

Review Article

The Role of APSA in the Development of the Region's Corn Seed Industry

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Overview: Facing the challenges

Compared with other regions of the world, arguably the Asia Pacific region faces the most varied of challenges besetting the global agricultural industry. From conditions brought about by the most natural of conditions on this side of the earth to man-made situations caused by unmitigated misuse of assets and seeming disregard of the limitation of available resources in our region—we have them all in Asia, from strong typhoons, fierce drought and severe winters, to dwindling agricultural land areas, very limited financial resources and overpopulation—the last taking a toll in many countries in the region, as agricultural production seemingly just could not keep pace with the increasing demand of a growing number of consumers.

In a 2008 world census, six of the top 10 countries with the highest population were in Asia, with China and India identified as home to a combined 2.48 billion people (Figure 1). On the positive side, income growth in the region has seen a generous rise in many Asian countries, averaging an annual rate of 3.1% (Parma, 2006). However, this also contributes to rising agricultural requirements, as many people gain more purchasing power not only to sustain their everyday food consumption, but also to supply the resources in their businesses that require

agricultural products. Save for some agricultural crops, the production of many of the most important staple farm products in Asian countries do not even meet the rate of local consumption. Corn is not an exception (Figure 2).

Because of this, attempts are continually being exerted to find ways to make a significant boost to corn production in the Asia Pacific region. From the earlier years of development of the corn industry, a shift from using open-pollinated varieties (OPV) to hybrids is taking place and areas planted with hybrids are also growing at a fast rate (Figure 3). Data from the International Maize and Wheat Improvement Centre (CIMMYT) reported that OPVs are planted in 15-25% of most tropical areas in Asia, while 20-25% of the planted area has seen a shift from OPVs to hybrids. The same report cited that in 1990, 5.8 million ha in Asia, or 71% of the total corn area, was planted with OPVs and only half of that area was planted with hybrids. After only seven to eight years, the situation has been reversed and to date, the use of hybrids has been increasing all across the region. However, financial limitations still exist, as hybrid seeds are more expensive and many local companies in Asia find difficulties in competing with large, international corporations, who are using higher levels of technology to develop new varieties (FFTCAPR, 2000). But whatever constraints there

may seem to come, it is undeniable that corn breeding efforts are geared towards pushing for supply sufficiency of various products—from corn food to corn feed.

APSA playing its role

Corn is second only to rice in terms of its significance in Asian kitchens, but, somehow, it overtakes rice when it comes to having a variety of other uses—from simple feed product for livestock, to being an industrial crop needed in the production of biofuels. In Asia, the increased meat consumption in the region and the growing demand for animal products like milk have been seen as major factors in the growth of the demand for corn, which is used as livestock feed (FFTCAPR, 2000).

Estimating an increase of only about a little over a million hectares every five years from 2005 to 2015 (Figure 3), the area planted with corn would not seem to factor significantly as much as getting better yielding corn varieties to meet consumption requirements. In terms of seed, it is important to note that corn is seeing a big leap of about 400 million metric tons in five years from the figure of 2005 and is expected to remain at 1.4 billion metric tons after another five years, or until 2015 (Figure 4).

Aside from an insignificant increase in the planted land area and the fact that an enormous seed requirement is supposed to be met, the corn industry is also to tackle other constraints to secure its stability. Now more than ever, Asia is currently in great need to double its efforts to ensure that adequate production meets demand and support from all sectors of the corn industry is needed. This is where APSA comes in.

Gathering all sectors together

The good news is that there is a growing presence of the private sector in agriculture and the seed sector in particular, including those involved in the corn industry. Exchanges of products and sharing of knowledge and experience

among private industry practitioners help ease trade barriers. Now, with the trend in mergers and acquisitions that has occurred for the past five years, there is also more consolidation of activities of the private sector that are now focused on breeding. Further, if there is anything that the corn industry in the Asia Pacific region needs today, it is the development of a large pool of good germplasm that would ensure the development of high and better yielding corn varieties.

On the other side of the stage, the national governments in many countries in the region are also taking initiatives to support growth through policies and programs focused to help all major players in the corn industry. Each national government is also at the helm of making provisions that are crucial in providing the required infrastructures connecting farmers to their respective markets.

Along with the government and the private sector, there is the contribution coming from public research and academic institutions, which provide research and development efforts. It is their activities that lead to easier access to corn varieties, that offer better resistance to biological and environmental stresses, as well as provide better benefits to consumers.

Beyond the Asia Pacific region, the other major players in the global corn industry looked at this region and participated in a more extensive exchange of products, knowledge and other experiences crucial to the development of the sector.

APSA, as a regional organization, is the driving force that combines all these industry players into one single entity. Born from the initiatives of the United Nations Food and Agriculture Organization, the role of the Asia and Pacific Seed Association is to be the core body that can mobilize its membership fold of 482 members from more than 46 countries. The membership is composed of private companies, public institutions, government agencies, national seed associations and all other offices involved in

all aspects of the seed industry. With different sectors well represented in the association, APSA is an effective body to influence policy making in the region's corn industry.

Influence on policy-making

In matters related to plant quarantine regulations and plant variety protection, for example, APSA's closer relation with national governments has enabled the Association to be an effective medium between and among parties in the region. The holding of regular workshops on plant quarantine (PQ) and plant variety protection (PVP) has enabled its members to play a role in policy-making in their respective countries or recommend valuable inputs to other governments where they have a trade partnership. Such kinds of relations also help in receiving early information about new rules or revisions in crop regulations.

In its effort to bring focus to certain issues important to the industry, APSA also mobilizes its Special Interest Groups (SIG) and Standing Committees (SC) to undertake specific tasks.

The SIG on Field Crops of APSA encourages members to participate in knowledge-exchange and information-sharing. New ideas, innovations and relevant technologies on corn are introduced and discussed during the group's meetings and important action plans are made to ensure implementation of specific corn programs of the Association.

APSA's SC on International Trade and Quarantine stands as one of the support groups that help the region's corn industry to ease trade barriers impeding smoother product exchanges. Meanwhile, APSA's SC on Intellectual Property Rights takes on the role of encouraging more breeding activities in the region by advocating the protection of new varieties. APSA forms partnerships with international organizations, such as UPOV, to help guide countries in implementing globally accepted rights and patent regulations to encourage more breeders to develop better varieties, to help farmers get access to quality seeds

and to deliver only good products to consumers.

Support on seed technology development

Along with APSA's partnerships with international organizations, like UPOV, it aims to promote the development of new technologies that would result in better yields and improved varieties. Dealing with the constraints blocking the steady growth of the region's corn industry, the ongoing trend for hybrid corn seeds has been popular in various countries in Asia. For the past five years or so, hybrid corn has experienced significant growth in China and India and countries in Southeast Asia. In fact, many of the traditional cultivated varieties of corn have already been replaced by modern varieties in many areas in Malaysia, the Philippines, Thailand and Vietnam. The current national governments' thrusts to promote new high yielding varieties and the private sector's vigorous breeding activities are continuously pushing for the use of more hybrid corn seeds.

As early as APSA's inception in 1994, the Association had thrown its support behind the popularization of hybrid corn varieties in the Asia Pacific region. From 1994 to 1998, the Association collaborated with FAO to form the Tropical Asia Maize Network (TAMNET), which was created primarily to promote and strengthen hybrid corn technology in the Asian region through germplasm exchange, dissemination of information, training and periodic meetings and workshops.

Under its field trial programs, various types of corn hybrids from different countries in Asia were evaluated at several locations. In a report submitted by TAMNET to FAO, the initial field trial program was able to: evaluate corn nurseries for building-up tolerance to biotic and abiotic stresses and for developing stress-tolerant hybrids; distribute S3 selfed progeny bulks to accelerate inbred line development efforts in the region and exchange germplasm; conduct refresher courses on hybrid corn technology and seed production; and publish corn manuals (Chamnan, 2006).

TAMNET was revived in 2003 to undertake the same program, with new varieties tested.

Such kinds of project that help growers to identify the most suitable corn varieties in their area of cultivation will be promoted in APSA's future programs. The Association's links with CIMMYT and other international public research and development institutions are expected to support and ensure the success of these types of programs.

Push for capacity-building

For the corn industry in the region to improve its standing, it needs highly skilled and knowledgeable human resources that can work continuously in providing better system management and developing more efficient and sustainable technologies. Hence, continuous training of manpower is important, be it in the government sector or private companies, be it the technical staff working for corporate giants or those in smaller companies.

APSA provides capacity building to its members through training and workshops on hybrid corn production and management. In partnership with the International Seed Testing Association (ISTA) and various seed health centers, regular seed testing workshops, for example, train participants from member companies to develop specialized seed testing skills to ensure the production and use of high quality seeds.

The Association also organizes field tours for members to see first-hand information on how other companies and other countries run and manage their seed production/industry systems.

CONCLUSION

Recognizing the industry's importance in the region, APSA commissioned a Technical Presentation in 2006 about the corn industry in Asia with a focus on hybrid corn. The resource

speaker then noted the following:

- Business and research collaborative efforts on corn are essential to the private sector;
- Private companies, big or small, need support in ensuring IPR protection when breeding new corn varieties;
- With the emergence of climate change, there will be a greater demand for varieties that can sustain its impact as well as the impact of biological stress, while still producing more yields;
- Public and private partnership is needed in order to reach and introduce farmers to new seed technologies and production systems. Governments also need to put policies, infrastructure and credit facilities in place.
- Private sector investment is essential especially for an increase in corn seed production capacity, ensuring product availability vis-à-vis its demand.
- There will be continued improvement in the hybrid corn seed business in Asia to satisfy its production requirements (Parma, 2006)

In all these requirements, APSA remains at the forefront of efforts contributing to the improvement of the corn industry in Asia and the Pacific, by pushing for the production and trade of quality seeds in the region.

LITERATURE CITED

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