A Glance at Thailand’s Seed Sector

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It is generally accepted that seed is an important input for crop production. In Thailand, its importance becomes particularly more apparent when there is a heavy flood or a long drought that destroys much of the crops and replanting is needed. Therefore, a sufficient supply of seeds is necessary to secure the country’s crop production. Thailand’s modern seed industry started in the early 1970’s. It is relatively young as compared to that of Europe, North America, and other developed countries. Many of the pioneers who initiated and took part in our early seed projects are still actively living and capable of telling various details of the development. The author of the present paper tries to briefly describe various aspects of Thailand’s seed sector.

Crop Improvement
Crop improvement had been carried out for a century before the importance of seed multiplication was fully recognized by the public sector. In 1907, the first rice variety contest was held in a town near Bangkok. Nine years later, the country’s first rice experiment station was founded. In 1933, Thailand’s Pinkaew rice won the first prize in the World Rice Contest held in Canada. The roles of crop improvement have always been emphasized and the government, mainly through the Department of Agriculture (DA), has released over 30, 48, and 11 improved varieties of rice, field crops, and horticultural crops.

State universities, various international organizations, and many developed countries have also contributed to the development, both directly in plant breeding projects and indirectly in training of personnel. Private seed companies entered to crop improvement about 25 years ago and some are now very active in it.

Seed Development Projects
Though several crop varieties were released as a result of active plant breeding, only a small number of farmers around the experimental stations could get some seeds of those varieties. Other farmers had to depend on conventional seed sources because there was no seed multiplication scheme. Therefore, in 1972, a seed multiplication project was initiated in the Department of Agricultural Extension (DOAE) and the first seed production center was set up in Phisanuloke Province, 375 kilometers north of Bangkok. The project was carried out quite successfully and, later, a national seed development project was formulated and three more seed production centers were erected. The success of the first national seed development project was followed by several other projects financed by loans and grants from the U.S., Japan, Denmark, and EEC and also by regular budget from Thai government. There are now 23 seed production centers scattering throughout the country.

Private Seed Industry
There were a few private companies marketing vegetable seeds long before the establishment of the first public seed production center. For example, Chia Tai has been in this business since 1921. Early seed business was limited to importing vegetable seeds, mainly from China, and distributing the seeds to farmers through retail stores. Private sector’s interest in seed industry increased dramatically following the establishment of the first few seed centers and the release of Suwan 1 corn variety in 1975. For instance, Charoen Pokphand (C.P.) formed new companies to handle its entry into the corn and sorghum. Cargill, Pacific, Pioneer, and Ciba-Geigy were among the earliest international companies that took the advantage of the opportunities in corn seed business in Thailand. Now there are more than 20 seed producing companies, some 6-7 companies also have active research and development programs.

Private sector has long been encouraged to take part in the seed industry. In fact, it was stated in the first national seed development project paper that the government seed programs would not compete with but enhance the private sector. The government, through the Board of Investment, provides investment incentives, such as tax holiday and repatriation of profits, for domestic and foreign firms entering the seed industry.

Seed Association of Thailand
In 1982, an informal organization named “Seed Club” was set up by a joint effort between the government and the private seed sectors to serve as a center for coordination in the development of the seed industry. In 1990, the Seed Club was transformed to a legally accepted association which was later renamed “Seed Association of Thailand” as presently known. Its members include organizations and individuals from private and public sectors including educational institutes. Its executive committee meets regularly to follow up the progresses and problems in seed issues. The association has proposed several changes and modifications to government rules and regulations concerning seeds. It has organized various seed trainings, seminars, and conferences at regional, national, and international levels. The Seed Association of Thailand is now financially self-supported.

Recently, a more trade and business oriented association has been established under the name “Thai Seed Trade Association”. Head offices of the sister associations are next door to each other.
Seed Regulatory
The present Seed Act was promulgated in 1975 and amended in 1992. In 1981, the first few crop kinds and their respective seed standards were specified. There are now 29 crop kinds that are regulated by the seed law, e.g. non-glutinous rice, corn, soybean, tomato, Chinese kale and lettuce. The purity and germination percentages of the regulated seeds must meet the specified standards if the seeds are offered for sale. There are also provisions for seed certification. However, since seed certification is not compulsory, it is practically not operational.

Recently, the Plant Variety Protection Act of 1999 was promulgated. Preparations of various provisions are in progress. So far, 42 new plant varieties have been filed for protection. It would not be long before the first protected variety is officially announced.

Promotion of Quality Seed
Using good seed has been a general recommendation for crop production but no details were given until the early 1970’s. Following the initiation of the first national seed development project, the determinants and merits of good seeds were frequently discussed in various meetings, conferences, and training courses. The DOAE not only specified high quality seeds to be used in its demonstration plots but also launched an extensive rice variety replacement project which lasted for many years.

Private seed companies are very active in their promotion activities as they compete with each other in price and quality. Thai farmers are now more selective with regard to their planting seeds. Most commercial vegetable growers use only brand name seeds from reliable sources. Corn seed could hardly be sold if it was not of a singlecross hybrid.

Human Resource Development
Thirty five years ago seed technology was almost an unknown field in Thailand. Only few officers were sent abroad to study the subject prior to the initiation of the first national seed development project. Shortly later, many DOAE officers were sent to Mississippi State University for graduate study and non-degree training in seed technology. Other organizations including state universities also sent their staffs to study seed technology in the U.S.A., Europe, Australia and New Zealand. A few students went abroad to pursue advanced study in the subject by their own resources. Nowadays there are quite a large number of people with advanced training in this field. In the Bureau of Seed Production (BSP) of the DOAE, for instance, there are over 30 such people. Presently, at least five state universities are offering courses in seed science and technology.

Seed Testing Capability
Seed testing was the earliest area of seed technology that caught the attention of public workers. That partially explains why we had a national seed laboratory long before the first seed production center was set up. Today if an education institute plans to include seed area in its curriculum, seed testing will likely be the first priority. It is not over-exaggerated to say that Thailand has sufficient capability in seed testing. The BSP has 24 quality control seed labs, one at the headquarters and one at each of the 23 seed production centers. The DA has a law enforcement seed lab at its headquarters and seed testing facilities at its various institutes and experiment stations. There is at least one seed lab at each of 4-5 major universities. A few seed companies have their own seed testing facilities. There are two seed labs which are long-time members of ISTA, one belongs to DA and the other to DOAE.

Seed Requirement and Supply
Of the 21 million hectares total planting area, 13 million hectares are planted to seed propagated crops. It is estimated that 710,000 tons of seeds are sown annually. Rice planting alone needs more 600,000 tons of seeds. Vegetable production requires 3,000-4,000 tons of seeds each year. Major seed-requiring field crops are corn, soybean, mungbean and peanut.

On the supply side, The Bureau of Seed Production is the largest public seed producer. The amount of seeds produced through its contract growers ranges from 35,000-50,000 tons per year. The combined amount of seeds produced by other government organizations, namely, the Department of Agriculture, the Department of Land Development, the Department of Livestock Development, and state universities, is a few thousand tons a year. The private seed sector produces 18,000-25,000 tons of corn seed annually. The private seed companies not only satisfy 80% of domestic vegetable seed requirement but also export a substantial amount of vegetable seeds each year.

Over 45 farmers’ cooperatives under the supervision of the Department of Cooperatives also produce seeds. During the past few years, their total annual production was little over 20,000 tons. Recently, the DOAE initiated a community rice seed production scheme. Under this scheme, a group of 20-25 rice growers in each rice community is supported to produce rice seeds to be used in the community. There are now over 4,500 such communities and each is expected to produce 20 tons of rice seed aside from usual grain production.

Though there are many seed producers, there is still a big gap between the requirement and the supply of quality seeds, especially in the case of rice. The majority of farmers are using seeds of questionable quality from conventional seed sources.

Seed Import and Export
Thailand has been a net exporter of seeds for some time. As the import value increased from SUS 4.85 millions in 1996 to SUS 13.34 millions in 2004, the export value increased from SUS 13.07 millions to SUS 35.82 millions during the same period. The surplus ranged from SUS 8.22 millions to SUS 25.05 millions per year. In 2004, the import quantity was 6,240 tons while that of the export was 13,297 tons. Some seed kinds with high import values in 2004 were corn, sunflower, cabbage, coriander, Chinese kale, Chinese cabbage, Chinese radish, sorghum, cauliflower, hot pepper and lettuce. High export value seed kinds in that year were corn, watermelon, tomato, cucumber, hot pepper, convolvulus, sweet corn, cabbage, coriander and yard long bean. Some exported seeds were from the varieties developed in the country while some were produced from foreign varieties under custom production contracts. Some imported seeds were also re-exported.

It might be concluded that Thailand’s seed sector has made a steady progress but it is not fully developed. In addition to the strong determination of the policy makers and dedication of administrators and technical workers, the assistance from several international organizations and certain developed countries has been essential to this development. Thailand is probably a good place to study or observe seed sector development at work.