

# ASIAN SEED

THE OFFICIAL PUBLICATION OF THE ASIA & PACIFIC SEED ASSOCIATION



## Having a Field Day

East-West opens the doors with an App



## El Nino Report

How the worst El Nino since '97 has affected the region



## Seed Trade Growing in Asia

1<sup>st</sup> part of GNIS Report on the seed trade



## Seed for Thought

Dr. Dehua Ma on being a plant breeder in China

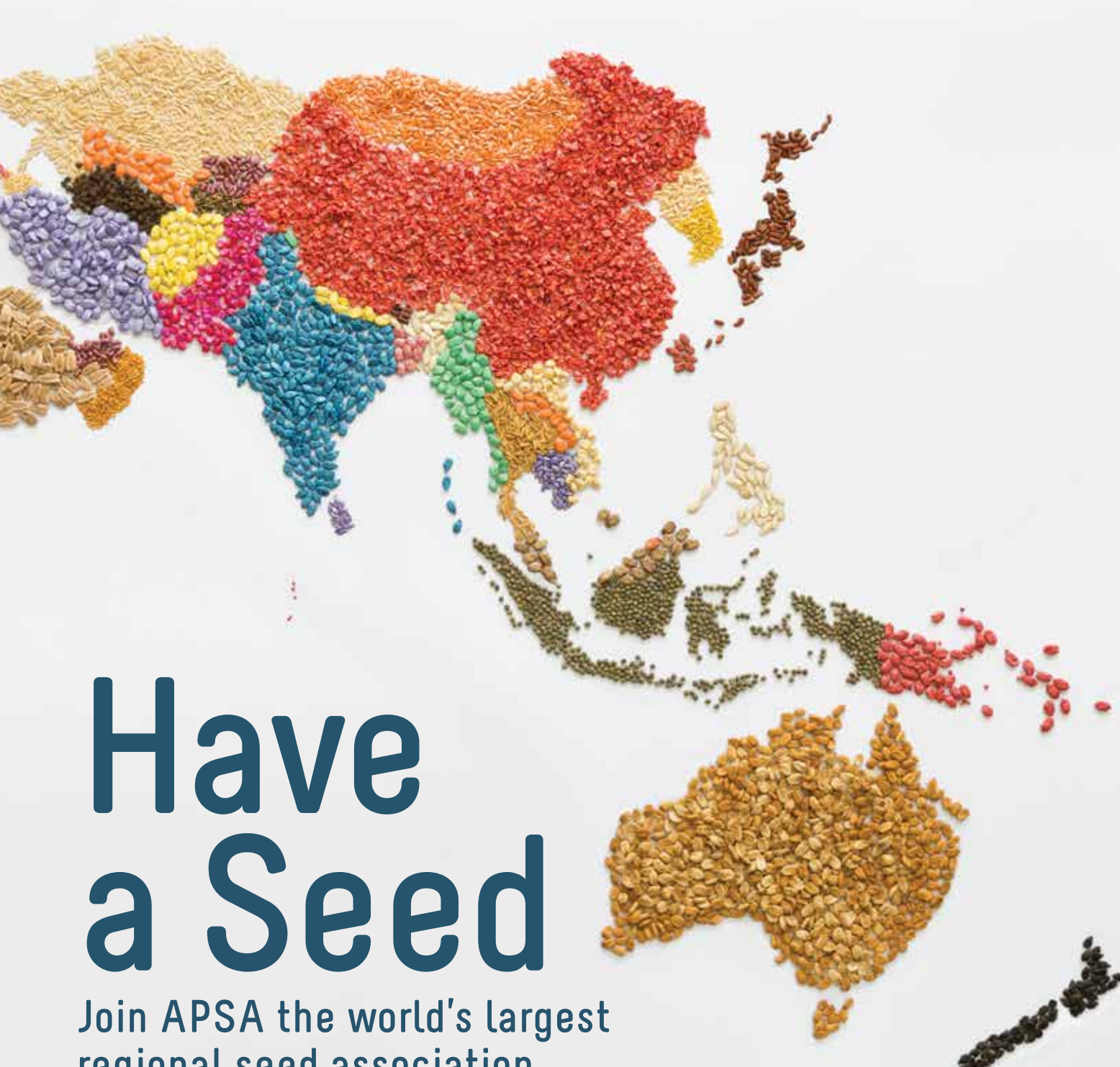
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## El Nino Report







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## ASIAN SEED

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# The Road Ahead

**A new chapter is beginning in APSA's two-decade long story as we start preparations for the 23rd Asian Seed Congress (ASC) to be held in Incheon, South Korea on 7-11 November 2016.**

As reported in the last issue, a contract was signed between APSA and the Korean National Organizing Committee (NOC) at ASC 2015 in Goa for ASC 2016. A team from the Secretariat will visit South Korea mid-year to go over the details of holding an APSA congress with the NOC, survey the Congress site and assess the accommodation venues, facilities and all amenities to be used by APSA's members during the event.

APSA is also preparing for the ASC 2017 to be held in the Philippines. The Office Bearers' will hold their first meeting of the year in Manila in early March, followed by a two-day meeting with the Philippines' NOC. Event Planner Duangchai Pancom will accompany the OB team to consider venues and facilities and to brief the NOC.

This issue of Asian Seed magazine features a cover story on the phenomenon of El Nino and its effects on agriculture in the Asia-Pacific region. Many Southeast countries are struggling with severe drought, while elsewhere in more Northern latitudes, excessive rain and flooding have been the main problems. The El Nino weather phenomenon is also occurring in the context of climate change, so perhaps policy makers and seed enterprises in the region need to

think about not only how to mitigate the effects temporary weather events like El Nino, but also for the long-term trends of climate change. See the story on page 14.

Asian Seed magazine also features the first of a two-part analysis on seed movement and trade in the region by researchers at the French seed association, Groupement National Interprofessionnel des Semences et Plants (GNIS), which indicates that the seed trade continues to grow and prosper in the Asia-Pacific region.

You will also notice that the news section in the front of the magazine has been expanded as we try to



provide more in-depth coverage of important issues, particularly from key seed markets like China and India. In this issue, we highlight important amendments to seed laws in both Pakistan and China.

Finally, I'd like to remind all members that our goal is to provide quality and efficient support to all APSA members, and in order for us to do this, we need your support.

Starting from 1 January 2017, APSA will send invoices out to all members for the annual membership fee, which is due and payable upon receipt and is not adjustable. APSA also requests members to update membership information within 30 days of receiving the invoice, making sure that all members' names, information, and email(s) are correct and current.

To begin this process, your membership fee for 2016 will be pro-rated to end 31 December 2016. For example, if your membership fee ends 31 May 2016, APSA will invoice you for the remainder of the year starting

from 1 June 2016 to 31 December 2016 only. Should you have any questions on this, please contact the Secretariat.

Having just enjoyed the Chinese Spring Festival with family and friends, I would like to wish all of you the very best for the Year of the Monkey. The Chinese New Year has just started so I would like to extend my best wishes – may your work go smoothly for the year ahead. 🐵



Photo by John Clewley



Dry irrigation ditch in drought-stricken Singburi province, Thailand

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# Chinese Hybrid Rice Goes Global



Photo by Tomo.Yun (yunphoto.net)



Photo top left by John Clewley

**China's National Rice Research Institute has announced plans to take its hybrid rice technology to Southeast Asia, Africa and South America in a new promotion over the next five years. The idea, said Mr. Cheng Shihua, Director General of the institute, is to promote Chinese hybrid rice seeds in emerging markets. Tests have been carried out in rice paddies overseas and the results have shown, he said, that hybrid seeds have a 30% higher yield than local varieties.**

Mr. Shihua further stated that the institute would develop partnerships with Chinese seed companies to promote hybrid rice technology overseas; however, as the cost

of exporting Chinese hybrid rice seeds remains high, it is important to develop local rice varieties using the local labour force. As an example, he said that the institute would launch a joint-venture seed company in Indonesia to develop new hybrid rice varieties.

Mr. Shihua continued, saying that the move to send hybrid rice technology overseas was in line with the 13th Five Year Plan (2016-2020), which enabled the institute to expand its presence beyond simply setting up demonstration centres.

Hu Peisong, a researcher in rice genetic studies at the institute, said that China still lagged behind other major rice-producing countries in

terms of improving grain quality. This was a further challenge, but growing academic exchange between China, India and Southeast Asian rice growing countries would definitely help China improve its rice quality.

Meanwhile, Yuan Longping, the so-called 'father of hybrid rice' revealed in a recent interview that he was working on developing the methodology to combine genes from corn with rice – a process he believes could potentially create genetically modified grains with increased photosynthetic efficiency. 🍌

*Source: China Daily, South China Morning Post*



## China to Strengthen GM Crop Regulation

In 2015, the Agriculture Ministry began an investigation into reports that farmers in several northeastern provinces were planting unapproved strains of corn and soybeans. The results indicated that more than 90% of all samples taken in Liaoning province tested positive for unapproved GM soybean varieties. As a result, the Government has announced plans to crack down on cultivation of illegal genetically modified crops.

To do this, China has strengthened the supervision of GM plant seeds in an amendment to the country's existing seed law. The amendment states that producers of GM plants must be licensed by the agricultural and forestry departments of the State Council.

Officials said that in order to respond to concerns from consumers about the safety of GM products, the amended seed law now states that the selection, trials,

approvals and promotion of GM plants seeds should undergo safety evaluations and be subject to strict safety controls.

Although China permits imports of GM soybeans, the crackdown on illegal cultivation is unlikely to affect the country's commitment to research and commercialisation of GM technology. 🍌

*Source: Reuters, CRI English News*

## Man Admits to Patent Theft from US Corn Fields

A Chinese businessman, Robert Mo Hailong, admitted in a US Court in January 2016 that he was guilty of stealing patent-protected corn seed from agribusiness companies Monsanto and DuPont for commercial use in China.

At the time of the theft, Mr. Hailong was employed by Beijing Dabeinong Technology Group. In a statement, the US Department of Justice said that Mr. Hailong had admitted to plotting to steal inbred corn seeds from fields in Iowa state for the "purpose of transporting them to China."

As a result of his illegal activities, Mr Hailong faces up to 10 years in jail and a fine of up to \$250,000. 🍌

*Source: AFP, The Guardian*



# ChemChina–Syngenta Deal Update

**CHEMCHINA**  
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China National Chemical Corporation

**syngenta**

The board of directors of Syngenta voted unanimously to accept the terms of the state-owned China National Chemical Corporation's \$43 billion cash offer to acquire the Swiss-based agrochemical company. The offer values Syngenta at \$465 (CHF 480) per share and the deal includes the proposed ordinary dividend of \$11.3 (CHF 11) in May 2016.

The deal is the latest in a series of overseas investments made by China's biggest chemical company, which is also known by its 'ChemChina' nickname. It is China's largest overseas transaction; last month, ChemChina bought a

12% stake in Swiss energy and commodities trader Mercuria Energy Group Ltd, and announced plans to buy Germany's Krauss-Maffei Group, which makes machinery to produce plastics and rubber. Last year, ChemChina announced the takeover of Italian tyre maker Pirelli & Sons.

Syngenta's management will continue to run the company. After closing the deal, a ten-member Board of Directors will be chaired by Ren Jianxin, ChemChina's Chairman, and will include four of the existing Syngenta board members.

Syngenta will retain its name and will continue to be headquartered in Switzerland.

Analysts suggest that the deal represents a strategic shift for Chinese corporates operating in the international M&A and acquisitions markets, from playing catch-up to buying strategically in order to acquire assets that add to their competitiveness and reflect their standing as global multinational corporations.

The transaction will certainly facilitate further expansion of Syngenta's products and services in emerging markets, especially in China. ChemChina will have access to Syngenta's technology and distribution channels, enabling it to become a global agrochemicals presence, and a dominant player in the \$100 billion/year global agribusiness industry.

After a long courtship, in May 2015 Syngenta finally rejected a buyout offer from Monsanto worth \$45 billion. A statement from Syngenta's management said that Monsanto's offer fundamentally undervalued Syngenta and its future growth prospects. The recent merger between Dow Chemical and DuPont has spurred further consolidation in the market.

The deal now has to be vetted by the regulatory authorities in both Switzerland and the USA (where Syngenta has a presence). 🐼

Source: Agencies, MOA, Syngenta, Financial Times

# China Revises Seed Law to Encourage Innovation



On January 1, 2016, China's top legislature, The National People's Congress adopted revisions to the Seed Law, which was enacted in 2000. The aim of the revisions was to enable seed companies to introduce new crop varieties and to stimulate greater innovation and protect breeders' rights.

More than 20 crops, including rape (for oil), potatoes and peanuts will no longer be subject to lengthy approvals but can be registered directly with the relevant authorities. However, the unwieldy and lengthy approval process, which can involve government-run field trials and can take up to four years to process, remains unchanged for rice, corn, wheat, soybeans and cotton, China's most important crops.

The revised law is expected to improve seed variety validation,

strengthen punishment of illegal [seed-related] activity, protect new seed varieties and enhance the management of GM seed varieties.

Xinhua news agency reported that during the parliamentary debate on the proposed amendments, parliament head, Mr. Zhang Dejiang, said that the revised seed law would "encourage breeding innovation, safeguard farmers interests and promote the healthy development of China's seed industry while ensuring food security."

According to the Agriculture Ministry, China's seed industry ranked second to the USA in 2012 and was worth \$16 billion. 🐼

Source: MOA, Xinhua, Reuters

# Thailand and IRRI agree to research collaboration

During a meeting at the Thai Ministry of Agriculture and Cooperatives on February 16, Thailand and the International Rice Research Institute (IRRI) agreed to expand their 56-year partnership through more collaborative research projects.

The two partners have been working for many years on projects such as the Consortium for Unfavorable Rice Environments (CURE), the Closing Rice Yield Gaps in Asia with Reduced Environmental Footprint (CORIGAP) and the International Network for Genetic Evaluation of Rice (INGER). Additionally, a further eight

more research and development collaborations were agreed to in November 2014; currently, the Thai Rice Department (TRD) and the IRRI are working on two project proposals on developing learning and technology transfer in Thai rice through the Thai Rice Knowledge Bank, and training in laser land leveling.

The Thai government has agreed to provide initial funding for the expanded collaborative research and an agenda of priority projects is being considered by the Thai Rice Department and the IRRI. 🐼

Source: IRRI, agencies

# Pakistan: Revised Seed Law

The President of Pakistan approved a new amendment to the Seed Act of 1975, after it earlier went through both the National Assembly and the Senate. To get the legislation amended, the Seed Association of Pakistan played a major supporting role in the process.

The amendment can be seen as a milestone in the development of Pakistan's seed sector. The act covers seeds, nurseries and laboratories, and with the amendments, the private sector can now produce seeds (including pre-basic and hybrids), establish

an accredited laboratory and set up processing plants. GMO varieties of plants can also be registered under certain rules.

All seed-related activities and products are defined and regulated through the new amendment, and to protect companies and the seed sector, dealers/distributors, companies, processing plants, hybrids and varieties have to be registered before being marketed. The aim of the act is to streamline trade channels, discourage illegal activities and to ensure quality seed is made available to farmers.

It is hoped that the amendment will ensure the availability of quality seed to farmers, especially those who work small- and medium-sized farms. Moreover, the new amendment will provide rudimentary directions on how to register GM seeds produced by international or local companies. Under the revised law, a certificate will be required from the National Biosafety Committee to ensure the product is safe for human consumption and the environment. 🐼

Source: Tahir Saleemi, EC Member





## India: Monsanto–Mahyco–NSAI court case

Agro-chemical giant Monsanto, the Indian Government, various Indian seed companies and the National Seed Association of India are locking horns over the enforcement of foreign IP/patent rights in India.

The dispute has been bubbling along for several years as Monsanto and several Indian seed companies that license Monsanto's Bt gene technology have been battling both Central and State Governments over the introduction of Bt cotton seed price controls. Typically, the price of a bag of Bt cotton seeds varies from state to state: a 450gm bag sells for Rs. 1,000 (\$14.50) in Punjab, Rs 830 (\$12.10) in Maharashtra and Rs 930 (\$14.6) in Andhra Pradesh.

Monsanto went to court to recover royalties accrued from this year's and last year's planting seasons. On December 7 last year, the

Agriculture Ministry issued a Cotton Seeds Price (Control) Order to set a maximum retail price (MRP), which takes effect for all genetically modified versions in March 2016. The Ministry also fixed the licensee fee, including royalty or trait value.

After the Order was announced, Mahyco-Monsanto Biotech Pvt. Ltd. (MMBL), a joint-venture company of Monsanto, lodged a plea with the Delhi High Court on December 19 that the government should not regulate the trait fee or royalty charged by technology providers. MMBL had already sought payment of more than \$60 million in seed royalties from eight seed companies for using its seed technology and for breach of contract.

On November 14, MMBL cancelled the license for Bt cotton seed technology of Nuziveedu Seeds

and its subsidiaries, Prabhat Seeds and Prabhat Agritech, for non-payment of royalty fees.

The National Seed Association of India (NSAI) and some farmers' organisations requested that the government intervene to regulate the royalty charges and investigate alleged monopolistic practices. The NSAI has also sought a refund of over \$185 million for farmers as the association claimed that this was the amount paid over and above the state government stipulated trait value.

Bt cotton was introduced to India in 2002; about 90% of the country's cotton cultivation area, or roughly 11.8 million hectares, is under Bt coverage in the 2015-2016 season. 🌱

Source: *The Economic Times, Business Standard, Live Mint.com*

## East–West Holds Field Day in Thailand

**East-West Seed International held an International Field Day on the 12 and 14 January in Chiang Mai, a province 700km north of Bangkok, and Suphan Buri, a central province about 100km from Bangkok. The Chiang Mai leg of the event, held on 12 January, featured solanaceae and brassica crops, while the Suphan Buri leg on 14 January featured cucurbitaceae and papaya crops.**

The theme for the Field Day was 'Harvesting Innovation', which, said the organisers, represented the new commercial varieties, seed technologies, cultivation and marketing techniques

on show at the two demonstration fields. Around 300 varieties were said to be on show at the two sites, out of which some 126 varieties (or 42% of the total varieties) were displayed publicly for the first time.

Asian Seed joined East-West's participants for the Suphan Buri leg of the Field Day at the company's 44-acre R&D station and processing facility. The participants, some of whom had travelled from as far away as Central and South America, were also able to join short training sessions on grafting, indoor crop cultivation (of tomato, sweet pepper and cucumber), vegetable growing techniques

and how to utilise Agryl netting for crop protection.

East-West Seed made the field day unusual and interesting by introducing a mobile phone App that had all the crop information and the company's seed catalogue available with a simple scan from the app's QR code reader. (see page 13).







## Fully-integrated Corn Seed Processing Facility

The Suphan Buri seed processing center, which was officially opened in March 2012, is Thailand's first fully-integrated corn seed processing plant, capable of handling everything from receiving newly harvested ears of corn, drying, shelling, processing (air-screen cleaning, gravity and colour sorting and seed coating), and lastly, packing. The facility can handle up to 200 tons of corn seed per full cycle. And despite the focus

on corn seeds, other bulky seeds are also processed at the facility. In addition, the plant also features mobile racking in the cold storage room and an energy-efficient drying system.

A second building was recently constructed at the facility to increase storage space and seed packing capacity, and the company expects the new building and its facilities to

be fully operational by April 2016.

A lively group of East-West's clients, mainly distributors from around the world, were welcomed at the facility on the morning of January 14 by local staff who then showed the visitors the demonstration fields, which featured a huge range of cucurbits, especially cucumbers and gourds, some marigolds and a papaya field.



## Seed Catalogues Changing

The seed catalogue, the standard method for a seed company to display its products and services, has been a key promotional tool for seed companies for the past four centuries. The oldest plant catalogue, for instance, is the 1612 Florilegium produced by Emmanuel Sweerts, a Dutch bulb and plant merchant, which displayed and described the plants he could supply. A second florilegium, Hortus Floridus, was published in 1614 and was designed as a tool for salesmen to use – they could show what the plants on offer would actually look like in full bloom. These new developments encouraged Frenchman Rene Morin of Paris to publish one of the first printed plant catalogues in 1621.

Catalogues have come a long way since then, going from hand-painted tomes to web-based digital archives; moreover, many seed companies now maintain seed catalogues in both digital and print format.

Group Communication Manager Francine Sayoc-Shiraishi explained that the company's products were displayed on the App. "This is the first time we've used it," she said, "And with this first APP we're targeting our customers in Thailand, Indonesia, Myanmar, Vietnam, Cambodia, Africa, the Middle East and South America. We'll be using apps more and more to connect with our customers."

The East-West, App, which can be accessed by anyone from any East-West advertisement by scanning the QR code, provides information on products. At the Field Day, Asian Seed staff downloaded the app to give it a road test. By scanning the QR code next to each crop in the field, the staff were able to access detailed information about a particular variety. We were also able to make notes and take photos, add them to a 'Favourites' list and access them via the App later. Very convenient and easy to use, it is highly likely that mobile phone Apps will play an increasingly important role in the marketing matrix for selling seeds. 📱

## East-West and Chiang Mai University Ink MOU

East-West Seed International and Chiang Mai University (CMU) signed a Memorandum of Understanding (MOU) on February 14 to cooperate on various research projects over the next five years. The two research partners previously collaborated on a papaya micro-propagation project, and East-West Seed provides training

for undergraduate students in the company's Hortigenetics Research Center every year.

East-West and CMU will be jointly hosting the Solanaceae Conference towards 2018. The annual Conference is organised in different countries and focuses on crops from the Solanaceae family, including

tomatoes, peppers, tobacco, eggplants and potatoes.

In addition to the MOU signing, 500 students, including 150 from CMU, were welcomed to East-West's demonstration fields and breeding facilities at the company's Simon Groot Research Center. 📱



# EL NINO REPORT

## The Worst El Nino Since 1997–1998

**T**he Agricultural Extension Department of the Thai Ministry of Agriculture and Cooperatives has been busy putting up billboards on dry, dusty irrigation canals and ditches in provinces across the Central region of Thailand. The erected signs read: “This dry season.... less Water.” and the accompanying text urges farmers to abandon rice growing for this season and instead concentrate on alternative crops, like sugar cane, which require less water for cultivation.

Thailand often suffers drought in the ‘dry season’, particularly in the northeastern region that borders Laos and Cambodia, but last year a drought started that has now affected 76 districts throughout the many provinces of Thailand, including Bangkok.

Even the rice belt of Thailand, the Central region, is suffering from what many are saying is the worst drought in 20 years, brought on by the toughest El Nino climate event since 1997-1998. In Central Thai provinces like Sing Buri, Angthong, Chai Nat, Ayutthaya, Saraburi and Pathum Thani, rice cultivation – the major crop – has been cut back as farmers switch to vegetables, sugar cane or seek other work in the city.

Normally, Thailand produces about 31-32 million tonnes of paddy (or about 20.5-21.1 million tonnes of milled rice) with half of the production serving the domestic market and the rest for export. Government ministers have said that 25 million should be the maximum this year, and they are working hard to persuade farmers to follow their advice. On February 24, the National Council for Peace and Order (NCPO) ordered all government agencies to develop ways of delivering assistance to those affected by the drought.

The Office of the National Economic and Social Development Board (NESDB) said that the drought in 2015 had left 500,000 jobless in the agricultural sector, prompting the government to fund three loan schemes worth \$261 million for the farming sector. Commerce Ministry officials have warned that Thai agricultural exports will be hit by the lack of rain.

Asian Seed visited some of the provinces in the Central region recently and noted that the irrigation ditches, which would normally glisten and sparkle in the sun as they fed water into green fields, now run dry. Irrigation huts that used to work as simple bamboo water pumps are deserted, while cracked roads and potholes show the devastation of drought-triggered subsidence, a problem exacerbated by excessive pumping of groundwater.

But Thailand is not alone in its struggle with drought: across the region, particularly in Southeast Asia and Oceania, countries are dealing with extreme weather events (see pages 20–21 for a snapshot of what’s happening in the region) and their tragic consequences.



# What is El Nino?

El Nino\* is a weather event known as the El Nino Southern Oscillation, or ENSO, caused by changes in the surface water temperature in the Eastern Equatorial Pacific Ocean. El Nino, and its opposite La Nina, are both naturally occurring phenomena that have happened in cycles throughout history; they are not caused by climate change per se, but it could make their effects much more severe.

The first record of these weather events dates back to 1500 when Peruvian fishermen noted that warmer waters off the Peruvian coast caused fish stocks to drop, and Peruvian farmers noted heavier rain than normal, which boosted crop yields. It was not until the 1960s that scientists realised that these effects were not just exclusive to Peru, but were much more widespread.

During normal weather conditions, trade winds blow towards the West, causing warm water to culminate in the Western Pacific Ocean and cold water to culminate in the Eastern Pacific. During an El Nino event, these trade winds weaken in the Central and Western Pacific Ocean, causing warmer water to culminate in the Eastern Pacific Ocean. The rainfall follows this warmer water eastwards, decreasing the amount of rainfall in the western pacific (see diagrams on page 17).

El Nino events tend to happen every three to seven years and can last from six months to two years. The most severe El Nino in recent times occurred in 1997-1998.

## Global situation: Why Understanding El Nino Is Important

Firstly, and most importantly, a strong El Nino event can disrupt weather patterns all over the world, causing droughts and floods, and affecting not just agriculture but all sectors in a country's economy.

Despite the records broken during the 1997-1998 El Nino, which was described as a once every 50 years event, Bill Patzert, a climatologist at the NASA Jet Propulsion Laboratory, told US reporters that the current El Nino could be even worse, "This definitely has the potential of being the Godzilla El Nino". Jerome Lecou, a climate expert at the French weather service Meteo France, told AFP-Jiji Press that this El Nino is the strongest ever measured: "It is probably the most powerful in the last 100 years."

It is worth remembering that in 1997-1998, more than 23,000 people died from natural disasters, and poverty rates soared, leaving governments around the globe to pick up bills for an estimated \$45 billion-worth of damage.

It could be worse this time because climate change is exacerbating the effects of El Nino, as suggested in a recent World Bank Report (2015). The hottest year ever recorded happened during the 1997-1998 El Nino, but that record was smashed in 2015 during the current El Nino.

The report noted that the impacts this time round will include food shortages, food price inflation, wildfires and depleted water resources. Furthermore, an El Nino typically leads to higher demand for polluting energy sources like coal and crude oil as hydropower output declines due to drought. Droughts and flooding also spark disease outbreaks and increased susceptibility to disease and sickness

While the focus of this report is on the Asia-Pacific region, a quick review of recent developments on a global scale shows just how pervasive the El Nino phenomenon really is.

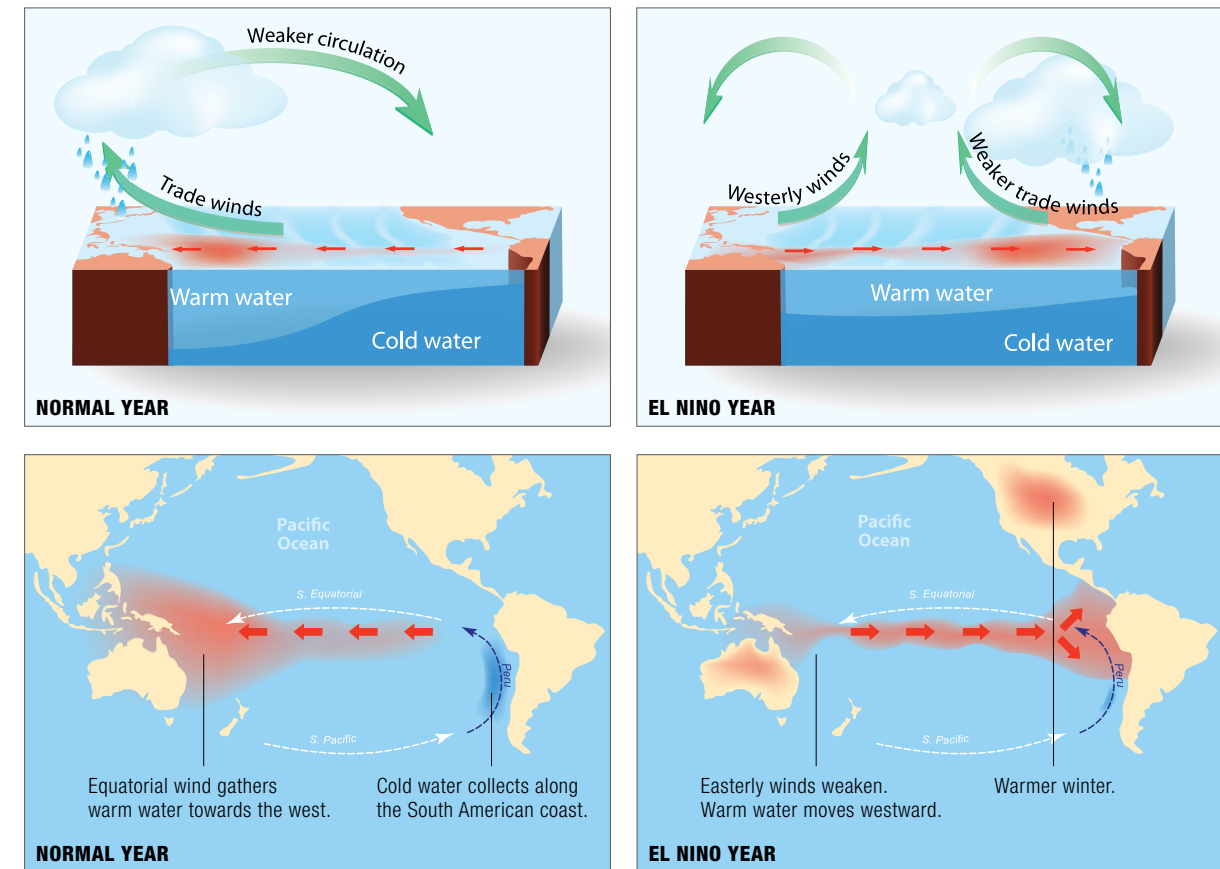


**“This definitely has the potential of being the Godzilla El Nino.”**

\*El Nino (Spanish for 'boy') and La Nina ('girl') are opposite phases of the ENSO cycle. While El Nino causes higher than normal surface temperatures, La Nina causes lower sea surface temperatures. Generally, the climatic effects of La Nina are the opposite of El Nino.

# The El Nino Phenomenon

## Normal conditions compared with El Nino condition



## El Nino's Global Reach

The USA, the world's biggest food producer, is no stranger to extreme weather events, but this year they have come thick and fast. Generally, El Nino brings warmer winters in the North and stormier, wetter winters in the South. In the 1997-1998 El Nino, while Florida's fruit growers may have complained about the wet weather, in South America, El Nino brought flooding and mudslides in Paraguay, Argentina and Uruguay, driving more than 150,000 people from their homes.

Europe too has not escaped the weather disruptions caused by El Nino; maize cultivation in particular has been affected. However, it is Africa that is struggling the most in dealing with disrupted grain production. Eastern and Southern Africa are both highly vulnerable to El Nino, which causes significant crop failures; with major harvest failures in 1983, 1992 and 1998, all years when a strong El Nino disrupted harvests. The major agricultural exporter South Africa is likely to suffer poor harvests caused by El Nino-influenced drought for a second successive year, with maize production estimated to decline by a third. The situation is similar in Malawi, Zambia and Zimbabwe.

Elsewhere in Africa, Ethiopia is experiencing its worst drought for fifty years; crop production has dropped by 50-90 percent in some regions and completely in the East.

As global harvests wilt under droughts and heat waves driven by El Nino, there are concerns that food and commodity prices will continue to be affected, although it has been tempered somewhat by the fact that, prior to El Nino, food prices had been falling for four years on the back of a strengthening US dollar and some food surpluses. In Brazil, excessive rain-damaged sugar and palm oil harvests have driven up sugar prices; in Southeast Asia, the opposite problem, with excessive dryness causing crop damage, consequently raising the international price of vegetable oils.

The head of Rabobank's agricultural commodity markets research, Stefan Vogel, told Business Day Live that the weather would be a key driver in commodity markets over the next year. "We currently see El Nino, one of the strongest on record, affecting sugar, palm oil and robusta coffee crops. It is expected to gradually weaken in the first quarter of 2016, but its effects will continue to affect commodity prices."





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# EL NINO

## El Nino Factfile: Worst in 100 years?

### WORST EL NINO TO DATE - 1997-98

## 5 M

Drought and fires swept across SE Asia, burning an estimated 5 million hectares of forest and causing water shortages across the Pacific.

## \$45 B

\$45 billion in damages was incurred over the El Nino period and 23,000 lost their lives to the harsh conditions.

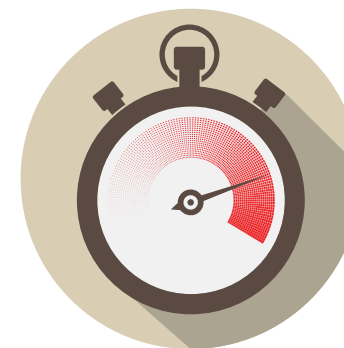
## 54 DAYS

The sheer amount of energy produced over this period was enough to power the entire world for 54 continuous days

## 2000 KILLED

Flooding hit the Horn of Africa, killing 2000 people in Somalia and affecting a further 1.4 million due to losses in livestock and property.

Sources: Budgetdirect.com, Bureau of Meteorology (Australia), FAO, ECHO, Reuters, Japan Times



Before 1880, El Ninos occurred once every 7.5 years, their frequency has since risen to every 4.9 years.



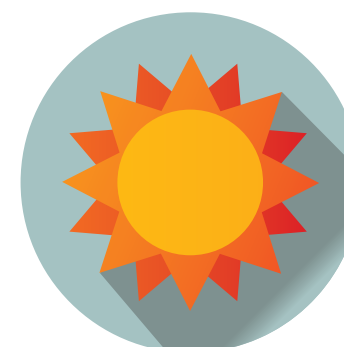
El Nino events can last from six months to two years, with the last El Nino occurring in 2009-2010.



During 2014-16, El Nino affected the entire Asia-Pacific region. The most severely affected areas were in Cambodia, India, Indonesia, the Philippines and Micronesia (see map on page 20).



In 2015, 150,000 people were displaced by flooding in Paraguay, Argentina and Uruguay. Increased rainfall of 350% above average also caused havoc for Florida-based farms.



El Nino is known to cause diverse weather conditions such as droughts in some areas and heavy flooding in others. Globally, 7 out of the 10 hottest years on record were in El Nino years or the year following.



Grain production across Asia-Pacific suffers greatly, with lower yields and reduced planting areas for maize, rice, wheat and soybean. This accounts for 60% of the world's food calories produced on arable land.



# El Nino: Snapshot of the Region

## 1 Australia

El Nino tends to decrease average winter and spring rainfall, while southern Australia experiences much warmer days. Although drier weather affects agriculture, which is only 2% of total GDP, the impact is not as severe as in Southeast and South Asia.

## 2 China

El Nino arrived in China in May 2014 and has caused warmer winters in the North and record-breaking rainfall in six southern provinces, with subsequent flooding in Hunan. Both adverse weather conditions can cause large-scale crop damage and may also drive up food prices, thereby adding to food price inflation.

## 3 India

Monsoonal rainfall has been poor over the past few seasons. In 2015, a long intense heat wave and low rainfall affected agricultural production. Southern India and Sri Lanka suffered severe flooding in November-December 2015, which inundated Chennai. Higher rainfall is expected in South India and Sri Lanka, but lower rain is expected in the northern part of South Asia. A full-blown drought could cut GDP growth by 5%.

## 4 Cambodia

Drier weather delayed planting in 2015 for main food crops and undermined the yields of crops planted earlier like maize, soybeans and potatoes. If the rains do not improve, the government plans to encourage farmers to plant short-term rice varieties.

## 5 Indonesia

A large primary sector (18-20% of GDP) leaves the country exposed to climatic events like El Nino. FAO reported that only 30% of crops were planted on time for the 2015-2016 planting season as lower rainfall greatly affected agricultural production across the country, impacted hydropower generation and exacerbated forest fires (which in turn affected both Malaysia and Singapore). Indonesia may need to import more food this year.



## 6 Philippines

A strong El Nino has brought drought across the country – 68 out of 81 provinces are likely to suffer drought by April 2016 – and has increased the frequency of typhoons e.g. Typhoon Koppu on 18 October 2015, which caused an estimated \$180 million in agricultural damage.

## 7 Mongolia

16 out of Mongolia's 21 provinces are going through a *dzud*, a harsh winter that is usually preceded by drought, which reduced the 2015 wheat harvest by 40%.

## 8 Vietnam

Below-average rainfall and higher-than-normal temperatures have delayed the planting of second and third rice crops – planting was down 6% in 2015. The most affected areas were: The Central Highlands, North Central and Central Coastal areas, and the Mekong River Delta. Yields of rain fed corn are expected to decline sharply.

## 9 Timor Leste

Drought has followed insufficient rainfall (Oct. 2015 – Jan. 2016), affecting the Centre, East and South of the country. For grains, 40% of maize and 57% of rice production areas are likely to be affected by El Nino, impacting the lives of 220,000 people.

## 10 Papua New Guinea

More than 2.7 million people have been affected by drought and forest fires, with reduced water availability for agricultural activities affecting vulnerable communities. In the Highland provinces, food gardens are severely affected, while crop yields are declining and diseases are increasing nationwide.

## 11 Pacific Islands/Oceania

Drought warnings are in place in Fiji, Tonga, Samoa, Vanuatu and Palau; ESCAP estimates that 4.7 million people in the Pacific region are facing severe El Nino-induced drought, increased frequency of typhoons and tropical storms, and outbreaks of diseases.



# How to Mitigate the Effects of El Nino

The good news about this El Nino and a major difference to the last one in 2009 – when food riots occurred in various countries, caused by low food stocks – is that governments have stockpiled grains and staples like rice, wheat, maize and sugar. Global rice stocks have risen by 15 million tonnes since 2009 and now stand at 109 million tonnes, according to the US department of Agriculture, with significant stockpiles in India, Thailand and China.

Moreover, the reliability of ENSO forecasting presented an opportunity for researchers at Leeds University in the UK, who have linked ENSO forecasts with global crop yields data (for the world's four major food crops – maize, rice, wheat and soybean – which account for 60% of the world's calorific intake). The researchers say that the new model enables them to predict when the bad years will be ahead of the harvest, and this would assist government's in mitigating the effects on agriculture.

Governments across the region have been introducing strategies and policies to mitigate the effects of drought (or flooding). As mentioned above, Thailand's government is providing loans, cloud seeding and is encouraging alternative crops to rice (although a side-effect of the switch to an alternative crop can be the collapse of local prices caused by over-supply). Indonesia is putting into place policy initiatives like water management and

conservation measures, modern farming techniques and installing water pumps. The Indian government has built up food stockpiles and has introduced soft-loans to help farmers utilise drip-feed irrigation technology as a way of conserving water.

The United Nations' Economic and Social Commission for Asia and the Pacific issued a 'Science and Policy Knowledge Series' advisory note in December 2015, in which the agency outlined some policy recommendations for governments in the region:

- **Early Warning strategies** – strengthening seasonal forecasts and knowledge networks including communication with farmers
- **Pre- or in-season-mitigation, adaption and response strategies** – diversifying employment/income, diversification of crops, changing to alternative crops, stockpiling seeds and feedstock, providing drought/flood resistant varieties of crops, use of no-tillage cultivation, and improving water conservation and storage
- **Long-term or seasonal adaption** – improve planning and zoning (restrict agriculture in high risk areas), financial strategies for reducing risk, encourage the right crop for the right conditions, rehabilitate degraded land, improve land management, and expand regional cooperation and drought planning

# What Can Seed Companies Do?

Clearly, El Nino events will return and there is little doubt that climate change has exacerbated the effects this time. As a result, seed companies need to take this into consideration in their strategic planning, R&D and plant varieties.

Michel Devarrewaere, Group Seed Operation Manager at East West Seed International said that El Nino had definitely affected the company's sales, particularly in drought-stricken areas. He noted that the Thai Government was trying to get Thai farmers to switch from rice to vegetables, which was potentially good for sales, but many farmers did not want to take the risk. "Sales were down a lot in the first quarter of 2015, but we made up some of this through corn seed sales, which farmers are able to do with drip irrigation," he said.

He went on to say that El Nino had badly affected countries in which East-West operates, like Thailand and the Philippines, so the company had set up a task force to find ways to mitigate the effects of El Nino and consider water availability, and was in the process of hiring a climate change scientist to undertake research in climate related issues.

He noted that having multi-location seed production sites was a good way to make sure seed production would not

be seriously disrupted. He added that it was important that the company also worked and linked with governments, as there were plenty of initiatives available.

East-West's proactive approach also extends to the farmers it supplies. East-West Philippines has produced a simple but very effective brochure that gives farmers detailed information on El Nino, how and where it affects the Philippines, return on investments for crops using drip-fed irrigation, a photo-story on two farmers talking about switching to drip-fed crop technology, and testimonials from farmers who were successful using drip irrigation techniques.

The brochure, which is now being translated from tagalog (the national language of the Philippines) to Thai and English also includes a very useful checklist of water saving technologies (and how they work), like mulching, zero/minimum tillage, crop rotation and drip irrigation technology.

El Nino events occur regularly so they have to be a part of public and private sector planning. Governments are being proactive in the region, offering initiatives and incentives to farmers. But the difference now is that we now know that an El Nino event will occur in the context of climate change, and perhaps in ways we have not yet anticipated. 🌱

# Summary of impacts in Asia and the Pacific

SOUTH ASIA	SOUTHEAST ASIA	NORTHEAST ASIA	OCEANIA
warmer drier suppressed summer monsoon delayed onset and magnitude of Somali jet	warmer drier fewer but potentially more intense tropical cyclones	warmer drier or wetter depending on the location relative to the Mei-Yu Front more frequent tropical cyclones	drier and warmer along the western Pacific dry in Australia and subtropical Pacific Islands warm and wet, and more cyclones in central Pacific
DROUGHT ↑ FOOD SECURITY ↓ DISEASE ↑	FISH STOCK ↓ WATER SUPPLY ↓ WILDFIRES ↑	FISH STOCK ↓ WATER SUPPLY ↓ ENERGY CRISIS ↑	FISH STOCK ↓ DISEASE ↑ DROUGHT ↑

## Information on El Nino & Climate-Related Information

### EL NINO – SOUTHERN OSCILLATION (ENSO)

[iri.columbia.edu/our-expertise/climate/enso](http://iri.columbia.edu/our-expertise/climate/enso)  
The International Research Institute for Climate and Society, Earth Institute, Columbia University (excellent background to ENSO, plus 'Quick Look' monthly summary of ENSO (El Nino and La Nina) using models created with data from other climate research stations)

[www.jpl.nasa.gov](http://www.jpl.nasa.gov)  
NASA's Jet Propulsion Laboratory at California Institute of Technology. Up-to-date climate bulletins, background on ENSO

[www.wmo.int](http://www.wmo.int)  
World Meteorological Organization (WMO)

[www.wmo.int/media/content/climate-risk-early-warning-systems-initiative-launched-cop21](http://www.wmo.int/media/content/climate-risk-early-warning-systems-initiative-launched-cop21)  
Climate Risk Early Warning Systems (CREWS)

[www.cpc.ncep.noaa.gov](http://www.cpc.ncep.noaa.gov)  
Climate Prediction Center of the National Weather Bureau (USA)

[www.bom.gov.au](http://www.bom.gov.au)  
The Bureau of Meteorology (Australia)

[www.unescap.org](http://www.unescap.org)  
Good source for reports on El Nino and impact on region and individual countries

[www.unisdr.org](http://www.unisdr.org)  
the UN Office for Disaster Risk Reduction (UNISDR)

[www.gfdr.org](http://www.gfdr.org)  
World Bank's Global Facility for Disaster Reduction and Recovery (GFDRR)

### FOOD SECURITY

[www.fews.net](http://www.fews.net)  
The Famine Early Warning Network (USAID, plus partners such as NASA, NOAA)

[www.unocha.org/el-nino-asia-pacific](http://www.unocha.org/el-nino-asia-pacific)  
Weekly Regional Humanitarian Snapshot

[www.fao.org/giews](http://www.fao.org/giews)  
FAO GIEWS Update – global information and early warning system on food and agriculture



East-West Philippines photo comic-style brochure explaining how switching from rice to other crops can be beneficial.



# Seed Trade Growing in Asia, Part 1

by Marie-Pierre Debrabant, economic and statistics department of Groupement National Interprofessionnel Des Semences et Plants (GNIS)

**T**he strong economic and demographic growth found in the Asian zone has increased Asian countries' demand for the raw materials needed to provide an adequate food supply to growing populations. Seeds represent the first step for those involved in agriculture and the seed sectors of these countries have developed and grown substantially, particularly in terms of quality and diversity.

The turnover of the seed sector in Asia is around \$14 billion or roughly 31% of the value of the global seed industry, which was estimated at \$45 billion by the International Seed Federation (ISF). China's seed trade was valued at \$9.95 billion and second only in world ranking to the USA, which was valued at \$12 billion; France, valued at \$2.8 billion, was ranked in third place.

As the Chinese market is primarily a domestic market, imports and exports represented only 2.7% and 2.5%, respectively, of the domestic market. India edged out Japan to come in at 6th place with a turnover of \$2 billion versus \$1.4 billion for Japan. However, Japan is far more active than China in the international agricultural markets; consequently, Japan's seed turnover from external trade was much higher than in China i.e. 17.1% for imports and 10.7% for exports. Even South Korea, which posted a much smaller total turnover of \$400 million for its seed trade than China, generated 28% of its turnover from imports and 12.5% from exports.

If Asian markets remain very focused internally, then one would expect seed exchange to progress rapidly. In five years, imports have increased by 76% to \$1.0 billion mainly due to vegetable seeds, fodder and maize.

Over the same period, exports doubled to reach \$821 million in 2014; some 38% of imports and 52% of exports come from or go to the Asian zone.

China, Japan, India (and to a lesser extent South Korea) are seed distribution hubs for Asia. Indeed, these three countries import mainly from third countries in order to re-export them to the Asian market. They take 65% of all seeds imported into Asia.

**“If Asian markets remain very focussed internally, then one would expect seed exchange to progress rapidly”**

**“China, Japan, India (and to a lesser extent South Korea) are seed distribution hubs for Asia.”**



Photo by John Clewley



## China: Import and Export Leader

China is the leading seed importer in the Asian zone, paying for \$286 million worth of imported seeds in 2014, and is the leading seed exporter, ahead of Thailand, India and Japan, with seed revenue of \$292 million.

Between 2009 and 2014, Chinese imports doubled, driven by an average growth rate of over 18% during the period; this growth generated a profit of \$82 million for vegetable seeds and \$59 million for fodder seeds, the top ranked imports.

The USA is China's main partner for seed imports, taking a 31% market share, which has remained stable since 2009, while over the same period, imports from Asian countries rose 4% to 33% but declined 5% to 19% for countries from the European Union (EU).

China sends 39% of its exports to the Asian zone (mainly South Korea, Japan, and Malaysia) and the remaining 60% is shared equally between the EU (15% to the Netherlands and 4% to France) and the USA; 83% of exported seeds are vegetables (worth 296 million).



## Japan, ranked 1st in the global market for vegetable seeds

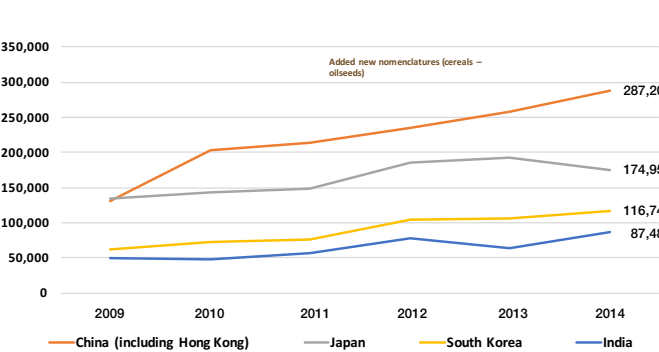
Between 2009 and 2014, Japanese seed imports grew by 29% to \$175 million. In 2012, there was a growth spurt of 26% in 2012 after the tragedy at Fukushima, but a further decline of 9% in 2014. Japan’s main seed imports are vegetables (56%), fodder (12%), flowers (9%) and maize (9%).

As in China, the USA is a leader in the Japanese market with a 25% market share for seeds. Nevertheless, since 2009, the American share has declined. In five years, USA has lost 10% of the market to South American and Asian countries;

the EU remains Japan’s third-ranked partner behind Asia, but registered a small decline to a market share of 21%.

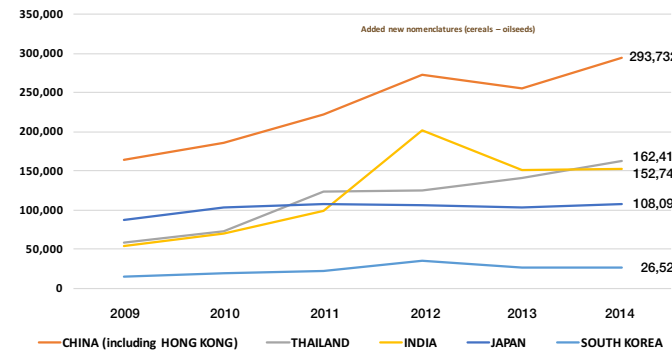
Japan, Asia’s second biggest seed exporting country in 2009, was eclipsed by Thailand in 2011 and the gap has widened ever since. By 2014, Japan was ranked 4th behind India with seed exports of \$104 million, divided between Asia in top place (59%, mainly to China, Hong Kong and South Korea), 20% to the EU, 8% to the USA and 7% to South America; 75% of Japan’s exports seeds were vegetable seeds.

THE TOP FOUR ASIAN IMPORTERS



thousands of U.S. dollars

THE TOP FIVE ASIAN EXPORTERS



thousands of U.S. dollars

COUNTRY	TRADING PARTNER								
	WORLD	ASIA	NAFTA*	E.U.	OCEANIA	OTHER AMERICA	NORTH AFRICA	OTHER AFRICA	OTHER EUROPE
JAPAN	287,209	94,635	105,352	55,750	15,613	9,729	4,793	1,329	9
CHINA (including Hong Kong)	174,953	39,405	45,157	36,989	29,555	19,379	927	3,535	5
SOUTH KOREA	116,740	40,680	32,585	26,217	5,393	8,053	819	2,786	10
INDIA	87,480	27,899	6,004	16,215	15,821	4,116	15,614	1,811	-
TOTAL	666,381	202,619	189,098	135,171	66,382	41,277	22,153	9,461	24

\*The North American Free Trade Area  
thousands of U.S. dollars

## South Korea expands abroad

Between 2009 and 2014, South Korea’s seed imports grew by 80%, a higher growth rate than China’s. The country is a major seed importer, bringing in \$116 million worth of mainly vegetable (67%) and fodder seeds (15%). Over the five years, imports of vegetable seeds doubled in value to \$77 million. High production costs and unfavourable climatic conditions have forced Korean companies to produce more than 80% of their seed needs abroad.

Even though Asia has been Korea’s major commercial seed provider, the country’s market share has declined

strongly since 2009. The USA’s market share has dropped from 33% to 28%, but it remains a leader in the Korean market for fodder seeds, cereals and maize. The Netherlands, whose exports have more than quadrupled over the past five years, has risen to second place, followed neck and neck by China and Japan. These three countries provide Korea with most of its vegetable seeds. Although South Korea seed exports are much smaller than those of China and Japan, the country’s exports grew by 73% between 2009 and 2014 to \$26 million.



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# India – exponential growth of the seed industry



In 2015, the Indian seed industry grew at a rate of 12%, one of the highest growth rates in the world.

Awareness about high-yielding varieties among farmers and the successful public private partnership (PPP) that includes collaborative research were the key measures put in place to ensure the smooth growth of the seed sector and to ensure food security.

Between 2009 and 2014, India's seed imports grew at the remarkable rate of 74%, despite a drop of 18% in 2013 when a severe recession impacted the Indian currency and, consequently, the balance of external trade. In 2014, imports jumped 35% to \$87 million, overtaking those of 2012. Indian imports mainly consist of vegetable seeds (66%), followed by fodder (19%) and flowers (6%).

India provides for its seed needs mainly in Asia, but its main partners are from other economic regions. Thus, Egypt is India's top supplier as the two countries have cooperated in various fields such as politics, economics and culture over the past ten years. Egypt provides India with imported clover seeds and is ranked first for seed imports, with a 17.3% market share; Chile is ranked just below that with 16.8%, especially for vegetables; and Thailand is ranked third with 14%. Following the

top three seed importing countries are the Netherlands (11.5%), the USA (6%), China (4.8%) and France (4%). All these countries provide India mainly with vegetable seeds and pulses (namely chickpeas and lentils).

In 2012, India rose to become the third ranked seed exporter in Asia, ahead of Japan. In five years, exports have tripled to \$152 million, allowing the country to achieve a positive balance of \$65 million in 2014. In terms of seed exports, the largest share (40%) goes to Asia (Pakistan and Bangladesh), followed by 39% to the USA and 12% to the EU (Netherlands, United Kingdom and Italy). Bangladesh and Pakistan import mainly vegetable seeds (29%), along with maize and sorghum (20%), while India's guar seeds represented 32% of seed exported and whose gum is used for oil drilling in shale gas extraction.

Note on statistics: The figures in this article come from UN Comtrade, Eurostat and USDA database. The European and American statistics distinguish the majority of the species exchanged, while international statistics from UN and the Comtrade database do not make a distinction between some of them i.e. pulses, oilseeds (colza, sunflower, flax, sesame, mustard, poppy) and rice. 🌾

ASIAN SEED  
The Next Issue

## SEED CATALOGUES

FROM THE FIRST PLANT CATALOGUE  
IN 1612 TO MOBILE APPS IN 2016

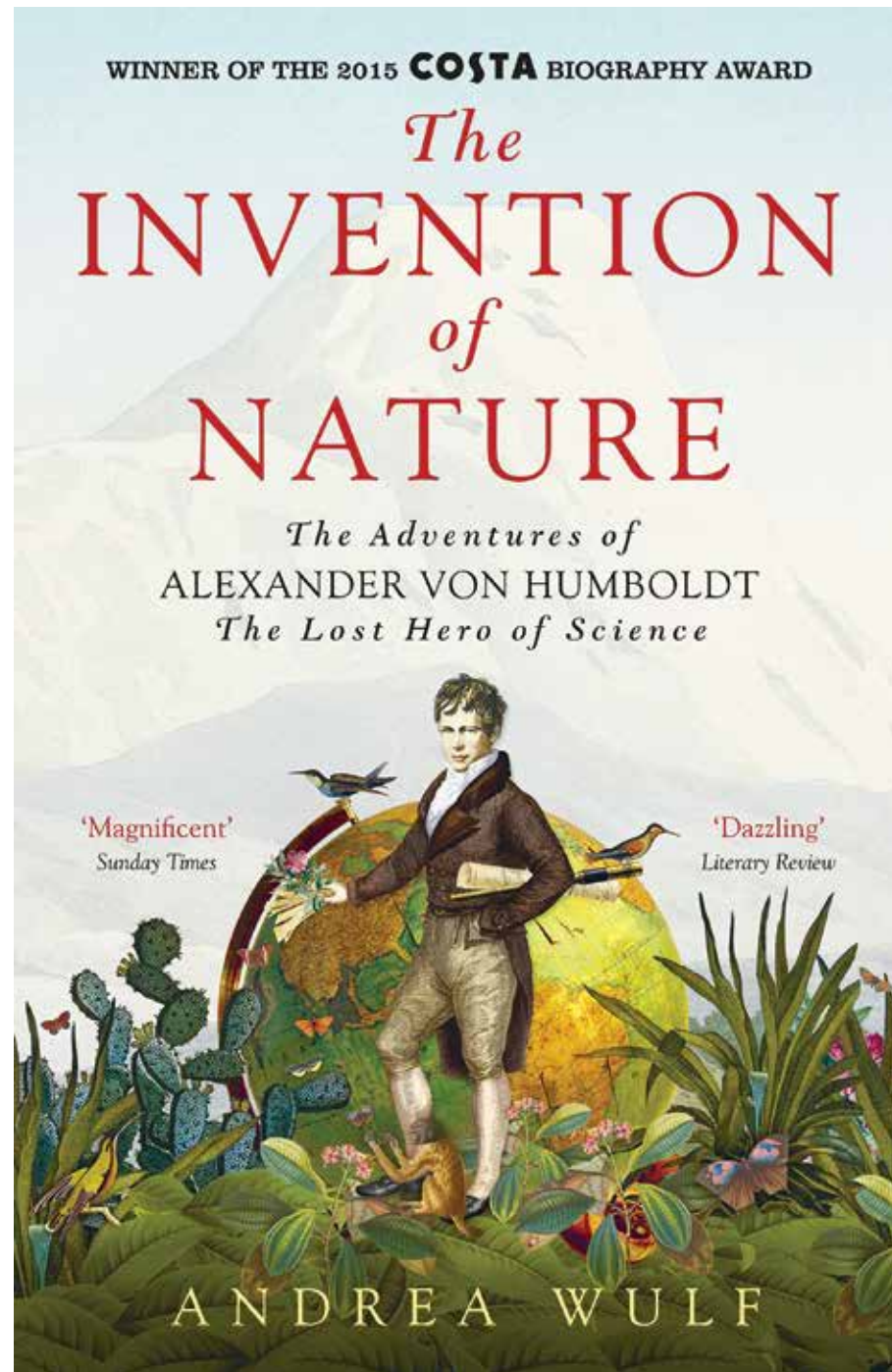
Inside the next issue you'll find everything you need to know about seed catalogues, where they came from, how they developed into works of art and scientific texts, and how they show the diversity of the seed business in Asia.

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# The Man Who Invented Nature



The name Humboldt straddles the globe. There's the Humboldt Current that washes up and down the coasts of Peru and Chile (where the giant Humboldt squid swims), the Humboldt hog-nosed skunk, Humboldt county in California (where 'real' Californians say they come from) and a spot on the moon called Mare Humboldtianum.

But that is not all. To the preceding list you can add that all over the American continent, and not just in California, towns and rivers, mountain ranges, waterfalls, several hundred plants and animals all bear the name Humboldt. He invented isotherms, which we use in climatology to this day and look at most days when we read weather forecasts.

And yet few people know, outside of his native Germany and South America, Alexander von Humboldt, the Prussian polymath, who he was and why he was the pre-eminent scientist of his era.

Andrea Wulf's recently released biography of Humboldt, 'The Invention of Nature', goes some way to restoring Humboldt's public presence. Wulf wrote the acclaimed 'The Founding Gardeners: The Revolutionary Generation.

Alexander von Humboldt was born in 1769 to a court official from Prussia. He was overshadowed in his childhood by the brilliance of his elder brother Wilhelm, an accomplished linguist and philosopher, but he quietly developed into a stunning polymath in his own right, driven by insecurity, ambition and a thirst for complete knowledge of anything he turned his mind to. He was renowned for his speed of thought, his brilliant memory and sharp-tongued delivery.

In 1799, Humboldt embarked on a journey to the American continent which would make his name famous throughout the world. The journey, which he made with the French botanist, Aime Bonpland, is covered in great detail in the book, and it really does make for a ripping yarn.

The two adventurers landed in Venezuela and from there they marched and paddled into the bio-diversity of the rain forest. It was here that Humboldt made his first 'discovery' – going against the common assumptions of the time, he mapped, and therefore proved, that the Upper Orinoco River joined a tributary of the Amazon, thereby linking two of the continent's great rivers.

The two men, braving mosquitoes, sickness and carrying what must have seemed like tons of heavy equipment, trekked along the northern Andes. In Peru he discovered the magnetic equator, and on the coast he determined that a nutrient rich cold current supported a wide variety of marine life. He measured everything he could, even setting up his instruments calmly during an earthquake.

To bring Humboldt back to life, Wulf shows how relevant Humboldt's work and research is to the issues facing the planet today. In one of the first accounts of the devastation of deforestation, Humboldt noted that tree-felling in Venezuela had lowered the water level of Lake Valencia with devastating environmental consequences.

With very little climbing equipment, Humboldt scaled Mount Chimborazo,

created, in the process, our modern understanding of nature.

He also became one of the first major European intellectuals to condemn slavery and colonialism.

After briefing South American liberator Simon de Bolivar, he also visited Thomas Jefferson and then, after five years, he returned to Europe, where he lionised as a great scientific explorer. Despite being attached to the Prussian court, he began to publish books on his travels, which would inspire, among others, a young Charles Darwin to embark on his own epic scientific journey in the HMS Beagle.

When he returned to Europe, he set about writing books on his travels – all 34 volumes of his trip were published as a multivolume 'Personal Narrative'. Perhaps one of the most important



The beauty and emotional nature of Humboldt's prose inspired many writers, from Whitman to Thoreau to Poe and many others. His work inspired Darwin in his youth as well as John Muir, the founding father of Yosemite National park.

Humboldt died at the age of ninety, having just sent off the final volume of his colossal "Cosmos: A Sketch of the Physical Description of the Universe." And from this series of books, we get the term 'cosmos'.

Wulf has done a fine job of resurrecting one of science's forgotten men; her fluency in German has enabled her to search archives for the most fascinating aspects of Humboldt's life works. It is a highly recommended read.

Interested readers might also like to read a fictional account of Humboldt's life in the award-winning *Measuring the World* by German author Daniel Kehlmann, which pairs two great thinkers from Germany, Humboldt and mathematician Carl Friedrich Gauss. 🐼

'The Invention of Nature: The Adventures of Alexander von Humboldt, The Lost Hero of Science' is available online.



then considered the highest mountain in the world. It was here, just below the summit, that he had an epiphany that is still with us today – as he gazed across the mountains and valleys he realised that the world was an interconnected entity, an organism connected by weblike relationships. It was what we now call 'the web of life', and in this sense, Wulf is arguing that Humboldt

innovations he pioneered was the 'infographic' he created using Mount Chimborazo, which was basically a chart that showed a cross-section of the mountain and its environment. The chart showed stratifications of animals, plants, the chemical composition of the air, the blueness of the sky and how the mountain related to the surrounding environment.



# Australian Biosecurity Team Visits APSA

Photos by John Clevley



engages in periodical reviews of biosecurity systems. The team further explained that the main purpose of the visit was to gather information on phytosanitary systems in the region, and to seek suggestions on improving the phytosanitary systems of the Australian Government for seed trade in the region.

The visit to APSA was part of a review, not just of the Asia-Pacific region but also all those countries that Australia trades with. The team had interacted with National Plant Protection Officers (NPPOs), industry representatives (including those of the Dutch seed industry), officials of the International Seed Testing Association (ISTA) and industry stakeholders in Thailand, among others.

A detailed discussion on the above issues, and on the exchange of information on how APSA approaches phytosanitary concerns, ensued between the two parties. Dr. Dadlani noted that APSA had organised a meeting of NPPOs from the Asia-Pacific region in August 2015 to stimulate efforts to harmonise seed regulatory systems in the region.

It was agreed that each nation had their own regulatory systems, which may or may not facilitate seed trade; however, it was felt that, in principle, the NPPO of one country should accept the phyto certificate of another country without having to duplicate expenses to test again.

Both teams agreed to keep channels of communication open for further discussions in the future. 🌱



**A team of biosecurity officials from the Australian Department of Agriculture visited the APSA Secretariat on Friday January 22, 2016. The Australian biosecurity team was led by Interim Inspector General of Biosecurity Dr. Michael Bond and joined by Assistant Director of Biosecurity Support, Dr. Naveen Bhatia, and Ms. Apinya Buakla, Research Officer at the Australian Embassy in Bangkok.**

The APSA Team comprised of the Chair of APSA's Special Interest Group (SIG) on Vegetables & Ornamentals, Mr. Michel Devarrewaere, Co-Chair, Mr. Jack Metzelaar, and Director of Technical Affairs, Dr. Narendra Dadlani.

The Australian team explained that the Inspector General of Biosecurity works outside the normal channels of the Australian government and



Photo by John Clevley

## New Event Organiser Joins APSA

Mr. Komsak 'Bobbie' Kamjing, APSA's new Assistant Event Organiser, is the latest member to join the Secretariat. After graduating with a BA degree in Tourism, Mr. Komsak has worked in a variety of positions related to tourism, hospitality, and event planning and coordination. He has worked as a sales executive, billing supervisor, event sales manager and tour manager with several major travel and MICE related companies, including Naga Management Services Ltd., ATOP Event and Conventions organizer, and Universal Travel Link & Services Co. Ltd.

Mr. Komsak brings to the APSA Secretariat, a great deal of experience in setting up and holding large meetings, and his role will be to support staff and members at all of the association's meetings, including Congress. He will also manage the membership database and distribute APSA-related materials to members. 🌱

## Important Membership Announcement

To provide quality service to all members we need your support.

Starting 1 January 2017, APSA will send invoices out to all members for the annual membership fee, which is due and payable upon receipt and is not adjustable.

APSA also requests members to update membership information within 30 days of receiving the invoice, making sure that all names, information, and email(s) are correct and current.

To begin this process, your membership fee for 2016 will be pro-rated to end 31 December 2016. So, if your membership fee ends May 31st, 2016, APSA will invoice you for the remainder of the year starting from 1 June 2016 to 31 December 2016 only.

During this time, members will still enjoy all privileges previously offered by APSA. To ensure that emails are not rejected or filtered as spam, add [apsa@apsaseed.org](mailto:apsa@apsaseed.org) to your approved email contacts.

Any questions? Contact [apsa@apsaseed.org](mailto:apsa@apsaseed.org) for more information.

## Corrections

In volume 21, issue no. 6 of Asian Seed magazine the following errors were made:  
Page 3, Executive Assistant Ms. Siwaporn Sittisart was wrongly identified as Director.  
Page 5, the Director General of the Korean Seed & Variety Service was identified as Mr. Shin Hyunkwan; he is in fact Mr. Chang Hyun Kim.  
Page 17, 3rd Place booth winner VNR Seeds was wrongly identified as VRN Seeds.  
Page 34, the date for the Asian Seed Congress in Chiba was incorrect; it was held in 2001.



# My Cucumber Life

By Dr. Dehua Ma, EC member and President, Tianjin Derit Seeds

**In 1987, after graduating from Xibei Agricultural University, I was assigned to work in the Tianjin Cucumber Research Institute; looking back I realise that I was very lucky to have been given the chance to work with Professor Feng Hou because he was the greatest cucumber breeder in China. And from this lucky break, my career as a cucumber breeder took off.**

After ten years of hard work, my first cucumber variety Jinyou No. 1 was released on to the market and was popular with growers for its outstanding quality, stable yield and good flavor. At that time, the Tianjin cucumber had been the dominant variety in the Chinese market for many years.

At the beginning of the 21st century, the Chinese seed industry underwent unprecedented reform and a new seed law was promulgated. The seed industry began to develop using principles of the market. The old breeding model of “one breeder with several assistants” was no longer practical due to staff issues, access to germplasm materials, trials and so on.

Times were changing and the Institute had started to initiate merger talks, so I decided to resign so that I could find out how foreign breeders worked. I applied for a position as a business development manager for the Asia-Pacific region for an international seed enterprise. I got the job and for two years I traveled to the USA, Holland, Japan, India and other countries to see how cucumber breeding was operated.

Consequently, I realised there was a considerable gap between the Chinese breeding system and those of international enterprises, and it was not just in terms of germplasm resources, but also the breeding management systems themselves. My two-year experience in a foreign company had changed my mind about breeding. I realised that the gap offered an opportunity, and a big future, in the cucumber seed industry.

In 2003, I founded my company [Tianjin Derit Seeds Co., Ltd.] with one partner and a rented office. We made a plan for the future development of our company; we felt that we were not a small company but a big one at the initial stages of development. We had a dream, but reality was cruel.

We asked ourselves tough questions like how could we find a breakthrough in the cucumber seed industry in China? How could we promote our new company from a cucumber seed field? By trying to answer these questions and paying attention to the needs of growers, we came up with a “highly cold and disease resistant, high yielding” variety [Zhonghe No.4] that we felt was needed in the market. Finally, our new variety came out and was welcomed by growers. At the same time, I visited a lot of growers to explain the science behind the new variety using simple language. As a result, we have set up service offices near to or at the major cucumber planting areas; our company now has a 70% market share of the cucumber seed market in China.

The demand for cucumbers keeps changing. As growers have different requirements, the market needs different cucumber varieties. But how to breed new varieties when the old model was no longer suitable for development? The solution we found was to establish a commercial breeding system. Of course, the work is time-consuming and expensive. Every year, we invest a lot of money in breeding. Research is our core competitiveness.

Since 2011, the situation for the seed industry in China has been good. National policies have been created and implemented, the seed law revised (see page 7), and a new round of reforms introduced with these new measures. I believe that there needs to be some consolidation and reorganisation for seed enterprises in China.

On January 21 2015, Longping Hi-tech announced the purchase of 80% of our stock. A lot of people did



Photo by John Clevley

not understand why I chose to sell my stake in a company I personally created with my partner. In my opinion, when an enterprise has developed to some extent, it is not longer the founders' own business, but a social enterprise. Our company is still a small company, and we know that we are good at conventional breeding, but molecular breeding is the future and needs considerable investment. I believe that through cooperation, we can promote the enterprise and develop a broader structure, attract more talent, build a molecular breeding platform, develop more research and secure funds for development.

Thirty years have passed by in a flash, and I'm still working in the cucumber seed industry. I will try to do my best to promote the vegetable seed business – especially for cucumbers – under our new owners.

I also hope that my experience as a cucumber breeder, both inside and outside China, will help me in my role as an Executive Committee member of APSA. I would like to help domestic Chinese seed enterprises to develop their international presence and to facilitate the presence of multinational companies in the Chinese market. Working together, we can make a difference. 🌱

KOREA SEED & VARIETY SERVICE



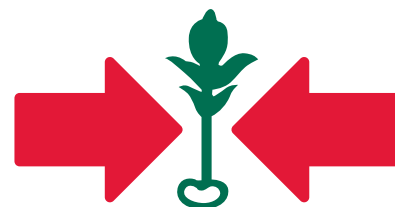
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