

Summer scholl
“POST-HARVEST TECHNOLOGY AND RENEWABLE ENERGY”
 in Goettingen/Hannover 1st-12th November 2009: 23 participants

Continued...

specific fields and to get in touch with the leading industry. Ahead of the ‘Agritechnica’ the annual conference of the Max-Eyth Society of Agricultural Technology is hold in Hannover and will offer the possibility to get an overview on the latest scientific knowledge, especially in the field of renewable energy. Beside the visits of the fair ‘Agritechnica’ and the conference of the Max-Eyth Society several excursions to new and high-tech plants in the field of treatment and conservation processing of agricultural products as well as of renewable energy systems are planned. For the next years an intensive development of the post-harvest technology is expected, thus the detailed program of the workshop in Kenya 2008 will be discussed among all participants at the end of the summer school to guarantee a training on the latest stage in that field.



**Share our knowledge, expand our network,
Achieve our goals together**

German Alumni Food Network is, the network was established in 2006 when three universities in Germany namely Goerg-August University of Goettingen, Leibnitz University of Hannover and University of Hohenheim – Stuttgart conducted sommer school for their alumnae, who have concerned on foods. This activity was continued by Goerg-August University of Goettingen by conducting the workshop on Thermal methods for quality assurance in post harvest technology in Chiang Mai in 2007.

After the intensive discussion in Chiang Mai, the participants agreed to expand the network with other countries. In 2008 German Academic Exchange Services (DAAD) has agreed to give financial support for GAFN, which consists of Section Quality of Plant Products, Section Agricultural Engineering – Department of Crop Science Georg-August University of Goettingen, Institute of Biosystems and Horticultural Engineering Section – Faculty of Natural Sciences – Leibnitz University of Hannover, Postharvest Technology Institute of Chiang Mai University and Institut Pertanian Bogor



Join our mailing list at gafoon@yahoogroups.com, for further information about GAFOON newsletter, please contact Wahyu Supartono at wstono@yahoo.com



January | 2009

Implementation of **post-harvest technology on tropical fruits** in ASEAN countries

World’s demand for tropical fruits is high and the availability of land and fruits production is also high. The supply of fruits used to meet the world’s demand. However, there are an unbalance condition between demand and supply of tropical fruits in the world. The unbalance condition occurred because fruits are available in various quality levels. Fruits which have meet desired quality level, was available less than world’s demand.

The disparity of fruits quality not only caused by poor cultivation methods, but mostly caused by its improper post-harvest treatments. Fruits have unfavorable characteristics, such as short shelf-life; perishable and bulkiness which are need properly post-harvest treatment during storage and transportation. Most of fruits which have high quality level were damage during transportation from farm to warehouses.

inside this issue

Implementation of post-harvest technology on tropical fruits in ASEAN countries 1

Worskshop Drying preservation and storage of agricultural products in Chiang Mai 2

Summer school Post-harvest technology and renewable energy 2

Share our knowledge, expand our network, achieve our goals together 3

The ASEAN countries such as Vietnam, Thailand, Philippines and Indonesia have a lot of fruits variety and a high number availability of tropical fruits. Some of the fruits are superior and have a high demand on world’s market. The fruits of ASEAN countries have: a high economic value (such as mango in Thailand and Indonesia); available in high number (such as papaya in Philippines), a special taste; and rich of nutrition. However, most of ASEAN countries have to facing up their post harvest technology problems.

There are several research in field of post-harvest technology which were conducted by researcher in ASEAN countries. Some of them were done to reduce losses and improve processing and packaging of papaya in Philippines, by drying several fruits in Vietnam and Mango in Philippines, frying jackfruit and apple with vacuum fryer in Indonesia, and coating orange in Vietnam



Implementation of **post-harvest technology** on tropical fruits *in ASEAN countries*

Continued...

In Philippines, there are several constraints in post-harvest technology for papaya. The major constraints were papaya ring spot virus (PRSV) and high post-harvest losses. The last constraints were caused by short post-harvest life of papaya; lack of post harvest technology; lack of good roads and transport facilities; lack of access to overseas market and limited information dissemination.

Strategic action plan (SAP) was build to solve the constraints. The goal of SAP are to develop papaya varieties which resistant to papaya ring spot virus (PRSV); to reduce post-production losses and to improve processing and packaging technology. Several universities, Department of Agriculture and traders were involved in the SAP implementation.

The implementation of post-harvest technology in Philippines, especially for papaya, was done in several ways, such as development of postharvest protocol; hot water vapor treatment protocols; modified atmosphere packaging; waxing of fruits coating; irradiation, drying and development processing machineries. The implementation of post-harvest technology had increase papaya production both in quantity (5%) and in area (2%) and also increase papaya export growth quantity 120% for fresh and dried products.

In Vietnam, post-harvest technology implemented to fruits by drying and coating. Drying preserves foods by removing enough moisture from food to prevent decay and spoilage. Drying was done by two ways, outdoors and indoors. **The high** acid content of fruit makes them safe to dry in the sun (outdoors). Sun or solar dried fruits need treatment to kill any insects and their eggs that might be on the food. Most of foods can be dried indoors using modern dehydrators, convection ovens or conventional ovens.

In case of orange CV. Hamyen, they used micro emulsions as coatings of orange. This method has many advantages such as improved retention of color, acids and sugars; reduced weight loss; maintenance of quality during shipping and storage; reduction of storage disorders; improve consumer appeal; extended shelf life; reduction of synthetic packaging; and easy to handle. However, it also has several disadvantages, such as restriction the expiratory gas exchange which accumulates high level of ethanol and develops off-flavor; coatings composed of whey protein can facilitate rapid spoilage since they can provide nutrition source for microbial growth.

Worskhop “**DRYING PRESERVATION AND STORAGE OF AGRICULTURAL PRODUCTS**” in Chiang Mai, Thailand



Continued...

The planned workshop in 2008 will mainly base on the recent workshop in 2007. The application of thermal methods and techniques for the treatment of agricultural crops in order to avoid impairment of food grade is gaining in importance and that trend will presumably increase in future. The high quality standard on the post-harvest treatment can only be reached by the application of technical demanding technologies, such as microwave, radio frequency, and infrared drying techniques. In comparison to conventional methods, those new technologies are more efficient (i.e. reduction in processing time, reduction of energy consumption) and guarantee a higher quality of the end products (i.e. pest control, improvement of storage properties). Additionally, the replacement of chemical fumigation by thermal processes might be feasible in the near future.

Summer scholl “**POST-HARVEST TECHNOLOGY AND RENEWABLE ENERGY**” in Goettingen/Hannover 1st-12th November 2009: 23 participants

The workshop in Chiang Mai in 2008 will be mainly focused on technical aspects of drying systems while the summer school in 2009 is thought to be a continuation of those aspects with deeper focus on the sources of the energy supply. Renewable energy sources will presumably gain more importance in future and therefore, those systems are intended to be main focus of the summer school. For the one-week school the arranged activities will combine (a) trainings in analytic experiments at the Department of Crop Science of University of Goettingen, (b) visits to subject-specific events, and (c) excursions to industrial plants. In addition to agricultural crops, the post-harvest processing of horticultural products will be subject of an informative lecture at the University of Hannover.

“..offers Alumni/Alumnae the opportunity to visit the largest international trade fair for agricultural technology ‘Agritechnica’ in Hannover.”

The time slot of the summer school offers Alumni/Alumnae the opportunity to visit the largest international trade fair for agricultural technology ‘Agritechnica’ in Hannover. Conservation technologies and the exploitation of renewable energy sources in agriculture will be hot topic and presented by a considerable number of exhibitors. In addition to the exhibition of modern technologies and industrial plants, the fair will offer excellent possibilities to get in deep discussion with experts coming from

Worskhop “**DRYING PRESERVATION AND STORAGE OF AGRICULTURAL PRODUCTS**” in Chiang Mai, Thailand

For the workshop several excursion are planned to different companies in Bangkok and the surrounding area of Chiang Mai. Those companies are experienced in various drying and post-harvest processing. Beside the practical part of the workshop, lectures will hold at the PHTI Chiang Mai on the issue of drying technologies. The workshop will offer an excellent possibility for an intensive knowledge exchange among the participants of the different countries.