage, seeding / planting, plant protection, harvesting, threshing, pre-processing and resource conservation); agricultural products and processing technology for cereals, pulses oilseeds, fruits, vegetables milk, meat and eggs; equipments and machines for livestock production; resource efficient irrigation technology (drip, sprinkler, raingun and macro-irrigation); greenhouse and and plastic film technology; non conventional energy and energy conservation devices for rural applications; organic agriculture etc.

Nepal Agricultural Research Council (NARC) had participated the EXPO with the technologies developed in the field of agro-machinery and resource conservation in agriculture.

contd. from page 1

irrigated condition. This can be cultivated in spring, rainy season and after rainy season as mono crop or intercrop with banana, coffee etc.

The variety has been released for its earliness, higher yield, smooth and larger grain, longer pods, good taste and flavour. It has been found resistant to yellow mosaic virus and bacterial diseases and insects. Due to rapid plant growth, it has less problem of weed. It has no problem of grain drops while harvesting. The variety fetches a higher price than that of Pusha Baisakhi, as it is suitable for *dal, dalmot, bhujiya, papad* etc. It has potential grain yield of 1825 kg / ha, maturity period 60 days from seeding.

Prateeksha

The variety: 'Prateeksha' is also a high yielding and early maturing variety, recommended for farmers to cultivate in Terai Inner terai, and Mid-hills under rainfed, irrigated and partially irrigated condition in different seasons like spring, summer, or autumn.

The variety has been released as the farmers like it for its earliness, higher yield, smooth and bold grains, longer pods, good taste and flavour, resistance to yellow mosaic virus and bacterial diseases and insects. It is free from the problem of grain drops while harvesting. Due to rapid plant growth, it has less weed problem. The variety fetches a higher price than that of Pusha Baisakhi, as it is suitable for *dal, dalmot, bhujiya, papad* etc. It has potential grain yield of 1623 kg / ha, maturity period 63 days from seeding.

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