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SAARC

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Seminar on "Sustainable rural livelihood for resource poor farmers: Recent innovation in rural institution"

SAARC Agriculture Centre (SAC) organizes guest lecture series to develop networking and dissemination of experiences and knowledge to the National Agricultural Research System (NARS), Extension departments, NGO's and related organizations active in the region. The organization of the seminars have been found to be effective in dissemination and focusing the Centre's direction of programmes.

Recently, the Centre has organized a seminar on "Sustainable rural livelihood for resource poor farmers:

From left: Dr. Mohammad Zainul Abedin, IRRI Representative, Bangladesh; Mr. C.Q.K. Mustaq Ahmed, Secretary, Ministry of Agriculture; Kbd. Showkat Momen Shahjahan, MP and Dr. Wais Kabir, Director, SAC

Recent innovation in rural institution" on 7 May 2009 at the Bangladesh Agricultural Research Council (BARC) Conference Room, Dhaka.

Krishibid Showkat Momen Shahjahan, MP, Honourable Chairman, Parliamentary Standing Committee for Ministry of Agriculture, Government of Bangladesh and Mr. C.Q.K. Mustaq Ahmed, Secretary, Ministry of Agriculture, Government of Bangladesh attended as Chief guest and Chairperson in the seminar respectively. Dr. Mohammad Zainul Abedin, IRRI Representative, Dhaka, Bangladesh delivered keynote speech in the seminar. Dr. Wais Kabir, Director, of the Centre has presented welcome address in the seminar.

Dr. Wais Kabir joined as Executive Chairman, BARC

Dr. Wais Kabir assumed charge of Executive Chairman of Bangladesh Agricultural Research Council (BARC) on May 2009.

Prior to his assumption in the new position as Executive Chairman of BARC, Dr. Kabir served in the capacity of Member-Director (Natural Resource Management) of the same organization. He also served as the Director, SAARC Agricultural Centre (SAC) for the last five years. He obtained his graduation from the Bangladesh Agricultural University, Mymensingh in 1978 and Masters from AIT, Thailand and Ph.D. from Philippines. Dr. Kabir carried out his post-doctoral research from Kansas State University, USA. He began his career at BARC in 1979 and has served in various important capacities for the last 30 years. He is the author of a number of research papers on agricultural research management published in different national and international journals. He is the member of a good number of national and international professional societies and participated in many seminars, workshops, symposium, consultations and training programs at home and abroad.

Dr. Golam Mostafa completed his tenure

Dr. Golam Mostafa, Information Specialist, left SAC on 30 April 2009 on completion of his tenure of service. He had been working in SAC since 2nd February 2006 on deputation from Rajshahi University Central Library, Bangladesh. During his stay he made significant contribution in designing and implementing various important programme activities in the field of agricultural information.

Dr. Sandip Kumar Pal joined at SAARC Agriculture Centre (SAC)

Dr. Sandip Kumar Pal has joined at SAC on 9 June 2009 as Deputy Director (Agriculture). Prior to his appointment in the Centre, he was a University Professor cum Chief Scientist, Department of Agronomy, Birsa Agriculture University, Ranchi-834006, Jharkhand, India. He obtained his Ph.D from University of Seskachuan, Canada in the field of crop science.

Workshop on "Need of seed health test in seed quality control"

A day-long workshop on "Need of seed health test in seed quality control" was held on 9 June 2009 at Seed Pathology Centre, Bangladesh Agricultural University (BAU), Mymensingh.

The workshop was jointly organized by Seed Pathology Centre, BAU and Seed Certification Agency, Gazipur, Bangladesh.

Dr. Wais Kabir, Executive Chairman, Bangladesh Agricultural Research Council (BARC) attended as Chief Guest and while Prof. Dr. Md. Sultan Uddin Bhuiya attended as Special Guest in the workshop. The inaugural session was chaired by Mr. Md. Abdur Rouf, Director, Seed Certification Agency, Bangladesh

Dr. M. Ayub Ali, Director, Seed Pathology Centre delivered keynote in this workshop.

Dr. M. Nurul Alam, Senior Programme Specialist (PS & PD) and Dr. Ibrahim Md. Saiyed, Senior Programme Officer (NRM) from SAARC Agriculture Centre attended the Workshop.

New staff joined

Dr. Niazuddin joined at SAC

Dr. Md. Niazuddin (Niaz Pasha) joined the Centre as Senior Technical Officer on April 16, 2009. Prior to this appointment, he served in Bangladesh Institute of Nuclear Agriculture (BINA), Mymensingh about 14 years. Dr. Pasha did his graduation and M.S. from Department of Irrigation and Water Management, Faculty of Agricultural Engineering and Technology, Bangladesh Agricultural University, Mymensingh and completed his Ph.D. from Department of Land Management, University Putra Malaysia (UPM) in 2007. He was an IAEA Fellow. He is the author of some scientific and popular articles published in different journals, books, text book, booklets, leaflets. He is known for his long involvement in agricultural journalism and has been contributing to different dailies/ magazines for the last 25 years. Dr. Pasha is an active member/life member in many social and professional societies.

Mr. Md. Mizanur Rahman has joined the Centre as IT Manager (Database) on May 18, 2009. Mr. Mizan obtained his M. Sc. in Computer Application degree from Dhaka International University, Bangladesh. Prior to his joining, he served as Data Entry Operator in the Centre since August 22, 1991. His responsibility at the Centre includes in the areas of Website design, database management and computer troubleshooting.

Mr. Md. Iqbal Karim has joined the Centre as Store & Procurement Officer on May 19, 2009. Mr. Karim obtained his B. Sc. (Honours) & M. Sc. degree in Geography from Dhaka University, Bangladesh. Prior to his joining, he served as Office Assistant of the Centre since October 27, 2002. His responsibility covers administrative activities, office management and procurement activities of the Support Service Section of the Centre.

Mr. Mizanur Rahman has joined at SAARC Agriculture Centre (SAC) as Personal Officer to Director on 18 May 2009. Prior to his joining, he served as Steno Typist in the Centre since 3 July 1994. Mr. Rahman obtained his Masters in Arts (Islamic Studies) from National University, Bangladesh

Ms. Raihana Kabir has joined at SAARC Agriculture Centre (SAC) on 10 June 2009 as Graphic Designer. She got promotion for her outstanding performance in the Centre. Prior to her joining, she served as Production Assistant since 1 September 1992.

Contribute to SAARC AgriNews

SAARC AgriNews is a widely circulated Newsletter devoted for disseminating agricultural research findings/success story and information on applied technology for economic development of the farmers of South Asian region.

SAARC Agriculture Centre has been publishing this Newsletter (formerly SAIC Newsletter) since 1991 and distributing it to about 7,000 readers in SAARC member countries. The Centre has been distributing the SAARC AgriNews to the relevant agricultural institutions, scientists and extension experts of SAARC member countries free of cost. Please send your articles, success stories and news on applied research, extension activities, proceedings and/or recommendations of seminars, symposium and workshops in the field of agriculture with relevant photographs either by post or through e-mail. Please note that unaccepted articles are not returned to the Authors.

News

Visit

Dr. Muhammad Nurul Alam, Senior Program Specialist (PS & PD) & Dr. H.H.D. Fonseka, Program Specialist from SAARC Agriculture Centre (SAC) made a visit to Chittagong and Khagrachari district on 15 May 2009. The objective of the visit was to get hands-on experiences on hill agriculture and to discuss about the upcoming modality of the Regional workshop on "Hill Agriculture in SAARC Countries: Constraints and Opportunities" with the relevent authorities in Bangladesh.

AusAid Mission visited the Centre

A three member team consisting of Ms. Elalne Ward, Director, AusAid, South Asia; Mr. Mark Balley, Counsellor and Ms. Zabeta Moutatis, First Secretary, Australian High Commission, Dhaka visited the Centre on 22 June 2009.

The objective of the AusAID's visit was to gain knowledge on the activities of the SAARC Agriculture Centre, sharing information on AusAID operations in South Asia; explore linkages and possible areas of cooperation between SAARC and AusAID.

Dr. Wais Kabir, Director of the Centre presented the Centre's activities during the visit.

Training of SAC staff

Md. K. F. Rahman, Senior Finance Officer, Md. Saifur Rahman, Administrative Officer, Md. Iqbal Karim, Store & Procurement Officer & Mr. A.T.M. Mostafizur Rahman, Account Assistant attended a training programme on "Effective Procurement & Inventory Management for organizational Competency" on 29 May 2009. The national daily "Prothom Alo" organized the training.

New arrivals in SAC Library

SAARC Agriculture Centre (SAC) library has procured 13 books on agricultural research and development during April to June, 2009. The Centre also received a good number of Newsletters/Magazines/journals/reports etc. on agriculture and allied disciplines.

The Centre also got a fair number of books as donation from eminent scientists from National Agricultural Research System (NARS), Bangladesh.

Regional workshop on "Seed in SAARC countries"

The centre is going to organize a regional workshop on Seed in SAARC Countries at IARI, New Delhi during December 16-18, 2009 tentatively. Participants discuss and exchange their views and ideas and will come up with common as well as specific recommendations highlighting regional and national activities. The country representatives will present their constraints and issues of their respective countries for further improvement.

Objectives

The followings are the objective of the workshop:

1. To document the trends in availability of quality seed and seed replacement rate in SAARC countries by crops.

2. To study the structure of seed system in SAARC countries, particularly organization of seed activities by seed agencies, infrastructural facilities under public and private and farmers' seed management practices.

3. To study seed quality control system including seed health and need for capacity development to improve its effectiveness and possibility of its harmonization.

4. To examine regulations for development, testing and release of new crop varieties, and protection of intellectual property right.

5. To investigate the implication of plant quarantine act with its strength or weakness and highlighting the drawbacks behind it to suggest the possible improvement.

6. To suggest 'good regulatory' practices for seed system development, including those governing development and use of genetically modified mrganisms (GMO) and management of intellectual property right (IPR).

Outputs

The Regional Workshop would develop a common regional Seed quality standards and development of human resources. The workshop would also suggest policy options to strengthen the seed system and areas for capacity development for increasing availability of quality seed in SAARC countries.

Organized by

SAARC Agriculture Centre (SAC), Dhaka in collaboration with IARI, New Delhi, India

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Causes of low milk production in Pakistan

Pakistan is an agricultural country and livestock is its basic part, playing an essential role in economy of Pakistan. Livestock gives us meat, milk, wool etc. to fulfill the requirements. Livestock has shown more than 52% share of G.D.P. in Agriculture sector.

In Pakistan the population is increasing while the production of milk is not increasing accordingly. Despite the annual milk production of 34 million ton according to economic survey of Pakistan but this does not match the demand of milk at the rate of 176.3 litter/ person/ year as recommended by WHO.

Some important causes for low productivity are given below:

1. Selection of animal

Unfortunately formers are illiterate and they do not select the animal on the basis of genetic potential and record of their ancestors. Mostly they select the inbred animal and expect good production but fail to achieve that goal. Inbred animals are prone to disease due to low immunity and low genetic potential. This causes low production of milk and technically loss of owner as feed expenses etc. So this is controlled by introducing the:

- Programme by involving expert workers with proven semen.
- Recording should be done at farm for progeny testing programme.
- Select the animal having high genetic value instead of non-descript breed.
- Select the animal from those parent having the vaccination history.

2. Delayed maturity

This is an other important cause toward low production of milk. Mostly farmer do not care of new young one and do not give proper attention to their feed which leads to late maturity. For example, normal age of maturity of buffalo is about 24-30 month but due to lack of awareness of balance diet and non-scientific husbandry lead to late age of maturity in 40-48 month. In this way, farmer has to wait for their animals to come to production. This factor is controlled by the balance diet and good management practices and in this way farmer may get maximum profit from their animals at proper age of maturity.

Feeding according to the body needs in order to achieve the desired weight as in heifer at breeding time about 66-68% of adult body weight and milk replacer must be practiced to get more profit.

3. Old traditional farming

More than 80% of farmers are belonging to rural areas and are mostly layman. They follow the traditional farming, not based on the scientific practice and in this way, they have to face low production of milk, long dry period, high incidence of disease and ultimately loss of income to farmers.

This is a major cause of low productivity and it is solved by practical demonstration to farmers about awareness of scientific farming and benefits. Balance ration should be given and proper colostrums must be fed according to body weight of calf as early as possible after birth. Proper husbandry should be provided to animal according to seasonal variation. So in this way by adopting the scientific line of farming lead to maximum profit to farmers by producing high yield of milk and change in policies by Government and other private agencies will attract the investor in the dairy farming business.

4. Losses due to diseases

This is other important factor which leads to low production of milk. The farmer hesitates and does not use vaccine against very fatal disease like FMD, H.S., B.V.D., blacker quarter, Rinder pest which become cause of lower production. Mastitis is a disease of dairy and every 3rd cow/buffalo is suffering in clinical or subclinical mastitis which give heavy loss of milk production. This cause may be eliminated by following the vaccination schedule and control of mastitis at least twice in month with (SFMT). Surf field Mastitis Test. Parasitic load is also breakdown with use of deworming and spray of negawan and cypermethin in case of external parasites.

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Climatic parameters and severity of apple disease

Impact of changing weather conditions on the status of apple diseases in Himachal Pradesh, India

Apple (*Malus domestica* Borkh.) is a major fruit crop grown in the hilly states of the country comprising Jammu & Kashmir, Himachal Pradesh, Uttrakhand and Arunachal Pradesh. The economy of the people of these hill states largely depends upon this golden crop. Although, overall apple production has increased yet the productivity per unit area is still quite low (7-11t/ha) in comparison (25-35t/ha) to other apple producing countries including New Zealand, USA, Germany etc. of the world (Thakur *et al.*, 2000). Out of the various factors responsible for low productivity, diseases are one of the contributing factors. Amongst different diseases affecting apple, scab, pre-mature leaf fall, powdery mildew, *Alternaria* leaf spot and blight, sooty mold, fly speck, moldy core, fruit rots (core rot, white rot, brown rot, black rot, bull's eye rot), white root rot, collar rot, seedling blight and cankers (stem brown, smoky blight, pink canker, *Cryptosporiopsis corticola* canker, *Fusicoccum* canker, nail head) are causing huge economic losses to both the orchardists and nursery-men besides, resulting in untimely decline of the orchards.

Disease severity in any crop is dependent on availability of primary inoculum, prevalence of congenial environmental conditions and cultivation of susceptible genotypes (John, 1973). Under the present situation in Himachal Pradesh, the cultivar Royal Delicious and its strains (Vance Delicious, Top Red) susceptible to almost all the diseases are covering about 90 per cent of the total area under apple cultivation (Jindal *et al.*, 2001). Secondly, the availability of primary inoculum, initiation and subsequent spread of disease in any crop is largely determined by the prevalent environmental conditions. It is, therefore, the climatic conditions play an important role in deciding the status of diseases in plants. Hence, in the present studies efforts have been made to find the effect of changing climatic (environmental data obtained from HRS- Seobagh (Kullu) Meteorology Laboratory) factors (1993-2008) on the occurrence and severity of apple diseases in Kullu district of Himachal Pradesh in particular and other apple growing districts of the state in general.

The scab disease, which remained economically very important for about two decades (1978-1998) since its first appearance during 1977 and caused epiphytotics in early eighties and mid nineties (Thakur and Sharma, 1999) has now almost disappeared since the crop season of 1999 from the apple orchards of Kullu Valley of Himachal Pradesh and other apple growing districts (Mandi, Shimla, Sirmour, Chamba, Kinnaur) of the state. The major reason for its sudden disappearance was the occurrence of unfavorable weather conditions i.e. i) prolonged dry weather conditions (6.9mm in 4 rainy days and RH 54.8%) between the period of ascospore maturity to their complete exhaustion from pseudothecia (March 10 – May 2, 1999) did not allow the manifestation of primary infection, as the leaves did not remain wet for minimum period of 9 hours, pre-requisite for infection to occur, ii) Less rainfall (35.2mm in 4 rainy days) during February 1999 (initiation of asci and ascospore formation) have also contributed toward the lesser availability of primary inoculum for infection during 1999. Later, this disease has reappeared in two apple orchard pockets of district Mandi since 2001 and is presently confined to its two apple orchard sites (Janjelli and Chhattigarh). In district Kullu, its reappearance has been observed in two apple orchard sites (Barsaini in Manikarn valley and Salang, Talang and Nagujohar in Lag Valley) of district Kullu since 2005 onwards. Disease was also noticed in Nauradhar apple nursery and orchards of district Sirmaur. It is attributed to the prevalence of congenial weather conditions during crop season of 2005 and now has become endemic in these locations. Further, there is no report of its reappearance from other apple growing districts of the states.

Pre-mature defoliation (*Marssonina coronaria*), the second

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Apple diseases

(From page 6)

important disease of apple, first appeared in small proportion in Kullu Valley as well as Kotkai (Shimla district) apple orchards of Himachal Pradesh in 1994. It assumed severe to epiphytotic proportions in all the apple growing areas of the state during 1995-2001. The appearance and subsequent spread of this disease during these years was largely dependent upon occurrence of moderate to heavy rainfall during mid June to mid September. During 2002, occurrence of drought like conditions during mid June to mid August (43.4mm in 7rainy days) suppressed this disease to a greater extent (diseases index 0-12%) in apple orchards of Kullu district and that of Himachal Pradesh in general. During 2006 and 2007 again the prevalence of sufficient rains (122.3 – 138.6 mm) during July and August has again led to appearance of disease in severe form. Further, it has been also observed that occurrence of low disease severity of this disease during 2002 and more rainfall during late rainy season of 2002-2006 except 2004 have led to the appearance of another disease caused by *Alternaria* leaf spots and blight (*Alternaria alternata*) in apple orchards and is now appearing in moderate to severe form.

Further, *Cryptosporiopsis corticola* canker appeared in severe form in apple orchards of Kullu district in particular and that of Himachal Pradesh in general during 2002 and is mainly attributed to prevalence of low rain fall during the month of May (9.2mm in 2 rainy days) and June (30.2 mm in 4 rainy days) accompanied with slightly higher temperature. It spread very fast during the month of July with prevalence of slightly higher average temperature (26.9^{o}C), low humidity (52.1%), and scanty rains (2 mm in one rainy day) and took epiphytotic proportions. The canker phase of this disease did not flare up in the following years (2003-2007) and is occurring in low intensities in different apple orchards of the state but its fruit rot (bull's eye rot) phase has been appearing in moderate form since 2003 due to sufficient availability of pathogen inoculum since 2002 onward and occurrence of adequate rains during rainy season.

Another diseases viz., moldy core and core rot mainly caused by *Alternaria* species, *Trichothecium roseum* fungi occurring in extremely low frequencies earlier suddenly assumed alarming situation in the apple orchards of district Kullu, Mandi followed by Shimla, Kinnaur and Chamba, respectively during 2005. This disease again appeared in high frequencies during 2007 and resulted in huge economic losses. It has mainly been attributed to appearance *Alternaria* leaf spot and blight disease in apple orchards since 2002 which has possibly increased the availability of pathogen's inoculum. Secondly the occurrence of extremely low rain fall (15.7 mm in 3 rainy days and 5.2 mm in single rainy days during the month of April 2005 and 2007, respectively) at flowering and fruit set stage in the month of April, which has resulted in successful establishment of infection by these pathogens of moldy core and core rot diseases.

Occurrence of low rainfall during April/ May during the 1999, 2002, 2005 and 2007 accompanied low – moderate temperature has also helped in the appearance of powdery mildew disease in higher severities since 1993. It also led to higher severity of fruit russetting during these years. Other diseases particularly the cankers (high in low-medium height of apple orchards), fruit rots, soil borne disease (white root rot, collar rot, seedling blight) are mostly sporadic/ endemic in their occurrence and their severity though is also affected by these climatic factors but no noticeable change in relation to prevalent environmental conditions has been observed. During crop season of 2007 the environmental related disorder viz., frosty spot (noticed first time) and russetting in apple fruit were noticed to a greater extent. It is attributed to frost injury during April- May and subsequent rise in temperature during summer and rainy season (June–August) and greater difference in day and night temperature.

Conclusions:

1. Apple scab diseases disappeared during 1999 from apple orchards of Himachal Pradesh.
2. Pre-mature leaf decreased to minimum level during 2002
3. *Alternaria* leaf spot emerged as another important disease of apple since 2002
4. Moldy core and core rot appeared in severe form during 2005

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Milk production in Pakistan

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5. Incomplete treatment or underdose treatment

This is most important factor which leads to low milk production because prolonged use of underdose medication makes the animal resistant to that drug and disease becomes chronic and ultimately becomes loss for farmer.

When animal becomes sick or suffers in fever the farmers inject the antipyretic to control fever but do not call the Veterinarian and fever repeats which is indication of some disease. So in this way animal disease becomes chronic and productivity of animal becomes low. So farmers should act upon the advice of Doctor and continue the treatment according to disease recommended by Veterinary Doctor. Dose should be according to body otherwise animal becomes resistant to the drug.

Source: Dr. Khurram Ashfaq and Muhammad Ijaz Saleem, Department of C.M.S., University of Agriculture, Faisalabad, Pakistan

Apple diseases

(From page 7)

and 2007 and has become endemic.

5. Powdery appearing in moderate form appeared in moderate- severe form during 1999, 2005 and 2007.

6. *Cryptosporiopsis* canker appeared in severe form during 2002 and its fruit rot stage is occurring low to moderate level.

7. Frosty spot and russetting symptoms on fruits were more during 2007.

8. Above information is extremely useful for rational use of fungicides in management of apple diseases.

Source: I.M. Sharmaand & M.S. Jangra
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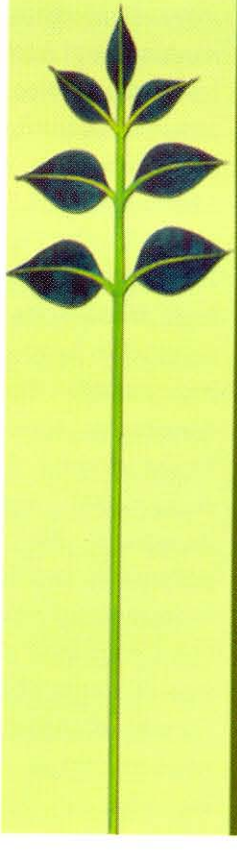
The 3rd Governing Board Meeting of SAC

The SAARC Agriculture Centre is going to organize a Meeting of 3rd Governing Board (GB) during 15-17 November 2009. The Centre is expecting honourable GB Members from SAARC Member Countries in the Meeting. The Meeting would be declared open by the honourable GB Chairperson from Government of Nepal.



Contribute to SAARC Journal of Agriculture (SJA)

SAARC Journal of Agriculture (SJA), a half yearly publication from the Centre is envisaged to serve as platform exchange of latest knowledge on breakthrough topics that are of current concern for researchers, extensionists, policy makers and students. It aims to capture the first-hand knowledge on research achievements in the field of agriculture, fisheries, livestock, forestry and allied subjects from the SAARC member countries. Currently, SJA is considered as an important media for exchanging contemporary scientific knowledge.

The Centre has been publishing the journal since 2003. It has been distributing to the relevant agricultural institutions of SAARC member countries free of cost. The journal already gained recognition in the region and elsewhere.

Please send papers and short notes on original research and reviews of research, written in English in the field of agriculture and allied subjects either by post or through e-mail.

Your contributions should be addressed to the **Managing Editor, SAARC Journal of Agriculture (SJA),** SAARC Agriculture Centre, BARC Complex, Farmgate, Dhaka-1215, Bangladesh.

Multipurpose use

Banana fibre - An economic enterprise

Banana, *Musa Paradisica* is an important fruit crop of the tropical and subtropical regions of the world grown in an area of 8.8 million hectares. In India, banana is largely grown by small and marginal farmers in an area of 0.68 million hectares with an annual production of 16.8 million tones. In Assam banana is the major commercial fruit crop occupying an area of 0.42 lakh hectare with a production of 5.81 lakh tones. As a diet banana is a rich source of carbohydrate with calorific value of 67 calories per 100g fruit and is one of the most popular and widely traded fruits across the globe.

Traditionally, in Assam and entire Northeast India, banana is mainly cultivated for its fruits and leaves and occupies an important position in any Indian custom. The pseudo stem is also used in many religious function or ceremony. An alkali solution commonly used in Assam is also prepared from the pseudo stem after drying and burning. In spite of the various uses of the banana plant, it is seen that huge portions of the banana plants are just dumped as waste causing environment problems and imbalance ecosystem. Currently about 1000 million tonnes of banana pseudo stem are dumped as waste at farm level in India and most of the farmers are facing huge problems in disposing the accumulated banana pseudo stem. Therefore, an effective and economic means of reducing the environmental problem is by extraction of fibre from the banana pseudo stem. All varieties of banana can be used for the fibre extraction purpose. In addition to fibre extraction, preparations of organic manure from banana pseudo stem are found to be highly useful and economic for the banana growers.

The banana fibre can be extracted both manually and by machine. Manual fibre extraction process is a cumbersome process. In this process pseudo stem are initially cut into pieces of 60cm length and 7.5cm width. Then the pseudo stem is scraped and the fibre is separated by using scraper or a flat blunt blade. In manual process a skilled labour can produce only 500-600 g of dry fibre in 8hrs time. Moreover it is a tedious process involving drudgery. Blackening of fingers tips, nail ends and nail ulcers are the common problems associated with manual fibre extraction process. Further it creates unfavourable working condition due to the spoilage of juice and waste pith in and around the extraction area. Due to very low fibre productivity and drudgery involvement in manual process the extraction of banana fibre has not received importance. As a result in spite of superior fibre quality, fibre extraction has not been coming up on commercial scale. On the other hand, the banana fibre extractor machine can extract 15-20 kg of fibre as against 0.5 kg of fibre /day by manual process, reduces drudgery, increases fibre production by 40 times as compared to manual process. It is a user friendly and low cost device, which requires less maintenance cost and is safe to operate. The fibre produced by this process is superior in quality with required strength, length, softness and colour. During fibre extraction some precautionary measures has to be followed such as the pseudo stem have to be processed within 48 hrs after harvesting and the cut open sheaths have to be processed on the same day moreover the fibre after extraction has to be dried in sunlight or shade and must be bundled after drying.

This banana fibre is extensively used as blending material in textile industry in countries like viz: phillipines, Malaysia, Japan and Korea. It can easily blends with other fibre such as jute and mesta being a natural fibre. Therefore, lots of industrial products like gunny bags, door mats, carpets, yarns, rope, geo-textiles, travelites, luggage carriers and interior decorative crafts paper, tissue papers, filter paper, paper bags etc. can be prepared out of this fibre, where great strength is required. It has also some industrial uses such as natural sorbent, as a base material for bioremediation and recycling and as a natural water purifier. Among other uses banana fibre is used in making socks and gloves in European Countries. Positive feature of this fibre is that the products are chemical free having huge export potential. First quality pseudo stem fiber cost Rs. 70,000-80,000 per tonne and second class pseudo stem fiber cost Rs.60,000.00-70,000.00 whereas per tonne first and second quality

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New variety

New rust resistant wheat variety FAREED-06 and MAIRAJ-08

"Fareed-06" is a high yielding and rust resistant variety of bread wheat with erect growth habit. It was released in the year 2006 for irrigated areas of Punjab. Fareed-06 originated from a cross between two genotypes PTS/3/TOB/LFN//BB/4/BB/HD-832-5//ON, (a high yielding line received from CIMMYT, Mexico) and GV/ALDâ ˜Sâ ™//HPOâ ˜Sâ ™BR-3385-3B-1B-0B (a local line resistant to rust diseases) at Regional Agricultural Research Institute (RARI), Bahawalpur. F1 to F4 progenies of this cross were advanced by pedigree method. Resistance against rusts (Leaf rust = 5R to 20RMR and Yellow rust = 10MS, RRI value of 8 for both leaf and yellow rusts and ACI values of 0.6 & 7.4 for both leaf and yellow rusts) and high yield potential (6000 kg ha-1) are the major attributes of Fareed-06 that make it a superior variety for its target regions. Fareed-06 is tolerant to wheat aphid and Helicoverpa armigera and responsive to fertilizer compared to the check varieties.

The hundred seed weight of this variety is 38-42 gm. Seed is amber in colour and contains 11.9-13.3% protein, 26.5% wet gluten, 9.5% dry gluten, 1.83% ash. Its flour yield is 68.4%. It has good chapati making quality. Plant type of Fareed-06 is erect with plant height 75-90 cm and droopy flag leaves. Auricle colour is white. Ear shape and colour is tapering and red. Its straw is soft. It completes heading in 75-85 days and matures in 110-120 days. Fareed-06 performs better in irrigated areas of Punjab when planted from Ist November to 15 December, keeping 125 kg ha-1 seed rate and 125-100-75 kg NPK ha-1 are applied.

MAIRAJ-08

"Mairaj-08" is a high yielding and rust resistant variety of bread wheat with erect growth habit. It was released in the year 2008 for irrigated areas of Punjab. Mairaj-08 is result of a local cross i.e. SPARROW/INIA//V.7394/WL711//3/BAUâ ™Sâ ™ attempted at Regional Agricultural Research Institute (RARI), Bahawalpur during 1993-94. F1 to F4 progenies of this cross were advanced by pedigree method. Resistance against rusts (Leaf rust = 5R to 20RMR and Yellow rust = 10MS, RRI value of 8 for both leaf and yellow rusts and ACI values of 0.6 & 7.4 for both leaf and yellow rusts) and high yield potential (6000 kg ha-1) are the major attributes of Mairaj-08 that make it a superior variety for its target regions. Mairaj-08 is tolerant to wheat aphid and Helicoverpa armigera and responsive to fertilizer compared to the check varieties. The hundred seed weight of this variety is 38-42 gm. Seed is amber in colour and contains 11.9-13.3% protein, 26.5% wet gluten, 9.5% dry gluten, 1.83% ash. Its flour yield is 68.4%. It has good chapati making quality. Plant type of Mairaj-08 is erect with plant height 75-90 cm and droopy flag leaves. Auricle colour is white. Ear shape and colour is tapering and red. Its straw is soft. It completes heading in 75-85 days and matures in 110-120 days. Mairaj-08 performs better in irrigated areas of Punjab when planted from Ist November to 15 December, keeping 125 kg ha-1 seed rate and 125-100-75 kg NPK ha-1 are applied.

Source: Manzoor Hussain and
Dr. Lal Hussain Akhtar, Assistant Botanist
Regional Agricultural Research Institute,
Bahawalpur, Punjab, Pakistan
Ph. 92629255220-221, Cell: 03336375475
Fax: 92629255221

Banana fibre

(From page 9)

peduncle fibre cost Rs. 50,000.00-60,000.00 and 40,000.00-50,000.00 respectively.

Since banana is grown extensively in commercial scale in the entire Northeastern states including Assam therefore huge quantity of banana pseudo stems are dumped in the field after harvest. If we can utilize the pseudo stem for fibre extraction we can create lots of employment opportunities and make rural women and school dropouts empowered and improve their economic level and standard of living.

Source: Ms Sanehita Brahma (SMS Hort), Krishi Vigyan Kendra, Kokrajhar, Assam Dr. Manisha Kaehari (SMS Hort), Krishi Vigyan Kendra, Dhemaji, Assam, India.

Value added products

Poultry wastes compost and nutrient conservation

The worldwide increase in organic wastes has intensified the investigations into their value as fertilizers and environmental contaminants. The implementation of environmentally sound management programs for waste products will clearly be one of the greatest challenges faced by the poultry industry in the next decade. If proper attention is paid to nutrient management of poultry waste, they can be used as fertilizers and soil amendments.

So the poultry waste can be converted into value-added products i.e. compost that can be transported economically, easy to apply and adaptable to a wider variety of cropping systems. Nitrogen concentrations in poultry waste are generally high (5%) with low C/N (8:1) ratio.

During composting of poultry manure, ammonia emission can be a significant problem, resulting in increased environmental pollution and decreased fertilizer value of manure. Temporary immobilization of NH_4 ions by mixing poultry manure with carbon rich organic waste materials can be an effective method in reducing the ammonia loss.

Research confirmed that application of coir pith in the manure collection pit was found to be efficient in reducing the NH_3 loss by temporary immobilization of nitrogen. Application of coir pith reduced the fly and odour problem and maintained the ammonia concentration below 25 ppm in the shed which was 34 ppm before the application of coir pith.

Onsite composting (Caged Pit System)

A layer of 5 cm sand and 10 cm coir pith should be spread in the poultry manure collection pit of caged system where the poultry droppings are collected. Dry coir pith should be applied at weekly interval @ 1:1.25 ratios (Poultry droppings: Coir pith). After a period of 3 months, the partially degraded coir pith and poultry droppings in the collection pit should be transferred to compost yard and heaped under shade. The moisture content of the heap should be maintained in the range of 40-50%. Periodical turning should be done once in 10 days. The mix is allowed to compost for another 45 days.

Enriched poultry wastes compost

Fresh poultry droppings should be mixed with sieved dry coir pith @1:1.25 ratio to attain an optimum C:N ratio of 25 to 30 which is considered to be suitable for composting. Rock phosphate should be added @ 2.5 kg per 100 kg raw materials and should be mixed thoroughly. This mixture should be heaped under shade. Moisture content of the heap should be maintained at 40-50%. Periodical turning is to be given on 21st, 35th and 42nd day of composting. Good quality enriched compost will be ready in 60 days.

Parameter	Onsite compost	Enriched compost
N(%)	1.97	2.08
P (%)	2.01	2.61
K (%)	1.39	1.95
C/N ratio	11.92	13.54
Duration	45 days	60 days

Nutrient content (Results may differ according to raw material)

Source: Dr. M.Prasanthrajan and Dr.C.Udayasoorian, Tamil Nadu Agricultural University, Coimbatore - 641 003, Tamil Nadu, India.

Regd. No. Dhaka 1334

Science & Technology

Reducing harvesting cost of jute

Mechanised jute harvest by manually operated motorised brush cutter

The net return from jute cultivation is often very poor owing to its' high cost of cultivation. This net profit can be increased by reducing man day's requirement for jute harvest, adopting mechanical harvesting of jute using

Jute harvest (cv. JRO-524, 115 days old) by brush cutter, without holding

brush cutter. Manual jute harvesting and bundling requires about sixty man days/ha, which involves a high expenditure in its cost of cultivation. Moreover, sufficient manpower availability during jute harvest is also very difficult as peak rive transplanting operation also coincides with jute harvest.

To mitigate this age old problem, an attempt was made to harvest jute plants (115 days old, cv. JRO 524) at CRIJAF, main farm using motorized brush cutter (Olemake, 400 BP). Two methods were adopted in this harvesting system. i) The jute plants in line were harvested at the basal region (1-2 cm above ground level) using this machine with 17 cm length blade, sharpened on both side (Photo-1). The operator has to cut jute plants at right side of its' basal region looking into its twigs relative inclination towards soil, so that the jute plants fell down automatically on the field. The harvested jute plants were collected by a person for bundling immediately. ii) Attempts were also made to harvest jute plants by this brush cutter by an operator, wherein another person holds the jute plants near twigs (as in conventional harvest) in line to facilitate quick and undisturbed harvesting (Photo 2). The jute plants are arranged in small stacks simultaneously for bundling later on.

In this method about 10 to 15 man days will be required to harvest one hectare jute area and about 10 liters of petrol will be necessary to run the machine. The chads (<150 cm jute plants) should be removed prior to jute harvest for undisturbed harvesting of jute. This will save the jute farmers by reducing harvesting cost of jute, mesta, sunnhep and ramie etc and the labour scarcity during rice transplantation can be minimized. Tractor drawn reed harvester can also be utilized for faster and economic harvesting of jute plants.

Source: A.K. Ghorai; H. Chowdhury and B.S. Mahapatra
Central Research Institute for Jute and allied Fibres, CRIJAF, Bararchkpore, Kolkata-700120, West Bengal, India

Jute harvest (cv. JRO-524, 115 days old) by brush cutter,

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