News highlights
Seed map lists some of the major seed and breeding news highlights in 2019.

Israel Study Tour
APSA delegation visits seed production and R&D sites in Tel Aviv and Jerusalem.

2019 Asian Seed Congress
Asia-Pacific seed industry focus is on Kuala Lumpur.

ASRT 3 wrap
Solanaceous scientists, seed company executives in Bengaluru.

Kuala Lumpur Calling
Plant Variety Protection a foundation of seed sector development
17 - 18 FEBRUARY 2020

Centara Grand Hotel, Lad Prao, Bangkok, Thailand

**Alison Powell**
Chair of ISTA Vigour Committee (2001- present)

**Topic / Event:**
The basis of seed vigour and vigour testing

**Marie-Hélène Wagner**
Member of ISTA Vigour Committee since 2004

**Topic / Event:**
From seed longevity to vigour tests: Assessments of seed vigour based on aging tests

**Tim Loeffler**
Member of ISTA Vigour Committee since 2007

**Topic / Event:**
Seed vigour related to seed production, processing and inventory management

**Stan Matthews**
Member of ISTA Vigour Committee since 2010

**Topic / Event:**
The radicle emergence (RE) test in relation to field emergence and seed storage

**YOU SHOULD NOT MISS THIS OPPORTUNITY IF YOU WORK IN THE FOLLOWING AREAS:**
- Quality Control and Quality Assurance
- Seed Production
- Inventory management
- Early career seed industry
- Commercial and Marketing

**Registration Rates**

**For APSA member**
- Early bird rate: 180 USD (15 Nov – 31 Dec 2019)
- Regular rate: 200 USD (1 Jan – 10 Feb 2020)

**For non-member**
- Registration rate: 250 USD
- Government rate: 100 USD

**Contact:**
kuna@apsaseed.org
mike@apsaseed.org

Gold sponsor: 3,000 USD
Silver sponsor: 2,000 USD
Bronze sponsor: 1,000 USD

www.apsaseed.org


In this issue

10

Chia Tai new headquarters
Asian Seed gets the scoop on the leading Thai company’s new upper Sukhumvit corporate headquarters in Bangkok.

24

Distruptive Israeli seed technology
APSA group gets inside look into Israel’s vegetable seed industry during a recent Study Tour.

28

Inside Malaysia for ASC 2019
Kuala Lumpur hosts the 26th Asian Seed Congress, and we find out what the Malaysian seed industry is made of.

38

Say Solanaceous
APSA in October returned to Bengaluru, India for the 3rd Asian Solanaceous Round Table, joining seed scientists and executives from around the region and the world.
Welcome to the Quarter 4 and Congress Edition of Asian Seed & Planting Material. First of all let me formally congratulate Mr Simon N Groot – one of the founding members of APSA – for being awarded the 2019 World Food Prize. It is indeed an honor and recognition for the whole seed industry, which is playing a vital role for #ZeroHunger.

This November marks one full year since my tenure as APSA’s 23rd President commenced. Now, halfway through the two-year term, I am pleased to report that we are steadily on track to securing APSA’s sustainability, as laid out at the last General Assembly Meeting one year ago in Manila. Indeed, as we all reunit in Kuala Lumpur, Malaysia in the final week of November for the 26th Asian Seed Congress, I can say with confidence that APSA is strong as ever.

No doubt, we’ve endured some turbulence in recent years, having to address uncertainty about APSA’s future. Perhaps it was a test — of our strength, integrity, unity, willpower and resilience; but the fact that you are reading this is testament that we passed the test. This is credit to the loyalty, dedication, and commitment of APSA’s active members, especially members of the Executive Committee and Office Bearer, who have worked tirelessly behind the scenes — without compensation or reward — to deliberate our options, and ultimately pave the way forward. Last November, APSA came together and voted to move forward with registering our organization as a fully-legal international entity in Singapore as the Asia and Pacific Seed Alliance, Ltd.

And this was promptly done as planned and promised. APSA is now legally registered as an international non-profit organization in Singapore with operational office in Bangkok; our new constitution and EC is also registered; and, in accordance with Singapore law, we are ready to convene our first Annual General Meeting on the afternoon of November 28. I encourage all members to attend the AGM, not only for the sake of meeting quorum requirements, but to ensure that APSA’s membership is fully represented, participating in democratic governance processes that qualify us as the true voice of the Asia and Pacific seed industry.

One important AGM agenda I would like to mention here is elections to fill eight vacancies on our EC. Dr. Kanokwan (May) will elaborate on the procedures for the election in her letter on the next page, so let me take this opportunity to thank seven EC members who will be retiring, having concluded their three-year tenures. They are Mr Kawakami Tsukasa, Dr Tso Chi Yang, Dr Mi-Hee Yang, Mr Muhammad Asim Butt, Mr Isao Iuchi, Ms Brenda Dossey and Mr John Mizicko. It has been an honor to work with these dedicated individuals and they will be missed. For more details about the vacancies and candidates sitting for election please refer to the memorandums on the APSA Member Announcement page online.

Meanwhile, a warm welcome to all delegates joining us in Kuala Lumpur for the 26th Asian Seed Congress. It’s a pleasure to return to this beautiful city after 13 years – since the 2006 ASC here – and the National Organizing Committee, led by the National Seed Association of Malaysia, has been very professional and accommodating to make everything smooth. I’m excited to engage with our Malaysian hosts, and learn more about the budding seed industry here, especially all the enticing opportunities for seed business.

I see many parallels between Malaysia and my home country, Pakistan. Both have strong agricultural traditions, not least in horticulture. Moreover, Malaysia is a global leader in plantation crops such as oil palm, rubber, cacao and durian fruit, while Pakistan is widely known for sugar cane, wheat, cotton, Basmati rice with world-renowned aroma and delicious mangoes. Yet the two countries remain the top seed importers in this region.

Our seed industries are only starting to sprout as the respective governments cooperate more closely with the private sector and give more importance to plant breeding, innovation and, indeed, plant breeding innovation. And that’s not limited to Malaysia and Pakistan: cooperation and collaboration between the public and private sectors is of paramount importance to growth of the seed industry across Asia.

Another key theme and topic for us is Intellectual Property Rights (IPR), which is the theme for this year’s Congress Workshop on November 25. It is one of the pillars of APSA and important to all in the seed industry. See Dr. Kanokwan’s letter on the next page for more details about the Workshop.

Beyond Congress, there is much to look forward to in the year ahead: our transition is on course but we are not through yet, with some loose ends to tie up to ensure we stay on track, which we’ll discuss at the coming AGM.

Finally, let me take this opportunity to formally announce our partnership with the China Seed Association (CSA) in planning to host the 27th Asian Seed Congress in Shenzhen, in the People’s Republic of China in November 2020. A major APSA country as measured by membership, China is a leading producer and consumer of seeds, and center of seed-related emerging technologies. I look forward to working with the CSA on planning for the event.

Meanwhile, it’s time to soak in the present, here in Kuala Lumpur, where APSA’s Asian Seed Congress turns 26 years old, strong as ever. I look forward to catching up with colleagues, partners and associates, and planting and nurturing the seeds of our future.
Creating Tomorrow Today

TAKII SEED: HIGH QUALITY, RELIABLE, INNOVATIVE

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

http://www.takilseed.com/
http://www.takili.com
http://www.takil.eu

TAKII SEED
Creating Tomorrow Today
Welcome dear APSA members to our final issue of the year. I cannot believe how quickly quarter four of 2019 has come. In such a short period, APSA has gone from the seed- to seedling-stage successfully. I believe you all know how important are good seeds, good environment and good management practices to ensure healthy germination and strong seedlings.

The latter may be taken as a metaphor of APSA’s present and future status.

Regarding the GAM vote last year to proceed with APSA registration in Singapore: we have already seeded the new environment. Starting in April, we introduced new procedures for membership application and renewal, with our Singapore account (non-residency) opened in Thailand. And though there are still some limitations to work out, so that member transactions proceed smoothly in accord with our new constitution under Singapore law, I am confident that there is no challenge that cannot be overcome when we work together.

Many new faces are joining APSA, and we continue to initiate, receive and nurture engagement with key stakeholders across the entire agro-food spectrum. I think this shows how much the industry needs to stay connected through the association. Hence, it is highly important we coordinate our moves as a regional body, ensuring our seed industry consensus and voice is consistent and clear with respect to all important developments in agriculture – phytosanitary measures, plant breeding innovation, Plant Variety Protection (PVP) and Intellectual Property Rights (IPR) being the main priorities.

Moving on to the annual Asian Seed Congress: this year’s marks our 26th edition. Our program provides more business value to members, as we committed to during the GAM last year. The theme is Plant Variety Protection for Seed Sector Development. APSA’s position is that seed piracy should not exist in our trading activities – and that is the theme of a Congress workshop, 25 November, right after the inaugural ceremony. Experts from around Asia, and several international organizations, will present views on this topic. So, we look forward to seeing you there, noting that this year pre-registration is not required. Aside from the workshop, many issues of great interest are addressed in six technical sessions, including: Fall armyworm management; biotech applications for rice breeding and testing; success stories from leading companies in Asia and elsewhere on how such technology can profit businesses; an update by the ISF on the System Approach concept and ePhyto; updates from Malaysia’s NPPO; East-West Seed’s “No Child Labor Initiative”; the sunflower business; smallholder farmer projects; pesticide reduction practices; an update on the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA); and a round-table discussion or interactive session on Plant Variety Registration and Plant Variety Protection.

Details about the candidates, AGM registration and election procedures can all be found on the Congress Website -- but please don’t hesitate to send me your questions directly before the AGM. Again, please feel free to contact me directly if you have any questions: these amendments are critically important to APSA’s future, so...
we need your engagement.

It’s not only serious business at Congress: many cultural performances, entertaining programs, and post-Congress tours have been prepared by our enthusiastic national organizing committee. So please make the most of your stay in Kuala Lumpur.

Looking ahead to next year, we have already started preparing our first events for 2020, which will include two intensive seminars and workshops in collaboration with the ISTA Vigour Committee, led by Dr Alison Powell and the chair of APSA Working group of integrated vegetable seed companies, Dr Sumitra Kantrong. The first will combine topics related to seed quality management for seed production companies – covering lab work, field operations and customer complaint handling. The seminar is set for 17 – 18 February and following that we will launch a Seed Vigor Testing Workshop from 19 – 21 February (with a limit of only 25 seats for the workshop). For updates, please see our Website. Registration for both opens 15 November.

Next year’s Congress is in Shenzhen, China: we look forward to our coming collaboration with the China Seed Association.

As this is my last letter of the year, I would like to offer my sincere thanks for the continuing support from all of you, to wish all of you great yearend results – and more success to come in 2020! 🎉

More highlights from the APSA Secretariat & EC

ASIAN SEED CONGRESS 2020 SIGNING CEREMONY
2020亚洲种子大会
签约仪式

APSA’s EC recently met with the China Seed Association in Shenzhen, China, where the 27th Asian Seed Congress is planned for November 2020.

APAARI visited APSA in September to discuss further collaborations. From left, Dr. Grisana Linwattana (Government Relations Consultant), Kunaporn Phuntunil (APSA Technical Coordination Manager), Dr. Kanokwan Chodchoey (APSA Executive Director), Dr. Ravi Khetarpal (APAARI Executive Secretary) and Ms. Thansita Tanaphatrujira (Operations Associate)

Dr Kanokwan Chodchoey presented an APSA memento to Mr Omer Sela, Sector Manager, Tel Aviv & Central Israel Chamber of Commerce in thanks for Israel’s support in hosting an APSA Study Tour delegation. See report on page 23 of this magazine for more details.
Central & West Asia

- Uzbekistan: Uzbekistan’s Ministry of Innovative Development and Agriculture and Indian seed company Nath Bio-Gens agreed to establish a seed production and research cluster in Andijan, Uzbekistan, it was announced February, as part of an agro cluster occupying 15,000 to 20,000 hectares. Nath Bio-Gens produces GM and hybrid seeds.

- Israel: APSA’s Study Tour: An Innovative Technology in Breeding & Seed Production held September 21 – 28, visiting seed production sites in Tel Aviv and Jerusalem.

- Syria: Seeds of war-torn Syria preserved at genebank run by the International Center for Agricultural Research in the Dry Areas or ICARDA in Tal Hadya.

South Asia

- Pakistan
  - February: various groups, including a farmers’ organization, filed a petition challenging the legality of Pakistan’s Plant Breeder’s Rights Act of 2016 and Seed (Amendment) Act of 2015. A Full Bench of the Lahore High Court heard the petitions.
  - May: Hybrid wheat seed trials of new, early-harvest, climate-resilient varieties resulted in nearly 50% yield-per-acre increases, and 40% decrease in number of seeds sown.
  - July: field trials and imports of genetically-modified maize seed were suspended following a meeting of the National Biosafety Committee.
  - August: A govt seed lab was ISTA accredited, from July 9 thru 2021, for manual seed lot sampling; purity and identification; germination and weight.

- India
  - January: Researchers in January at the National Institute of Plant Genome Research in New Delhi identified two genes – SIDEAD23 and SIDEAD23 – in tomato controlling response to heat stress and viral infection (abiotic and biotic stresses). Results were published in the journal Environmental and Experimental Botany.
  - February: The world’s largest seed -- from a double coconut palm, weighing 30 kilograms – was displayed at India’s Ministry of Environment. The seed came from a tree planted in 1894 in Kolkata.
  - May: PepsiCo India dropped a potato IP infringement lawsuit against Indian farmers.
  - June: ISTA held their 32nd Congress in Hyderabad, India, 26 June, the first in Asia, and electing their first Indian Vice President, K. Keshavulu.
  - July: Indian researchers produce chocolate-like products from jackfruit seed powder, which contains chemical compounds and aromas similar to chocolate.

- Bangladesh
  - July: Bangladesh Agricultural Research Institute asked for funds to speed distribution of new blast-resistant, high-yield, zinc-fortified BARI Gom 33 wheat seeds.

New Zealand

- New Zealand voters may decide to make NZ first country in the region to legalize recreational cannabis in November 2020. Medical cannabis is already legal.

Keep up to date with all the latest in the Asia-Pacific seed industry at apsaseed.org
### China
- A Chinese lunar probe on the moon’s dark side autonomously germinated seeds from potatoes and Arabidopsis thaliana, in January; a few days later the sprouts withered and died – apparently owing to extreme lunar temperatures.
- National Rice Research Institute and the Chinese Academy of Agricultural Sciences announced a breakthrough in hybrid rice seed cloning, on 4 January, allowing heterosis or hybrid vigor to be passed on to hybrid seeds.
- In February, the Ministry of Agriculture and the International Rice Research Institute announced a national seed strategy for the country, it was reported in February. The plan will establish regulatory bodies for producing, distributing and screening quality rice seeds, and includes capacity-building and training programs.
- National Rice Research Institute and the Chinese Academy of Agricultural Sciences announced a breakthrough in hybrid rice seed cloning, on 4 January, allowing heterosis or hybrid vigor to be passed on to hybrid seeds.
- In August: Former Chinese Vice Minister of Agriculture and Rural Affairs Dr Qu Dongyu takes over as Director-General of the Food and Agriculture Organization (FAO).
- In August: Former Chinese Vice Minister of Agriculture and Rural Affairs Dr Qu Dongyu takes over as Director-General of the Food and Agriculture Organization (FAO).

### Korea
- In May: WorldVeg Korea Office formally opens in Jeollabuk-do at the National Institute of Horticultural and Herbal Science, with Seonghoe Jang named director.
- In June, scientists use plasma to bolster rice seed germination and extend shelf-life of agricultural products.
- In September, the National Agricultural Extension Center implemented 28 agricultural extension projects in the past year including one for F1 hybrid rice seed which helped farmers reduce the number of seeds needed for sowing, while the Plant Resources Center genebank has been collecting endangered, rare and lucrative genetic resources for multiplying and economic exploit during last 10 years.
- In August: 20 NPPOs attended the Asia-Pacific Plant Protection Commission (APPPC) regional workshop in Busan, discussing the IPPC ePhyto project and IYPH 2020.

### Japan
- In February it was reported that native species of rice, wheat and soybeans would continue to be propagated despite abolition of Japan’s Main Crop Seeds Law – effective since April 1, 2018 – which allows foreign investment in production of Japan’s main crops.
- In June, the Govt considers stricter regulations to prevent practice of evading PVP by illegally exporting seeds and seedlings of economically-valuable fruit varieties abroad.
- In August: NARO scientists isolated a gene conferring broad-spectrum resistance to β-triketone herbicides. The research was published in Science late July.

### Southeast Asia
- Thailand: In February, HM the King Vajiralongkorn signed a Royal Decree, officially legalizing medical cannabis; In June, East-West Seed co-founder Simon N. Groot awarded 2019 World Food Prize, the most prestigious honor in the seed, agriculture and food industries; In August, Thailand’s FAO drafts new GMO regulations banning those capable of multiplication or of transferring genes; In September, hemp seeds removed from narcotics list, but those and hemp extracts still tightly regulated as medical grade native cannabis cultivation proceeds.
- Philippines: In March: Filipino farmers see paddy yields double or triple after planting hybrid rice seeds such as SL Agritech’s SL-8; It is reported that though hybrid and GM seeds cost more, they have brought self-sufficiency in maize. In 2018, 2.5 million ha were planted.

### Australia
- In June, a sex-fluid, prickly, Australian bush tomato with incessantly changing purple flowers, baffling botanists, is now named ‘Solaneum Plastisexum’.
- In June: Next-gen, high through-put quarantine screening for horticulture crops advances. The tech promises to drastically reduce screening time for pathogens.
- In September, the Northern Territory legalized industrial hemp – but not recreational hemp or its extracts.
- In September, the Northern Territory legalized industrial hemp – but not recreational hemp or its extracts.
- In September, the Northern Territory legalized industrial hemp – but not recreational hemp or its extracts.
- In September, the Northern Territory legalized industrial hemp – but not recreational hemp or its extracts.
Chia Tai’s new headquarters

Thailand’s oldest and largest fully-integrated agriculture company, recently moved into its brand-new, state-of-the-art corporate headquarters in uptown Bangkok.

Situated on a three-rai (about half-a-hectare) plot of prime real-estate in the bustling upper-Sukhumvit district of Phra Khanong, Chia Tai’s new 15-story headquarters is just a stone’s throw from Bangchak BTS skytrain station and onramps for the Chalong Rat and Bangna expressways.

Such a central location is a welcome convenience for Chia Tai’s 1,300 employees, especially the 300 based there full-time.

The other 1,000 employees are based at six regional companies (in India, the Philippines, Myanmar, Vietnam, Cambodia and China) in addition to three R&D centers and three farms (in Chiang Mai, Kanchanaburi, and Suphanburi).

“The new building gives us room to expand our operations and create a more collaborative workspace for the company as a whole,” explains Chia Tai CEO, Manas Chiaravanond.

As reported in past issues of Asian Seed, the legend of Chia Tai formally began in 1921, when two Chinese immigrants – Manas’ father, Chia Siew Whooy (or Mr. Choncharoen Chiaravanond in Thai) and uncle, Chia Ek Chor – began selling seeds out of a humble shophouse on Songsawat Road, which they eventually upgraded into an office.

As business grew over the decades, the Songsawat office continued to serve as Chia Tai’s head office, eventually reaching its expansion limits. Plans for a new headquarters to better serve the company’s needs finally materialized in 2015, culminating with a three-year construction process. Chia Tai finally moved to its new headquarters on Sukhumvit 60 Road this January.

“This move allows our employees to engage with each other more easily, with collaborative spaces to promote innovative culture that has become an integral part of our organizational strategy,” Manas said.

Every square meter of the new building – 18,443 in total – was thoughtfully designed for a specific purpose, reflecting the company’s forward strategy and lasting position as a leader in Asian agriculture.

One of the first things you notice when approaching from Sukhumvit Road is the verdant front lawn, fittingly landscaped with plants, including rice, vegetables, herbs and seasonal flowers.

“This reflects Chia Tai’s profound relationship with the agricultural industry and our intention to promote a sound ecosystem. The greenery also helps employees to feel fresh and relaxed, increasing their productivity and ensuring the delivery of quality products and services. There’s also a plan to upgrade this space into a public recreation area, where local community can take a break, relax and unwind with the flower blooms,” Manas explained.

Commenting on a “modern simplicity” design concept, Manas said, “We want to reflect Chia Tai’s ability in keeping up with the times, demonstrating our long legacy in Thailand of almost 100 years and counting.”

Upon entering the wide-open, naturally-lit lobby, busy Bangkok quickly fades as inner peace proliferates. Moving up, each of the dedicated floors, zones and spaces continues to impress.

“At Chia Tai, we have the best and passionate people who work together as One Chia Tai, contributing to the company in achieving the same vision. Our solid foundation is built upon sincerity, honesty and integrity. To encourage our staff to live up our core values, the interior is designed under the concept ‘Growing as One’, where all the growth happens in the ‘backyard’,” said Manas.

Chia Tai HQ Main Office Zone Concepts

**Seeds business** office area is designed under the concept of ‘The Garden’, reflecting the shady and cool greenery of a backyard garden.

**Fertilizer business** office area is designed with the mood and tone of ‘The Playground’, representing liveliness and vitality.

**Plant Protection and IT** office area is characterized by the blue and gray colors of ‘The Glass House’ concept, affording a warm, modern atmosphere.

**Support functions** office area has warm colors and tones with its ‘Tree House’ concept.

Upon entering the wide-open, naturally-lit lobby, busy Bangkok quickly fades as inner peace proliferates. Moving up, each of the dedicated floors, zones and spaces continues to impress.

“At Chia Tai, we have the best and passionate people who work together as One Chia Tai, contributing to the company in achieving the same vision. Our solid foundation is built upon sincerity, honesty and integrity. To encourage our staff to live up our core values, the interior is designed under the concept ‘Growing as One’, where all the growth happens in the ‘backyard’,” said Manas.
Elaborating on how this concept translates to design, he explained that each of the company’s main business divisions features a creatively-themed office space complete with individual work stations integrated with communal collaboration zones, and “wind down” spaces.

“Each zone represents the parts of a backyard, namely a glass house, a playground, a tree house, and a garden, creating the ambience of the four seasons: winter, spring, autumn and rainy, all of which are related to how the business works.” (See box below, left)

Reflecting Chia Tai’s value for sustainability, the headquarters’ functional design integrates a number of energy- and resource-saving features. These include an automated lighting system complete with motion sensors, which automatically turns on lights when one enters a bathroom, and shuts them off when they leave; electricity and water meters are installed on each floor, allowing for monitoring and analyzing of utilities to support the implementation of energy and resource saving guidelines; Waste separation bins are placed throughout, complemented by monthly waste-sorting activities to raise awareness among staff about recycling and composting.

Manas added that staff were engaged in the design process, with a focus group established to determine what employees required in the new headquarters.

“We had to ensure the design and function addressed employees’ daily workflow routines, while bringing them together to create unity in the workplace and a strong work environment, all while promoting a healthy lifestyle and work-life balance.”

For the latter, there is a fully-equipped gym – which is especially packed before and after working hours – a golf-driving simulation room, and ample space to facilitate workout activities, including yoga and zumba dance classes.

Last but not least, there is a canteen, where staff can socialize and dine on their break. At present, staff bring in their own food but plans are in place to open one of Chia Tai’s very own eateries, completing its ‘farm to fork’ model.

“This new headquarters aims to be an exciting place for our staff to bring out their best to successfully deliver our promise in delivering innovative agriculture for better and sustainable quality of life to people. Chia Tai will celebrate its 100 years milestone in 2021. This new iconic headquarters clearly states our strength, determination and readiness to grow even younger and stronger in the next 100 years,” concluded Manas.

The new Chai Tai HQ includes spaces, zones and facilities promoting unity, collaboration and a healthy work-life balance.
Tapping mungbean R&D potential

The International Mungbean Improvement Network (IMIN), which brings together public and private sector partners with an interest in mungbean research to share knowledge, experiences and technologies, welcomes new members. The World Vegetable Center coordinates the network. The next annual meeting of the network is planned for 4-6 March 2020 in Thailand.

Mungbean, also known as green gram or moong, is an important crop in South, East and Southeast Asia, but not well known in most other parts of the world. In South Asia, mungbean grains are commonly eaten as dhal. In China, Indonesia, Laos, Thailand and Vietnam mungbean is more commonly eaten as a vegetable in the form of nutritious bean sprouts. Mungbean is also used to make transparent noodles and to make paste for filling pastries such as mooncakes in countries such as China and Vietnam.

The global mungbean area is about 7.3 million ha, but average grain yields are quite low at 0.72 t/ha. Of the estimated global output of 5.3 million tons in 2016-2017, India and Myanmar each account for about 30%, China for 16%, and Indonesia for 5%. To farmers, the chief attractions of mungbean are the crop’s short duration, low input requirement, positive effect on rice and wheat yields when grown in rotation, and good performance under heat and drought stress. Key constraints include market price volatility and high cost of harvesting, which is still done manually in many countries. FAO named mungbean a “future smart food” because of its potential to address Asia’s challenges of malnutrition and climate change.

Mungbean research is done mostly by public research organizations as the crop has attracted limited interest from the private seed sector. Countries with strong mungbean research programs include China, India, Pakistan, Bangladesh, Thailand and Indonesia. Many current varieties are based on the breeding work of the World Vegetable Center, which has had a mungbean breeding program since 1973.

In 2016, the World Vegetable Center with funding support of the Australian Centre for International Agricultural Research (ACIAR), established the International Mungbean Improvement Network (IMIN). The network aims to strengthen international collaboration in mungbean research. Such collaboration is particularly important for mungbean because national programs tend to be under-funded and do not have enough capacity to do everything on their own. Varieties developed in one country could potentially perform well in other countries if national programs agree to share their genetic resources. The network also informs the World Vegetable Center what priorities to pursue in mungbean research, which could enable faster uptake of research output.

The International Mungbean Improvement Network has led to the development of mungbean core and mini-core collections for breeding to better exploit the potential of the available mungbean genetic resources. This work led to the discovery of several novel plant traits such as new sources of resistance to mungbean yellow mosaic disease. Originally focused on just four countries, the network has now opened up for any public and private sector organization with an interest in mungbean improvement research and not limited to breeding research. Interested parties can sign a Memorandum of Agreement with the World Vegetable Center to join the network. The agreement specifies general Principles of Cooperation to ensure open sharing of knowledge, experiences and technologies. Membership is free of charge, but an active in-kind contribution is expected. The next annual meeting of the network is planned for 4-6 March 2020 in Thailand and will be hosted by Kasetsart University.

For more information, please contact Ram Nair, WorldVeg Global Legume Breeder (Email: ramakrishnan.nair@worldveg.org) or Pepijn Schreinemachers, WorldVeg Flagship Program Leader for Enabling Impact (pepijn.schreinemachers@ worldveg.org).
DONG OH IS NOW READY TO TAKE ITS EXPERTISE TO REACH OUT TO GROWERS AROUND THE WORLD.

For over the past half-century, DONG OH has provided products and services to enhance Korean growers’ productivity and value-creation while ensuring a clean and safe environment.

DONG OH SEED is established as a seed company by the DONG OH GROUP. It provides over 150 varieties in 13 crops. It has already gained global recognition for its outstanding quality and performance in all varieties in Korea and overseas as well, based on agriculture know-how. DONG OH SEED plans to export pepper, squash, melon and bunching onion all over the world. DONG OH SEED will lead the globalization of Korean agriculture and contribute to making healthier vegetables.

PMR STRONG (Squash)
- Light green fruit color, cylindrical sweet fine texture flesh
- A vigorously growing and resistance to powdery mildew until late growth
- Good fruit setting and long shelf life
- Great uniformity for shape and high yielding variety

OREO (Bunching Onion)
- F1 hybrid seed spring to autumn harvesting
- Very thick and strong white stem
- Tolerance to bacterial sort lot
- Great uniformity and low temperature

SKY BALL (Tomato)
- TYLCV and TSWV multiple tolerance red tomato and weight is 200g~250g
- Good Uniformity and excellent fruit color
- Excellent fruit setting high yield and long shelf life

GREEN DRAGON (Cucumber)
- Typical oriental cucumber of half green type
- Vigorously well growing. Great uniformity weight 130~180g
- High yield and long shelf life

DONG OH SEED PROMISE TO SERVE THE INDUSTRY AND FARMERS WITH HIGH-QUALITY VEGETABLE SEEDS.

www.knco.co.kr
Access to Seeds Index ranked East-West Seed #1 in the 2019 Global Index and the Regional Index for South and Southeast Asia

#1 in serving the world's smallholder farmers
“It is the characteristics of the plant, not the production method, that determines its safety,” observed Amitabh Mohanty, PhD, Program Director of India’s Department of Bio-Technology National Genomics and Genotyping Facility during his presentation at the Regional Expert Consultation on Gene-Editing in Agriculture and its Regulation, held 10 - 11 October, in Hyderabad at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).

The Asia-Pacific Association of Agricultural Research Institutions (APAARI), the Consultation’s principal organizer, convened experts representing both public and private sectors from India, Vietnam, Thailand, Japan, the Philippines, Chinese Taipei, and Australia.

Organizations included the Federation of Seed Industry of India (FSII), the ISF, APSA, the FAO and CropLife Asia. Focus was on gene-editing opportunities for India and APAC countries. Discussion centered on innovations and their impact; regulatory gene-editing policies, particularly in the Asia-Pacific region; and the impact of regulatory hurdles, delays – and resulting high costs – of technology adoption.

Adapting communication strategies to enable plant and animal breeding innovation – and consumer acceptance – were also discussed.

During his presentation Prof. Mohanty explained how the CRISPR-Cas9 gene-editing tool enables targeted DNA breaks by using a Guide RNA to match the target DNA sequence: the Cas9 nuclease acts as the DNA cutting enzyme and is guided to the DNA sequence by the Guide RNA. The Cas9 enzyme then binds to the target DNA, making a double-strand break (afterwards repaired through the plant’s own cellular process). The technique affords control over plant architecture; flowering and day-length sensitivity; fruit setting and size; ripening synchrony; and nutrient content.

The advantages of CRISPR, he said, are “simplicity and efficiency,” adding that it is a “precision editing tool with wide applicability,” and allows precise, targeted DNA modification “cheaper and faster than conventional transgenic technology,” with rapid product development cycles and lower regulatory cost. The professor also cited CRISPR’s ease of use and said it afforded “smaller players [and] academic institutions a level playing field” on which to compete.

APSA Executive Director Dr Kanokwan Chodchoey noted that surveys show consumers worry over gene-edited foods “primarily because they are unaware of the benefits and the truth about the technology.” To make gene editing successful, she averred, concerted effort must be made “to simplify the science for consumers.”

She expressed her “hope that plant varieties developed through this latest breeding technology not be regulated differently if they are similar to plant varieties developed by conventional methods.” APSA, she said, has an educational video on the topic “everyone is able to use.”

APAARI Coordinator Rishi Tyagi affirmed that gene-editing is the wave of the future: “If you believe in plant breeding, you have to believe in GE. The challenge is to break the myth.”

ICRISAT’s Dr Rajeev Varshney observed that, while his organization “has led genome sequencing of ten crops... we need clarity on the regulation of GE products,” and FSII Executive Director Dr Shivendra Bajaj urged a shift from “process-based regulation” to “product-based regulation.”

Several speakers affirmed that continued delay in implementation would affect the poorest sectors of society – notably smallholder farmers – adversely.

Other Consultation business included: a panel discussion on research areas; capacity and infrastructure development; regulatory development and public awareness; and partnerships for achieving sustainable development goals (SDG).

Regulatory status updates covered Japan, the Philippines, Chinese Taipei, Thailand and Vietnam.
Held 13-14 September at the Centara Grand Hotel and Exhibition Center, the event was co-organized by the Thai Seed Trade Association (Thasta) and Thailand’s Department of Agriculture (DoA), with support from the National Science and Technology Agency (NSTDA).

Representing ag-input and seed production, research, distribution and marketing companies, in addition to seed associations and relevant government agencies, delegates hailed from Thailand, Malaysia, Myanmar, Vietnam, Philippines, Japan, China, Hong Kong, India, Sri Lanka, Pakistan, Bangladesh, Turkey and Ukraine.

Presiding over the inauguration ceremony were DoA Deputy Director General, Mr. Suradet Pachimkul, together with Thasta President Dr. Chairerg Sagwansuparyakorn and other officers and committee members of the association.

Mr. Suradet expressed appreciation of Thasta’s efforts in supporting DoA’s goal to promote the trade of high-quality seeds, both locally and internationally, which he said was in line with the government’s “Masterplan” to position Thailand as a regional seed hub.

The Deputy Director General also led the ribbon-cutting ceremony to inaugurate the opening of the “Thai Pavilion” exhibition space, showcasing a slew of Thai seed industry products and services.

Citing positive feedback and the event’s overall success – despite a short five-month period for preparation – Thasta President Dr. Chairerg Sagwansuparyakorn vowed to organize an even bigger event – with more participants from more countries next year.

Another highlight of the event was the signing of a twinning agreement between THASTA and three other seed trade associations – the Guangzhou Seed Trade Association in China; the National Seed Association of India (NSAI) and the Japan Seed Trade Association (JASTA).

The agreement aims to establish closer ties in business, trade promotions, and knowledge exchange. Representatives from the associations presented country trade reports during the event.
Stop Seed Piracy

for the sake of farmers and innovators

#asc2019KualaLumpur

Seed piracy is wrong and we all have a role to stop it

#SayNoToSeedPiracy

#APSASEed4Change
On Friday September 27, the National Seed Association of India (NSAI) held its 13th Annual General Meeting (AGM) at National Academy of Agricultural Science in New Delhi. It was attended by NSAI members from across India. The chief guest for the function was Shri Ashwini Kumar, Joint Secretary (Seeds) from the Department of Agriculture, Cooperation and Farmers Welfare.

M Prabhakar Rao, during his presidential address introduced various issues pertaining to the Indian seed sector such as FDI regulations in Seed sector, intellectual property rights and PPVFRA issues which are hampering the growth of medium and small industries, along with other technical issues like BT Cotton, HT contamination, seed revalidation, issues of breeder seeds and seed subsidies.

NSAI Executive Director Shri RK Trivedi presented on bar-coding and traceability, development of a national seed testing body and other industrial issues. “The Indian Seed Industry is undergoing a transformation right now. We at NSAI are putting all our energies to help this transformation create new opportunities for Indian companies and provide new impetus for growth in the sector. NSAI has always been a trusted partner of the Government of India and we hope to do the same for the future, too,” said Shri RK Trivedi.

General Secretary Dr P Zaveri delivered the annual report, while Mr Pawan Kumar Kansal presented the annual budget, dually approved by members through resolution.

Next, there was an election for the new 2019-2021 Governing Council, in which nine members contested six seats, in addition to two seats co-opted for state associations. The election was witnessed by an Election Committee and three observers, with results declared by the chairman of the election committee. Immediately after the declaration of election results, the newly constituted GC convened a meeting in which four members were unanimously elected as Office Bearers (OB) for 2019-21 term. (See box bottom, right)

Commented re-elected NSAI President Shri Prabhakar Rao: “NSAI is committed to the Indian seed sector and working to protect the small, medium and large Indian companies. We are constantly working to protect India’s farmers and seed companies from monopolization and uphold the Indian laws to protect our country. We will work tirelessly to prevent violations of our IPR laws, our PPPV& FR Act, along with other legislations that safeguard our sovereignty. Being committed to our nation, we hope to steer policy and help industry follow our laws for creating a stronger nation while ensuring that the industry has the maximum ‘ease of doing business’ within the country.”

Newly elected General Secretary Shri KS Narayanswamy said, “I am much honored to receive this responsibility to serve the Indian seed Industry ... I will ensure that all issues of our members are resolved at the earliest. The Indian seed sector is progressing at a rapid pace, and I will ensure, with the guidance from our president Shri Prabhakar Rao and other members, that we grow holistically.”

Vice President Mr Zununwala expressed his happiness on the new GC’s constitution and fair elections. Treasurer Shri Ashwini Kumar also thanked the secretariat and election chairperson for a smooth election process.

NSAI Governing Council 2019 – 2021
1. Shri C Rambabu
2. Shri Sudhir Kansal
3. Shri Dinesh bhai Patel
4. Shri Siddhartha Sen
5. Shri K Praveen Kumar
6. Shri Rakesh Jain (from Association category)

Co-Opted Members on the GC
1. Shri KS Narayanswamy
2. Shri Vaibhav Kashikar

Note: Shri NP Patel, Dr Manish Patel and Shri Arun Kumar Aggarwala will continue to serve on the GC through to 2021.

NSAI Office Bearers 2019 – 2021
1. Shri Prabhakar Rao - President
2. Shri Kamal O Zununwala - Vice President
3. Shri KS Narayanswamy - General Secretary
4. Ashwani Garg - Treasurer
Emphasizing technology, sustainability at India’s 10th National Seed Congress

Ensuring quality germplasm for farmers through an emphasis on traceability and technology was an echoing theme of India’s 10th National Seed Congress (INSC), held 14 to 16 October at the Indian Agricultural Research Institute (IARI) in New Delhi.

Jointly organized by ICAR-Indian Agricultural Research Institute (IARI), New Delhi – in collaboration with the National Seed Research & Training Centre, Varanasi, U.P., and the Ministry of Agriculture and Farmers Welfare, Government of India – the INSC was sponsored by the National Seed Association of India (NSAI).

(Note: NSAI organizes the Indian Seed Congress, which is a different event usually organized in Q1.)

Key topics on the technical agenda included: variety identification, maintenance and protection; quality seed production and seed security; innovative approaches in seed quality evaluation; seed enhancement, processing and storage; seed certification and seed law enforcement for quality assurance; seed health management; as well as a panel discussion titled “Policies for public-private partnership, entrepreneurship development and seed trade”.

In his keynote address, India’s Agriculture Secretary Sanjay Agarwal said the government is supporting efforts to develop the world’s best traceability system so as to ensure farmers’ access to quality seeds, which would contribute to the “Made in India” strategy of boosting exports of various foodstuffs with a special focus on seeds. India wants to increase seed exports by 10% as part of boosting farmers’ incomes.

APSA Treasurer and NSAI Governing Council Member Dr. Manish Patel gave a lead presentation on seed technology, in which he highlighted the importance of newer seed enhancement technologies such as seed film coating, pelleting, priming and seed hygiene. He also advocated for the sustainable use of chemicals and plant nutrients. “Seed technology can be a great tool to farmers in achieving better precision in their farming with least input cost to hike up farm profit,” he told the audience. He went on to urge the Government of India to focus more on seed treatments, which he said would ensure sustainability in agriculture, while helping to double Indian farmers’ income by 2022.
China autumn veg seed trade thrives

October was a busy month for the vegetable seed industry in north China, with several back-to-back seed and vegetable trade shows to mark the autumn harvest and winter planting period— in Beijing, Tianjin, Xingtai, Zhengzhou and Shangdong. Asian Seed attended three of these shows, joining strong APSA representation, including current and past APSA Executive Committee members and past presidents. APSA China Liaison Manager Ms Li Xiaofeng reports:

Tianjin

Returning to the major northeastern China port city for the third straight year, the 2019 Tianjin International Seed Expo stands drew more than 20,000 visitors. Held October 14 to 16 at the Xiqing District Social Mountain International Conference Hotel, the expo was co-organized by Tianjin Agricultural Association, Tianjin Seed Industry, Xiqing District People’s Government and Tianjin Academy of Agricultural Sciences, under the guidance of China Seed Association and Tianjin Agricultural and Rural Committee.

Utilizing the spacious 10,000 square meter exhibition area were 627 booths representing 1,156 exhibitors, mostly from Mainland China, in addition to an international contingent of 19 exhibitors from Germany, France, Britain, the Netherlands, Japan and South Korea.

In addition, a 104 mu (6.93 hectares) variety demonstration field was set up at the Rice Park in Wangwenzhuang Town, Xiqing District, comprising 80 mu (5.3 ha) of open field demos, and a 24 mu (1.6 ha) facility area—featuring 4,310 varieties from 24 kinds of vegetables, including tomatoes, cabbage, peppers, watermelon and cauliflower.
Beijing

The 27th Beijing Seed Conference was held at Langfang International Convention and Exhibition Center from October 18 to 20. Organized by the Fengtai District Agricultural and Rural Bureau and District Seed Association, under the leadership of the Fengtai District Committee and the district government, the premier Chinese seed trade show was held in parallel with the second Beijing Seed Poverty Alleviation Conference.

The three-day event attracted some tens of thousands of visitors and delegates, including officials from the Ministry of Agriculture and Rural Affairs, the Poverty Alleviation Office of the State Council, relevant leaders at the provincial and municipal levels, representatives of Seed Relevant Organizations, associations, and enterprises.

Exhibitors represented more than 670 seed enterprises from China and abroad. According to organizers, the expo facilitated the trade of more than 500 million yuan worth ($70.7 million) of seeds and seedlings, while transactions for all agricultural products reached 1.2 billion yuan. ($169.7 million)

Xingtai

The first event of its kind and scale in China to promote R&D and trade of staple brassica crops was held 27 to 29 October in Xingtai City, Hebei Province. Held under the theme “integration of innovation and development”, the event was organized with the aim of promoting close integration of Cruciferous vegetable production, knowledge and research, and to enhance international exchanges.

It was jointly organized by Xingtai Municipal People’s Government, Southern Newspaper Media Group and China National Seed Trade Association.

More than 400 delegates attended the main forum on October 28: The topic of the morning session, hosted by CNSTA Secretary General, Ms Tian Weihong, was “Focus on Production-Learning-Research Integration”, while that for the afternoon session, hosted by the President of the Vegetable Branch of China Seed Association, Dr. Xu Yong, was “Building the industrial chain”.

The technical sessions, organized at the Xingtai Wanfeng Hotel, featured dozens of leading Chinese and international academicians and experts who presented on the latest breakthroughs and trends in breeding and trade of cruciferous or brassica family vegetables. The conference was complemented by variety demonstrations at the Jierumei Agricultural Research Park, where more than 2,000 cruciferous vegetable varieties were showcased, including Chinese cabbage, broccoli, cauliflower, kale, radish and kohlrabi. From these, a special committee judged and selected 88 “excellent varieties” based on taste, aesthetics, marketability, yield, disease-resistance and other quality-indicator traits. These included 12 radish; 13 Chinese cabbage; 6 broccoli; 35 cabbage and 22 cauliflower varieties.
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.

P: People
A: Ambition
S: Sincerity
I: Smile
N: Innovation
O: Optimism
E: Never give up

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

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

The Sakata brand has expanded to over 170 countries around the world.
On 22 September, our 17 participants and three APSA staff visited the Israel Export and International Cooperation Institute, welcomed by Ms Noa Isralowitz, acting manager of the agro-technology sector. There, we met representatives from Seedwiz, Agridera and Salicrop.

The Seedwiz representative introduced his firm’s Geographic (GIS) OPTimizer, technology that can tell clients which crops to plant in particular areas. Users first pick the location they would like to grow crops, then select the plants they wish to grow; the application calculates which seeds are suitable for growing in that area. Farmers and seed companies can thereby optimize benefits because the former know which kind of seeds suit the location and conditions, hence deriving better yields; and the latter benefit because farmers can buy those seeds easily through the Seedwiz platform.

Ms Etti Borovinski, Commercial Manager, introduced Agridera. A 67-year-old company, Agridera specializes in field crop, cut flower and vegetable seeds. She explained the importance of clover as a cover crop in Vietnam. Clover helps to enrich the soil with nitrogen and make it accessible to plants. Furthermore, it can reduce the use of fertilizers.

Mr Dotan Bornstein, CEO of Salicrop, introduced his company. Salicrop uses a unique wet treatment for seeds, so that they become resistant to soil and water salinity. Salinity is a burdensome problem, causing damage of around US$10 billion; however, with help from Salicrop’s special treatment, seed becomes more tolerant of salinity. He showed a case study in Maharashtra, India, where the yield from crops planted in saline soil increased from 32% to 63% or more of biomass. With this unique solution, Salicrop aims to tackle the Zero Hunger goal of the United Nations’ Sustainable Development Goals.

In the afternoon, we visited the Agricultural Research Organization – Volcani Center, where we were welcomed by Senior Research Scientist Dr Rina Kamenetsky Goldstein. The center was established in 1921. There are six institutes: the Institute of Plant Science is the largest.
The Institute aims to bring high scientific technologies to improve yield and quality. The institute consists of over 60 research groups in four departments: Field & Vegetable Crops Research; Fruit Tree Sciences; Ornamental Horticulture; and Agronomy & Natural Resources.

On the third day of the study tour, we visited Hazera and were welcomed by Mr Omer Sela, Israel Chamber of Commerce Sector Manager, and Mr Amit Einav, Deputy CEO of Hazera. Hazera is Israel’s largest seed company. We spent one full day here. In the afternoon, we saw Hazera’s laboratory, which is accredited by the International Seed Testing Association. Later on, we went to Hazera’s tomato and pepper fields.

We started the fourth day of our study tour at the largest Israeli-owned seed company, OriGene Seed. We were welcomed by Dr Eyal Vardi, CEO, Mr Ofir Elasar, VP Marketing Sales and Business Development, and Mr Roi Zibsner, Production Manager. The company specializes in cucurbitaceous crop seeds. In the afternoon session, we visited the Robert H. Smith Faculty of Agriculture, Food and Environment at the Hebrew University of Jerusalem. There, we met with Professor Yonatan Elkind. He introduced us to his project on blocky pepper sponsored by Syngenta. The highlight was its Passive Growing System – a system that requires no equipment like ventilation.

We started our fifth day by going to the Hishtil company, located in Ashkelon, a city near the Gaza Strip.

The company is famous for plant propagation. Their combination of horticulture expertise and industry awareness leads to healthy plant material. They currently host billions of young herb plants, as well as ornamental and vegetable plants, of which around 80 million are grafted vegetables. We also had a chance to visit the company’s nursery field.

At Grofit, in the afternoon, we were welcomed by Dr Itay Myara, founder & CEO. He showed-off innovative sensor technology to
help measure and collect environmental and moisture conditions in the fields. Furthermore, using the GroNTEC application, farmers and agronomists can share data, which helps increase yield optimization and predicts the appropriate time to harvest.

The last day of company visits, we saw Seed-X in the morning, and were welcomed by Mr Sarel Ashkenazy, the CEO. Seed-X’s advanced machine vision technology and unique algorithms led to the company’s revolution in seed breeding and production cycles. With this technology, Seed-X uses data gathered from seed images to identify genetic traits related to the crop that is growing from each and every seed. The company’s state-of-the-art technology Genetic Traits Detection Platform detects genetic traits from a seed’s phenotypical appearance. This technology helps breeders detect phenotypical experiences such as male infertility and resistance to viruses, hence reducing breeding time and research costs.

In the afternoon, our agenda included Netafim, in Kibbutz Magal. Netafim is famous for its drip irrigation technology. The technology delivers water and nutrients to growing crops – directly to the plants’ root zone, in the right amounts and at the right times. With this technology, farmers get higher yields while using less water and fertilizer. This technology is also fit for a changing world in which 10 billion must live on the planet – but with 20% less arable land and greater water scarcity.

On the last day of the tour, we went to Jerusalem, the holiest city for Jews and Christians. We began our tour on the Mount of Olives, believed to be the place from which Jesus Christ ascended to heaven. Next, we visited the Western Wall, so named because of its location on the west side of the Temple Mount, in the old city of Jerusalem. It is one of the most holy Jewish sites because behind the wall is the Foundation Stone, which Jews believe is the spiritual junction of Heaven and Earth. From the top of Mount Olive, down we went to the lowest point on earth – the Dead Sea.

There, we enjoyed floating in the highly saline inland sea, and masking our bodies with the therapeutic clay.
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.

TOMATO • 4133 KING TROPICAL
- Tropical easy growth. LSL.
- Heat, rain & multiple storms, disease tolerance.

EGGPLANT • 6282 MACHIAW
- Long CYL fruit. Good tolerance to heat, rain, bacteria wilt and TMV.

CHERRY TOMATO • 4136 SAINT PEARL
- Stress and disease tolerance.
- High yield, easy growth.

HOT PEPPER • 5198 HONGKONG
- Good disease tolerance. Multiple use.
- Long shelf life.

OKRA • 26693 MILLIONAIRE
- Early and high yield. Good tolerance to heat, rain, wind and TMV.

RADISH • 42649 JADE PEAK
- Extra early, high heat tolerance.
- Good for tropical fresh markets.

WATERMELON • 2311 ROUND DRAGON
- High yield, strong fruit set in summer and excellent shipper.

ORIENTAL MELON • 9356 SILVER GEM
- Strong tolerance to heat, rain & wilt.
- Good fruit setting, uniform fruit.

MUSKMELOM • 1306 SPRING LOVE
- Heat, rain and disease tolerance.
- High sugar and high eating quality.

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
Some 1,400 delegates from seed enterprises, public and private research institutes, government agencies, NGOs and national and regional seed associations – representing more than 50 countries – are expected for this, Asia’s premier annual seed trade event.

This is the second ASC in KL; the first was no. 13 in 2006.

The theme of this year’s Congress is Plant Variety Protection (PVP), with the tone to be set at this year’s Congress workshop on November 25, when seed sector representatives will come together so as to synthesize the significance of ensuring farmers’ and consumers’ choices through promoting innovation with strong PVP awareness and enforcement.

Leading discussions at the Congress Workshop will be various industry and government perspectives from across the region and globe. Be sure to download the latest agenda for specifics via apsacongress.com.

Considering its rich biodiversity and strong potential as a seed production hub, Malaysia is the ideal host country to have such an important discussion. Geographically, Malaysia spans seven degrees latitude from just north of the equator, comprising Peninsular Malaysia; two enclaves on Borneo, Sabah and Sarawak; and the island of Labuan. Flora and fauna are abundantly diverse, with 17,631 species of plants, including 377 algae, 1,387 bryophytes, 1,600 ferns, 61 gymnosperms, 4,180 monocots and 10,026 dicots; 480 species of mammal are counted, along with those of 742 birds, 242 amphibians, 567 reptiles, 590 freshwater fish, 1,967 butterflies and 1,073 leaf beetles.

Tropical rain forests cover 16.5 million hectares, about half the 330,803 square-kilometer land area. Weather is surprisingly mild, and the country’s location largely protects it from typhoons, earthquakes and floods. Formerly one of the British Empire’s principal gems, owing to production of rubber, tin and oil, Malaysia is today a member of the Commonwealth of Nations. Extant colonial architecture is a major feature of sight-seeing.

Despite Malaysia’s bountiful biome, and history of agriculture, full agricultural self-sufficiency (notably in staple grains and vegetable seeds)
is yet unachieved. Plantation crops – rubber, oil palm, cacao, tea etc – still dominate. Though production of watermelon, banana, coconut, durian, pineapple, rambutan and rice supplies domestic needs (and sees some export), Malaysia remains a leading APSA region grain and seed importer. (See ‘Seed Trade’ on next page)

That may be “a matter of choice,” as NSAM President Dr Uma Rani Sinniah explained, pointing out that importing seeds has been cheaper than producing them locally. Now, however, demand for Malaysian seed is growing rapidly owing to global consumer, political and climatic trends.

“Due to our strength in the plantation sector, there has been a lot of interest in balancing the trade deficit by increasing productivity, and thus the export potential of other crops,” said the NSAM chief, who is also professor in the Department of Crop Science at the Universiti Putra Malaysia. “To do this, we need to increase and improve germplasm resources, in addition to building a skilled workforce.”

“Malaysia has a lot of untapped potential to be a seed production hub. We have plenty of advantages – good infrastructure, political stability, language capability and an ideal climate,” she said, adding that Malaysia is especially “suitable for seed production of tropical varieties.”

NSAM’s president believes a key element to achieving this is government support, the basis for which is the National Agrofood Policy (NAP) 2011-2020, mandating the Department of Agriculture (DoA) oversee programs to increase agricultural production and productivity.

“Since I am an academician, a major role close to my heart is to develop human capital to support government policies. I have supervised numerous MSc and PhD scholars who serve at organizations such as the DoA’s Malaysian Agricultural Research and Development Institute (MARDI) and in seed companies such as Green World Genetics, Sing Seng Huat Seeds and Enza Zaden.” She added that: “Agriculture graduates create a harmonious working relationship between universities, government agencies and private companies.”

DoA Director General Mohd Nasir bin Warris explained that the government emphasizes technology transfer, implementation of good agricultural practices and enforcing food safety and phytosanitary legal standards. “We’ve identified a number of target crops for promotion through incentives,” he said, “durian, papaya, banana, rambutan, watermelon, and coffee, as well as flowers, ornamentals and vegetables.”

Incentives are available on a per-project basis, offered as subsidies for, or provisioning of, basic infrastructure and farm inputs – including seed, fertilizer and pesticides. For example, tax breaks of up to 100% for ten years can be afforded new projects.

“At the forefront of breeding R&D support is [MARDI’s] Centre for Marker Discovery and Validation (CMDV): a leading agro-biotech state enterprise and institute open for collaboration with the private sector to shorten breeding...
cycles through marker assisted selection,” he said.

Director General Mohd Nasir said Malaysia’s new Plant Variety Protection Act, “will ensure protection of seed breeding – no seed piracy in the Malaysian market!” Companies can thereby register to protect varieties sold inside or outside the country.

When Malaysia completes that Act, and a Seed Quality Act, he averred: “Everything will be covered. People will come to invest in seed production as these two acts are fundamental for investors.” Meanwhile, he said, the government is going to amend the 2004 Malaysian New Plant Varieties Act and is moving forward to join the International Union for the Protection of New Varieties of Plants (UPOV).

He affirmed, moreover, that developing the seed industry is one of 16 published DoA priorities.

About NSAM, the organization’s president said “linking people” is a principal function: “We serve as a contact point, a platform for connecting academicians, agricultural officers and other important actors in the seed industry, whether domestically, regionally or internationally.”

One example of such linkage is an MoU signed with the Turkish Seed Association in October 2015; the association represents some 700 companies in Turkey:

“When discussing the MoU, we brought in officers from relevant government agencies,” she said, “the DoA, phytosanitary and quarantine offices – who can offer advice and guidance on the latest import requirements.”

Evidence of Malaysia’s push to develop agriculture is the Taman Kekal Pengeluaran Makanan (TKPM) project, outlined under the 3rd National Agriculture Policy statement for development of commercial-scale agriculture. It aims to increase and enhance field crop and vegetable cultivation, especially in lowland areas, via incentives. The TKPM targets use of high-end technology by young entrepreneurs. “74 projects of a similar nature involve 1,384 participants and more than 11,000 hectares land,” she said Prof Dr Uma.

Areas for improvement include developing more local varieties, increasing and improving germplasm and building a skilled workforce focused on capacity-building.

Malaysia currently has no online ePhyto system, but is working towards that and implementation of ISPM38. Challenges arise owing to seed from various production sites, mixed to increase chances of germination – and thereby obscuring origins. According to DoA Plant Biosecurity Division Assistant Director Siti Nurkhairun Nisa Yusman, seed is planted in one country, pelletized or coated in a second, tested in a third, resulting in higher treatment rates by the Malaysian Quarantine and Inspection Service and greater difficulty identifying “pests of concern.”

Other ISPM38 challenges include: limited insecticide and fungicide availability for seed treatment; treatments listed in import requirements not available in exporting countries; treatments that affect germination rates; and disputes over treatment rates. She said testing equipment is outdated and expensive; protocols yet undeveloped; trained personnel unavailable; and access to literature limited.

Pest risk analysts, she thinks, should discriminate according to intended use, as risk associated with open fields differs from that of research and lab testing. She said information from exporting countries is presently insufficient for analysis.

As agricultural self-sufficiency improves and the seed industry develops, however, such challenges are overcome: “A lot more Malaysians are pursuing interests in agriculture, including seed technology and breeding,” said Dr Uma. “Students need jobs, and new vegetable companies are providing ample employment to new graduates with agricultural science degrees...thanks to the government’s support and policies in the last decade.”

“So it is in our best interest to develop and support more seed-oriented companies – where these students ultimately can become skilled entrepreneurs.”
Trade statistics from a recent five-year period* indicate that Malaysia is among the busiest countries in the APSA region for international seed movements. These are predominately inbound consignments. Indeed, Malaysia is one of two top importers of sowing seed in the APSA region as measured by value and quantity – the other being Pakistan.

Based on a five-year average, Malaysia imports 2.1 million tonnes of sowing seed, worth about US$619 million per annum. Seed exports pale in comparison, however, with only about 32,965 tonnes worth of Malaysian seed exported for an average of US$14.9 million per annum.

As Malaysia relies on imported seeds due to a lack of local seed producers, the DoA expects to import 997 tonnes of vegetable seed in 2019.

In order to encourage private sector participation in seed production, the DoA has shifted its focus from seed production to quality control, providing seed certification and verification services for private sector producers. In the five-year period from 2014 to 2018, the DoA had certified more than 57.8 million units, which includes ‘scion’ for grafting or vegetative propagation purposes in addition to individual progeny such as that of pineapple, durian and coconut.

Malaysia’s vegetable seed import market directly supports its vegetable export market. According to 2018 data from the DoA, there are 28 main types of vegetables cultivated in Malaysia, including mustard, water spinach, long beans, French bean, cucumber, spinach and bitter gourd, among others. According to the DoA’s calculations, these vegetables require no less than 897.5 tonnes of seed.

In the past Malaysia’s Department of Agriculture produced certified paddy seeds, vegetable seeds and fruit clonal planting materials for sale to farmers at subsidized prices. Today, however, the department only produces minimal quantities of open pollinated seed of selected vegetables such as okra, long bean, cucumber, local chilly and luffa, specifically for observation and promotional purposes.

*Budwing Vegetable Seed Demand

Malaysia’s vegetable seed import market directly supports its vegetable export market. According to 2018 data from the DoA, there are 28 main types of vegetables cultivated in Malaysia, including mustard, water spinach, long beans, French bean, cucumber, spinach and bitter gourd, among others. According to the DoA’s calculations, these vegetables require no less than 897.5 tonnes of seed.

Malaysia Top Exported Seeds

Market Size: $14.2 million
5-year annual average*

1. Soya bean: 25,720.95 t
2. Maize seed: 3,198.8 t
3. Meslin wheat: 1,322.8 t
4. Groundnut: 1,216.8 t
5. All other seeds: 1,506.1 t

Malaysia Top Imported Seeds

Market Size: $619.3 million
5-year annual average*

1. Soya bean: 1,355,2.9 t
2. Maize seed: 378,966.9 t
3. Durum wheat: 268,334.04 t
4. Meslin wheat: 130,158.4 t
5. All other seeds: 54,240.8 t

Most of Malaysia’s $634 million dollar seed industry are imports, and the majority of sowing seeds traded to and from Malaysia are those of staple grain crops, including soya bean, maize, ground nut and two different types of wheat – durham and meslin. Though relatively small, the vegetable seed industry of Malaysia has massive growth potential, which is now being emphasized.
Malaysia seed sector ready to sprout

By Professor Dr Uma Rani Sinniah

Currently serving her third term as President of the National Seed Association Malaysia (NSAM), Prof Dr Uma is among Malaysia’s foremost seed scholars. She is a lecturer in the Department of Crop Science, Faculty of Agriculture at Universiti Putra Malaysia (UPM) – her alma mater.

The professor’s PhD is from the University of Reading in England, where she worked in seed science and technology with renowned seed researcher Richard H. Ellis. She serves on the editorial board of the Journal of Seed Science and Technology, and has dozens of academic papers to her credit covering botany, biology, pharmacology and genetics.

Here she talks about the Malaysian seed industry, NSAM’s history, and a little bit about herself, and her outlook as our featured Woman In Seed:

Founded in 2008, NSAM’s mission is to help promote, develop and expand the Malaysian seed industry through collaborative work between public and private institutions.

I was one of the founding members, having worked a lot on the drafting of our constitution, together with a team led by the late Professor Dr Chin Hoong Fong. The association has been active in organizing industry activities since the beginning, with particular emphasis on disseminating knowledge, improving techniques and know-how with the aim to enhance Malaysia’s seed industry. I’m the association’s fourth president, having been elected initially at our 2014 Annual General Meeting, re-elected in 2016 for a second term, and the third time in 2018 – which will be up in 2020.

Our executive committee comprises ten members and – importantly – NSAM staff are not paid a salary, as we hold full time positions at various organizations. Hence, all our work is from the heart, reflecting our love and dedication to seed and the country.

Unlike other national seed associations, all our members have lifetime membership. We currently have about 250 members, classified into two membership categories – corporate and individual. Some of the corporate companies have dual membership; i.e., the company holds corporate membership, and staff of the company hold individual memberships. This is due to the different types of benefit provided based on membership type.

To date NSAM membership comprises 20 companies (seed, planting materials, seedlings trading and tissue culture companies) holding corporate membership; individual members include universities and government institutions such as the Malaysian Agricultural Research and Development Institute and the Department of Agriculture – just to name a few. Green World Genetics, currently a major seed company in Malaysia, has more than 50 individual memberships with NSAM, in addition to being a corporate member.

Lately, we’ve gotten increased interest and engagement from local companies. Many are small and may not have the resources to travel or conduct business abroad. Thus, having the Asian Seed Congress in Malaysia this year is a great opportunity for them to meet, interact and network with international buyers and suppliers from abroad.

Though NSAM itself was founded only 11 years ago, formal organization of the Malaysia seed sector traces back to 1976, when Dr Chin Hoong Fong, an academician at Universiti Putra Malaysia, organized the first National Seed Symposium as a platform for people interested in seeds.

The Symposium proved an effective forum for identifying and discussing the latest issues, challenges and policies. I have been involved in its organization for the past 25 years. Now NSAM organizes it every two years, with the next one scheduled for April 2020. At the latest Symposium, a key topic was human resource development – particularly the need to increase breeders and breeding activity.

Gender issues are today much in discussion, but, in my opinion, gender discrimination is not an issue in academia, especially in Malaysia. Agriculture, and seed the industry especially, is dominated by men, but gender – or any identity demographic – shouldn’t be an obstacle for determined professionals. In fact it is very interesting to note that even the plantation sector, an area that has been known to be male-dominated, is seeing women at the manager level. In the end, it depends on whether you are expert in your field. My niche is seed science and technology, and I make sure that I am an expert in that area.

We have the freedom and expectation to speak out openly, and you will gain respect if you can demonstrate and uphold your expertise, regardless of gender, religion or personal views. I am a strong believer that “Attitude determines altitude”. I have a lot to thank my parents for what I am today. Though they were not formally educated, my father in particular was able to convey, and instil in me, the importance of noble qualities, the most important being “attitude”.

Aside from this, one of the most important skills is communication, and your ability to interact and connect with other people. This may be underestimated sometimes in the seed industry, where a lot of work is in the field, at farms and in the labs. But at the end of the day, everything we do is for people, and sometimes it’s just a matter of getting them to germinate and blossom – like a seed.

Indeed, a lot of seeds are dormant, but still alive and kicking, just waiting for the right time to sprout.
MEET THE NOC OF ASC 2019

Established in 2008, the National Seed Association Malaysia (NSAM) is led by 12 officers, whose current terms commenced in 2016, and are up in 2020. NSAM is the National Organizing Committee (NOC) for the 26th Asian Seed Congress, 25 – 29 November, in Kuala Lumpur, Malaysia.

PRESIDENT
Prof. Dr. Uma Rani Sinniah
Universiti Putra Malaysia

VICE-PRESIDENT
Dr. Mohd Shukri Mat Ali
Malaysian Agricultural Research & Dev. Institute (MARDI)

SECRETARY
Ariff Merican Din Merican
Malaysian Agricultural Research & Dev. Institute (MARDI)

TREASURER
Dr. Juju Nakasha Jaafar
Universiti Putra Malaysia

COMMITTEE
Faizah Salvana Abd Rahman
Malaysian Agricultural Research & Dev. Institute (MARDI)

COMMITTEE
Dr. Florence C. Ginibun
Camillus
Department of Agriculture

COMMITTEE
Nadiah Salmi Nadzri
Forest Research Institute Malaysia (FRIM)

COMMITTEE
Zulmi Yaacob
Department of Agriculture

Mohd Nasir bin Warris Acting Director General
Department of Agriculture

Dr. Chua Kim Aik
CEO,
Green World Genetics

VICE-SECRETARY
Muhammad Najib Othman Ghani
Malaysian Agricultural Research & Dev. Institute (MARDI)

VICE-PRESIDENT
Dr. Mohd Shukri Mat Ali
Malaysian Agricultural Research & Dev. Institute (MARDI)

COMMITTEE
Lim Kiang Ping
Green World Genetics
QUICK FACTS ABOUT MALAYSIA

**Geography and Population**
Population: 32.385 million
13 states, 3 federal territories
Total area: 329,758 km²
Agriculture land: 7.84 million ha
Islands: 878

**Ethnicity**
Ethnic Groups:
- Malay and indigenous 62%,
- Chinese 20.6%,
- Indian 5.7%,
- other 0.8%,
- non-citizens 10.3%

**Religion**
- Muslim 61.3%
- Buddhist 19.8%
- Christian 9.2%
- Hindu 6.3%
- Others 3.4%

**Government**
Parliamentary Democracy with Constitutional Monarchy and His Majesty The King as the Paramount Ruler.

**Economy**
Currency: Ringgit Malaysia (MYR)
GDP: US$ 354.35 billion
GDP per capita: $10,942
Top exports: electrical and electronics products, chemicals, petroleum products, liquefied natural gas and palm oil.

**National Pride**
Language: Bahasa Malaysia
Dishes: Nasi lemak, Roti canai, Assam laksa and Chicken rice
Flower: Hibiscus rosa-senensis (L.)
Animal: Panthera tigris jacksoni
The National Seed Association Malaysia was established on 25 February 2008 with the primary objective of being an official body to represent the professional interests of seed scientists and technologists, plant propagators, seedsmen and seed merchants. NSAM also acts as the referral center in the seed and planting material industry for the government and private sectors. In accomplishing the above mentioned role, NSAM regularly embarks on events that enable it to promote and disseminate advancement and knowledge in the area of seed and planting material science through seminars, conferences, symposia, workshops and publications. NSAM to date has more than 200 members including corporate membership with companies such as Green World Genetics, Sing Seng Huat Sdn. Bhd, and Enza Zaden.

The Malaysian Agricultural Research and Development Institute (MARDI), a statutory body, was established on October 28, 1969, with the primary objective of developing and promoting new and appropriate technologies in agriculture. Its core business is to carry out research and development to generate, disseminate and transfer innovative technologies to stakeholders. MARDI also provides technical services and consultancies, and offers collaboration and licensing arrangements for commercialization of research results. Since its establishment, MARDI has contributed to the growth and development of the agricultural and agrifood industry in Malaysia, together with the Ministry of Agriculture and Agro-based Industry (MoA). MARDI also addresses constraints and challenges faced by the industry -- to ensure that agriculture remains robust, contributing significantly to the country’s economy and the nation’s wellbeing.

Universiti Putra Malaysia was first established as the School of Agriculture in 1931, located at Serdang on a 22-acre plot. In 1947, the school was declared the College of Agriculture Malaya by Sir Edward Gent, the then Governor of the Malayan Union. The establishment of Universiti Pertanian Malaysia came about when the College of Agriculture in Serdang merged with the Faculty of Agriculture, University of Malaya. In 1997, the name Universiti Pertanian Malaysia was changed to Universiti Putra Malaysia, as a strategic gesture to portray the status of UPM as a centre of higher education capable of providing various fields of studies, especially in science and information technology, which facilitate national development in the new millennium. As a premier institution of learning, widely recognized for leadership in research and innovation, UPM continues to strive for excellence. UPM’s vision is to become a university of international repute. While its mission is to make meaningful contributions towards wealth creation, nation building and universal human advancement through the exploration and dissemination of knowledge.
Have fun in Kuala Lumpur!

Come to meet us. Discuss your future seed plan with Asia Seed.
Initiated in Bengaluru in 2014, with a follow-up meeting organized in Bangkok, Thailand in 2017, ASRT was created by private seed companies and public research institutions as a platform for structured discussions to address productivity challenges relevant to Solanaceous crops – especially tomato, eggplant and chili peppers.

The ASRT 3 was organized by APSA in partnership with the Indian Council of Agricultural Research (ICAR), Indian Institute of Horticultural Research (IIHR), and Society for Promotion of Horticulture (SPH) – in association with the Federation of Seed Industry of India (FSII) and the National Seed Association of India (NSAI).

The Inaugural Ceremony on October 22, was presided over by Dr. A.K. Singh (Deputy Director General, ICAR); Dr. T. Janakiram (ADG, ICAR); Dr. M. R. Dinesh (Director, IIHR), Dr. C. Ashwath (Secretary, SPH); Dr. Marco Wopereis (DG, World Vegetable Center), Dr K. Keshavulu (ISTA Vice President and Talangana State Seed Corporation Managing Director); Dr. Kanokwan Chodchoey (ED, APSA) and Dr. Manish Patel (APSA Treasurer and Executive Committee).

Dr Narendra Singh, who chairs APSA’s R&D Advisory Committee, opened the event by noting that Asia, with its varying climates, cultures and food habits, continues to face significant challenges with regard to improving solanaceous production.

“Solanaceous crops are an important component of our diet and farmers’ incomes. There are numerous factors for reduced productivity, the main one being a lack of high-yielding varieties with disease and pest resistance, and high nutritional quality.”

He said that breeders and scientists at both private companies and public institutions have been working tirelessly to address a number of key pests and diseases – both viral and fungal – that continue to inflict substantial losses for Asian farmers.

Among them: Ralstonia, Bacterial Leaf Spot, Begomoviruses, Tospoviruses, Tobamoviruses (TMV & ToBFRV), as well Tuta moth infestations in tomato -- and Anthracnose in pepper.

Dr Narendra, who is also the R&D Director for Asia at HM.Clause, averred that such challenges can best be overcome through cooperative efforts, citing as an example collaboration between APSA companies and Thailand’s National Center for Genetic Engineering and Biotechnology (BIOTEC): stemming from the first two ASRT meetings, the public-private partnership saw through the development of an effective tospovirus inoculation protocol, which enabled and enhanced disease resistance screening capacity for the respective company’s R&D programs.

He revealed that APSA’s R&D Advisory Committee were considering two proposals for a second phase of collaboration with BIOTEC, which were presented during an ASRT 3 session on public-private partnerships. Details on this phase will be announced in the near future.

In his address, ICAR Director General and Secretary of the Department of Agricultural Research and Education Dr Trilochan Mohapatra weighed in on a similar theme, noting that, among solanaceous crops, “several biotic and abiotic stresses severely affect their successful cultivation.”

“Productivity of solanaceous vegetables in India is about 15.6 tons/ha, which is low compared to productivity in developed countries,” he explained. “Several new disease resistant varieties have been developed.”

He averred that progress in use of molecular biology, marker-assisted selection, and utilization of wild species can result through the “collective wisdom of scientists representing both public and private sectors across the globe.”

IIHR Director Dr M.R. Dinesh told delegates India produces 187 million tonnes of vegetables annually, and is the world’s second largest producer. That leads to challenges: “Intensive cultivation has resulted in the occurrence of serious diseases caused by viruses,” he said, adding that, “disease- and pest-resistant varieties can fit into
organic farming practices and also reduce use of pesticides, which are posing problems to human health and the environment.”

Dr Dinesh, too, feels that: “Molecular breeding approaches in pest and disease management hold the key,” especially as post-harvest losses to processing affect “as much as 15%” of production: “Hence, there is an urgent need to breed varieties suitable for processing,” especially with regard to tomatoes and chilies.

He commended ASRT 2019 as “a suitable platform for scientists from both private and public institutes... to come together and discuss breeding strategies.”

Such was the scope outlined for what lived up to expectations in being a scientifically-intensive yet ever-relevant and productive meeting, fueled by presentations from more than 20 speakers on topics spanning everything from new breeding techniques, molecular markers and genomics, to biodiversity, plant variety protection and market trends.

The week wrapped up with a field trip on October 25 to IIHR’s R&D Station outside of Bengaluru, where delegates inspected Solanum and Capsicum trials, and took part in one final panelled-discussion.

Summing up the meeting, APSA Executive Director Dr Kanokwan Chodchoey expressed the importance of public private partnerships to sustain agriculture and to ensure that farmers get access to high-quality seeds. APSA welcomes experts from member companies to engage with APSA’s technical committee helping address key challenges in the seed sector. She also expressed her thanks to those working behind the scenes:

“This forum would not be a reality without the hard work and dedication from APSA’s R&D Advisory Committee.” She thanked ICAR, SPH, IIHR and each: Dr Narendra Singh from HM.Clause (Chair); Dr Annadana Seetharam from Syngenta (Co-chair); Dr John Sheedy of Chia Tai Co. Ltd; Dr Simon De Hoop from East-West Seed; and Dr Surinder K. Tikoo from Tierra Seed Science Pvt. Ltd.

“In addition, APSA would like to express the utmost appreciation to sponsors who made this event possible.

“Namely, Platinum sponsor, Syngenta; two gold sponsors, Namdhari Seeds and Indo-American Hybrid Seeds; three silver sponsors, Clover Seeds, HM.Clause and East-West Seeds; and two bronze sponsors Tierra Seed Science and Lal Teer Seed.

Complete ASRT presentations are available to delegates: contact APSA’s Technical Coordination Manager, Kunaporn Phuntunil (kuna@apsaseed.org).”
New Capsicum, tomato phyto certification rules issued by US, EU NPPOs

A new order issued by the USDA Animal and Plant Health Inspection Service (APHIS) requires all inbound shipments of tomato and pepper seeds be accompanied by phytosanitary certificates, or phytosanitary certificates with additional declarations verifying that seeds have been “tested for psopiviroids of quarantine significance prior to entry into the United States or that the seeds are produced in a country in which these psopiviroids are not known to occur.”

Notice was initially issued 9 August, stipulating that the measure goes into effect 8 September and applies to all inbound shipments regardless of size or intended use.

It is important to realize that this means field testing is no longer accepted, only lab testing, for certification. The six viroids cited for testing are: Columnea latent viroid (CLV d), Pepper chat fruit viroid (PCFV d), Potato spindle tuber viroid (PSTV d), Tomato apical stunt viroid (TASV d), Tomato chlorotic dwarf viroid (TCDV d) and Tomato planta macho viroid (TPMV d; synonym Mexican papita viroid).

Since testing began, shipments from several countries tested positive. Psopiviroids cause disease in potatoes, tomatoes, peppers, and other crops. Some cause severe stunting, leaf or stem necrosis, flowering alterations, foliar and fruit deformation. Transmission occurs via tools and farm machinery, or by infected seed, aphide, and pollen.

In the European Union, measures for dealing with Tomato Brown Fruit Rugose Virus (ToBRFV) were announced: Commission Implementing Decision (EU) 2019/1615 establishes emergency measures to prevent its introduction and spread into Europe. It details specific measures for timely detection and requirements for planting, including seed, as well as official checks to be conducted.

The measures come after Germany and Italy reported outbreaks in 2018 on tomato crops in their territories and of measures taken for control. A pest risk analysis by Italy demonstrated that the specified organism was of significant plant health concern to the EU, especially with regard to Solanum lycopersicum L. and Capsicum annuum production.

From 1 November, movements of tomato and pepper seed originating within the EU must be accompanied by a plant passport that confirms they originate in areas and from plants free of ToBRFV – a passport issued only after testing.

Plants or seed originating outside the EU must have phytosanitary certificates confirming they are virus-free. Reference to testing must be included under the “Additional Declaration” heading of the phytosanitary certificate. Information ensuring the traceability to sites of production of specified plants also must be available.

The relevant decision and full details at http://tinyurl.com/eu-ToBRFV-sep19

Measures remain in effect until 31 March 2022.
The origin and development of the Collaboration for Plant Pathogen Strain Identification (CPPSI)

Consistent naming of plant pathogen strains and races is a recognized need in the vegetable seed industry. There is still no recognized global body that regulates the naming of plant pathogen strains.

In 2007, a US-based effort was initiated by the International Seed Federation (ISF) in partnership with the American Plant Health Industry (APH) to address this issue with a focus on disease systems for which claims of disease resistance are made by the seed industry. In 2013, the effort was renamed Collaboration for Plant Pathogen Strain Identification and a business plan was developed that described the funding, establishment, development and sustainability of CPPSI as a stand-alone entity. In 2014, seed company members of the American Seed Trade Association (ASTA) approved the CPPSI business plan and funded this initiative.

CPPSI is a science-based, vegetable seed industry initiative developed to standardize the identification of plant pathogen strains and races. Pathogen strain identification is based on the response to a set of differentiating hosts, each containing a source of disease resistance. Together with reference plant pathogen strains, they are collectively referred to as Reference Materials.

CPPSI has been based at the University of California-Davis Seed Biotechnology Center since 2015. Funding from seven seed industry founding sponsors – BASF Vegetable Seeds, Bayer Crop Science, Enza Zaden, HM.Clause, Rijk Zwaan, Sakata and Syngenta Seeds – has provided support for this initiative. In 2017, CPPSI was awarded a 2.5 year Specialty Crop Block Grant. These funds contribute to the continued growth of the CPPSI initiative.

Gaps and inconsistencies in plant pathogen strain naming and identification are an ongoing seed industry issue that can undermine the value of published claims of disease resistance. For example, claims of resistance to melon and tomato Fusarium wilt in the US are made against strains 1, 2 and 3, but in Europe, claims against these same strains are made as 0, 1 and 2. Because both regions have followed different strain naming guidelines, vegetable seed catalogues in the U.S. and Europe must list claims made in both regions. CPPSI is collaborating with associations in Europe to bring uniformity and consistency to the naming of plant pathogen strains in disease systems. Without a variety registration system in the US, not much attention was paid to consistent naming of pathogen strains. These inconsistencies can become a

problem for seed companies wanting to register new varieties in Europe. To register a new variety, a company must be able to show the new variety is distinctive, unique and stable (DUS). Resistant and susceptible responses to designated plant pathogens are part of DUS criteria. The listed claims for resistance may not match up with what the European registration board might expect to find when resistance is identified by strains with different names.

CPPSI working group members developed a double-hub-and-spokes system for germplasm and pathogen strain storage and distribution. The USDA National Plant Germplasm System centers serve as a hub for deposit, storage and distribution of differentiating host sets. A network of public, private and USDA labs serve as the hub for the culture and distribution of the reference plant pathogen strains. Linking the two hubs is www.cppsi.org and the CPPSI director who administrates, organizes and develops the system of Reference Materials. When a set of Reference Materials are ordered from www.cppsi.org, seeds, pathogen strains and informative white papers are sent in response.

Information about available Reference Materials and the CPPSI working group members is also available on the CPPSI website.

Services to provide Information and Reference Materials from each hub is available to CPPSI members at no additional cost. Nonmembers also have access to these CPPSI services for a nominal fee. CPPSI Services can be ordered at www.cppsi.org. Members and nonmembers can also access germplasm and pathogen strain distribution systems directly via links on the CPPSI website. CPPSI’s Reference Materials enable pathologists to use a ‘common language’ when identifying new races/strains of a pathogen that may or may not overcome commercially deployed resistance genes. These materials also provide a reference for determining pathogen strain virulence.

CPPSI collaborates with similar organizations under the guidance of ISF to facilitate consistent naming and identification of plant pathogen strains. Members of this group represent the global seed industry and the working group works to address questions around disease resistance and strain naming, and to develop tables of strain differentiating hosts that are published on the ISF website. These tables are used in the development of Reference Materials by CPPSI to ensure consistent pathogen strain responses. This year, a representative from the Asia and Pacific Seed Association (APSA), Dr. Sumitra Kantrong of Chia Tai Seeds joined the ISF DRT working group. Dr. Kantrong brings input and pathogen strain information from APSA members to the ISF DRT discussions. In 2019, a white paper of guidelines for the naming of new plant pathogen strains was published.

The CPPSI initiative depends on continuing membership subscriptions and seed industry support to continue the development and distribution of Reference Materials for use by all members of the seed industry. Representatives from member companies make up the CPPSI working group. The working group meets monthly by webinar to continue the development of additional sets of Reference Materials.

The cost of CPPSI Membership is linked to a company’s annual sales revenue to make CPPSI membership more attractive to smaller companies. Use of Reference Materials for plant pathogen strain evaluations saves time and effort for smaller companies in development of disease resistance programs or to calibrate the pathogen virulence in ongoing programs.
# 2020 Seed Event Calendar

<table>
<thead>
<tr>
<th>Date</th>
<th>Meeting</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb 1-4</td>
<td>ASTA Vegetable &amp; Flower Seed Conference</td>
<td>Monterey, CA, USA</td>
</tr>
<tr>
<td>Feb 17-18</td>
<td>APSA-ISTA seed quality management seminar for seed production companies</td>
<td>Bangkok, Thailand</td>
</tr>
<tr>
<td>Feb 19-21</td>
<td>APSA-ISTA seed quality management seminar vigour seed testing workshop (APSA-ISTA)</td>
<td>Bangkok, Thailand</td>
</tr>
<tr>
<td>Feb 24-28</td>
<td>ISF: March Meetings</td>
<td>Porto, Portugal</td>
</tr>
<tr>
<td>TBC in Feb</td>
<td>NSAI Indian Seed Congress</td>
<td>New Delhi, India</td>
</tr>
<tr>
<td>Mar 3-6</td>
<td>AFSTA Congress</td>
<td>Livingstone, Zambia</td>
</tr>
<tr>
<td>TBC</td>
<td>China National Seed Congress (organized by CSA)</td>
<td>TBC</td>
</tr>
<tr>
<td>TBC in April</td>
<td>APSA Midterm Meeting</td>
<td>Bangkok, Thailand</td>
</tr>
<tr>
<td>TBC</td>
<td>2nd Asian Cucurbits Round Table</td>
<td>Bangkok, Thailand</td>
</tr>
<tr>
<td>May</td>
<td>APSA-WorldVeg Annual Workshop</td>
<td>Tainan, Chinese Taipei</td>
</tr>
<tr>
<td>May 25-28</td>
<td>ISTA Annual Meeting 2020</td>
<td>Verona, Italy</td>
</tr>
<tr>
<td>Jun 6-11</td>
<td>ISF World Seed Congress</td>
<td>Capetown, South Africa</td>
</tr>
<tr>
<td>Oct 11-13</td>
<td>Euroseeds Annual Meeting</td>
<td>Malta</td>
</tr>
<tr>
<td>TBC in October</td>
<td>Beijing Seed Congress</td>
<td>Beijing, China</td>
</tr>
<tr>
<td>TBC in October</td>
<td>Tianjin International Seed Expo</td>
<td>Tianjin, China</td>
</tr>
<tr>
<td>October 18-23</td>
<td>ISF: Mid-term Meetings</td>
<td>TBC, Italy</td>
</tr>
<tr>
<td>Oct 25-30</td>
<td>UPOV Technical Meetings</td>
<td>Geneva, Switzerland</td>
</tr>
<tr>
<td>November 9-13</td>
<td>Asian Seed Congress</td>
<td>Shenzhen, China</td>
</tr>
<tr>
<td>TBC in December</td>
<td>Guangdong Seed Expo</td>
<td>Guangzhou, China</td>
</tr>
<tr>
<td>Dec 7-12</td>
<td>ASTA's Corn &amp; Sorghum Seed Research Conference</td>
<td>Chicago Illinois, USA</td>
</tr>
</tbody>
</table>
APSA NEW MEMBERS

Genta Tarim A.S.
Kemalpaşa Osb Mah. 34 Sok. No:12
Kemalpaşa Izmir 35730 Turkey

Zhejiang Sky Good Seeds Co., Ltd.
No.187 Dongfang Road, Wutian Street, Ouhai District, Zhejiang Province 325000 China

Agro Culture Trends (Pvt) Ltd
73, Vihara Mawatha, Pepiliyana Colombo Western Province
Boralesgamuwa 0290 Sri Lanka

Afson Seed Corporation (Pvt.) Limited, Pakistan 8 - B Grain Market, Pakpattan, Punjab Arifwala 54750 Pakistan

Wuhan Goldcrop Biotech Co., Ltd.
1103A, High Tech Agri. Mansion No.519 Luoshi South Road Donghu New Technology Development District Hubei Wuhan 430070 China

Turkish Seed Industries Association
Türktd Güvenlik Caddesi Güvenlik Apt No 7 Daire 1 Aşağıyapranı Ankara Kayaklidere Ankara 06341 Aşağıyapranı, Turkey

Solex Seeds
25-A-li, Industrial Estate Multan, Punjab, Multan 60000 Pakistan

An Dien Seeds Company
No 78-80, Street 55, Tan Tao Ward, Bình Tan District, Hồ Chí Minh Vietnam

Lakshya Seeds Corporation
140, Indra Market, Old Subzi Mandi New Delhi, New Delhi 110007 India

Global Seed Link
46 E-1 Wapda Town Lahore 166-J Eme Sector, Dha Phase-12, Canal Road Lahore Punjab, Lahore 54000 Pakistan

Lipman Family Farms
315 E New Market Rd Florida Immokalee 34142 United States

Anasac Chile S.A
Almirante Pastene 300 Providencia Reegree Metropolitana Santiago 7500534 Chile

Agri Farm Services Seed Division
Aziz Group 77 Industrial State Multan, Punjab, 60000 Pakistan

Bhalsar International Co., Ltd.
17/227 Moo 9, Tambon Ladsawai Lumlukka, Patumthani 12150 Thailand

BHN Seed
P. O. Box 3267 Florida Immokalee 34143 United States

Ayeyarwaddy Seeds & Irrigation Co.
95A 95-A, Kyai Wine Pagoda Road, 8Th Mile, Mayangone Township Yangon, 11061 Myanmar

South African National Seed Organisation
P.O. Box 72981 Lynnwood Ridge Gauteng Pretoria 0040 South Africa

Vriksha Agro Ventures
No.226, 1St Floor, Mettupalayam Road Opp: Ctc, Near New Bus Stand Coimbatore Tamilnadu Coimbatore 641043 India

GSN
Rue De La Menouve Riscle 32400 France

Engro Fertilizers Ltd
7Th & 8Th Floor, Harbor Front BuildingMarine Drive, Block 4, Clifton Karachi 75500 Pakistan

Hasel Tarim Ltd.

Beijing Fengtai Seeds Association
No.46 Gaojiachang East Building, Fengtai, Beijing 100070 China

Eurasil Semences
Eurasil Semences Avenue Gaston Phoebus Lescar 64230 France

Eder Saaten GMBH
Bromberger Strasse, 4 Schwalmstadt 34613 Germany

Antaris Seeds S.L
124 Rambla De Catalunya Barcelona 08008 Spain

Raci Sementi Srl
Via Martinella, 21/B Parma 43124 Italy Ganga Seed Corporation 136,Indra Market,Old Subzi Mundi Delhi 110007 India

Gowan Seed Company
25445 Chualar Road Chualar California 93925 United States

Zenith Hybrid Seeds Private Limited
E-680, Dsdc Industrial Area, Narela Delhi 110040 India

Zhuaih Sun Modern Agricultural Co.,Ltd.
Room 2105, Hengfuge Building 2#, No.68 Leyuan Road Xiangzhou Guangdong Zhuaih 519000 China

BBA Seed International Company
Rm 3-1-301, Yuzeyuan, Haidian District, Beijing 100097 China

Phu Sa Seeds And Agricultural Product Trading Co., Ltd.
17/34 Go Dau St., Tan Quy Ward, Tan Phu, Ho Chi Minh 028 Vietnam

Nam Thye Chiang Agriculture Enterprise Co., Ltd.
5 Chakkraphet Rd, Phranakorn Bangkok 10200 Thailand

S&N Co., Ltd
1-17B-3,Chenglin Plaza, Gansu Province Jiuquan 735000 China

Amazon Seeds
Vpo - Basal Himachal Pradesh Solan 173212 India

Kalpkala Pulp And Paper Industries
68, Industrial Estate Latur Maharashtra Latur 413531 India

Hussaini Seeds Corporation
Shop #1, Aamir Palace, Prince Ali Road Tower Market Hyderabad Sindh Hyderabad 71000 Pakistan

Pt. Tratas Megah Lestari
Gedung Kimia Sakti Kalista, Lantai 3A. Jalan Siantar No 15 Cideng - Gambir, J akarta P usat, Dki J akarta 10150 Indonesia