SAARC Agriculture Centre has recently published sixteen publications/country study reports covering various issues of agricultural research for development in SAARC member countries. These are as follows:

1. Livelihood development through agriculture in the saline prone coastal ecosystem of SAARC countries

Among the SAARC countries, Bangladesh, India, Maldives, Pakistan and Sri Lanka have vast areas of coastal belts where a huge population of about 350 million lives in coastal ecosystems. The systems differ from place to place and from country to country. People living in these regions are highly dependent on the natural resource base, and are extremely vulnerable to recurrent occurrence of natural disasters like cyclone, tidal flooding and surges, tornado, salinity, sea erosion and in recent times, tsunami has been added to the list. Given the high importance of crop farming, fisheries, livestock and the other economic activities in the coastal areas of the SAARC region, the Centre aimed to document the country status report on coastal regions, assessment of livelihood of the coastal people, their dependency on agriculture, constraints, risk, possible mitigations and the organizations/agencies working in the coastal areas have been included. This publication includes three country papers of India, Bangladesh and Sri Lanka.

2. Best practices in animal feed production and management in SAARC countries

Main purpose of the programme is to understand the knowledge on animal feed and best practices, involved and contribution of those to agriculture and create awareness among the farmers, entrepreneurs and industrialists on the existing practices for livestock

(Continued on page 2)
New arrivals

methods of cultivation and uses of the fourteen categories of plants used as animal feed commonly found in the SAARC countries.

5. SAARC Journal of Agriculture: Vol. 6, Issue 1 & 2

The Centre has been publishing the SAARC Journal of Agriculture (SJA) since 2003. The SJA contains scientific papers of original research and review articles in the field of agriculture and allied disciplines from the member countries. Issue no. 1 of Vol. 6 of SJA contain 10 and Issue 2 contain 15 research articles in the fields of agriculture and allied disciplines. Currently, SJA is considered as an important media for exchanging contemporary scientific knowledge.

6. Directory of Ph.D. dissertations on agriculture in SAARC countries

Graduate researchers of the many universities and colleges of the SAARC countries are carrying out very useful basic and applied research for the degree programs. The Centre took an initiative to document these research outputs/information/innovations from the educational institutions. Through networking with the various universities offering advanced degrees, the Centre has started compiling a directory of dissertations. In this connection, the Centre has been receiving huge volumes of abstracts of Ph.D. dissertations from Agricultural Universities.

7. Proceedings of farm mechanization for small holder agriculture in SAARC countries

The proceedings of the Regional Workshop held at the Central Institute of Agricultural Engineering (CIAE), Bhopal, India, during September 22-24, 2008 on Farm Mechanization for Small Holder Agriculture in SAARC Countries contains eight country papers and eleven invited papers presented by five participating countries.

(Continued on page 3)
Each country paper described selected major aspects of agriculture and agricultural mechanization with special focus on smallholder farm mechanization and related statistics, policies and other issues. Invited papers contain specific information related to smallholder farm machines and mechanization in the region.

8. SAARC AgriNews

This quarterly Newsletter contains information on technologies generated in the fields of crops, fisheries, forestry, livestock, etc., in different SAARC member countries.

9. Booklet on mechanization- It’s trends and opportunities in the agricultural production system in SAARC countries

Under the category of In-house research and publication on thrust areas of agriculture in SAARC countries, this publication highlights the present status of agriculture mechanization, status of manufacturing of agricultural machinery, research and development facilities, policy support, testing and standardization, emerging trends in mechanization, general supply chain and options for poor farmers in the region.

10. Foodgrain situation in SAARC Countries Bulletin No. 12, Crop Year 2007-2008

The ‘Bulletin of Foodgrain situation in SAARC Countries’ provides information on major food grains in the SAARC member countries, including production, anticipated demand, likely shortfalls, surplus, etc. The information will be useful for planning strategies for achieving food security nationally and regionally.


The report includes information about SAC objectives, major functions, and completed activities and programs of 2008.

12. SAARC News, Views & Ideas

This is a compilation of articles from leading daily newspapers from the SAARC countries. The content includes articles on agricultural technologies generated by different research institutes and universities related to crops, livestock, poultry, fisheries, etc.

13. Bibliography of periodicals available in SAARC Agriculture Centre Library

The Centre serves the SAARC member countries with agricultural information to strengthen agricultural research and development in the region. The Centre collects and processes information to send out to ever increasing number of users. In conformity with this objective, the library of the center prepared a bibliography of journals and periodicals available in its Library.

The three In-house publications

14. Catalogue of Audio-Visual Programme of SAARC Agriculture Centre

The Catalogue of Audio-visual provides a list of video CDs with a brief description on the background and justification of the development and method of use of the technology in each CD.

15. Brochure of SAARC Agriculture Centre

The brochure is for public use for greater awareness among the stakeholders of the Centre.
New arrivals & Visit

Visit

Dr. Wais Kabir, Director, SAARC Agriculture Centre (SAC) visited Bangladesh Sugarcane Research Institute (BSRI), Ishurdi, Pabna on 26-28 March 2009. He visited research programmes of the institute. Specially, Dr. Kabir observed the achievement in paired row sugarcane cultivation as intercropping to raise the income of sugarcane farmers. He felt that the technology developed by BSRI is very promising for agricultural research and development in SAARC countries.

Dr. Kabir also visited a field where the technology is being practiced in large farms. He expected that the technology will be further expansion in the farmer’s field in large scale and needs to be documented for wider use in the SAARC region.

Dr. Wais Kabir, Director, SAC participated in the 35th session of the Program Committee meeting 2009 held in Kandy, Sri Lanka on 27-29 February 2009. The meeting subsequently turned out as Standing Committee where activities of the SAARC Agriculture Centre was commended by the distinguish gathering. The Foreign/External Secretaries of the member countries of SAARC attended the meeting.

Dr. M. Nurul Alam, Sr. Programme Specialist (PS & PD), Ms. Nasrin Akter, Sr. Programme Officer (Crops) and Dr. Ibrahim Saiyed, Sr. Programme Officer (NRM) of the SAARC Agriculture Centre visited Bangladesh Agricultural Development Corporation (BADC) office at Modhupur, Tangail on 16 January 2009. During visit, they observed to BADC contract farmers’ field, seed multiplication process, storage etc.

They also visited Seed Pathology Centre of Bangladesh Agricultural University, Mymensingh and Seed wing of BRAC at Sripur, Gazipur. The aim of the visit was to prepare concept note of on-going programmes of the Centre on “Seed in SAARC countries: production, processing, storage, quality, assurance/regulatory measures and marketing”.

Dr. K.B. Shrestha, Deputy Director (Policy Planning) and Dr. M. Nurul Alam, Senior Programme Specialist (Priority System & Programme Development) of the SAARC Agriculture Centre visited Lal Teer Pvt. Seed Company at Gazipur on 13 February 2009.

16. Farm Mechanization Bulletin

The farm mechanization bulletin highlights the present farm mechanization status of small holder agriculture in SAARC countries.

Production of videos

A short description of the video films recently produced by the Centre is given below.

(i) Mango production and post harvest management in Pakistan

The programme was implemented by the Directorate of Agricultural Information, Lahore, Punjab, Pakistan in collaboration with the Centre. The video highlights cultivation practice, harvest and post harvest management of mango.

(ii) Community based Mushroom Production in Bhutan

This Video film was produced by the Centre with the help of National Mushroom Centre, Agriculture Marketing Service and RNR Extension Office of Bhutan. The video film highlights the management of Matsutaki Mushroom by a community in western Bhutan. The Bhutan Government has taken initiatives to develop community people based mushroom cultivation through farmers in the forest areas of the country.

Video Telecast in Bangladesh Television

1. Community based Mushroom Cultivation in Bhutan
2. Management of plant protection in Bhutan
3. Vegetable seed production in Nepal
4. Success story of soybean in India
5. Humming honey maker in India
6. Cultivation technology of bottom and oyster mushroom, India
7. Bamboo: A crop in India
8. Embryo transfer in cows (India)
9. National irrigation policy (Bhutan)
10. Citrus growing in Eastern Bhutan
New professional staff joined at SAC

Dr. M. Nurul Alam from Bangladesh was appointed as Senior Programme Specialist (Priority System & Programme Development). He joined at SAC on 1 January 2009. Before joining SAC, he was working as expert in food security project of FAO. He started his career in 1978 as Scientific Officer of Bangladesh Agricultural Research Institute. He did his Ph.D in Agronomy. He has a good number of training on various fields of agriculture. He carries a vast record of services in farming system research and agronomy.

Dr. K.B. Shrestha joined at SAARC Agriculture Centre (SAC) on 22 January 2009 as the Deputy Director (Policy Planning). He comes from Nepal. Before joining SAC, he was working as Joint Secretary in the Ministry of Agriculture and Co-operatives, Government of Nepal. He started his career in 1970 in the Department of Agriculture Research and Education under the Ministry of Agriculture. In 36 years of his debut in the Government of Nepal, he worked in different agro climatic zones of Nepal. He earned his Ph.D in post harvest handling of fruits particularly apple. He has training on various aspect of agriculture particularly in horticulture.

Dr. H.H.D. Fonseka joined the Centre on 16 March, 2009 as Senior Programme Specialist (Crops). Before joining SAC, he had been working as Research Officer in Horticultural Crop Research and Development Institute, Peradeniya, Sri Lanka. He started his carrier in 1982 as Asstt. Lecturer in the Department of Crop Science, Faculty of Agriculture, University of Peradeniya, Sri Lanka. He obtained Ph. D. from University of Japan.

Professional left SAARC Agriculture Centre on completion of tenure

Mr. M.A. Rashid, Deputy Director (CIAV) left the Centre on 11 February 2009. The Professionals, Officers and General Services Staff organized a farewell meeting in the honour of the outgoing professional and Dr. Wais Kabir, Director, SAC presided over the meeting. The outgoing professional Mr. M.A. Rashid joined at the Centre on 10 February 2006. Prior to his joining he was working as Principal, Industrial Relations Institute (IRI) at Rajshahi, Bangladesh.

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.
Forthcoming programmes

SAC programmes for 2009

The Governing Board of SAARC Agriculture Centre (SAC) in its 2nd Meeting approved the following regular and need based programmes for 2009.

Need based programmes

- Seed in SAARC Countries: Production, processing, storage, quality assurance/ regulatory measures and marketing
- Strategies for arresting land degradation in the South Asian Countries
- Impacts of climatic parameters on agricultural production and minimizing crop productivity losses through weather forecast
- National Agricultural Research System (NARS) in SAARC Countries- An analysis of the system diversity
- Use of compost for sustainable agricultural production and soil health
- Public support/ incentives in the production and marketing system in agriculture of SAARC Countries
- Pesticide information sharing system for SAARC Countries
- Directory of successful farm machineries in SAARC Countries.
- Training programme at premier research institutions for skill development in agricultural R & D in SAARC Countries
- Directory of media in agriculture - both print and electronic in SAARC countries
- Priority research agenda in the NARS of SAARC countries
- Internship, Exchange Visit, Exposure Visit and Graduate Research
- Directory of Ph.D. dissertations on agriculture in SAARC Countries

Workshop

- Regional workshops on the Role of media for accelerating agricultural growth in SAARC Countries.
- Regional workshop on Hill Agriculture in SAARC Countries: Constraints & Opportunities.
- A new look to programme development process

Videos

- Dairy sector development in SAARC Countries: Success stories
- Duck breeds developed by Bangladesh Livestock Research Institute
- Agricultural mechanization in SAARC Countries

Reproduction of information materials

- Reproduction of audio visual products
- Dubbing/ sub-titling of video films in English


Visit

SAARC Secretary General visited SAARC Agriculture Centre (SAC)

The Secretary General of SAARC H. E. Dr. Sheel Kant Sharma along with Mr. Riaz Hamidullah Director, SAARC Secretariat, visited the Centre on 23rd March 2009 and made discussion on various issues of the Centre with the Director, SAC. Mr. Sharma appreciated the activities of the Centre and hoped that the Centre would become a Centre of Excellence through its pragmatic role in solving problems in agriculture.

From left : Dr. Wais Kabir, Director, SAC, Dr. Sheel Kant Sharma, Secretary General of SAARC, Mr. Riaz Hamidullah, Director, SAARC Secretariat, Nepal
New arrivals in SAC Library

SAARC Agriculture Centre (SAC) library has procured 15 books on agricultural research and development during January to March, 2009. The Centre 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 the eminent scientists from National Agricultural Research System (NARS), Bangladesh.

Visit

ICIMOD Team visited SAC

A four member team from ICIMOD, Nepal visited SAARC Agriculture Centre (SAC) on 15 March 2009 to discuss on forth-coming regional workshop on “Hill Agriculture in SAARC Countries: Constraints and Opportunities” scheduled to be held during 3-5 November 2009 at Chittagong, Bangladesh.

ICIMOD, Nepal intended to participate in the workshop to be organized by SAC.

The team discussed on concept note of the workshop.

Regional Workshop on Hill Agriculture in SAARC Countries: Constraints & Opportunities will be held at Chittagong during 3 - 5 November 2009

Major objective
1. Share and exchange of knowledge, experience and good practices of the management of hill farming for betterment of the agriculture development in the hills of the region.
2. Draw lessons and develop recommendations to facilitate formulation of policy and strategy to sustainable development of the vulnerable ecosystems of hill agriculture.
3. Explore options and strategies for transforming hill agriculture from subsistence to commercial scale production system.

Issues to be addressed
- Introduction to hill agriculture in a geographical and ecological perspective including mountain specificities.
- Characteristics of hill agricultural system and their development.
- Input use including organic and chemical fertilizer and other agro-chemical.
- Soil and water conservation techniques, water shed management and special techniques (e.g. SALTS) used.
- Methods and techniques of integrating agriculture into horticulture, animal husbandry and forestry.
- Supporting services, agriculture research and extension, credit, infrastructure development, post harvest techniques adopted and marketing facilities.
- Socio-economic aspects of hill agriculture, involvement of public sector.
- Specific problems and constraints, suggestions for improvement.

Resource person and participants
Should authoritative knowledge and experience about the different issues of hill farming and may have career background in the government Departments, R & D institutes or other bodies relevant to hill agriculture.

Organized by: SAARC Agriculture Centre, Dhaka in collaboration with BARI, Bangladesh and ICIMOD, Nepal.

Venue: Hotel Agrabad, Chittagong, Bangladesh

Further Information: Director
SAARC Agriculture Centre, BARC Complex, New Airport Road, Dhaka, Bangladesh
E-mail: sac@saarcagni.net
**Science & Technology**

**Success story**

**Improved rice parboiling system saves life and energy**

**Introduction**

Bangladesh produces about 41 million tons of paddy annually; that would produce about 8 million tons of rice husk and contributes 17% to the total national energy consumption. Husk is produced as a milling by-product of paddy. In fact in Bangladesh, 90% of paddy is parboiled before milling. Rice parboiling is done generally in traditional small and medium sized paddy parboiling systems with highly inefficient primitive furnaces fired by rice husks and bran. Bangladesh is an energy-starved country that relies on biomass for 50% of its total energy supply. Small and medium rice mills burn almost 70% of the husks for parboiling they produce themselves. Studies indicate that at least 30% husk can be saved if the traditional system of rice parboiling system is improved. The saved husks can be made into much more energy efficient source of fuel as briquette while rice bran is a high value animal feed and raw material for oil extraction plant. However, both rice husk and rice bran are now increasingly scare and prohibitively expensive. Therefore, in the national energy context, it is essential to give due importance to save traditional biomass fuels (husks, wood, cow dung, jute sticks, etc.).

Not only are the traditional rice parboiling system wasting scarce biomass resources, they are also very dangerous for the operators and workers of the rice mills. Over 100 people die each year and another 500 people suffer severe injuries when boilers explode due to absence of safety gadgets. Hand-throwing of husk fuel into the furnace also causes dangerous flashback to the operator. In addition, the furnaces emit heavy smoke containing carbon monoxide (CO), and particles that cause eye ailments, bronchial problems, headaches and cancer.

With the growing concern about energy, environmental pollution and health risks, it is very important to find out a sustainable and energy efficient rice-processing method for saving husks and bran. In order to address the hazardous operating condition and to save valuable rice husk the Sustainable Energy for Development (SED), GTZ in conjunction with the Bangladesh Rice Research Institute (BRRI), Ministry of Power and Mineral Resources, Bangladesh (MPMER), Bangladesh and the Modern Erection Ltd (A boiler manufacturing company), undertook a pilot project to develop an improved rice parboiling system that can be built in Bangladesh by the same technicians who know produce the traditional models.

The research team constituted from the relevant organisations started the programme by surveying the existing traditional systems. They found over 5000 small and medium-sized rice parboiling systems, most of them are operating at thermal efficiency level of 20-30%. Although some of the large rice mills are using imported locomotive steam generators with efficiency level well over of 50% at a pressure level of more than 100 psi, these are far too expensive for the small and medium-sized rice mills due to maintaining very high pressure, whereas, the traditional models are operating at very low pressure level with an average thermal efficiency of about 20-30%.

The team found that most systems have no safety valve, pressure gauge, water level indicator and chimney.

Based on the results obtained from the study, the research team worked to optimize the geometry of the steam vessel, furnace, and chimney for efficient combustion and heat transfer. They constructed a rectangular vessel with spherical...
Improved Rice Parboiling System
(From page 8)

bottom from 6 mm thick steel and insulated it and the steam delivery pipeline glass wool to reduce heat loss. The side walls of bottom are connected with M S pipes in order to increase heating area. They added pressure gauge, a water level gauge, a simple dead type safety device which opens automatically when pressure exceeds the safety limit (15 psi). A 15 meter chimney is used to aid combustion and remove air pollution in the working area. The fuel is fed into the furnace with the help of a blower.

Salient Features of the new Rice Parboiling System

A comparative performance of the parboiling systems is presented in Table 1.

Benefits of using improved rice parboiling system

Increased System Efficiency

In the most successful of the two pilot plants, installed at Russel Auto Rice Mill, Kaliakoir, Gazipur, near Dhaka, the new parboiling system with a capacity of 18 tonnes of paddy/day achieved a maximum efficiency of 54% (Average efficiency is 42.75%). The mill owner had been previously operating his plant at only 18.16% with the traditional parboiling system. At this increased efficiency the owner could get back the money within 6 months.

Husk Savings

With increased efficiency rice husk savings is observed in the range of 50% to 59%. However, at user level operation 42.75% efficiency has been achieved at the Russel auto Rice Mill, Kaliakoir, Gazipur. With the new system the mill owner now requires only 53 kg of husk/ton of paddy, while previously he needed 107 kg of rice husk. At this rate the total husk saving is 910 kg per day amounting to US $ 26.00 (Tk. 1820) /day. The saved husk is being used to make briquettes, while rice bran is sold as animal feed.

Reduction in Processing Time

With increased efficiency the new system requires only 4 hours to complete parboiling process of 16.88 tonnes of paddy while previously it required 7.9 hours. The workers can finish the parboiling task within 7 pm in the evening and can go for sleep, previously it took upto 11 pm in the night to complete the task.

Benefits on Safety and Environment

- Safer air quality, (CO is in the range of 100-500 ppm);
- elimination of flash back fires because fuel feeding is done by a blower;
- danger of explosion, death, injury or disease has vastly been reduced due to insertion of safety valve, pressure gauge and water level glass.

Ease of Operation

- Manual husk feeding is completely eliminated by a power operated blower;
- comfortable working environment exist around the furnace, due to less radiation of heat and less CO emission.

National Economic Gains

Out of 8 million tones of rice husk, about 40-50% is consumed within the rice mills for rice parboiling. At the increased efficiency husk saving would be about 2 million tons/yr. At this rate of saving the national economic gain will be Taka 4 billion/yr. It will reduce the pressure on conventional fuels. There is an employment of 13 to 26 persons/mill, and on an average there are 17.75 persons are women (28%). Therefore, total employment in 50,000 rice mills is about 887500 of which 248500 are women.

Source: Dr. M. A. Baqui, Consultant, GTZ, Bangladesh and Former Director General, BRRI. E-mail: baquabdul@yahoo.com

For detailed information please contact:
E-mail: gtz-bangladesh@gtz.de

Table 1. Comparative test results obtained by the user from both conventional and improved system at regular operating condition at Kaliakoir, Gazipur

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Parameter</th>
<th>Unit</th>
<th>Conventional System</th>
<th>Improved System</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Flue gas temperature</td>
<td>°C</td>
<td>750-800</td>
<td>450-600</td>
</tr>
<tr>
<td>2</td>
<td>O2 content</td>
<td>%</td>
<td>Nil</td>
<td>7.1 - 8.0</td>
</tr>
<tr>
<td>3</td>
<td>CO content</td>
<td>ppm</td>
<td>&gt;10000</td>
<td>100-500</td>
</tr>
<tr>
<td>4</td>
<td>Steam pressure</td>
<td>kg/Cm²</td>
<td>0.5</td>
<td>0.7-1.0</td>
</tr>
<tr>
<td>5</td>
<td>Husk consumed rate</td>
<td>kg/ton</td>
<td>107</td>
<td>53</td>
</tr>
<tr>
<td>6</td>
<td>Efficiency</td>
<td>%</td>
<td>18.16</td>
<td>42.75</td>
</tr>
<tr>
<td>7</td>
<td>Total husk saving kg/batch</td>
<td></td>
<td>910</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Time required to complete the whole batch</td>
<td>hr</td>
<td>7.9</td>
<td>4.0</td>
</tr>
<tr>
<td>9</td>
<td>Cost (Vessel &amp; furnace)</td>
<td>US $</td>
<td>3000.00</td>
<td>4200.00</td>
</tr>
</tbody>
</table>

Source: Field test data (2008), * One batch = 16.88 ton of paddy. (1US $ = Taka 70.00)
**Partial Graduate Research Fellowship/Internship/Exchange Programme From SAARC Countries**

SAARC Agriculture Centre is going to sponsor Graduate research fellowship/Internship/Exchange programme from individual of South Asian origin to undertake short term research programme relevant to South Asian problem of around 3 months duration in the field related to candidates on-going curricular research programme or an internship programme within the SAARC countries. The focus of the graduate research should match the agricultural development of the SAARC Countries. Preference will be given to those who works in align of SAC programme.

**Requirements**

* Candidate must be doing his/her graduate programme from a recognized public university. Specifically mention the area of work and choice of institute.
* SAC will consult with the university/institute for facilitation of the programme.
* However, the Candidate may also contact the concerned institute of their choice and any particular expert with whom he is interested to work and seek an acceptance letter, which will enhance the facilitation process.
* Application must come through the supervisor/head of the University/Institute
* Support may include travel grant and stipend.
* Apply giving your brief bio-data, University where you are doing your Ph.D, mentioning your area of research work, institute where you want to do research work, have you any acceptance letter from the institute, recommendation of your guide and head of the institute
* After completion of the graduate research/internship a detailed report along with a satisfactory completion certificate from the institute need to be submitted to the Centre.
* Final selection will be done by the SAARC Agriculture Centre in consultation with the SAARC Secretariat.

**Director**

SAARC Agriculture Centre

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**Special offer to the students**

Special guesture to students of SAARC Member Countries from the Indian Council of Agricultural Research (ICAR) and other State Agriculture Universities of India

The recommendations of the Report of the Fourth SAARC Technical Committee Meeting on Agriculture and Rural Development (New Delhi 8-9 January 2008), declared that the Indian Council of Agricultural Research (ICAR) has decided to reduce the bench fee self-financing students by 50%, which will be applicable from the calendar year 2008 for the applicants from SAARC Member States.

**The following offer**

It has been decided that instead of normal fee of US$ 400/= per annum, the ICAR will charge only US$300/= per annum for the students willing to take any course at ICAR from the SAARC Countries.

The offer will be applicable to both undergraduate and post-graduate courses in the fields of Agriculture, Veterinary Sciences and fisheries.

The same tariff concession (50% of the course fees) will also be applicable to other ICAR Institutes and State Agriculture Universities of India.

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**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 service providers 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.
Increased yield

Fertilization management in early season tomato, capsicum and chrysanthemum inside naturally ventilated polyhouse

Fertilization (application of fertilizers through irrigation systems) is a highly efficient technology that ensures maximum efficiency of both water and fertilizer usages. Benefits of fertilization are most clearly demonstrated with drip irrigation; as a result fertilization has become indispensable to this technology.

Low cost greenhouse technology unique to grow high value crops is the need of the hour for early and augmented crop production in order to fetch higher return. Moreover for crop production under protected condition, drip along with fertilization is very much needed to maintain the nutrients and moisture status in the root zone of the plant, because of higher absorption by greenhouse crops than in open field, since fertilization allows to adopt the amount and concentration of the applied nutrients in order to meet the actual nutritional requirements of the crop throughout the growing season.

In general, the liquid fertilizers are most suitable for fertilization. However due to non-availability of liquid fertilizers, commercially available granular form of Nitrogen and Potassic fertilizers can be used for fertilization, while low solubility and precipitation of Phosphorus fertilizers in the irrigation water restricts its use in fertilization.

The experiment was conducted at Horticulture Experimental farm, under Precision Farming Development Centre, Department of Horticulture, Assam Agricultural University, Jorhat, Assam, India for three consecutive years from 2005-2008, with an objective to find out the economic dose of Nitrogen and Potash through fertilization in tomato, capsicum and chrysanthemum grown under protected condition.

Thirty days old seedlings of tomato (var. Namdhari Swaraksha) and capsicum (var. California Wonder) were planted in the month of October and rooted cuttings of standard chrysanthemum (var. Snowball) were planted in the month of September inside low cost naturally ventilated polyhouse of 100 sq.m. area.

Fertilization in all the crops were done based on recommended dose of Nitrogen and Potash viz., 75:60 kg N & K/ha for tomato, 120:60 kg N & K/ha for capsicum and 20:20 kg N & K/ha for chrysanthemum respectively. Treatments include 100% RD of N & K through fertigation, 75% RD of N & K through fertigation, 50% RD of N & K through fertigation and conventional method of soil application of 100%RD of N & K.

Fertigation was scheduled based on the requirement of nutrients at different growth stages of the crop. Emitters of 2 L/hr discharge rate were used for the study and fertilizers were applied via ventury. Each application time was determined as per evapotranspiration rate of Jorhat during the crop growing season.

It was observed that fertigation with cent percent recommended dose of N & K in case of tomato (75:60 kg/ha) and capsicum (120:60 kg/ha) produced the highest fruit yield of 122.6 t/ha and 35.43 t/ha respectively as compared to conventional soil application of N & K, whereas in case of early chrysanthemum it was observed that through fertigation recommended dose of fertilizer (20:20 kg N & K/ha) could be reduced to 1.5 g/plant from 2.0 g/plant. Thus 25% saving of recommended dose of N & K could be achieved in case of standard chrysanthemum grown under protected condition through fertigation as compared to conventional fertilization.

**Source:** Dr. Luchon Saikia, PI, PFDC, Deptt. of Horticulture, AAU, Jorhat-785013 (Assam), India. Ms. Sanchita Brahma, SMS (Hort.), KVK, Kokrajhar, Dr. Pankaj Barua, Jr. Scientist (Ag. Engg.) and Mr. Bhaskarjyoti Sarma, SMS (Hort.), KVK, Jorhat, India

E-mail: brahma.sanchita@gamil.com

**Two Professionals attended a Conference**

Dr. K.B. Shrestha, Deputy Director (PP) and Dr. M. Nurul Alam, Senior Programme Specialist (PS & PD) of the SAARC Agriculture Centre attended the 7th Annual Scientific Conference (ASC on VII) organized by Chittagong Veterinary and Animal Science University (CVASU) during 17-19 March 2009. The theme of the Conference was Food Security and Food Safety: Toward a one world one health approach.
Expanding horizons / Extension activities

SAARC Agriculture Centre exhibits Publications

For the first time the Centre has participated with a stall during the Ekushey Book Fair 2009. The fair is being observed every year to mark the historical Martyrs Day (21 February) for language movement in 1952. The Centre always gives emphasis on sharing information will all stakeholders in agriculture sectors of the SAARC member states.

During 19 years, the Centre has been published more than 60 regular and need-based publications in the field of agriculture and allied subjects. The publication includes books, country status reports, journals, newsletters, annual reports and seminar/workshop proceeding etc.

The one month book fair was inaugurated on 1st February 2009 by the Hon’ble Prime Minister Sheikh Hasina, for the general public. A large number visitors appreciated the Centre’s stall. Dr. Wais Kabir, Director, Professionals, Officers and GSS staff of the Centre explained the SAC activities to the visitors.

During fair, 75 books/ country study reports and 373 CD-Rom have been sold.

The Centre also participated with a stall in Agriculture Fair at Bangladesh China Friendship Conference Hall on 24-25 February 2009. Begum Matia Chowdhury, Honourable Agriculture Minister, Ministry of Agriculture, Government of Bangladesh opened the fair. A number of Centre’s products have been sold during the fair.

Networking for expanding horizons in SAARC Countries

SAARC Agriculture Centre (SAC) organizes seminar 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.

Recently, the Centre has organized a seminar on “Role of ICARDA in the Development of Pulses in South Asia” on 12 February 2009. Dr. Mahmoud Sohil, Director-General, International Centre for Agricultural Research in the Dry Areas (ICARDA), Syrian Arab Republic and famous international Scientist delivered the seminar presentation. Dr. Sohil emphasized on the Development of pulses in SAARC member countries.

Mr. Harun-ur-Rashid, Executive Chairman, Bangladesh Agricultural Research Council presided over the seminar.

Dr. Wais Kabir, Director, SAARC Agriculture Centre delivered a welcome address in the seminar.

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