

ASIAN SEED

THE OFFICIAL PUBLICATION OF THE ASIA & PACIFIC SEED ASSOCIATION

Asian Seed Congress turns 25

Manila ready to host APSA meeting for third time.

Seed Trade Trends

Import, export data from Indonesia and the Philippines.

Young, Smart Entrepreneurs

Thailand's DOAE is bringing up a new generation of farmers.

Technical Edge

Updates from APSA's Standing Committees and Special Interest Groups.

VOL.24 NO.5
Oct / Nov 18
apsaseed.org

Extension Empowerment



Asian Seed Congress 2018





Have a Seed

Join APSA, the world's largest
regional seed association

Comprising seed-related enterprises from both the private and public sectors,
and from across the region and globe.

- Join the Asian Seed Congress at a members-only discount
- Participate in study tours, workshops and training programs
- Be part of private-public research projects
- Get access to the APSA business directory, where you can promote your business
- Get up-to-date information with your free copy of *Asian Seed* magazine
- Promote your business by advertising in *Asian Seed* magazine, online and at the Asian Seed Congress

You can apply online for APSA membership
by visiting our website at: www.apsaseed.org
For details please contact: apsa@apsaseed.org

The Asia & Pacific Seed Association | P.O. Box 1030, Kasetsart Post Office Bangkok 10903 Thailand
Tel: +66-2-940-5464 Fax: +66-2-940-5467 Email: apsa@apsaseed.org

APSA
THE ASIA & PACIFIC
SEED ASSOCIATION
apsaseed.org

ASIAN SEED

THE OFFICIAL PUBLICATION OF THE ASIA & PACIFIC SEED ASSOCIATION

Asian Seed & Planting Material
Volume 24, No. 5, Oct/Nov2018

Official Publication
ISSN 0859-1776

APSA EXECUTIVE
COMMITTEE 2016-2017

Office Bearers

President

Ms Brenda Dossey

Vice President

Mr Tahir Saleemi

Treasurer

Mr Wichai Laocharoenpornkul

Executive Committee Members

Dr Tso-Chi Yang

Dr Mi-Hee Yang

Mr Tsukasa Kawakami

Dr Dehua Ma

Dr Casper van Kempen

Mr Vaibhav Kashikar

Mr Muhammad Asim Butt

Mr Isao Iuchi

Mr Daniel Gleeson

Mr John Mizicko

Acting Director

Dr Kanokwan Chodchoey

Membership Officer

Mr Komsak Kamjing

Business Development Officer

Ms Suchada Yansarasin

Liaison Officer (China)

Mrs Xiaofeng Li

Events Officer

Mr Mike Kingpayom

Membership Programs Officer

Mrs Kunaporn Phuntunil

Chief Accountant

Ms Narima Setapanich

Communications Officer

Mr Steven Layne

Main Cover Photo

Mangyan Farmers by Cathelyn Patlin

/ East West Seed

Secondary Cover Photos

Harbest, AusAID and East-West Seed

APSA
THE ASIA & PACIFIC
SEED ASSOCIATION

P.O. Box 1030, Kasetsart, Bangkok 10903, Thailand
Tel: +66 (0) 2-940-5464 Fax: +66 (0) 2-940-5467
Email: apsa@apsaseed.org www.apsaseed.org

Asian Seed & Planting Material is published bi-monthly as the official publication of the Asia & Pacific Seed Association (APSA). APSA is a provident organisation dedicated to the promotion and improvement of the seed industry in Asia Pacific.

Asian Seed has a pass-on readership of 3,500 worldwide. Eighty percent of our subscribers reside in the Asia-Pacific region and include senior executives in seed enterprises, government agencies, universities and national seed associations. Unless denoted otherwise, figures are quoted in US\$.

Subscriptions are available on the APSA website or from the Secretariat.

Editorial contributions and advertising enquiries should be sent to the Secretariat by email to apsa@apsaseed.org or steven@apsaseed.org. APSA holds

the right to accept or reject contributions.

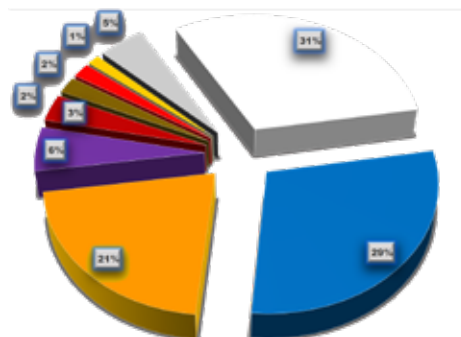
The contents of this magazine may only be reproduced with the written consent of APSA.

In this issue

12-17

Indonesia & Philippine Seed Trade Trends

20 quarters of import and export data reveals a lot about these two Southeast Asian countries.



18

Asian Seed Congress Celebrating 25 in Manila

What makes the Philippine seed industry unique? Strong collaboration between the public and private sectors, farmer extension and more.



28

Life Wisdom from the Lady Leader of PSIA, East-West Seeds

Past President of APSA and current President of PSIA, shares story, insights in this issue's 'Women In Seed'.



35

Phytosanitary Priorities

APSA and partners

benchmark progress in streamlining the swift and safe movement of quality seeds in the region.

Farewell & Hello



Brenda Dossey, APSA
Outgoing President



Tahir Saleemi, APSA Incoming
President

Dear APSA Members:

This is the last APSA President's letter that it is my privilege to write. I would like to thank you for reading my words these past two years. My term as APSA President will soon be over at the end of the General Assembly Meeting (GAM) in Manila, Philippines, 15 November 2018.

In this last letter to you, I would like to introduce you to your incoming APSA President, Mr. Tahir Saleemi. It has been my honor to serve on the APSA EC with Tahir and get to know more about him too. I thought you might like to know a little bit more about him so here is a little capsule interview I have prepared for you.

Brenda: Hi Tahir, how long has your company, Haji Sons (Pvt) Ltd been a member of APSA?

Tahir: Since 1997. I serve as CEO of the company. Our company, which is located in Pakistan, is involved in commercial farming, seed and seedling production and distribution and provides extension

services for high value crops. In addition, we are a service provider for high efficiency irrigation systems and the marketing of hermetic technology for the organic storage of agricultural commodities.

Brenda: Besides your service on the APSA EC since 2014, what other seed industry activities do you participate in?

Tahir: I played a vital role in the establishment of the Seed Association of Pakistan (SAP) and was EC member for the SAP twice, 2010 to 2014 and 2016 to 2018. In addition to SAP functions and the APSA Asian Seed Congress, I also regularly attend the International Seed

Federation (ISF) World Seed Congress.

Brenda: Tell us a little bit more about you as a person. Do you have any hobbies? A favorite color? Favorite music?

Tahir: I would have to say my hobbies are tourism and cricket. My favorite color is sky blue and I enjoy classical music.

Brenda: And last, but certainly not least, do you have any goals as APSA President?

Tahir: I want to see the completion of APSA's registration efforts so that it is a legally compliant entity that can function smoothly and continue bringing good value to its members in the region. And I would like to

continue on with the good work we have been able to achieve during your presidency for the smooth and efficient operations of APSA. Also, I aim for APSA to lead to meet the challenges of climate change and drought in the region.

Brenda: Thank you, Tahir and thank you dear APSA readers for your support these past two years. Please join Tahir and me at the GAM in November in Manila and help welcome him as the next president of APSA.

I will serve one more year as Immediate Past President to assist Tahir as he steps in the role that I know he is very well qualified to fill. So long and farewell as APSA President.



Creating Tomorrow Today

TAKII SEED: HIGH QUALITY, RELIABLE, INNOVATIVE

TAKII & CO., LTD.
AMERICAN TAKII, INC.
TAKII EUROPE B.V.

<http://www.takiiseed.com/>
<http://www.takii.com>
<http://www.takii.eu>



TAKII SEED

Creating Tomorrow Today

Innovation and Collaboration Converge in Manila



Kanokwan Chodchoey,
APSA Acting Director

Welcome to *Asian Seed*, Volume 24, Issue No. 5, our 2018 Asian Seed Congress issue.

On behalf of the ASPA secretariat, I would like to welcome all members to Manila for the 25th Asian Seed Congress.

APSA and the Philippine Seed Industry Association have worked to create an environment that facilitates business discussion and knowledge exchange. We are excited to meet all of you in Manila (see p 18 for more on Congress)

There, during the pre-Congress Workshop on 12 November, APSA will unveil new educational materials we have created to raise plant breeding innovation awareness. Reps from ISF and ESA, researchers and regulators will talk about recent trends in gene-editing that offer breeders and producers great opportunity.

Aside from this, our SIGs and SCs have planned a technical agenda 13-15 November packed

with interesting talks, including: trends in regional and global marketing; seed technology innovation and management; smallholder farmers in South and Southeast Asia; vertical farming; reduced-chemical crop cultivation; and biofortification for rice.

Also on the agenda are sessions on plant variety protection (PVP) and the International Treaty On Plant Genetic Resources For Food And Agriculture (ITPGRFA). For more details, see our delegate book, which contains full abstracts of the technical programs.

On the afternoon of 15 November, APSA convenes the association's 23rd and 24th joint General Assembly Meetings

This will be first time that we conduct balloting for Executive Committee vacancies using a new electronic voting system.

We will have five EC vacancies. Profiles of the candidates are included in members' delegate kits.

Please note that the email address of your organization's Voting Representative or delegated proxy must be active and up-to-date in APSA's membership directory or you will not be able to vote.

Candidates are called alphabetically, starting with the 2017 Seed Association category ballot (one vacancy). After that, voting will be conducted by category, in the following order: 2018 Seed Enterprise (two vacancies); 2018 Seed Association (1) and 2018 Associate (1). Remember, each country is limited to two representatives on our EC, as stipulated in APSA's Constitution, which could impact the eligibility of a standing candidate should this quota be reached in an earlier ballot.

As you know, APSA's slogan is 'Growing Stronger Together': 'Together' represents the collaboration between public and private sectors.

APSA's role is central to building bridges between the two

across countries and regions. Our mission is to promote plant variety protection and trade in quality seeds, as demonstrated recently by our 4th Expert Consultation on Phytosanitary Measures.

That event would not have been possible without dedicated support from participating NPPOs, Croplife Asia, the ISF, Winrock International, APSA's Phytosanitary Committee and many more invaluable resource personnel. (A full summary of the meeting is published on pp 35-36).

Starting this issue, regular, comprehensive updates from our SIGs and SCs will appear in the magazine. These groups and their sub-committees enable APSA to execute our mission, so we encourage members and field experts to get involved (see summaries on pp 31-33).

Don't hesitate to reach out to me or any of our secretariat. We look forward to hearing from you.

MAKE YOUR SEEDS PERFORM BEST.



BAYER SEEDGROWTH®. HELPS YOU WIN IN ANY SEED TREATMENT DISCIPLINE.

Highly dedicated to peak level performance and totally focused on success, Bayer SeedGrowth provides fourfold competence for every player in the seed treatment value chain. Whether you choose high-quality coatings, innovative products, powerful equipment, outstanding service and advice or combine or combine them to suit your specific needs: Together we create a stable foundation that makes every single seed perform best.

JOIN US AT 25TH ASC, MANILA, 12–16 NOV.

Products Equipment Services Coatings
www.seedgrowth.bayer.com



Bayer SeedGrowth®

ASIAN SEED - 7

Nurturing Seedlings of Tomorrow

An impending crisis looms for Thailand's farming future: arable land is disappearing and farmers are getting older. But the situation is not hopeless thanks to proactive efforts by the Department of Agriculture Extension (DOAE), which is reinforcing the kingdom's next generation of "Young Smart Farmers". To find out more, *Asian Seed* sat down with Ms. Panee Boon-yaguakul, director of the department's Farmer Development Division.

"Even though we depend on farmers, there's a persisting negative perception in Thai society about farming and farmers," said Ms. Panee. "Nobody wants their children to become farmers for fear they'll end up working really hard in the hot sun ... for very little income," said Panee, who has a Master's Degree in Sociology from Thammasat University and has been an officer with the DOAE since 1982.

"But this perception isn't necessarily true, especially

given all the new technologies and methods available. With access to knowledge, a good plan and the right mindset, agriculture can be a very ideal and rewarding path for the new generation, who are already tech-savvy and open-minded to new ways," she said.

Panee's background in sociology, and a sound insight and understanding of the linkages between poverty, education and economics, have proved an asset to the DOAE's missions. She's seen

through a number of successful initiatives in rural Thailand to raise the standard of nutrition, household economics, and gender equality.

With respect to the latter, she noted that Thailand has experienced vast transformation in a short time: "30 years ago, Thai women had limited opportunities and difficulty getting loans for agriculture. Today, Thai women have much more prestige and power in society."

For her part in this transformation, Panee led

the establishment of "farm woman" groups in villages throughout the country. And it is through such grassroots work – facilitating essential skills, training, knowledge and mindset – that the DOAE can make a real impact to meet the needs of specific demographics.

And though gender inequality is no longer a major obstacle for many Thai woman, there is a widening income gap between rural and urban popu-



HM.CLAUSE proudly sells vegetable seeds throughout Asia under our 3 commercial brands:



HM • CLAUSE
www.hmclause.com

Global Reach. Local Touch.

HM.CLAUSE is a global vegetable seed company dedicated to meeting local needs through global diversity, and is committed to innovation inspired by worldwide partnerships in the scientific, industrial, and commercial fields. An innovative company whose core business is plant breeding, HM.CLAUSE specializes in the development, production, and sales of vegetable seeds worldwide.

HM.CLAUSE generated 365 euro million in annual sales in 2017 and employs more than 2900 people full-time located in over 30 countries around the world. Its investments in research and breeding represent 15% of annual sales for continuous development of innovative & high yielding products suitable for diverse agro-climate and meet the challenges of growing demand. HM.CLAUSE utilizes traditional breeding techniques alongside cutting edge technologies in the areas of plant pathology, cell biology, and molecular biology to create market leading products. Its focus is to create vegetable seeds which help growers around the world to achieve increased yield, to improve disease resistance and to enable better taste and quality.

The organization coordinates breeding for 24 species and has more than 800 people actively engaged in research and development activities.

Last 9th of January 2018, HM.CLAUSE inaugurated another state of art R&D facility at Khonkaen, Thailand to deliver products suitable for hot and humid markets for solanaceous and cucurbits crops. Cucurbits are strategic to HM.Clause and we are committed to provide productive and disease resistance varieties to the growers.

HM.CLAUSE is a Business Unit of Limagrain, an international agricultural co-operative group, specializing in field seeds, vegetable seeds and cereal products. Founded and managed by French farmers, Limagrain is the 4th largest seed company in the world.





From Left: Ms Panee speaks at a recent YSF workshop aimed at increasing productivity in Chiangdao, Chiang Mai; Ms Panee in Bangkok, and posing with Bangkok-based YSF, Mr Veera Sornsadaeng (center) and other officials at DOAE's annual agriculture fair in August.

lations in general as urbanization spreads to the provinces nationwide, where vast stretches of farmland are being replaced by sprawling cities.

Indeed, GDP and household income figures underline a widening gap between rural and urban dwellers, offering little incentive for the up-and-coming generation to pursue a future in farming. This is cause for concern considering that a significant portion of the kingdom's economic prosperity is directly or indirectly tied to agricultural output.

Enter the Young Smart Farmers, who are quickly

becoming a reckonable force. What started off as a small pilot of a few dozen cohorts only four years ago has today grown into a productive and lucrative network of 9,250 ambitious agro-entrepreneurs and educators nationwide. Aged 17 to 45, the YSF ranks are growing fast. Cultivating everything from organic fruits, vegetables and microgreens, to homemade fertilizer, compost, and value-added agrofood products, YSF earn anywhere from THB 200,000 (about US\$6,100) to as much as THB1.5 million (\$45,800) annually. The pro-

gram has a target to recruit and train 25 new YSF in each province, or 1,925 new YSF nationwide every year.



Panee explained that the program functions through incubation centers – one in each province – managed by

existing, successful model YSF there who guide prospective YSFs through a four-stage process: idea generation; project set-up; entrepreneur start-up; and 'going global'.

The DOAE, through its expansive public-private network of resources, reinforces the YSF with training, knowledge and technology-transfer through each stage, with a specific focus on farming and business management, marketing and networking.

Panee said the success of YSF depends on vested

interest and ownership: "Not only can YSF earn more than office or factory jobs, the new generation like the idea of being their own boss. They just need a little bit of guidance and synergy from their peers."

Summing up the program, Panee said, "We are not training producers, but empowering entrepreneurs. YSF quickly learn that they are not making products, but creating income. Everything starts with the right mind-set and attitude."

Interviews with YSF will be featured in a series of articles in upcoming editions of Asian Seed.



Analytics of Ageing Asia

According to the 2015 World Population Ageing report by the Population Division of the UN's Department of Economic and Social Affairs, population ageing, which is defined as the increasing share of older persons in the population, is "poised to become one of the most significant social transformations of the twenty-first century". The trend is particularly worrying in Asia. Stats in the aforementioned report project that from 2015 to 2030, the share of citizens aged over 60 is expected to rise from 16 to 27% in Thailand; 13 to 20% in Sri Lanka; 10 to 18% in Viet Nam; and 33 to 37% in Japan. The number of persons older than 60 in India and China is projected to grow

in the same 15-year window, by 64 and 71 per cent, respectively. According to Thailand's Social and Quality of Life Database, which is administered by the Office of the National Economic and Social Development Board, by next year more than 19% of the Thai population – or 12.6 million – will be over the age of 60. This represents a 48% increase from the previous decade, when 8.5 million or just under 13% of the population were of official retirement age. By 2029, the Thai government predicts more than 26% of its populous, or 17.5 million citizens, to be over the age of 60; the number of Thai seniors is expected to exceed 20 million, which would represent 32% of the Southeast Asian country's anticipated population.



CHIA TAI SEEDS CO.,LTD.



WE CREATE
HIGH QUALITY SEEDS



Address:

295 - 303 Songsawad Road, Samphantawong District, Bangkok 10100, Thailand. Tel: +66 (2) 233-8191 Fax: +66 (2) 237-1540

70 Moo 6, Petchkasem Road, Omnoi, Samutsakorn 74130 Tel: +66 (2) 023-4920 Fax: +66 (2) 023-4921

www.chiataigroup.com E-mail: cs_international_seed@chiataigroup.com

Gynoecy Gender Genius

Key to increasing cucurbit yields is in flower sexual morphology: Part One

By Manash Chatterjee, BenchBio Pvt Ltd., Vapi, Gujarat, India,
Abdel Bendahmane, Institute of Plant Sciences (IPS2), Paris, France

The Cucurbitaceae family contains many commercially important crops. In Europe only five cucurbit species are popular and widely commercialized (cucumber, melon, watermelon, pumpkin, squash), compared to South, Southeast Asia and Africa, where no less than twenty cucurbit species are cultivated and consumed.

The need to increase and improve yields in all regions of the world is growing in sync with rising demand for food and an increasing number of cultivation challenges and opportunities.

In recent years, although higher-yielding F1 cultivars in various types of crops have made a significant contribution to the world's food supply, mastering production of such pure hybrid seeds will continue to be a significant challenge for breeders.

Key to improving and increasing yields is understanding the plant's transition between vegetative and reproductive growth, flowering per se. Inflorescence structure; pollination; fertilization; seed and fruit setting – these are major reproductive traits that influence yield.

Most angiosperms develop hermaphrodite flowers, and thus can self-pollinate with little

or no assistance from pollinators; however, about 10% of vascular plants display different flower sexual morphology, dictating more complexity in pollination and thus productivity.

Cucurbits are one such family. Most cucurbit species – bitter melon and watermelon for example – are monoecious, which means they exhibit male and female flowers on the same plant. Some species, such as parwal (pointed gourd) and gac, are dioecious, which produce male and female flowers on separate plants.

Some cucumbers, which are primarily grown in glass houses, are gynodioecious, which means they only bear pistillate flowers (female); furthermore, there are androdioecious species, which bear only staminate flowers (male), but these are rare.

Some muskmelons are andromonoecious plants that exhibit both male and perfect bisexual flowers (hermaphrodite). With these plants, pure hybrid seed production can be difficult and expensive since emasculation (the removal of male organs from hermaphrodite flowers) is required.

How the gender of a flower or plant is determined is an important factor in plant developmental biology. Under-



Most cucurbits are monoecious, which means they have pistillate or female flowers (cucumber pictured), as well as male flowers on the same plant. Gynoecious plants only bear female flowers.

standing this process also has practical applications, as the gender of a flower or plant often limits how the plant is bred and cultivated.

Hence, researchers are beginning to obtain promising results in their efforts to manipulate sexual morphology of

certain crops — specifically by promoting unisexual flower development and parthenocarp in cucurbits, as it may be possible to increase yields significantly.

In Part Two, we will explore such techniques in more detail.



Dr. Manash Chatterjee



Dr. Abdel Bendahmane

BenchBio has obtained the worldwide license for generating the gynoecious trait in any cucurbits from INRA, using a non-GM method. For more information: W: benchbio.com E: manash.chatterjee@gmail.com

Seed Trade Trends: Indonesia

At least 179,676 tons of sowing seed worth US\$258 million moved across Indonesia's borders during a recent five-year period, averaging roughly 2,994 t of seed imported or exported every month (or 35,935 t/year). Indonesia's sowing seed market thus averaged some US\$51.6 mn/year.

During the focus period, Indonesia exported sowing seed worth US\$79.9mn (32,137 t), while importing US\$178mn (147,539 t), resulting in a US\$98mn trade deficit. Average value of imported seed was US\$1,207 /t; exports averaged double that: US\$2,488 /t.

OUTBOUND TRENDS

Just over half (51.8%) of sowing seed export tonnage was of horticultural varieties (see explanatory notes about categories), but these brought in 74.3% of income. Field crop variety exports came next in volume and value, at 44.1% and 20.8%, respectively. Forage crop seed varieties accounted for 4.1% of export volume and 4.9% of income.

Vegetable seed was the most significant export category: 14,546 t (45% of export volume) generating US\$42mn or 53% of income. Average income was US\$2,906 per ton.

China was Indonesia's top export market for vegetable seeds in volume and value: 9,669 t (66% of total exports) worth US\$13.9mn (33% of export income). Other leading markets were Malaysia (2,349 t or 16%



Though Indonesia continues to depend on agro imports to maintain food security, there is an increasing demand for capacity building in domestic crop cultivation, with more emphasis placed on younger demographics. This photo of a student farm education activity was taken in Bogor in 2017. Credit: Garuda Farm.

of tonnage accounting for US\$4mn or 10% of income); Thailand (1,031 t or 7% volume, worth US\$6.4mn or 15% income); Japan (209 t or 1.4% volume, worth US\$2.4 mn or 5.7% of income); and India (116 t or 0.8% volume, worth US\$6mn or 14% of income). The Philippines, Vietnam, Hong Kong and South Korea were also significant markets for Indonesian veg seed.

Herbaceous flowering plants were most lucrative for Indonesian horticultural germplasm exporters. Just 61 tons — barely a fifth of one percent — churned out US\$11.9mn or about 15% of export income, averaging US\$193,288 per ton.

Top markets in this category were China (38 t or 62%), and Netherlands, the latter of which, though receiving only 9 tons or 15% of volume, generated US\$9mn -- or 76% -- of income. Other key export markets for herbaceous flowering plant germplasm were Vietnam, Hong Kong, Singapore, the UK and France.

An important crop seed category for Indonesian exporters was maize for sowing: 13,640

t (42.5% of volume) worth US\$16mn (20% of income), an average price of US\$1,178 /t. Most went to four markets: the Philippines (8,636 t or 63% of volume, worth US\$4.2 mn, or 27% of income); Vietnam (3,486 t or 26% of volume but accounted for 56% — US\$9mn — in income); Pakistan (591 t or 4.4% of volume worth US\$1.5 mn or 9% of income); and Thailand (294 t or 2% of volume worth about US\$500,000 or 3% of income).

INBOUND TRENDS

Horticulture varieties dominated sowing seed imports, constituting 85% of inbound volume, and 63.8% of expenditures.

Coriander seeds formed the largest share of these consignments: 97,260 t (66% of volume) worth US\$50mn (28% of expenditures), averaging US\$511 /t. The top supplier was Bulgaria, with US\$22.8mn or 46% of Indonesia's coriander seed market share. Other leading suppliers were Russia (US\$10 mn, 20%), Malaysia (US\$4.5 mn, 9%), Argentina (US\$4.3 mn, 8.7%), Ukraine

(US\$3.6 mn, 7.2%) and India (US\$2.3 mn, 4.6%).

Another key spice/herb horticulture seed import was cumin: 11,404 t (7.7%) averaging US\$1,102/t for 7% of the import market (or US\$12.5 mn). This seed came mostly from three countries: Malaysia, India and Ethiopia. Though Malaysia supplied more than India (5,412 t vs. 4,273 t, or 47% and 37% of bulk, respectively), India's cumin seed claimed a slightly bigger share of the market — US\$4.9mn vs. US\$4.8mn. The differential may be related to geography and resulting higher FOB.

Ethiopia's cumin seeds represented 13% (437 t) of the volume, and 18% of expenditure (US\$2.3mn).

14,512 t of seed categorized as juniper berries, anise, badian, caraway or fennel (cat. 090961) amounted to 9.8% of volume and accounted for US\$12mn (or 6.7%) of expenditure, averaging US\$826 /t. These came mostly from five countries: Malaysia (4,632 t or 32% of volume, worth US\$3.5mn or 29% of expenditure); Egypt (4,116 t or 28% by volume, worth US\$2.3mn or 19% of expenditure); India (3,048



The 17-year trend shows a gap between veg seed export and import values. Data sourced from BPS-Statistics Indonesia via the Intl Trade Commission.

t or 21% by volume, worth US\$2.3 mn or 19% of expenditure); China (2,184 t or 15% by volume, worth \$2.9 mn or 24% of expenditure); and Vietnam (421 t or 3% by volume, worth about \$900,000 or 8% of expenditure).

Extremely lucrative for Indonesian importers were vegetable seeds. Though the imported volume of 1,510 t represents just 1% of the total inbound quantity, this category was worth US\$23,290/t — US\$35mn in all, or 20% market share.

Korean veg seed led consignments in volume with 332 t or 22% of all imported veg seeds,

worth US\$2mn or 6% of the market. Japanese veg seeds, on the other hand, were far more valuable: 293 t (accounting for second place and 19% of import volume) fetched US\$14mn — for first place and 41% of expenditure. Thailand was another top supplier of veg seeds, with 224 t (15% of volume) worth US\$7.7mn (22% of expenditure). Other notable suppliers were Pakistan, New Zealand, Malaysia, the Netherlands, China and India.

Though making up just 14.6% of imported volume, field crop varieties represented 35% of market value. More valuable

still were forage varieties: they represented in volume a mere fifth of one percent, but commanded six times that in market value, or 1.2%.

Imported sowing maize carried more than double its market weight, with 12,053 t (8.2 %) valued at US\$33mn (18%), averaging \$2,725 /t. Most of this seed came from four countries: Thailand with 6,666 t (55%) valued at US\$21mn (64% of expenditure); India with 4,071 t (34%) worth US\$6.5mn (20% of expenditure); the Philippines (926 t or 7.7% worth US\$3.8mn or 12% of expenditure); and Singapore (370 t or 3%

worth US\$1.3 mn or 4% of expenditure).

Another field crop seed category that Indonesia relies on is rice: the country brought in 9,311 t (6.3% of all seed imports) of rough paddy, which cost importers US\$29mn (16% of expenditure) equal to US\$3,118 /t.

The highest rate logged for all sowing seed imports to Indonesia during the period was groundnut, nominally worth US\$35,714 /t or US\$35 per kg but only 60kg of this seed type was imported -- amounting to just over US\$2,000, and so was negligible in terms of market share.

ABOUT THIS REPORT

The analysis and observations in this report are based on international trade data reported by the International Trade Commission, which cites BPS-Statistics Indonesia, and covers 20 financial quarters, starting from the first quarter of 2013, and ending the fourth quarter of 2017. Figures are reported in tons, not metric tonnes, and US\$. APSA does not provide any guarantees about the validity or accuracy of the data, tables, charts or analyses, which can be corroborated by querying the ITC database directly. The report is intended to highlight general trends but does not represent the full picture of seed trade, particularly with respect to domestic demand and consumption.

Certain varieties of vegetable, fruit and flowering crop sowing seeds are not categorized by the ITC under the broader categories for vegetable (120991) or "herbaceous plants cultivated principally for their flowers, of a kind used for sowing (120930)" — referred to in this report as herbaceous flowering plants — but may instead be counted in the general category for "other seeds, fruits and spores (120999)". The only specific varieties logged under this category were for rubber and kenaf seeds (1209991000); however, a relatively small amount of this seed category was traded — in five years, Indonesia imported 2.4 tonnes valued at US\$28,000, which came from Mexico and India.

Furthermore, some herbaceous veg and spice seed varieties, of a potentially-sowing grade (neither crushed nor ground) such as coriander (090921), cumin (090931) and juniper berries and seeds of anise, badian, caraway or fennel, (090961), fall under "Coffee, tea, maté and spices". Moreover, melon seeds (120770) are categorized under "Other oil seeds and oleaginous fruits, whether or not broken..."

Therefore, this report has combined Categories 120770, 120999, 1209991000, 120991, 120930, 090921, 090931 and 090961 to represent a broader horticulture crop seed category. Other broad categories of sowing seed grouped and analyzed in this report are field crops (cotton maize, rough paddy, soya bean, sugar beet, barley, cotton, groundnut, millet, oats, seed potato, sorghum and wheat) and forage (alfalfa, clover, fescue, ryegrass and Kentucky bluegrass).

Philippines In Focus

Veg, Paddy & Maize Dominate Intl Seed Movements Worth \$82 Million Per Annum

No fewer than 233,704 tons of sowing seed worth US\$412 million moved across Philippines's borders during the 5-year period ending on the third quarter of last year.

The average was about 3,895 t traded to and from the island nation every month, or 46,741 t /year, making the annual seed market worth no less than \$82.38 mn/year.

During the period, trade was dominated by imports, resulting in a nearly 287-million-dollar deficit, calculated from \$349.4 mn in imports against \$62.5 mn in exports. Export seed amounted to 7,911 t, while 225,793 t were imports.

Nonetheless, exported Philippine seeds were valued five times higher than imported foreign seed — the average value of imported seed was \$1,548 /t, while exported seed was worth about \$7,900 /t.

OUTBOUND TRENDS

Two staple field crop seeds dominated export volumes, but vegetable seeds were the bread winners for seed exporters in the Southeast Asian country.

Raw paddy (2,685 t) and maize (2,504 t) combined represented 66% of outbound consignment. However, in terms of value, these two types of seed represented 32% of exports: Some 2,504 t (32%) of maize seeds were exported, averaging \$4,386 /t and generating \$11 mn (17.6%). These seeds were imported by just four countries: Pakistan took in most of the maize (1,004t or 40%) worth \$3.5mn (32%), but Vietnam led the market in terms of value, importing 954 t (38%) worth \$5.8mn (53%). Indonesia was third in volume, importing 469 t (19%) worth \$1.3 mn (13%), followed by Chinese Taipei, which imported 41 t of maize seed (2%) worth \$200,000 (1%).

A total of 2,685 t

(34%) of paddy seeds were exported on average \$3,066 /t, grossing \$8.2 mn (13%) for exporters, who depended on five countries. Topping consignments, Vietnam imported more than half of the paddy with 1,516 t (56%) generating \$5.7mn or 69% of the market, and though Malaysia imported the second highest volume of paddy with 622 t (23%), it occupied only 5% of the market with \$400,000 worth of consignments. Pakistan was the third top importer of Pinoy paddy in both volume (224 t, 8%) and value (\$900,000, 11%).

Fourth was Israel, which imported 176 t (7%) worth \$500,000 (6%), followed by China, which imported 96t (4%) worth \$400,000 (5%).

Outperforming these staple field crop seeds were exports of horticulture seeds, claiming 65.8% of the market despite representing only about 32% of outbound consignments. Just over a fifth (20.5%) of the ex-

ported seeds were classified as vegetable, which proved to be the country's overall most valuable type of seed, earning exporters \$35.6mn (57%) in five years, equal to \$21,929 /t.

Though Thailand was the leading importer of Philippine veg seed in terms of volume, importing 572 t, or 35%, it came in second in terms of market share, spending \$8 mn on the seeds or 23% of market.

Leading the market was Japan (\$15 mn, 43%) which ranked second when measuring volume (324 t, 20%). India was third in terms of both volume and value, importing 163 t (10%) of these types of seed, valued at \$7.6mn (21%). Other key markets for Philippine veg seeds were Indonesia, Malaysia and Chinese Taipei.

Specific vegetable variety data was not available, while the remainder of exported horticulture seeds yielded less lucrative returns, with 1,081



A farmer training activity in Laguna by leading Philippine seed and agro input company, Harbest. More details about such activities are outlined in featured content on pages 18 to 29.



More and more farmers in the Philippines are switching over from conventional cereals to higher-valued vegetable crops, which can be cultivated year-round and in less space. Pictured is a lettuce farmer in Benguet Baguio.

Photo Credit: Rowena Harbridge /AusAID

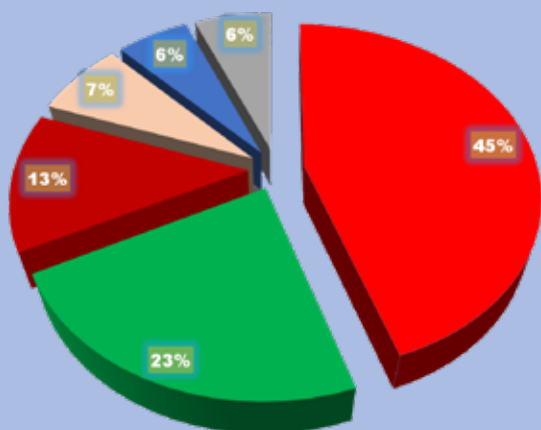
Top Markets for Pinoy Seed 2001 – 2017

Philippine sowing seed for vegetables (120991), maize (100510) and paddy (100610) has been in high demand throughout Asia. These pie graphs reflect aggregated data for total value of Philippine export consignments reported since the turn of the century. The gross values of trade represented in these pie graphs* are as follows:

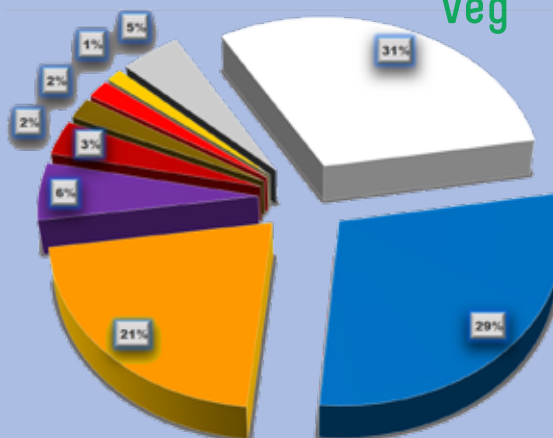
- Vegetable: \$52.3 million, or \$3mn / annum
- Maize: \$15.5 million, or \$912,000 / annum
- Paddy: \$14.6mn, or \$860,000 / annum

*Figures reported in the rest of this report are for 20 quarters.

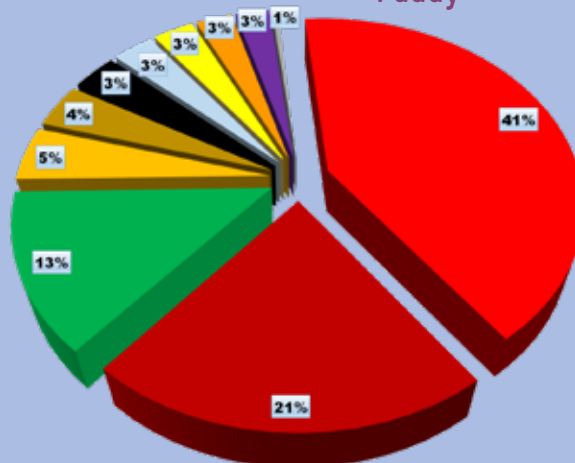
Maize



Veg



Paddy



Country Key

- Vietnam
- Indonesia
- Thailand
- Japan
- Pakistan
- India
- Malaysia
- Chinese Taipei
- Singapore
- Bangladesh
- Hong Kong
- Israel
- China
- Kenya
- Other

t (13.7%) exported (an average tonnage rate of \$6,522), totaling \$7 mn over the analyzed period.

Of the exports tracked, sugar beet seeds appeared to be the most lucrative niche reported, commanding the highest tonnage rate for exported seed, at \$34,528/ t. A total of 19 t (0.25%) of this type logged \$660,000 (1%). Just under half of these seeds (9.3 t or 49%) were exported to India, which also represented about half of the market, generating \$338,000. Thailand represented most of the other half of the market by importing 5.1 t or 28% of these seeds, worth \$315,000. The UK also imported 4.2 t (22%).

The Philippines did not export any forage seeds according to available data.

INBOUND TRENDS

Maize and paddy dominated Philippine seed imports. Together, these two types represented 97% of all inbound volume and 81% of the market in terms of value.

Most of these seeds were maize (176,842 t, 78.3 % of imports), which were imported at the average rate of \$846 /t, grossing \$150 mn (43 %). Just over half or 91,594 t (52%) of these seeds came from India, which was third leading exporter in terms of market value, with its Philippines bound maize seed worth \$24.6mn (16%). South Africa was market leader of this category with 15,804 t (9%) of its maize seed logging \$50.7mn in consignments or 34% of the market. Argentine

maize seed also drew considerable value demand in the Philippines, commanding 17% of the market (\$25mn), despite representing only 2% (3,593 t) of consignments. Likewise, maize seed from Brazil took 5% of the market (\$6.9 mn) despite representing only half-a-percent of inbound maize seed volume.

Other leaders in this category were Thailand, which supplied the Philippines with 25,085 t (14%) of maize seed, worth \$17.8 mn (12%); Vietnam supplied 19,715 t (11%) worth \$13mn (9%). A considerable amount of maize seed also came from Myanmar (8,241 t or 5%) as well as the USA 7,859 t or 4%).

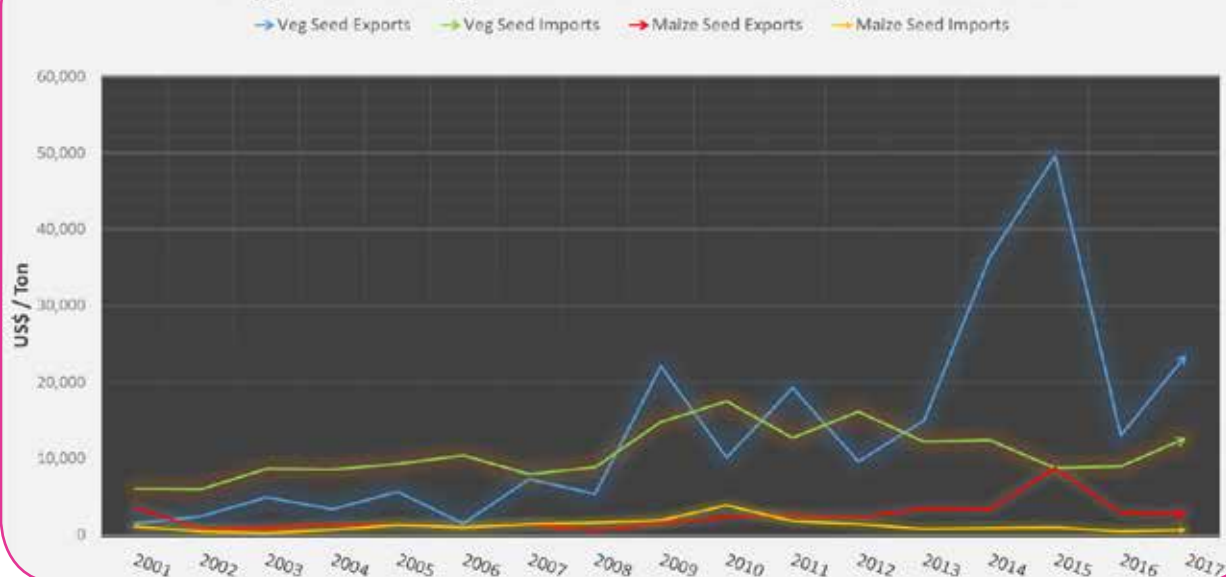
After maize, paddy was the second most

important field crop seed category of imports, with 42,006 t (18.6% of all imported seed) procured at \$3,190 /t, grossing \$134mn (38% of total import value). These seeds came from four key countries: India supplied 22,983 t (55%) worth \$87 mn (65%); China supplied 14,701 t (35%) worth \$44mn (33%); Vietnam supplied 690t (2%) worth \$2mn (1%) while Chinese Taipei supplied 3,602 t (9%) worth \$900,000 (0.7%).

Despite only making up 2.5% of import consignments (5,555 t) vegetable seeds commanded 17% (\$60.6 mn) of the sowing seed import market.

This type of seed was brought into the Philippines at an average of \$10,905/t, making it the most expensive import

Philippines Average Seed Trade Prices: Veg & Maize Seed



category tracked.

Six countries represented about 87% of inflow, in terms of both value and volume. Japan was the market leader, commanding 32%

market share (\$19mn) despite only 7% of consignments (441 t). Thailand was second for both value and volume, with its 639 t of seed (12%) worth \$11 mn (18%). US veg

seeds were valued at \$8.5mn (14%) from 410 t of seed (7%); South African veg seed had 11% of the market (\$6.8mn) despite only 6% of consignments (328 t).

From Farm to Table



SL Agritech is one of leading hybrid rice seed companies in the Philippines, with operations expanding to other neighboring Asian nation.

We have a FULLY-INTEGRATED OPERATION SYSTEM that develops and oversees all the process from research and development of hybrid seeds, planting, harvesting, milling and packing up to distribution of premium quality rice.



And though China was the leading supplier of veg seeds to the Philippines, exporting more than two-fifths of all these types of seeds, its 2,298 t of seeds commanded only 5.4% of the market, or \$3.3mn. Veg seeds from the Netherlands represented 5% of the market (\$3mn) and volumes (288 t) likewise; Veg seeds from New Zealand, represented 3% of the market (\$1.9mn) despite making up three times that or 9% of consignments (524 t).

Though negligible in terms of volume and value share of imports, the Philippines imported about 36 t of forage seeds during the five years tracked. About 9.8 t of these were alfalfa seeds, imported at \$5,462/ t, with the remaining 26.6 t of unidentified imported forage seeds brought in to the country at \$4,919 / t.

More details on the Philippine seed industry in the following pages.

ABOUT THIS REPORT

The analyses and observations in this report are based on international trade data reported by the International Trade Commission, which cites data from UN Comtrade and the National Statistics Office, Republic of the Philippines.

The written report covers 20 financial quarters, starting from the fourth quarter of 2012, and ending the third quarter of 2017. However, the pie graphs on page 15 and line graph on page 16 include include 17 years of data, starting from 2001. Figures are reported in US\$ and tons, not metric tonnes.

Based on previous reports, it's safe to assume that certain varieties of vegetable, fruit and flowering crop sowing seeds may not be categorized by the ITC under the broader categories for vegetable (120991) or "herbaceous plants cultivated principally for their flowers, of a kind used for sowing (120930)" – referred to in this report as herbaceous flowering plants – but may instead be counted in the general category for "other seeds, fruits and spores (120999)", or other categories.

Melon (120770) is one common example, which gets classified as "Other oil seeds and oleaginous fruits ..." (1207...), and thus would not be included in figures referring to 'veg' seed. Nonetheless, trade of melon seed to/from the Philippines was negligible.

Therefore, this report has combined Categories 120770, 120999, 1209991000, 120991, 120930, 090921, 090931 and 090961 to represent a broader horticulture crop seed category. Other broad categories of sowing seed grouped and analyzed in this report are field crops (cotton maize, rough paddy, soya bean, sugar beet, barley, cotton, groundnut, millet, oats, seed potato, sorghum and wheat) and forage (alfalfa, clover, fescue, ryegrass and Kentucky bluegrass).

APSA does not provide any guarantees about the validity or accuracy of the data, tables, charts or analyses, which can be corroborated by querying the ITC database directly. The report is intended to highlight general trends but does not represent the full picture of seed trade, particularly with respect to domestic demand and consumption.



HM • CLAUSE
www.hmclause.com

EXPERTISE & INNOVATION

With over two hundred years of expertise, our professional workforce has continuously strived to develop innovative solutions and high quality products to solve agricultural challenges both today and in the future.

Asian Seed Congress



Philippines Hosts Region's Most Important Seed Conference

A PSA is hosting the 25th Asian Seed Congress at Manila's Marriott Hotel 12–16 November. This is the third ASC held in Manila: prior editions were in 1998 and 2007.

Spanning 16 degrees of latitude, the 300,000 sq km archipelago forms a remarkable polity, comprising more than 7,600 islands, with a diverse population today numbering more than 100 million. The Philippines is the 12th most populous

country in the world and eighth in Asia. Filipinos are, moreover, still burgeoning with youth, something now rare: the Philippine Statistics Authority projects working age Filipinos to reach 67 percent of total population by 2045.

Known for hospitality and cheerfulness, they are among the happiest people anywhere, according to the 2015 Gallup Positive Experience Index -- and why shouldn't they be? Philippines GDP has

grown in the 6 - 7 percent range since 2010, reflecting one of Earth's fastest expanding economies.

In this scenario, agriculture employs 30 percent of the 40-million strong workforce but accounts for just 14 percent of GDP. To address this imbalance government, NGOs and leading private sector firms have undertaken a number of initiatives.

One of the most successful relates to the regulatory environment for the country's US\$82.38 mn/year seed industry: the Philippines was second in this category on a list of 16 Asian countries and 11th from among the 62 countries ranked globally in the World Bank's annual "Enabling the Business of Agriculture" published last year. The

annual study evaluates legal hurdles for agro-businesses.

According to the World Bank, the Philippines' agricultural environment is conducive to seed business, and also rates well in terms of farm machinery (no. 13), water (no. 17), and fertilizer (no. 22) but lags other countries with regard to domestic markets (coming in no. 38 among the 62). It is one of 17 countries identified as 'megadiverse' by Conservation International, meaning it is among those having a high number of endemic species.

Unfortunately, as noted elsewhere in this issue (see Women in Seed with Dr. Mary Ann Sayoc, and our interviews with Harbest Agribusiness Corporation's Arsenio Barcelona and the Philippines' Bureau



Celebrating 25 Years



The scenic Manila Bay, Photo Credit: azlade

of Agriculture and Fisheries Standards Divisions' Dr. Viven-cio Mamaril), Filipinos have not been big consumers of vegetables; farmers gravitate towards field crops rather than horticulture.

Another inhibiting factor involves the logistics of transport (the World Bank ranks the Philippines no. 37 in this category): remote growing areas are sometimes too difficult of access to be practical.

But, as business booms, problems — one-by-one — fall away. With the world's 34th largest economy, the Philippines is far less rural than before.

"Cities are rapidly expanding," says Harbest's Arsenio Barcelona. "Vegetables are now grown closer to home, as growing areas are widely distributed throughout these new urban areas. We see a new type farmer emerging — younger,

who recognizes that vegetables yield better income and can be grown in smaller areas with fewer resources."

Barcelona is among the pioneers who set out to help farmers realize the Philippines' horticultural potential. That involves training farmers.

After HAC's founding in 1997, the company developed a successful, hands-on training module, leading to the Department of Agriculture recruiting HAC to train farmers through national farmer extension units.

"We developed an effective farming model, incorporating a fully integrated value chain with everything from plastic mulching, seed trays and greenhouse netting, to non-toxic pest management, mechanized farming, organic fertilizer, composting and micro irrigation."

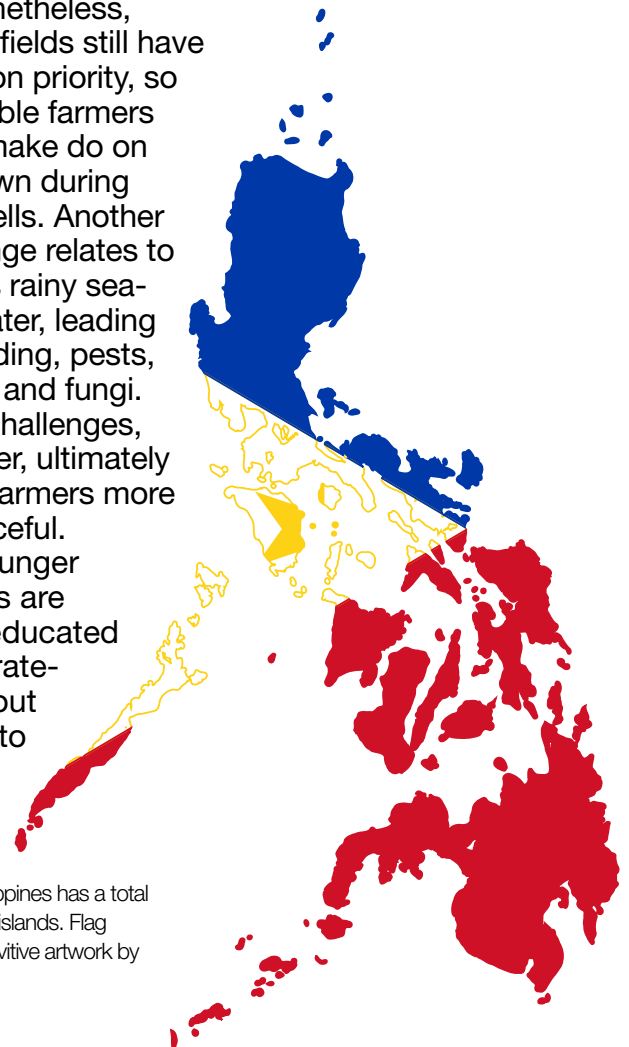
In addition to the Department of Agricul-

ture, HAC has, since 2000, joined the charitable SM Foundation to train some 30,000 farmers to horticulture.

Nonetheless, paddy fields still have irrigation priority, so vegetable farmers must make do on their own during dry spells. Another challenge relates to excess rainy season water, leading to flooding, pests, weeds and fungi. Such challenges, however, ultimately make farmers more resourceful.

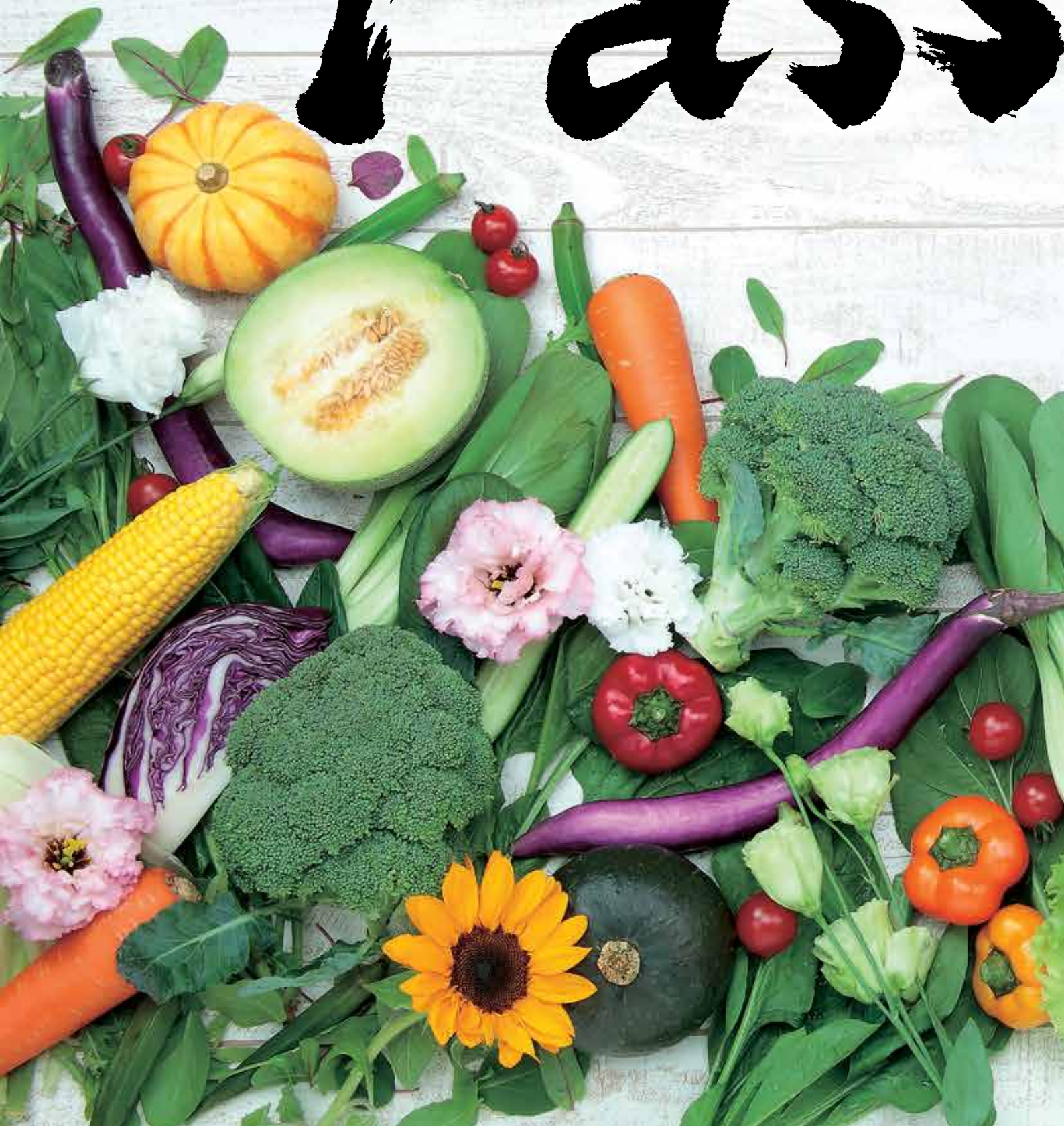
"Younger farmers are more educated and strategic about where to

plant, when to plant and how to plant.
... (continued on page 22)



The Philippines has a total of 7,100 islands. Flag Map derivative artwork by Fry1989

Pass





SAKATA[®]

PASSION in Seed

ion

PASSION in Every Single Seed

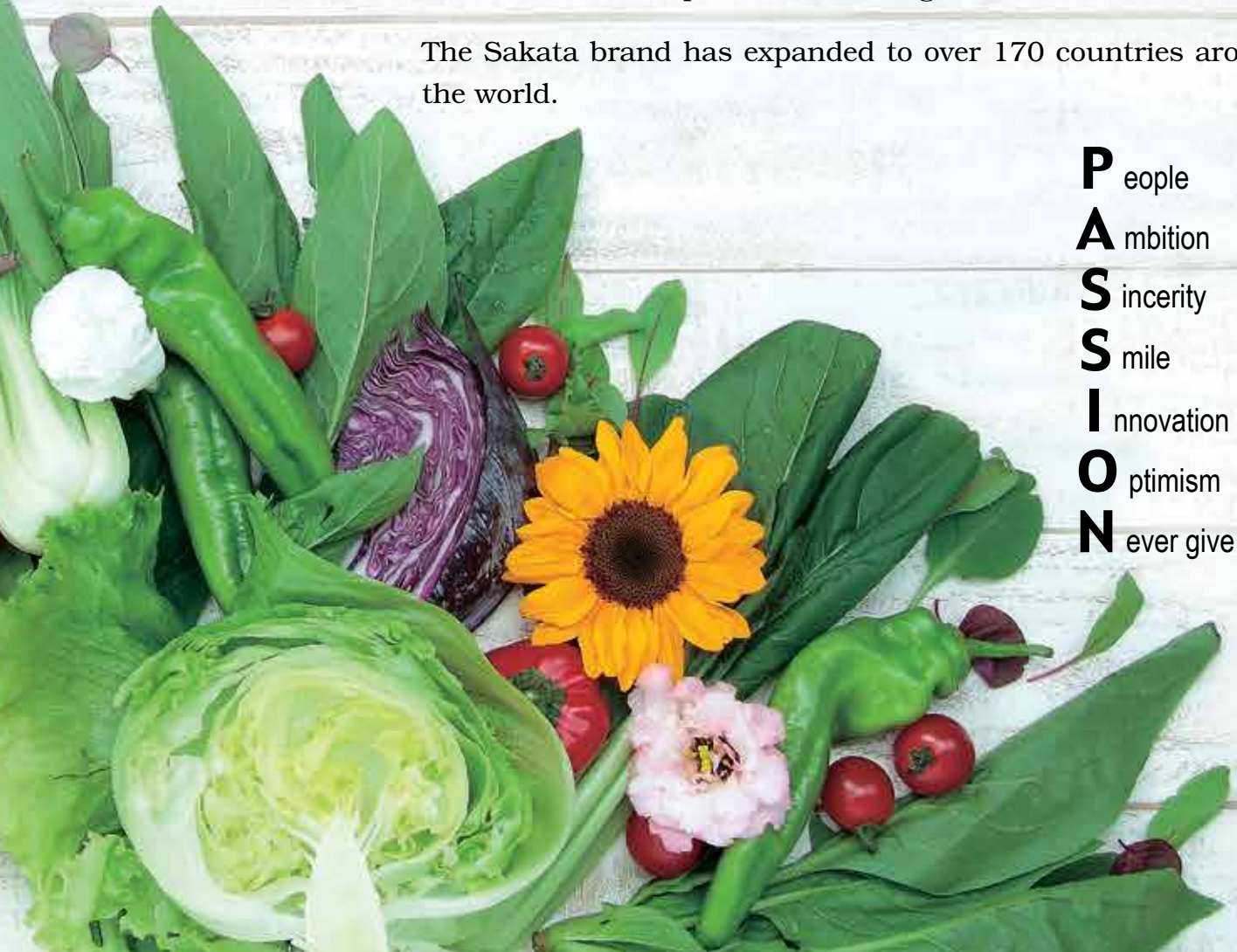
Devoting our outstanding flower and vegetable varieties to people around the world.

Our "PASSION in Seed" has remained constant through the years since our foundation in 1913.

"PASSION in Seed" is encoded in Sakata's DNA and has been inherited through the generations spanning the last 100 years. The letters in the word "PASSION" each have a profound meaning.

The Sakata brand has expanded to over 170 countries around the world.

P eople
A mbition
S incerity
S mile
I nnovation
O ptimism
N ever give up



Philippines At A Glance

Quick Facts

Geography

- Population: 106.9 million
- Islands: 7,600++
- Total Area: 300,000 M²
- Agriculture land: 9.6 million ha
- 17 regions, 81 provinces, 145 cities

Government

- Republic with President, Legislative, Judicial and Executive Branches

Economy

- Currency: Piso (PHP)
- GDP: US\$ 313 billion
- GDP Per Capita: \$2,900
- Top Exports: Electrical equipment, computers, medical, copper & boats

National Pride

- Language: Tagalog / Filipino
- Dishes: *dobo, lumpia, sinigang, bistek and lechon Na*
- Bird: *Pithecophaga jefferyi*
- Flower: *Jasminum sambac*
- Tree: *Pterocarpus indicus*



Known in Filipino as "Kagawaran ng Pagsasak" the DA's history dates back



to 1898. Today, it is organized into one institute and eight bureaus. Among these, the seed industry is most concerned with the Bureau of Plant Industry (see below). The DA is headed by Agriculture Secretary, Emmanuel Piñol, who is also a member of the Cabinet.

W: da.gov.ph



Established since 1930 under the Dept of Agriculture, it is Kawanihan ng Paghahalaman in Filipino. It is the government bureau concerned with plant research, production, protection through quarantine and phytosanitary services. Its mission is to "ensure the availability of quality seeds, safety of plant food, development of crop farming technology ... and [to] safeguard the plant industry."

W: bpi.da.gov.ph



Established in 1976, the Philippine Seed Industry Association is the oldest seed association in Southeast Asia and steers the National Organizing Committee of the 25th Asian Seed Congress. Its members include 27 companies including local companies such as Ramgo Seeds, Allied Botanical, SL Agritech and Harbest, as well as multinationals like East-West Seed, Bayer, Syngenta, Monsanto, Kaneko and Haverson. There are also three public sector members in the Bureau of Plant Industry, the Philippine Rice Research Institute (PhilRice) and the University of the Philippines, Los Baños.

W: philseedindustry.com



Initially established as the Philippine Seed Board (PSB) as a provision of the Seed Industry Development Act (1992), it is the office responsible for the approval and registration of crop varieties, under the supervision of the Bureau of Plant Industry.

W: nseedcouncil.bpinsicpvpo.com.ph

(Continued from page 19) ... "Simple things — mulching, seedling trays, elevated beds, bamboo nurseries — have made a huge difference in helping maintain productivity during rainy months."

Barcelona notes that, "Successful seed companies here all have intensive farmer training programs. This company-farmer relationship is an essential dynamic in developing new varieties."

Another pioneering player in farmer extension is East-West Seed (EWS): founded in the Philippines in 1982 and now headquartered in Bangkok, the company has played an important role in Philippine agriculture since founder Simon Groot, a team of breeders from Wageningen University and local experts developed in that year the first bittergourd hybrid, a popular vegetable in the Philippines.

The company has partnered with the Department of Agrarian Reform since 2000 to train farmers in high-value vegetable production through natural farming system technology and integrated crop management to boost profitability, and sustainable agro-forestry using sloping agricultural land technology.

They have carried out such projects throughout the archipelago. The East-West Seed Foundation helps public schools create school-based

vegetable gardens.

Since June, EWS' Knowledge Transfer team has provided agricultural kits to 80 families belonging to the indigenous Mangyan Alangan tribe on the island of Mindoro, to increase food security by starting vegetable gardens — part of the firm's Zero Extreme Poverty 2030 Philippines-Partnership for Indigenous People Project, which ends in December. The project centers on natural farming systems and features a vermi-composting area and nursery.

Philippine farmer extension is not limited to horticulture. In the Mindanao province of Lanao del Sur, Philippine hybrid rice leader, SL Agritech Corporation — which was founded in 1998 with the goal of affording the nation self-sufficiency in rice

production — has undertaken a 50-hectare hybrid rice technology demonstration for two varieties.

The 1.65-million-piso project is aimed at rehabilitating war-torn Marawi City. It was announced last January and involves 50 farmers. Rice yield from the area was only 3 - 3.5 tonnes per ha, but yields now range from 7 - 14 tonnes. The goal is to expand the area to 1,000 ha in the next planting season. Ultimately, the project may provide employment to 50,000 people while yielding 20 - 30 million bags of palay (unmilled rice) annually, thereby affording greater security as 80 percent of rice is imported.

Other Philippine companies with farmer outreach and training programs include

Allied Botanical Corporation (ABC), Ramgo Seeds and Haverson Enterprises (as mentioned in previous editions of *Asian Seed Magazine*, which can be downloaded via apsaseed.org).

Across the sector, Philippine seed companies have adopted the model and motto: 'Our farmers, our friends': as an example thereof, ABC field personnel regularly visit farmers in remote areas, introducing them to newly adaptable, disease resistant, high-yielding varieties such as bittergourd, tomato, squash, eggplant and others. ABC then finds ways to generate public awareness of their availability to increase consumer

demand. They also run a farmers' field school, Aral Saka, encouraging novice growers to plant high-yield varieties. Programs collaborate with public and private institutions.

In sum, the upshot is that, though the Philippines' seed trade is growing and shows considerable potential, the economy still relies largely on imports. Local breeding remains limited. But more investment is going into weather-resilient varieties; EWS, SL Agritech, ABC, Kaneko, Ramgo and Harbest, for example, have all invested significantly in local breeding facilities, and the future appears bright. 🌱

A village amid rice terraces in Batad Banaue, North Philippines.
Photo: Tommy Brtek



Seed Strategy, Public Priorities

Philippine Ag Standards Chief Points Way Forward for National Seed Sector

Dr. Vivencio R. Mamaril is the executive director of the Bureau of Agriculture and Fisheries Standards Divisions. Previously he was the Director of the Bureau of Plant Industry (BPI) and long-time head of the National Seed Industry Council (NSIC).

Mamaril himself is a hybrid, from a Chinese father and Filipino mother. Like many another in this age, he must juggle responsibilities at home with those in the office: "I am the single parent of a 19-year-old girl." The doctor, whose friends call him Choy, grew up in Manila, where he also pursued his studies.

He has an abiding interest in family: "My personal heroes are my parents. My mother had so much pride and humour -- and I inherited from her. My father was an international chef." That also was an influence, as Dr. Mamaril admits he can "cook well."

"My mother, who passed away in 2004, and my daughter are my inspirations. I love my daughter so much; she is my life." He says the young people in his office at BAFS "are inspirations, too."

"I want to be a role model to them," he says, "and I like to see them achieve more than I did." He is not slow to note the roles others played in his own success: "My former professors and bosses were my

mentors, and to this day I look up to Undersecretary Segfredo R. Serrano -- he is an intelligent person and I get so much wisdom from him.

"I also had a boss, a Muslim, Blo Umpar Adiong, who was so strict: he pushed me to do much; and I owe to him what I am today."

The doctor says trust afforded by his superiors motivates him to "deliver the best I can." This attitude is reflected in his personal philosophy: "I always believe honesty the best policy, that trust is earned, and we have to work hard to get and deserve it." No less important, he says, is it for one to "love thy work."

Lest readers suppose the doctor dour and ascetic, it must be noted that in fact he is a positive person, who is sure to find time for friends and to "knock-off stress."

As a child, Dr. Mamaril dreamed of a career in education: "I remember when I was in elementary grades, the title of my first formal theme was 'My Ambition', and I wrote that it was to become a teacher." After majoring in Plant Pathology,



he graduated with a degree in agriculture: "My first official job was as a high school teacher."

Then, after two years of teaching, he joined the Bureau of Plant Industry as a research assistant. In 1999 his chief there — realizing, one supposes, Dr. Mamaril's love affair with work — added to his duties by making him Executive Assistant to the National Seed Industry Council: "Later he assigned me tasks in the Plant Variety Protection Office... and the rest is history."

Last year, the doctor was promoted from the Bureau of Plant Industry to lead the Bureau of Agricultural and Fisheries Standards as executive director. In this position, he sees much to be pleased about relative to the seed industry: "The trend is positive," he says. "There are now more varieties to

choose from. In corn, GM seeds or varieties are widely utilized."

Still, much remains to be done: with regard to phytosanitary, biotechnical, climatic and related issues, Dr. Mamaril eschews sentiment and stands, like the body of which he is chief, firmly on the side of reason: "We need policies to address them," he says of challenges that deeply concern those in the seed industry. "Policies should be science-based, nothing more — nothing less." Stakeholders, he says, should agree on the need for developing clear-headed policies to rationally address the "food security of our nation."

To that end, public relations will play a part: "The greatest challenge is for Filipinos to eat more vegetables," he avers. "If we can increase consumption, we will have more positive growth."

Hybrids, Hope & Harbest Highs

When Pinoy entrepreneur Arsenio Barcelona founded Harbest Agribusiness Corporation (Harbest) in 1997, the Philippines' vegetable sector was ripe for a new era of hybridization.

Mr. Barcelona, or 'Toto' as he is familiarly known, had just repatriated to the Philippines following some years for study in Chinese Taipei: there he had got

a taste for agribiz leading compatriots on farm tours.

Harbest is today a well-known, fully-integrated seed and farm supply chain company, but began by distributing foreign hybrid lines in the Philippines — a daring gambit then.

"I saw great potential for Known-You hybrids, especially their cucurbit lines," he told *Asian Seed*. Kaohsiung-based

Known-You Seed Co. was founded in 1968 and supplies seed "produced by conventional methods" that "are not transgenic."

Mr. Barcelona observed in Kaohsiung how hybrids enabled not only increased yields, but better quality crops in terms of taste, stress tolerance, pest resistance and longer shelf-life. That meant more



Arsenio Barcelona examines new product.

income for farmers so, sensing he might be on to the next new thing, he called Dr. Diosdado Castro ...

(continued on next page)

TOKITA

Since 1917

VEGETABLE SEED BREEDERS AND GROWERS

We are specialized in Hybrid Cabbage, Broccoli, Cauliflower, Chinese Cabbage, Tomato, Eggplant, Chilli Pepper, Cucumber, Watermelon, Squash, Okra, Carrot, Bunching Onion, Spinach, Radish and Oriental Vegetables.



TOKITA SEED CO., LTD

(HOME PAGE) <http://www.tokitaseed.co.jp>

TOKITA SEED CO., LTD.
1069, Nakagawa, Minuma-ku, Saitama-shi,
Saitama-ken, Japan 337-8532
Tel: 81-48-686-7235 Fax: 81-48-688-1167

TOKITA SEED INDIA (P) LTD.
360, 13th A Main, Sector-A, Yelahanka New Town,
Bangalore, KA, India 560046
Tel: 91-80-2846-0254 Fax: 91-80-2846-0749



Technology transfer has been core to the success of Harbest.

at the University of Philippines Los Baños, whom Mr. Barcelona had known in Tainan. They subjected a number of niche crops to successful trial, including Red Lady papaya, Phoenix squash, seedless watermelons and honeydews.

Dr. Castro was previously with the Asian Vegetable Research and Development Centre in Tainan, today's World Vegetable Center.

HETEROSIS HIGHS

The next step was to convince Filipino farmers to make the switch, as hybrids were more expensive: "The farmers embraced traditional habits, which greatly limited productivity. They were skeptical about using hybrid seeds. Initial yields didn't seem to justify the extra cost," he recalled.

Good genetics mean little without good inputs, but in the Philippines seed was sown largely by direct broadcast and rainfall

was the deciding factor. Technology, know-how and best practices lagged: "Traditionally, with local OPVs, anywhere from three to five tonnes per hectare was the norm for crops

"Once they realized the benefits of using hybrids, they had no desire to go back to their old ways,"

like watermelon and squash," he said.

So Mr. Barcelona introduced locally-adaptable technologies and materials, and, after much trial and error: "We developed an effective farming model, incorporating a fully integrated value chain with everything from plastic mulching, seed trays and greenhouse netting, to non-toxic pest management, mechanized farming, organic fertilizer, composting and micro irrigation."

Harbest's was a cosmopolitan approach, including certified organic fertilizer from Spain, drip irrigation from Israel,

mechanized farm equipment from Chinese Taipei and composting techniques from Japan.

"For watermelon, farmers realized they didn't need to plant five seeds per hole... they learned to better manage weed and pest pressures," resulting in dramatic improvement: germination rates shot up to nearly 100 percent; yields multiplied by up to 700 percent. Moreover, farmers saved water while getting better tasting varieties.

That created more market demand.

Today, watermelon farmers report yields up to 35 tonnes per ha – a seven-fold increase. Squash farmers, too, get similar results. "Once they realized the benefits of using hybrids with the right inputs, materials and techniques, they had no desire to go back to their old ways," Mr. Barcelona affirmed.

ALL ABOUT SHELF

Mr. Barcelona noted that the most important factor leading to varietal selection in the Philippines is shelf life: "In Taiwan, which is one big island where fresh produce makes it to market daily, this is not as important. But in an island nation like the Philippines, many of our main growing areas are isolated or far away from central markets. It can take time for prod-

uct to reach market."

Other considerations are high yield, taste and pest resistance, in that order.

SEEDS OF HOPE

In 2010, Harbest launched its own brand, Seeds Of Hope, embracing Philippine open pollination (OP) varieties from local producers for six core vegetables used in *pinakbet*, an indigenous dish: tomato, eggplant, squash, okra, string beans and bitter melon. The brand also markets cucumber, bottle gourd, sponge gourd, chive and radish seeds.

"Our initial target was the home garden market but soon we expanded to supermarkets." The brand found its way into politics: "Politicians loved the logo, so started using it for promotional materials, and distributing our seeds to farmers during election time," Mr. Barcelona recounted.

While developing Seeds of Hope, Harbest continues its longstanding partnership with Known-You Seeds, formalizing relations in 2013 to produce brand hybrids for local sale and regional export.

HORTI-HUB

Asked about key challenges and opportunities for the Philippine seed industry, Barcelona highlighted efforts to increase vegetable consumption: "Filipinos haven't

traditionally been big vegetable eaters. The exception is in Ilocanos, in the north. On average, each household there consumes 60 kgs per annum. The national average is around 40kg.”

To increase vegetable consumption, Barcelona says the industry should continue to promote nutraceutical education, as well as cooking: “Like the Chinese, who love to cook and eat lots of vegetables.”

Barcelona is optimistic about his country’s overseas market prospects: “Look at a map: the

Philippines is within two-to-four hours of major cities in Japan, Chinese Taipei, China, Korea, Singapore — there’s a lot of untapped export potential.”

Developing infrastructure, regional links and taking advantage of emerging tech-

nology are thus key development factors, and in these, Filipinos have an advantage: “We’re tech savvy; learn new things quickly. We’re resilient — and more and more are realizing the benefits of getting back into farming.”



Arsenio figured out early on that success in the seed business was going to require good inputs, technology and extension.

High Precision Weight Controller for Bulk Materials

Latest generation weight controller with user-friendly color touch screen

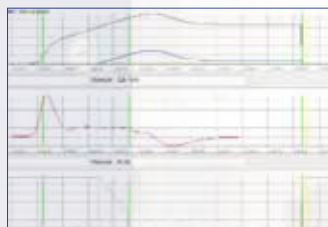
The SpeedAC iQ uses the latest generation and most powerful state-of-the-art microprocessor controlled technology to provide extremely precise bag weights for various bulk materials. This new universal controller is designed for demanding industrial applications in the chemical, pharmaceutical, food and feed mill industries, as well as for all weighing applications across numerous industry sectors, offering the ultimate user experience.



Multi-language interface and graphical intuitive navigation menus through 7” bright TFT color touch screen.



The controller can autotune the desired weights and its Smart Feed algorithm allows complete control of the filling process.



Remote access and support capabilities, across the internet with our renowned customer service and support.



Preload programming, hassle free to install - backup & restore files using a USB stick.

Women In Seed

Dr. Mary Ann Sayoc

Dr. Mary Ann Sayoc is a former APSA president and the first woman to hold the position (2012-2013). She also chaired the APSA Governance Steering Committee in 2013 and is the longest serving president of the Philippine Seed Industry Association (PSIA). Currently the Public Affairs Lead of East-West Seed Group, Dr. Sayoc is well known for her efforts in building bridges between the public and private sectors in the Philippines and in the region for the advancement of agriculture. Here she reflects on her career and shares insights.

I started out with zero background in the seed industry and was dealing with animals during the first half of my professional life. I obtained my degree in Doctor of Veterinary Medicine at the University of the Philippines Diliman (the College has since moved to UP Los Banos). After graduation, I worked as a Research Veterinarian in the Bureau of Animal Industry for 6 years, from 1979, and was asked to join a Dutch-assisted project setting up the Agricultural Training Institute's International Training Center on Pig Husbandry in 1985. Pig production affords livelihood to farmers as pork is the main meat consumed in the Philippines.

During my two decades in the government sector, I served as director of the Agricultural Training Institute, and

became a Regional Director in the Ministry of Agriculture in 1998, with responsibility for 11 provinces and 224 municipalities.

I left the public sector and accepted an invitation from Mr. Simon Groot to join East-West Seed Philippines in May 2011, initially as General Manager. Though I had no background in seeds, Mr. Groot trusted my management experience and well-established networks in the agriculture sector. I have never looked back on my decision.

FORGING NATIONAL, REGIONAL NETWORKS

The first Asian Seed Congresses I attended were in Chiba, Japan (2001) and in Ho Chi Minh City, Vietnam (2002). I was elected as APSA Executive Committee member in 2007, and voted president in 2013. I



was re-elected PSIA president in December 2017, and have served in this position for eight years. The PSIA is a small but growing association. (See page 22 for more details)

All of us at PSIA are pleased to host once again the Asian Seed Congress. The ASC is of great benefit to the host country as it draws focus on that nation's seed industry. We're pleased to bring back the flag to Manila for the third time as it affords the opportunity to attract increased tourism and shows off Filipino culture. The Pre-Congress workshop and technical sessions,

moreover, will be a good opportunity to attract new members locally, while offering government sector delegates and other stakeholders increased awareness of important industry topics, such as plant breeding innovation, phytosanitary issues and ISPM 38.

The Philippine seed industry is also growing, and has set a high regional standard as underlined in the last World Bank's Enabling the Business of Agriculture report on the seed sector. It used three indicators — plant breeding, variety registration and seed



Dr. Sayoc wears many hats as a mother, manager, advocate, president and leader; she emphasizes trust and integrity as important virtues of everyday work and life.



quality — to analyze performance. We ranked 11th among 62 countries, and achieved the highest ranking among ASEAN's ten member countries. I credit this to good seed laws and things like seed company tax incentives, for example. Also, the government recognizes the important role of PSIA, and the seed law is quite open, facilitating seed business prosperity.

FULFILLMENT AND SATISFACTION

I have four wonderful daughters. One of my biggest sources of fulfillment in life is

being a mother and nurturing children. Motherhood should not be an obstacle. I am lucky to have a very supportive husband. We share roles in the family without any gender boundaries. My husband, Dr. Darwin Sayoc, also a veterinarian, enjoys farming and raising 500 free-range hens at our small farm.

Looking back on my career experience as a woman and a leader, I've learned that building trust in relationships is more important than knowing everything. Whatever you do, do it with integrity.

Working with

East-West Seed, and particularly in farmer development, has helped me achieve happiness. It is so fulfilling to speak with farmers and hear their stories about how they are able to send their children to school, how their houses now look better and how they now earn more owing to better seeds.

One key area I advocate in my current role is increasing vegetable consumption in the Philippines. Filipinos are typically not vegetable eaters. The rate of vegetable consumption in the Philippines is below World Health Organi-

zation recommended standards. Vegetables are expensive, and there is also a cultural preference for meat over vegetables.

But we are starting to see this change, thanks to public-private partnerships to promote vegetable consumption through school vegetable gardens, for example.

It's most satisfying to be able to help school children and their parents realize the importance of vegetables in the diet while in turn helping small-holder farmers improve their lives by creating higher demand for vegetables. 🌱



EVERGROW SEED CO., LTD.

The most reliable breeders & high quality vegetable & melon seed supplier and distributor from Taiwan.
Also by custom breeding, custom seed production & supply in Asia by our own supervision.



High yield, strong fruit set in summer and excellent shipper.

MUSKMELON • 1382 SALMON DELIGHT



Better fusarium res., high yield, higher quality Jubilee. Long keeping tough thinner rind.

WATERMELON • 2303 SUPER DRAGON



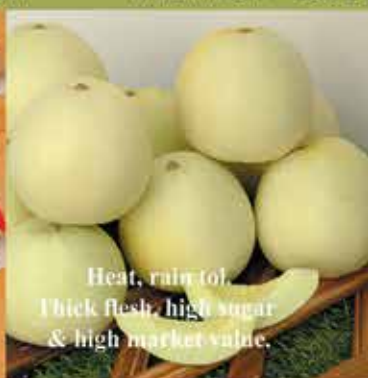
Heat tolerant, high yield, high sugar and high eating quality, good for wide adapt area, fresh market and processing use.

SUPER SWEET CORN • 25471 YELLOW CROWN



Heat, rain tol. PVY res. Multiple use. High yield & high market value.

HOT PEPPER 5826 BORN FIRE



Heat, rain tol. Thick flesh, high sugar & high market value.

ORIENTAL MELON
9355 SILVER GEM



Multi-purpose usage hybrid flower kale, high yield & extraordinary vegetable supply.

FLOWERING KALE 28001 HAPPY RICH



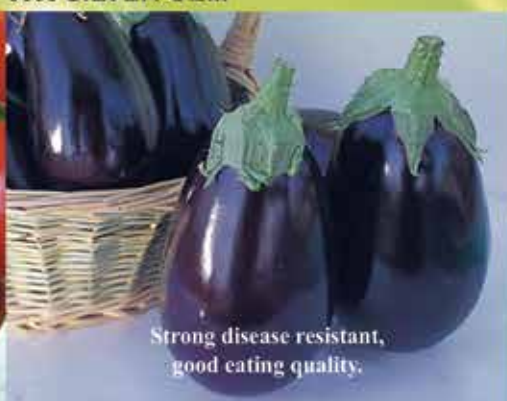
Good taste, high yield, good heat, rain, stress disease tol. early growth.

CUCUMBER 7402 ORIOLE



Tropical easy growth. Long fruit cluster & strong fruit setting. Heat, rain tol. LSL, multiple virus and disease res.

TOMATO • 4133 KING TROPICAL



Strong disease resistant, good eating quality.

EGGPLANT • 6277 GLORY



Heat & rain tolerance. Long shelf life. Big head, high yield, wt. 2-4 kg.

CABBAGE • 20555 HAJI

21, HSIN CHUNG ROAD, TAINAN 70252, TAIWAN TEL: +886-6-2630463. 2638587. 2630242
E-mail: int@evergrowseed.com Website: <http://www.evergrowseed.com> FAX: +886-6-2642088

生生種子

Getting on the Correct Train

Boarding Call for APSA Seven Technical Groups Ahead of Asian Seed Congress

APSA's three Standing Committees (SCs) and four Special Interest Groups (SIGs) will be meeting at the 25th Asian Seed Congress in Manila. Read on to find out what they've been up to and what's in store.



SC SEED TECHNOLOGY



Johan Van Asbrouck
Chair



Dr. Tso-Chi Yang
Co-Chair

Limited seats are available on this train of seed tech. On 15 November, SC Seed Technology will be holding a 90-minute workshop and round table discussion in which we'll look at the impact of seed technology on the bottom line of companies. Seed cleaning, treatments, upgrading, pelleting, priming, optical sorting – all of these disruptive technologies, one by one, have changed the seed world thoroughly. Some companies leaped forward while others went down the drain because they invested significant resources in a certain technology.

Everyone knows the idiom of “missing the train”, but just as bad could be “taking the wrong train”. On an almost daily basis, seed people are confronted with new technologies, new systems that promise improved yield, higher margins... Some companies are creating an almost impenetrable barrier, while others are just following their guts. How can companies find the few diamonds within a pile of stones? The answer cannot be given by only your technical people: it needs input from sales staff, the breeders, finance department, and most certainly from management. Can we really afford to miss the train? Or can we afford to take the wrong one?

Our session will look deeper into these issues – not from a technical angle but rather a managerial point-of-view. We'll offer executives insights on how to deal with such significant business decisions. The workshop will start at 11am sharp and will be limited to a maximum

40 participants. To all the general managers, directors, presidents – one last question: can you really afford to miss this train?

SC IPR & BIODIVERSITY



Dr. Arvind Kapur
Chair



Casper van Kempen
Co-Chair

True to our name, the objective of our Standing Committee is to inform and educate APSA members about developments in Intellectual Property Rights and Biodiversity happening globally, as well as in the APSA region. Many of our members are entrepreneurs in small-and-medium-sized organizations, which may lack in-house capacity, understanding to sufficiently implement IPR&BD requirements. Our aim as an SC is to support them in understanding the complexities of these laws and develop a uniform opinion in APSA to be discussed at the global level. Following is a summary of upcoming activities and events of our SC:

On 17 October, we will join with the China National Seed Trade Association (CNSTA) to co-organize the Asia-Pacific Forum on Intellectual Property and Plant Variety Protection at the Langfang Ovation Seven Cultivation Hotel, Hebei, China. The theme of this event, which precedes the Beijing Seed Congress, is “Protect Intellectual Property, Let Innovation Lead the Future”

We invite any delegate registered for the 25th Asian Seed Congress in Manila to join us on 14 November for a technical session to explore various IPR themes from 11am. Starting 2pm on the same day, we will conduct a workshop on the International Treaty on Plant Genetic Resources for Food and Agriculture, which will include a discussion covering the

Benefits scheme, as well as Farmers' Rights, with views presented from India, Indonesia, Japan, Philippines, WorldVeg, and ISF.

We are working on the production of posters and an educational video that can be used as a tool for members of national seed associations to raise awareness on plant variety protection, as well as the benefits of using certified seeds versus farm seed seeds. We will display the posters at ASC in Manila and will announce more details about the video in the near future

We welcome any APSA members or stakeholders with an interest in the overall IP theme in the seed sector, and/or the work on the international biodiversity treaties.

SC TRADE & MARKETING



Niranjana Kollipara
Chair



Dr. Dehua Ma
Co-Chair

To promote seamless cross-border seed trade, the Standing Committee on Trade & Marketing on 29 and 30 August successfully organized in Bangkok yet another “Phytosanitary Consultation” involving NPPOs, experts and industry colleagues from various important countries. This being the fourth one in the series since 2015, “Team T&M” is pleased to note that we are steadily bringing all the stakeholders and government officials on to the same platform to have a hurdle-free international trade policy without hampering the concerns of respective governments.

With the objective of promoting new overseas business avenues, we are in the process of identifying less-explored countries in the region and look to organize “trade promotion tours” for member companies so as to facilitate more opportunities for them to conduct international business.

SIG HYBRID RICE



Dr. Frisco Malabanan
Chair



Vaibhav Kashikar
Co-Chair

Following are some hybrid rice capacity-building activities of interest to our Special Interest Group.

• Hybrid Rice Seed Production

Training: On October 23-25, 2018 at the Seminar Hall, PJTSAU Auditorium, PJTSAU, Rajendranagar in Hyderabad, Telangana, India. This activity is aimed at boosting food security through hybrid rice seed production. It will showcase the latest advances in hybrid rice technology, and introduce "Green Super Rice Hybrids"

• Hybrid Rice Technology

Workshop: On November 8-9 at the International Rice Research Institute in UPLB, Los Baños, Philippines, this training will cover fundamentals of hybrid rice technology, looking at potential seed market growth, challenges and success stories; facilitate discussion with global experts and include field visits.

ASC 2018 Post Congress Tour:

On November 16, also at IRRI in UPLB, Los Baños. A Technology Demonstration will showcase nearly 20 hybrid rice seed varieties that are commercially grown in the Philippines. All hybrids will be at 85% Maturity during this tour, which will also include a visit to IRRI's Gene Bank. Participating seed Companies and Agencies include Rice Productivity Advocacy, Inc. (Rice Board); SL Agritech Corporation;

Advanta Seeds International; Bayer CropScience Philippines Inc.; Longping Tropical; Syngenta; Corteva; Seedworks Philippines; IRRI; PhilSCAT and PhilRice

SIG FIELD CROPS



P. Sateesh Kumar
Chair



Tahir Saleemi
Co-Chair

Field crops make up the largest cultivated segment of crops in the Asia-Pacific region as do they globally. This SIG, which in the past has primarily focused on activities related to maize, has diversified to include other major crops like cotton, wheat, millets and legumes, which have significant presence in the Asian region.

The group has organized presentations on aspects of crop improvement, agronomy and business opportunities in all these crops at the three most recent Asian Seed Congresses. We've also facilitated meetings for interested APSA members with institutions like CIMMYT, ICRISAT and the corn improvement program of Kasetsart University. The group plans to organize Study Tours to key field crop production markets in the region.

SIG COVER CROPS



Bhupen Dubey
Chair



Muhammad Asim Butt
Co-Chair

Our Special Interest Group is concerned with cover crops, or forage and amenity seeds, which offer many new business opportunities. Worldwide forage and amenity crop opportunity was estimated around US\$17 bn, which is more than many commercial crop seed businesses. At the upcoming Asian Seed Congress in Manila, we will join with SIG Field Crops for a three-hour joint session on 15 November. In this session, we have presentations on bio-fortification and smallholder farmer trends. Educating and motivating APSA members is a key objective of our group.

syngenta

GLOBAL REACH, LOCAL FOCUS

We are dedicated to supporting our partners around the world. Our rich history in the vegetable seeds industry, strong presence in the market, and investment in the future of agriculture enables us to deliver high-quality vegetable seeds.

LEADERSHIP & INNOVATION

We have more than **150 years** of heritage in the global vegetable seeds market. Our strong portfolio of more than **2,500 varieties in 30 crops** makes us the partner of choice for millions of growers worldwide.

Icons representing various crops: Corn, Broccoli, Cucumber, Broccoli, Chili, Cabbage, Watermelon, Tomatoes, Pumpkin, Peas.

Icons representing benefits: Sweeter taste, Firmer flesh, New specialty, Improved convenience, Broader Resistance.

Updates from the Executive Committee

APSA's Executive Committee (EC) met in Kuala Lumpur, Malaysia in June. KL was confirmed as host of next year's Asian Seed Congress. While there, we had a chance to visit the venue and meet reps from the National Seed Association of Malaysia, who will co-organize the event with us. Following are several more important updates from the EC:

1. New EC members and treasurer: Mr. Jack Metzelaar and Ms. Michelle Klieger have resigned from the EC and their vacancies will be filled by Mr. Daniel Gleeson from HM.Clause (Thailand) and Mr. John Mizicko from the American Seed Trade Association. Mr. Wichai Laocharoenpornkul was elected to be APSA's new treasurer, effective from June 1, 2018.

2. Application documents for establishing APSA's

new headquarters in either Singapore or Hong Kong were completed and submitted to the governments of these two countries. The application for Singapore was approved by June while that for Hong Kong is still pending. More updates on APSA's registration progress will be presented during the November 15 GAM at ASC 2018 in Manila.

3. Activities of SIGs and SCs have been reviewed and their proposed budgets for Congress speaker expenses and other activities were approved. A proposal from SIG Veg & Orn is for production of a video to promote plant breeding innovation, which will have voiceovers in English, Chinese and Japanese. Our SC for IPR & BD will also produce educational posters and videos to raise awareness of the benefits of farm saved seeds and certified

seeds, as well as Plant Variety Protection (PVP). On this note, APSA and the China National Seed Trade Association will organize a PVP forum in Beijing. Held 17 October in Beijing, right before the Beijing Seed Congress, APSA sponsored international expert speakers. The objective was to raise awareness of PVP for companies looking to invest in China and for Chinese companies to get updated on the situation in other countries in Asia Pacific. Moreover, the budget to support all NPPOs joining our 4th Phytosanitary Expert Consultation was approved. (see update on page 35)

4. For the 23rd and 24th GAM on November 15, the EC election sequence was discussed and it was decided that this year is going to be the first year that APSA will use a digital ballot system. The election will start

with the outstanding EC 2017 vacancy for the seed association category, followed by 2019 vacancies, with two rounds for the seed enterprise category, one seat for the seed association category and one for seed associate category, respectively.

5. APSA Secretariat updated the total standing members, and made a proposal for the 2019 ASC agenda, which was finalized with a contract signed between APSA and NSAM as the NOC. The treasurer report was completed by our new treasurer and EC members were reminded of APSA's financial policy, which has been published in the members section of APSA's website.

The next APSA EC meeting will be on 11 November, 2018 in Manila, preceding the start of the Congress, with another meeting to convene on November 16, the day after the GAM.

SIG VEG & ORN



Michel Devarrewaere
Chair



Jack Metzelaar
Co-Chair

One major achievement of our Special Interest Group this year is the establishment of a Working Group of Integrated Vegetable Seed Companies (WIC), which is chaired by Dr. Anthony Tse and co-chaired by Rahul Pagar. These are companies that are active in the complete production chain for seeds, extending to breeding, production, processing, quality control and sales.

The SIG is supporting the efforts of this group to actively discuss in a smaller setting issues relevant to the industry in Asia. A major issue identified was that of protection

of intellectual property. This group meets twice annually, and progress will be reported during the upcoming SIG meeting at ASC 2018 in Manila. Aside from this, we have an R&D Advisory Committee which was involved in preparations for the first Asian Round Table of Cucurbit (ACRT), held last July at Kasetesart University.

This sub-committee is also an organizer of the Asian Solanaceous Round Table (ASRT) series of meetings. These events will alternate – with ASRT 3 set for October, next year. The committee organized a session at the SOL 18 meeting in Chiang Mai in October (see page 37 for more details).

Besides this, our SIG is reviewing regularly the projects undertaken with various research institutes and World Vegetable Center in Taiwan with whom APSA signed a consortium agreement. The SIG group is participating in the establishment of a seed association in Myanmar and APSA's Director

attends meetings organized by the Myanmar Agriculture Network on the further development of the vegetable industry in that country. We maintain close contact with other veg-focused groups at ISF, as well as with other SIGs/SCs of APSA and see the need to propose position papers or other information/guidelines relevant to APSA members.

Previously, we adopted a position paper on child labor in the industry, which we co-authored with ISF, with whom we also co-authored a guide on seed production best practices. These can be downloaded from APSA's website. Finally, the SIG organizes study tours, which are popular among APSA members. This year we are sending a group to China, which you can read about in next issue.

For more details about APSA membership programs, please email kuna@apsaseed.org

PPP for Pest Resistance R&D

APSA on October 4 hosted a session at the SOL 18 conference (see page 37) to explore potential research collaboration under a private-public-partnership (PPP) framework.

Specifically, our APSA advisory committee Co-Chair, Dr. Seetharam Annadana and Dr. Kanokwan Chodchoy explored potential collaborations with researchers to elucidate mechanisms of pest resistance in solanaceous crops, especially tomato and/or pepper.

Better under-

standing these mechanisms would be key for breeders to develop improved, tropically adapted lines with insect and disease resistance.

Presenting potential focus areas were several renowned Solanaceous researchers: Dr. Ben Vosman (Wageningen University), Dr. Mohamed Rakha (World Vegetable Center), Dr. Mirka Marcel and Isabella Visschers (Radboud University).

Proposals focused on both tomato and pepper, with several pest priorities identified:

spodoptera, tua, whitefly, thrips, aphids and caterpillars, for example.

One interesting proposal is to develop tomato lines introgressed with genes linked to whitefly-resistance observed in *Solanum galapagense*, a wild species of tomato. The resistance is thought to be linked to trichomes found on the plant. To confirm this, researchers would need to identify Quantitative Trait Loci (QTLs) and determine their function in the formation of said trichomes.

It was suggested



APSA's R&D Committee and speakers on stage.

that research should not only focus on linkages between genetics, environment and resistance, but also look at correlations with fruit development.

The R&D Advisory committee, will put together all the proposals. shortlist interesting

ones and revert to members for their suggestions and comments.

APSA concluded the session by revealing plans for the third Asian Solanaceous Round Table (ASRT 3), which is proposed to be held in Bengaluru, India, October 2019.



anseme

Vegetable Seed Production - Italy

GREEN AROMA

The Best
CORIANDE
of the World

MADE IN ITALY



High variety purity



High specific purity



High germination

- Late bolting
- Heat Tolerance
- Multicut
- Best aroma
- Large leaf



www.facebook.com/Ansemespa

ANSEME spa - Via Cipro, 60 - 47521 CESENA (FC) ITALY Tel. +39 0547 382121 Telefax +39 0547 384451
e-mail: anseme@anseme.it e-mail: anseme@anseme.com <http://www.anseme.com>



Forging the Framework for Regional Harmony in Phytosanitary Affairs

Some 30 delegates convened at the Shangri-La Hotel in Bangkok 29 - 30 August for APSA's 4th Expert Consultation on Phytosanitary Collaboration in the Asia Pacific Region, the latest meeting in a series promoting streamlined international seed movement regulations.

Attendees included National Plant Protection Officers (NPPOs) and other stakeholders from China, India, South Korea, Japan, Thailand, the Philippines, Pakistan, Cambodia, Vietnam and Indonesia, and reps from Thailand's Department of Agriculture, the International Seed Federation

(ISF), International Seed Trade Association, Croplife Asia, Winrock International, the Thai Seed Trade Association, American Seed Trade Association, the Australian Seed Federation and Groupement National Interprofessionnel des Semences (the French inter-professional seed organization).

In his opening remarks, Mr. Rajvir Rathi, Chair, APSA Phytosanitary Working Group, said he was pleased to see increased participation and expects phytosanitary harmonization issues will "become more important with the growing international trade in sowing seed."

APSA President Ms Brenda Dossey noted in her address: "The phytosanitary certificate is everything in the seed business," observing that, for 40 years she has "worked with these certificates almost everyday." She said complying with regulations and staying up-to-date are "essential for all who import or export seeds," so topics covered during the meeting are "near and dear" to APSA's 600+ members from more than 50 countries.

Dr. Suwit Chaikiattiyos, Director-General of Thailand's Department of Agriculture, said "identifying capacity-building needs and strengthening the

All About ISPMs

First adopted in 1993, the International Standards for Phytosanitary Measures (ISPMs) are prepared by the Secretariat of the International Plant Protection Convention (IPPC) to achieve international harmonization of phytosanitary measures for facilitating trade and avoiding unjustifiable barriers to trade.

The 42 ISPMs address phytosanitary measures applied by World Trade Organization and IPPC members.

The seed-relevant ISPMs include pest risk analyses (ISPM 2, 11 and 21); phytosanitary certificates (ISPM 7 and 12); and regulated and non-quarantine pest lists (ISPM 16, 17, 19 and 27).

Adopted earlier this year, ISPM 38 addresses seed specifically and concerns international seed movements.

framework for collaboration" is essential.

APSA Acting Director Dr. Kanokwan Chodchoey averred information exchange between NPPOs and NSAs regarding updated regulated and quarantine pest lists, and using pest-risk analysis, are priorities.

REGION-WIDE CHALLENGES

Various NPPOs discussed quarantine and regulated pest list

issues, and pest-risk analyses (PRAs); also implementation of ISPMs (International Standards for Phytosanitary Measures) in their respective countries. While implementation of seed-specific ISPM 38 (see box above) is in its infancy, delegates reported wide implementation of earlier ISPMs, notably 1, 2 and 5. NPPOs were asked to identify sources used to determine whether seed is a path-

way for pests in conducting PRAs. Protocol and validation methods vary widely and still rely on internal databases and outdated, incomplete or unvalidated sources. Information in English is not always available.

STANDARDIZATION

ISF Seed Health Manager Dennis Johnson introduced his organization's Regulated Pest List. Based on regularly updated scientific validation, this free, searchable and downloadable tool analyzes pest pathways in beans, brassica, carrots, cucumbers, lettuce, onion, melon, pepper, spinach, squash, tomato and watermelon. The list helps determine whether a given seed is a pest pathway; is not a pathway or is not proven a pathway; it also sorts by pest type: bacterium, fungus, insect, nematode, oomycete, phytoplasma, viroid and virus.

Mr. Johnson also proposed the Standards and Trade Development Facility (STDF) for narrowing capacity and resource gaps to facilitate adoption of ISPM 38 by NPPOs. Based in Switzerland, STDF funds a number of projects globally to help developing countries improve food safety and facilitate trade. Regarding phytosanitary measures: STDF provides multi-million-dollar



From left to right: APSA EC Member and Treasurer, Mr. Wichai Laocharoenpornkul; APSA Incoming President, Mr. Tahir Saleemi; Pakistan NPPO, Mr. Akhlaque Hussain; APSA Acting Director, Dr. Kanokwan Chodchoey and APSA Outgoing President, Ms Brenda Dossey

funding to increase NPPO and trade organization capacity via ISPM-focused projects. Dennis suggested funding for an ISPM 38 project could be secured — though application would need to be initiated by qualified NPPOs. (See standardsfacility.org)

SAMPLE MATTERS

Dr. Masatoshi Sato (ISTA, Director of the Department of DUS test and seed inspection, NCSS) addressed international seed testing standards covering: small seed lot samples; ISTA accreditation and issuance of blue and orange certificates; and new testing methods for fungi, bacteria, viruses and nematodes. (Many updates are in *Asian Seed* ISTA columns; more will follow)

SYSTEMS APPROACH

Michael Leader, of the Australian Seed Federation, observed that leading global seed firms' Quality Assurance models stress best practices and preventive measures for pest risk management across the research, development and production chain. He introduced several and noted that the goal is to "deliver products that meet customer needs in terms of timing, cost and quality. Failure may result in loss of sales or customers." Such measures leave little room for undetected pests going to market, and are at the heart of producer-focused quality assurance certification schemes.

Dr. Ric Dunkle (American Seed Trade Association) said the Systems Approach mentioned in ISPM 14 is gaining momentum globally, with schemes from the US, Australia, Netherlands and South Africa. He cited the US Regulatory Framework for Seed Health (or ReFreSH) and Australia's International Clean Seeds Pathway program.

Delegates were assured such programs would complement consignment-based phytosanitary certification.

More comprehensive updates available to APSA members, associates and stakeholders via apsaseed.org



Dr. Ric Dunkle of ASTA and Michael Leader of ASF discuss phytosanitary standards during a round table discussion. ASTA and ASF members are pioneering the Systems Approach.

Food for the SOL in 2018

More than 300 experts in solanaceous research and genomic technology attended the 15th Solanaceae Conference (SOL 18), held 30 September to 4 October in Chiang Mai.

Co-organized by East-West Seed and Chiang Mai University, the conference served as a platform for research collaboration, fueled by dozens of expert lectures covering all the latest trends, challenges and opportunities to increase productivity in the cultivation of solanaceous crops.

The Solanaceae or “nightshade” family comprises key economic crops in several genera, including *Solanum* (tomato, potato and eggplant), *Capsicum* (sweet and hot peppers) as well as *Nicotiana* (tobacco).

GENOMIC REVOLUTION

Biotechnology trends dominated conference dialog; more specifically — genomic technologies that stand to significantly increase agricultural productivity in the face of alarming trends in global hunger and population; if not to simply increase the capacity of breeders more efficiently to meet niche markets needs.

Speaking at a press conference, Director of Cornell University’s Plant Transformation Facility Dr. Matthew Willmann said genomic technologies have been in development for no less than 20 years.

He explained that genomics is concerned with the entire genome of any given organism or plant. “These [technologies] are ways of looking at all the genes that an organism has, all at the same time. You’re looking at sequence, when genes are turned on and off — what activates them and the variability between individuals. For example, a high-yielding rice variety versus a low-yielding one — what are the genetic factors that control this? And rather than looking at it gene-by-gene you’re looking at all the genes — all at the same time,” he summarized.

Without such technology, he warned it would not be possible to increase yields enough to meet the UN’s Sustainable Development Goal to end world hunger and malnutrition by 2030.

Chiang Mai University Dean of the Faculty of Agriculture Dr Nuttha Potapohn highlighted another reason why it is in the best



Dr. Darush Struss (Conf. organizer lead), Dr Matthew Willmann (Cornell Univ.), Dr Nuttha Potapohn (Chiang Mai Univ) and Mr. Bert van der Feltz (East-West Seed) met the press prior to opening SOL 2018 (below).



interests of her associates and compatriots to be open minded.

These technologies, she said, may ultimately “enable us to become less dependent on agri-chemicals,” which pose significant challenges, not only for Thailand but all of the ASEAN and Asian countries. She insisted that the upcoming generation were savvy and keen to embrace and excel in these new technologies, and that policy makers “should take care to ensure the country doesn’t get left behind in a rapidly advancing world.”

Gene-editing is one such genomic technology that has generated much buzz in plant breeding circles around the world, especially with respect to the CRISPR/Cas9 system. Since it was first demonstrated as a type of “molecular scissors” to edit the genome in mammalian

cells in 2013, the technology has advanced at rapid pace.

The take-home message: unlike seeds and crops developed using conventional transgenic, or “GMO” methods, material developed using newer, non-transgenic gene-editing techniques cannot readily be differentiated from that derived from conventional breeding methods. Yet, production times needed for these new-and-improved crops can drastically be reduced.

Without doubt, scientists, politicians and farmers would all agree that time is of the essence.

Look out for more on these genomic technologies in Asian Seed next issue.

SOL 19 is scheduled to be held in Jerusalem in September 2019. More SOL 18 conference highlights at solgenomics.net and eastwestseed.com

Farewell Freudenstein

APSA regrets to announce the passing of longstanding member and associate, Mr. Karl-Hermann Freudenstein, who unexpectedly left this world in June. He was 66 years old.

Employed in Germany's Federal Plant Variety Office (Bundes-sortenamt), Dr. Freudenstein was a regular delegate at our Asian Seed Congress and an invaluable resource for members conducting business across Europe and Asia.

Employed as Head of Section, National and International Variety and Seed Affairs, Coordination Centre for the Ministry of Food and Agriculture, Dr. Freudenstein was a member of the German Agricultural Society's Committee for Seed Production of Forage and Catch crops, of the German Turfgrass Society and the European Turfgrass Society.

Born 23rd May, 1952, he served in the Bundessortenamt for 30 years. Before joining that office, he took his degree as Graduate Engineer in Agricultural Science from 1972 - 1978 at the University of Göttingen and received his PhD. in Agricultural Science from the University of Giessen where he studied from 1979 - 1983.

He began his career lecturing in Plant Agronomy at Justus-Liebig University before joining the Federal Plant Variety Office in Hannover in June of 1986. His work there involved drafting legislation for both the EU and the Federal Republic. He was German representative in the 'Standing Committee on Seeds and Propagating Material' at EU-Commission and the 'Working Party on Seeds Legislation' at EU-Council.



His areas of expertise included DUS- and VCU-testing of grasses and clover, and pre- and post-control of certified seed.

Over the years Hermann Freudenstein joined seminars and performed trainings on Plant Breeders' Rights and Seed Rules and Regulations in countries around the world.

He will be greatly missed.

Welcome New Secretariat Staff



Weeranuch Mhadlhoo ("Oil") hails from Southern Thailand's Trang Province, holding a B.S. from Bangkok's Mahidol University, where she majored in Biotechnology.

As Administrative Officer, Weeranuch is assigned administrative and support activities, systematizing APSA office registration, orga-

nizing supplies and inventories, building relationships and networking with staff, members and outside sources, co-ordinating travel and preparing facilities.

Before joining APSA she worked four years with a private company -- handling administrative, procurement, logistical planning and human resource tasks. Prior to that she had worked for eight years at the UN International Organization for Migration on resettling refugees' resident in Thai urban and border camps.

Oil can be contacted via email: weeranuch@apsaseed.org

Born in Phuket, Pot Phetlorlian ("Sian") obtained a baccalaureate in Political Science at Bangkok's Thammasat University. He took a master's degree from the London School of Economics' China in Comparative Perspective Program in London.

As Research Assistant, Pot will be joining APSA for six-months to conduct a comparative study of seed legislation, policy and effects thereof on the seed sector in Asia-Pacific nations. The research project is a cooperative effort among APSA, the FAO, and WorldVeg. He will be collecting information from the private sector, and present results at the 25th Asian Seed Congress in November 2018 at Manila.

"Seeds are vital to alleviating hunger. If people around the world can access quality seeds, they can grow quality plants and thereby feed themselves. I aim to analyse information advantageous to further dialog on seed policy and legislation."



Get in touch via: pot@apsaseed.org



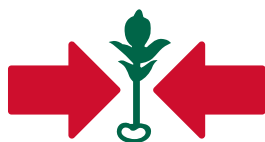
Asian Seed Congress 2018

THANK YOU

APSA
THE ASIA & PACIFIC
SEED ASSOCIATION



www.apsaseed.org



EAST-WEST SEED

Better Seeds for a Better World

Smallholder farmers play a vital role in everyone's lives. They produce 85% of the world's food and are the key players in ensuring global food security and nutrition.

For over three decades, East-West Seed has served over 18 million smallholder farmers worldwide to increase their productivity. We innovate to provide the best quality seeds to our farmers. We believe that with quality seeds, an upward spiral of development in farming systems, markets, and rural communities can happen.



BETTER SEEDS for BETTER YIELD | www.eastwestseed.com | <http://eastwestseed.h5mag.com>



twitter.com/eastwestseed



youtube.com/user/eastwestseed



facebook.com/eastwestseedgroup