

ASIAN SEED

THE OFFICIAL PUBLICATION OF THE ASIA & PACIFIC SEED ASSOCIATION

ISTA Meets in Uruguay

To discuss seed
testing rules

ASC 2015 Goa Preview

Details on the
upcoming Congress

Book Review

Seeds, Sex
and Civilization

Seed for Thought

ISTA's Beni Kaufman
says every seed yields

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ASC 2015 GOA PREVIEW





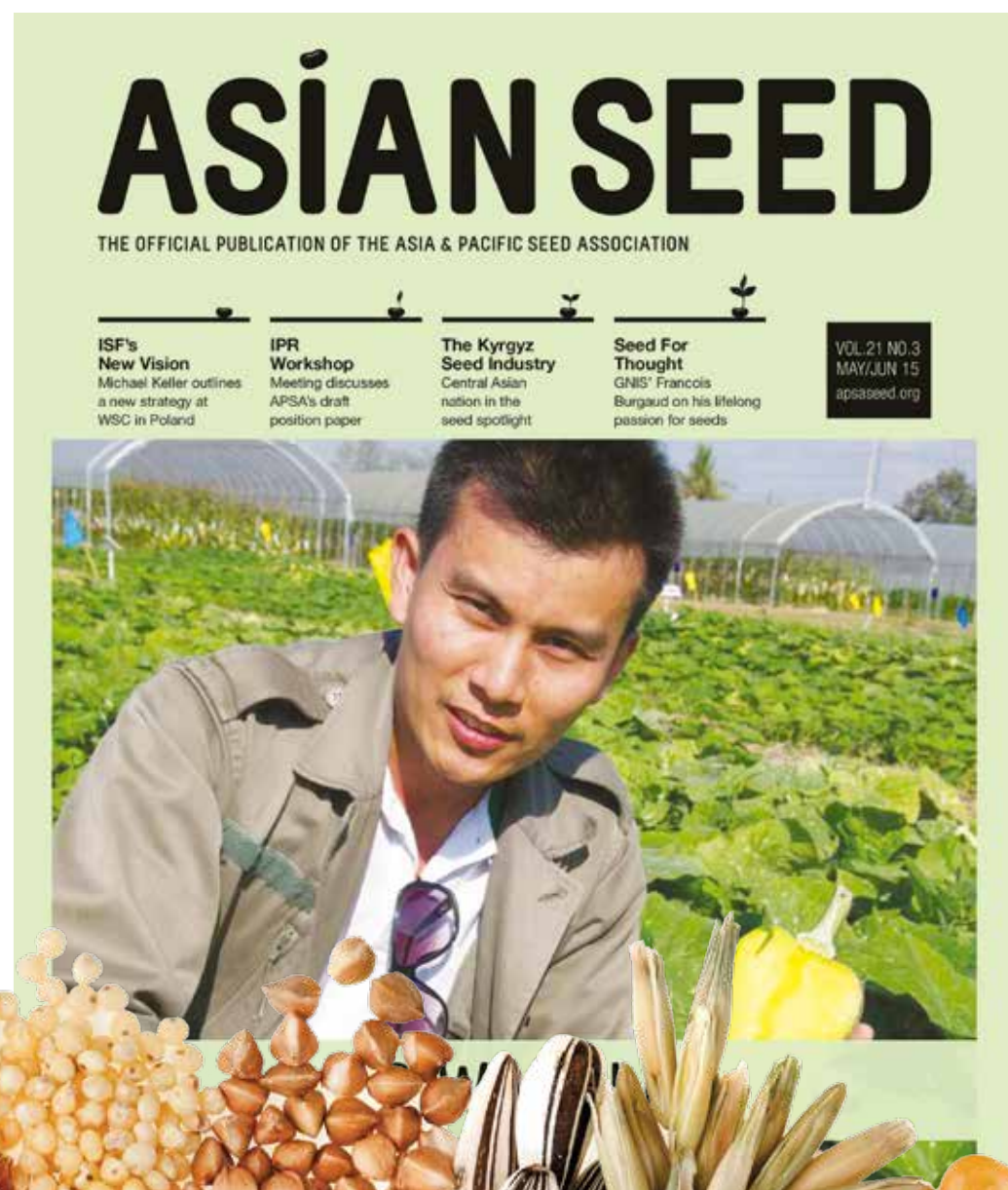
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ASIAN SEED

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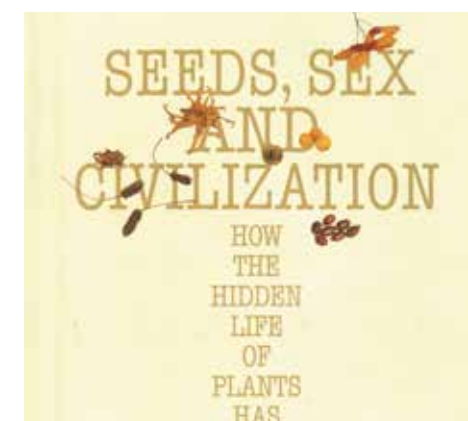
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Getting Ready for Congress

There are just a few months left before the 22nd Asian Seed Congress in Goa, India and preparations for this year's event are underway. With your continued support I am sure that this year's Congress will be a big success.

An APSA team met with the Congress National Organising Committee in Goa in June to discuss all aspects of the venue and facilities, registration, the technical programme and social events, transportation and accommodation. I can report that the booths, trading tables and accommodation have all been booked by members.

To assist you in your Congress preparations, check out the information on the Congress and Goa detailed in this issue of Asian Seed magazine. You can find all the details you need for travelling to and around Goa, as

well as the sights, sounds and tastes await you in this world-famous tourist destination. Along with all you need to know about the Congress, the magazine also contains snapshots of Goa's rich history, culture, flora and fauna, as well as important contacts and a list of local language phrases. There is also a Top Five list of Goa's 'must-see' sites and activities.

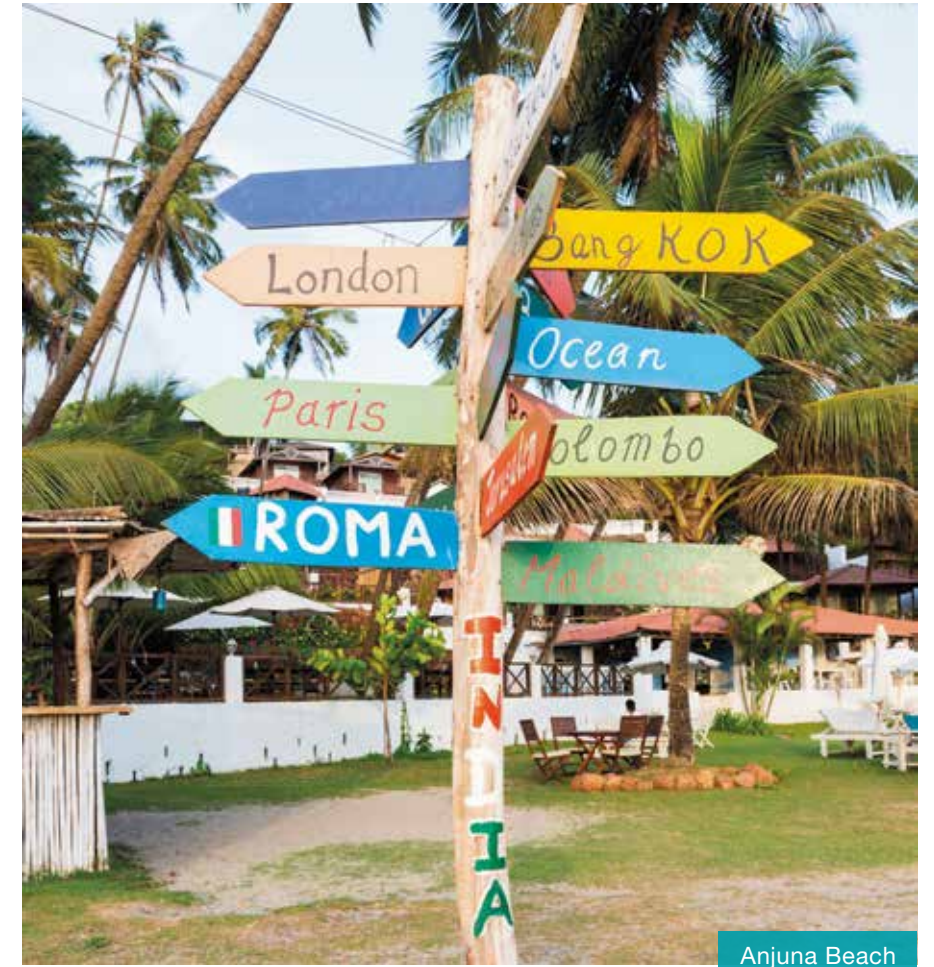
This year, we have added tours for 'accompanying persons' on each day of the Congress, the details of which you can see on page 26. On the next page you can also find out about the popular APSA Golf Tournament, which this year will be held at Goa's only Championship-level golf course, The Lalit Golf & Spa Resort, a favourite movie location for Bollywood film directors. You can register for the tours and golf tournament on the APSA website.



This year's post-Congress tour will feature a field study trip of vegetable seed production farms. More information on the field trip will be available on the website shortly.

The theme of this year's Pre-Congress Workshop is "How To Trade In Seeds and Establish A Seed Business In India", which is, I am sure, of great interest to our members. All APSA members are welcome but numbers are restricted to 150, so please register on the APSA website as soon as you can.

I would like to thank everyone involved with the preparations, with special thanks to our sponsors and the members of the National Organising Committee for all their hard work, which has made this year's Asian Seed Congress possible. On behalf of APSA, I look forward to meeting all of you in Goa. See you there. 🌱



Anjuna Beach



Photos by John Clewley

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Expert Consultation on Seed Trade & regulations

A two-day APSA Expert Consultation, entitled, “Seed Trade & Regulations in the Asia-Pacific Region” was held at the Rembrandt Hotel in Bangkok on 12-13 August 2015. The event was organised by the association’s Trade & Marketing Activity Group, and supported by Croplife Asia.

The meeting was held to consider the current situation for phytosanitary issues and the movement and trade of seeds in the Asia-Pacific region. In Session I: Quality Seed Supply Chain on 12 August, presentations were made on the background of the seed trade. The participants included experts from both the public and private sectors.

Former APSA President, Anthony Tse of Clover Seeds, Hong Kong, began the proceedings with an overall perspective on the global seed trade, which he said was worth \$45 billion in 2014 (ISF figures). He noted that seed trade between countries was increasing in line with rising incomes and, as a result, he said there was a need for one set of rules for all countries within the region “to keep the trading and movement of seeds in a formal and transparent way.”

Michel Dewarrewaere of East West Seeds Thailand considered regulatory systems for disease-free seed production in Asia, whilst Peter Johnston of the Ministry of Primary Industries, New Zealand, explained the background to the OECD seed scheme and quality seed availability.

Further presentations on Day One covered seed treatments, seed export and exchange, the international movement of seeds, and industry engagement with regulatory authorities on phytosanitary issues (based on a model developed by Plantum, the Dutch seed association).



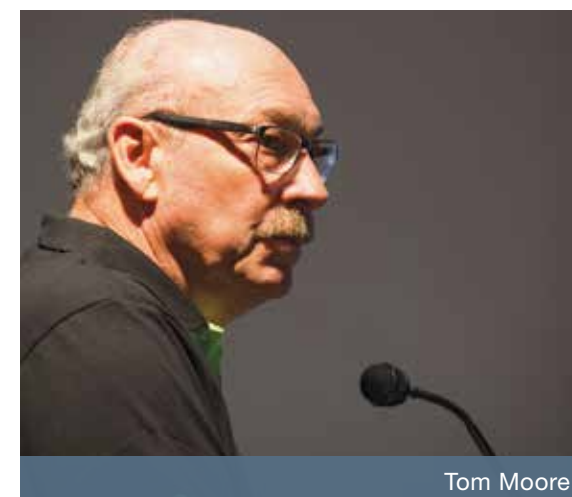
Yukio Yokoi



Akiko Yokota



Peter Johnston



Tom Moore



Datin Jatih Aliah Timin



Jinyan Luo

Photos by John Clewley

Session II: Seed Phytosanitary Management on Day 2 considered some of the issues related to managing phytosanitary issues, led by Tom Moore of the American Seed Trade Association. His presentation was followed by Akiko Yokota’s (Ministry of Agriculture, Forestry and Fisheries, Japan) on the need for pest risk analysis in the Asia-Pacific region, and Datin Jatih Aliah Binti Timin’s (Department of Agriculture, Malaysia) on developing pest lists in the region.

After lunch, a roundtable under the title “Developing a Framework for Harmonization of Phytosanitary Regulations in the AP region” was held with presenters (i.e. resource persons). A lively debate with active Q&A from participants ensued. Chair of the Trade and marketing Activity Group, Amanda Forster, summarised some of the key issues to emerge from the consultation. She said that the meeting needed to give participants “two or three tangible takeaways.” She added a follow-up meeting was important and detection methods should be considered as well as training for the pest risk analysis process. It was agreed by all participants that a follow-up meeting would be held in six months to consider progress made on some of the important phytosanitary issues raised during the consultation. 🌱



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Monsanto Launches Charm Offensive for Syngenta Bid

Monsanto, the world's largest seed company continues its pursuit of Swiss rival Syngenta, a global leader in agri-chemicals, simultaneously courting US farmers and Syngenta's shareholders. A recent Reuters report said that Monsanto executives had been talking to soybean and corn growers as well as farm lobby groups like the American Farm Bureau Federation to seek their support and reassure them that a merger between the two agri-giants would not fall foul of regulatory authorities; other executives have taken to national and regional media to explain the Syngenta bid.

At the same time, Monsanto CEO Hugh Grant sought out Syngenta's investors in Europe to tell them how beneficial the proposed US\$45 billion merger would be for both parties. To underline Monsanto's determination to push through the deal, Grant appears on pages dedicated to the deal on Monsanto's website, explaining the synergy he expected from the deal.

The deal was rejected in May by Syngenta and Monsanto is likely to wait for the former to post its first half earnings figures – a weak set would encourage Monsanto to lobby for a deal, while strong earnings would support Syngenta's rejection of a deal. When Syngenta's CEO

Mike Mack rejected the deal in May he claimed that the bid was too low given that his company was set to benefit from a range of new and innovative crop protection products.

Nonetheless, Syngenta's shareholders will be aware that the company's performance will be down from last year, and that Monsanto has generally supplied more stable annual returns and has grown continuously over the past four years.

A merger between the two companies would only happen if Monsanto sweetened the deal to in excess of \$50 billion, which would represent a 30% plus upside on



Syngenta's stock price, as well as savings of about \$1 billion and lower tax rates for the merged entity.

Some of the other concerns over the merger are whether the new entity would reduce R&D spending and innovation, and also whether product prices would rise. On the issue of monopolistic control, Monsanto's Hugh Grant says on the company's website that anti-trust issues would be avoided by divesting the new entity of Syngenta's "seeds and traits business, as well as overlapping chemistry assets."

It is clear from Monsanto's multi-pronged approach that it wants the deal to happen and is prepared to continue negotiating. The company has the financial resources to do the deal and to make an improved offer. Syngenta's shareholders would benefit from a hiked share price (over 30% upside on the \$50 billion price tag), while Monsanto would turn itself into the world's largest seed and crop chemical company. Whether the negotiations would lead to a hostile takeover is still unclear as Syngenta has already said that it would consider a "serious offer." 🌱

Sources: Bloomberg, Reuters, agencies

East-West Joins Licensing Platform

East-West Seed is the latest major seed company to join the Holland-based International Licensing Platform Vegetable Association (ILP), an independent organisation founded in 2014 to improve global access to, and use of, plant traits, and to support plant breeding innovations.



Tropical vegetable seed producer East-West Seed is the 12th company to join IPL; the other members are: Agrisemen, Bejo Zaden, Enza Zaden, Groupe Limagrain, Holland-Select, Limgroup, Nunhems, Pop Vriend Seeds, Rijk Zwaan, Syngenta International and Takii Europe.

The ILP was launched in November 2014 as a result of discussions about patents on plant breeding traits. The ILP aims to secure access to patents covering biological material for vegetable breeding.

Ard Groot, Vice Chairman of the East-West's supervisory board said, "The debates regarding patents are very relevant for us and for the farmers that we serve ... We think that it is of great importance

to ensure access to plant breeding traits to facilitate further innovation and development."

The ILP's licensing system works in a straight-forward fashion: if a member wants a license to use a fellow member's patented invention, the two parties begin negotiations. If no agreement is reached within three months, the case goes to arbitration by independent experts. What marks this system as innovative and different is the use of a 'baseball arbitration model', under which both parties submit their respective license fee proposals, with the most reasonable proposal being chosen. Once a fee is agreed, the details are communicated to all other IPL members to make sure the process is transparent. 🌱

For more details contact: Chris van Winden at winden@caiway.nl.
Information on ILP at: www.ipeg.com.

Monsanto Gears Up Vegetable R&D in India

Monsanto has announced plans to expand its Bangaluru research and development facility for vegetable seeds, which was set up in 2005. Monsanto's Vice-President for Global Vegetable Business Kenneth Avery told the Indian media on 21 July that the company would introduce new disease-resistant, high-yielding tomato and pepper hybrid varieties to the domestic market.

He also said that Monsanto had no plans to work on GM vegetable varieties as the cost of registration was high compared to the returns generated. Despite being a late entrant to the Indian vegetable seed market, the company claimed that it held a 10% share of the Indian vegetable seed market, and was third ranked after Syngenta and Nunhems (Bayer Crop Science).

Source: The Hindu Business Line

Mahyco to rollout hybrid cotton in Africa

Indian agri-biotech company Maharastra Hybrid Seeds Co. Ltd. (Mahyco) has announced plans to introduce hybrid seed varieties of cotton to selected African markets this year.

Mahyco acquired a 60% stake in Zimbabwe's Quton Seed Company in November 2014 and plans to market hybrid varieties through the company. Mahyco's Chief Technical Officer Usha Barwale Zehr said testing and development is underway, and she expected a commercial rollout in November. She noted that despite being a cotton growing region,

Africa does not have any hybrid cotton varieties. She added that following the introduction of hybrid cotton seeds, Mahyco would then introduce Bt cotton seeds.

As Quton Seed is based in Zimbabwe, the company would also cater to nearby markets in Southern Africa like Malawi, Tanzania, Kenya and Zambia.

By expanding into African markets, Mahyco could well further strengthen its position in the cotton seed market. 🌱

Source: The Hindu Business Line



ISTA Holds Annual Meeting in Uruguay

Dr. Tso-Chi Yang, Director Taiwan Seed Improvement and Propagation Station, EC Member

The International Seed Testing Association (ISTA) held its Annual Meeting on 15-18 June 2015 in Montevideo, Uruguay. It took a long time to get from Taiwan to Montevideo but it was worth the 30-hour long-haul journey as the city was beautiful and our hosts, the National Seed Institute (INASE), were very welcoming. The meeting brought together 129 participants from 39 countries.

The main aim of ISTA's Annual Meeting was to discuss and then make proposals for changes to the International Rules for Seed Testing. In addition, the meeting also provided a forum for the presentation of the work of ISTA's Technical Committees.

Prior to the main event, several pre-meeting workshops were held on seed sampling and quality assurance in seed sampling, tetrazolium testing for viability, and moisture determination.

In the Opening Ceremony ISTA President Joel Lechappe welcomed delegates and said that the meeting

“provided an excellent platform to meet other seed experts and to exchange experiences.”

The meeting began with a seminar entitled Molecular Tools Applied to seed Quality and Seed Health, which provided an update on the latest research and development in the use of molecular techniques and corresponding statistical analyses for varietal identification, GMO testing and seed health.

At the meeting ISTA announced that ISTA accredited laboratories and sampling entities will be able to issue the ISTA Seed Sampling Certificate (ISSC), which will

complement the Orange and Blue Certificates that ISA currently uses. In addition, accredited laboratories will no longer have to pay three years in advance; they will now be able to pay in annual installments.

The meeting was very useful; we were able to network easily and engage with all the latest research and technology. I look forward to seeing more delegates from the Asia-Pacific region at this important event. 🌱

Next year's 31st ISTA Congress will be in Tallin, Estonia on 14-21 June 2016. More information at: www.seedtest.org



Photos courtesy of ISTA

ASIAN SEED CONGRESS

2015 Goa Preview

The countdown has begun to this year's much-anticipated Asian Seed Congress, which returns to India after the last one held in Hyderabad in 2008. APSA members are registering for the Congress, booking their accommodation, booths, trading tables and private meeting rooms, while staff at the Secretariat are busily preparing everything that delegates will need to make the most of this year's packed programme.

As of the end of July, more than 600 delegates and accompanying persons had registered for the Congress, slightly up compared to the same period last year; it is expected that more than a thousand delegates will attend the event.

All the reserved trading tables (158), semi-private trading tables (14) and display trading tables (15), and all 34 booths have been fully booked. Staff at the Congress venue, the Grand Hyatt Goa, are working

to extend the site area to include more booths for those delegates on the booth waiting list; additionally, seven of the nine private meeting rooms have been booked.

The setting for the Congress this year is truly spectacular and it brings into focus India's rapidly growing seed industry (for an insight into how to run a seed business or trade in seeds in India see page 28 and join the Pre-Congress Workshop on Monday, 16 November).

Although Goa is India's smallest state and fourth smallest by population, it is world-renowned for its scenic beauty and for the architectural splendor of its churches, temples and old-style Portuguese houses and mansions. The state, which is located in West India and faces the Arabian sea, is also famous as a meeting point, where various peoples, religions and cultures have inter-mingled, creating a place unlike anywhere else in India. You just have to go to Goa. ☺





Welcome to Goa

Over many centuries various dynasties have ruled Goa – Rashtrakutas, Kadambas, Silaharas, Chalukyas, Bahamani Muslims and perhaps most well-known, the Portuguese. A Hindu legend says that Lord Parshuram, an incarnation of Lord Vishnu, created Goa.

The Portuguese arrived in Goa in the early 16th century as merchants and they eventually conquered the region. Goa, as a Portuguese overseas territory, lasted about 450 years, until 1961 when it was annexed by India. It was officially awarded statehood in 1987, becoming the 25th state of the Indian Republic.

Goa has been a meeting point of cultures for many centuries, assimilating modern trends from the West with those of the ‘mystical East’. This melting pot has produced a unique culture in India, one in which you are likely to find Christmas celebrated as enthusiastically as Diwali, or where you will find Goans eating their traditional Indian fish curry and rice with Goan sausages.

Goa’s population of 1.4 million consists of Hindus (65%), Catholics (24%) and a small Muslim minority. The unique cultural background of Goa has created a relaxed atmosphere of tolerance and a tradition of religious harmony; the Goan lifestyle is different from

the rest of India and this has enabled Goans to enjoy the festivals of various religions, such as Genesh Chaturthi, Diwali, Christmas, Easter and Id with equal passion and enthusiasm.

Another reason for the relaxed nature of Goans and their lifestyles is economic success. Goa is one of the wealthiest states in India, boasting a GDP per capita that is two and a half times that of the country as a whole, as well as 8% growth a year, one of the fastest growth rates in India. Tourism is the state’s biggest earner, followed by mining (Goa produces 39% of India’s iron ore) and agriculture (mainly rice, cashew, spices and coconuts). According to the Indian government, there are 5,500 industrial units and 18 industrial estates in Goa’s 3,200 square kilometers. In recent times, Goa’s administration has steered the state towards technology-based sectors like electronics, software, automotive accessories and pharmaceuticals.

The flora and fauna of Goa are particularly rich, due in part to the state’s equatorial location in the Western Ghats mountain range. It has more than 1,512 plant species, over 275 species of birds, 48 different kinds of animals and more than 60 genera of reptiles and is classified as a ‘biodiversity hotspot’. If you are staying in Goa after the Congress, you might like to see some of the colourful wildfire of the region at one of the state’s many wildlife

sanctuaries, such as Bhagwan Mahvir and Cotigao. Near the Mollem National Park you’ll find the spectacular Dudhsagar Falls.

Goa has been known for centuries as a centre of the spice trade. If you travel to Ponda you’ll discover spice plantations, which flourish in Goa’s tropical climate. You can take a guided tour, pick your own spices and then make your own lunch (see page 26 for the full-day Spice Plantation Tour for accompanying persons).

The administration of Goa is divided into two districts, North Goa and South Goa, with administrative centres in Panjim and Margao respectively (Margao is the largest city in Goa). Panjim is worth visiting not only for its varied lifestyles and fantastic cuisine but also for its historic neighbourhoods, such as Fontainhas, which was declared a UNESCO World Heritage site in 1994 and was named after a fountain at the foot of the hill that frames this old Latin Quarter. Here you can wander around narrow winding streets and lanes past colourful old Portuguese houses, visit galleries, bakeries and quaint shops. If you feel the need for some delicious Goan food, check out any of the restaurants in this district, including Viva Panjim for authentic Portuguese fare. There are some homely guesthouses in the Latin Quarter that delegates can stay in after Congress to continue their Goa adventure.





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Congress Venue – Grand Hyatt Goa



Photos by John Clewley and goa.grandhyatt.com



The Grand Hyatt Goa is the venue for this year's Congress activities. The hotel is set in the sheltered waters of Bambolim Bay in North Goa. The resort was inspired by a 17th century Indo-Portuguese palace and is situated amongst 28 acres of lush tropical gardens. The venue even has a mysterious 16th century chapel, which you can see in the gardens.

The Grand Hyatt has 312 guestrooms and a full suite of services and facilities that includes seven restaurants and bars, recreational facilities such as the Shamana Spa, a 25-metre indoor lap pool (the only one in Goa), an outdoor swimming pool, Aquasail Sailing Centre, a resort centre, a business centre, and a hair and beauty salon.



Transportation to the venue: 25 km from Dabolim Airport (takes about 30 minutes by car). More information from: www.goa.grandhyatt.com.



The other official Congress hotels are the Cidade de Goa Resort, The Bambolim Beach Resort and Chances Resort & Casino. Cidade is a 40-acre resort set on a tranquil beachfront and is a short shuttle trip away from the Congress venue, while Chances Resort & Casino, a five-star boutique hotel and casino, is also just a short ride away. The Bambolim Beach Resort, a relaxed low-rise hotel right on the beach, is just a 10-minute walk down the beach from the Congress venue. 🐾

Getting There



Arrival by air: For Congress delegates flying to Goa's only airport in Dabolim, support staff will be available upon arrival to assist with connections to the Congress site and hotels. Most of the hotels are about 25-30 km from the airport. Delegates arriving from the East, often at night, may have to break their journey by staying in Mumbai (or Delhi or Hyderabad) for one night. APSA recommends the following transit hotels: Delhi (Lemon Tree Aerocity), Mumbai (Hotel Parle International) and Hyderabad (Novotel Airport). Note that these hotels cannot be booked in advance as they are subject to availability when a guest lands at the airport. Prices for a night range between Rs5,000 and Rs7,000, although both Hyderabad and Mumbai offer day rates as well. Check out the APSA website or contact aschotels@kwconferences.com.

Arrival by train: There are eight train stations in Goa served by Indian Railways. The railway system in Goa has two main lines, the Southern Western Railway and the Konkan Railway. Connections can be made for the rest of India by booking online via the Indian Government Railways' website at www.indianrail.gov.in. For more information on transport options please see the Congress website. 🐾

Getting Around Goa

Travelling around Goa is very easy. The state has an extensive road network. Taxis and cars can be rented from the Grand Hyatt (get a taxi card from the Concierge for your trip with the name of the driver and phone number), but remember it is cheaper to get a return taxi from where you are visiting rather than taking the Hyatt taxi on a round trip.

You can easily rent motorcycles and cars in Goa and the prices are reasonable, ranging from Rs250-600/day for motorcycles and scooters and about Rs1,500 for cars and open-top jeeps. White-coloured private 'tourist' taxis are available at taxi stands at major bus stops, railway stations and hotels, but the regular black and yellow taxis are cheaper.

Between major cities and towns like Panaji and Margao, you can take public and private buses, and in the cities and towns you can use buses (Rs4-6 for short stops and about Rs10-15 for longer trips of 30-40 km), motorized yellow and black 'auto-rickshaws' (three-wheelers at Rs15 for the first kilometre) or motorcycle taxis called 'pilots' – probably the cheapest and most efficient way to get around town (always agree on the price first for all of the above, especially if the auto-rickshaw driver refuses to turn on the meter). 🐾



Photos by John Clewley



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Goa Highlights

Although Goa is India's smallest state by size and fourth smallest by population, the 'spice capital' of India punches well above its weight. It enjoys the highest GDP per capita in India and welcomes more than 12% of all tourist arrivals in India. Travellers are attracted to Goa's lively and vibrant culture, food, and friendly people. As a meeting point of various peoples and cultures, Goa has developed a 'fusion' culture that is distinctive and endlessly fascinating.

There are so many things to do and see in Goa that visitors are often spoilt for choice. Here are a few highlights and a list of five must-see sights in Goa (page 22).

Goa is renowned for its beaches and beach life, historic places of worship (such as the Bom Jesus Basilica, which holds the remains of St. Francis Xavier and is a UNESCO World heritage site) Portuguese tropical-style architecture, unique cuisine (a fusion of Portuguese and Indian food), rich flora and fauna, wonderful music and poetry, and every kind of spice you can imagine.

But perhaps the most impressive aspect of Goa is its relaxed lifestyle and quality of life. Many Goans live in villages and commute to the city to work, returning to their clean and friendly villages in the evening. Goa's heart is in its village life. 🐮

Fact Box

Goa is a state within the Indian Union with a democratically elected government. It has 11 talukas (districts) and the state covers 3,702 sq. km.

On its Eastern, Southern and Northern boundaries is the state of Karnataka, to the West is the Arabian Sea.

State Capital: Panaji (Panjim),
Commercial Capital: Margao.

Highest mountain: Sonsogad in the Western Ghats is 1,166 meters

Longest rivers: The Zuari and the Mandovi.

Official state bird: Ruby-throated Yellow Bulbul.

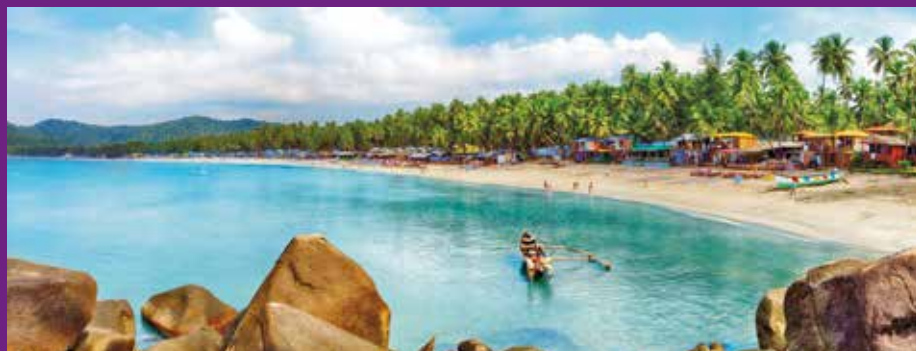
Official state tree: Terminalia crenulata (matti or in English, Indian laurel).

Population: 1.4 million (65% Hindus, 24% Catholic and a small Muslim population).

Independence in 1961 (from Portuguese rule); became the 25th Indian state in 1987.

Electricity: 220 volts.

TOP 5 Must-See Sights, Sounds and Flavours in Goa



Beaches

There are more than 30 beaches along Goa's 128 km-long coastline. The original 'hippy' beach, Anjuna, is now much more developed than what it was in the 1960's, but it does have a lively atmosphere and a terrific flea market

every Wednesday. There are lots of restaurants and bars in this area. For a quieter beach experience you can stay in North Goa at Mandrem, Asvem and Arambol, or journey south to the unspoilt Palolem.



History

Panaji (Panjim) is worth visiting for its colourful Latin Quarter in the Fountainhas neighbourhood, which was declared a World Heritage site in 1984, set against a palm-covered hillside. Dine at the award-winning Viva Panjim or you can also see the historic cathedrals and churches.

Old Goa is about six miles up the Mandovi River. It was once the capital but all that remains are a handful of truly imposing churches and cathedrals (some of the largest in Asia). To gain an insight into Goa's fascinating history visit the archeological museums in Old Goa.



Food

Rice, fish and coconuts are the basis for many Goan dishes, spiced up with some fiery chillies. The ultimate fusion of Indian and Portuguese food is the daily staple: Goan fish curry. Try this dish (and any other fusion seafood dishes) in Panjim at the Ritz Classic Restaurant, which locals say is the best. Also popular is Goan-style vindaloo, which originated in Goa as 'carne de vinha

d'alhos'. Wash this down with a glass of local wine, Sula (or try the Indian wine, The Big Banyan). Recommended restaurant: Mum's Kitchen.

If you are in a Goan city, try some of the tasty breads and cakes – such as poi, unno, kaknaa and pav – served by roving poders, or mobile bakeries, for breakfast.



Wildlife & Spices

Around 20% of Goa has been reserved for wildlife sanctuaries and most are open all year round. Here you'll find magnificent flowering trees and plants, and a staggering range of animals, reptiles and amphibians, including the Indian giant squirrel, the Malay fox vampire and the Hanuman langur. You'll also get the chance to see some beautiful birds as well such as the stork-billed Kingfisher.

Many visitors combine a wildlife trip with a visit to one of Goa's many Spice Plantations. Most spice farms are open to visitors and some include accommodation and activities such as elephant rides and boat tours. You also get to pick your own spices with which you can then make lunch (see page 26 for more details).



Entertainment

With a history of over 2,000 years, Goa has developed an eclectic range of dances and folk music. Many are still enthusiastically performed. Goans are very musical people who have absorbed and assimilated sounds from the Portuguese and the West, as well as from other Indian music. One local genre to emerge is mando, a charming and often sad local style that has similarities with Japanese enka and Thai luk thung music. Also you'll still find Goans passionately playing Portuguese fado music (one of the Congress hotels, the Cuidade de Goa has regular fado nights at its Portuguese restaurant).

You can find a glittering array of nightclubs on the 'hot' beaches like Anjuna, as well as restaurants serving everything from pizza to pancakes to masala dosa, and there are plenty of street- and beach-side stalls where you can enjoy a cool Kingfisher beer and the sunset. If you want to try a truly local drink, order a fiery spirit called feni, which is made from either coconut or cashew sap (best with cold water or soda). 🍹

Photos by John Clewley

Asian Seed Congress 2015 Programme

Sunday 15 November	Programme	Participants	Location
09:00 - 24:00	APSA Secretariat Meeting Room Open	Secretariat and NOC	Registration Area
14:00 - 17:00	APSA EC Meeting	APSA EC Members	Salao 4
Day 1 - Monday 16 November			
06:00 - 17:00	APSA Golf Tournament	Players	Lalit Golf Course
08:30 - 17:00	Registration Opens	Delegates	Registration Area
08:30 - 18:30	Pre-Congress Workshop	Workshop Attendees	Salao 2 and 3
13:00 - 18:00	Exhibits, Trading and Private Meeting Rooms Open	Delegates	Ballroom
19:00 - 22:00	APSA EC Dinner (by invitation)	APSA EC Members and invited guests	Lawn 4 (TBC)
Day 2 - Tuesday 17 November			
09:00 - 17:00	Registration Opens	Delegates	Registration Area
09:00 - 11:00	Inaugural Ceremony	Delegates	Ballroom
11:00 - 18:00	Exhibits, Trading and Private Meeting Rooms Open	Delegates	Ballroom and Salao 1
11:30 - 13:00	APSA Past Presidents' Luncheon (by invitation)	APSA Past Presidents and invited guests	Chulah Indian Restaurant
13:00 - 16:00	Crop Group on Vegetables and Ornamentals	Delegates	Salao 2 and 3
16:15 - 18:15	Activity Group on Seed Technology	Delegates	Salao 2 and 3
18:30 - 22:00	Welcome Cocktail Party	Delegates and Accompanying Persons	Lawns
Day 3 - Wednesday 18 November			
08:30 - 17:00	Registration Opens	Delegates	Registration Area
08:00 - 18:00	Exhibits, Trading and Private Meeting Rooms Open	Delegates	Ballrooms A - F
08:30 - 10:00	APSA - National Seed Associations Meeting	Delegates	Salao 2
08:45 - 16:00	Accompanying Person's Tour	Accompanying Persons	Registration Area
09:00 - 17:00	Banquet Reservations Open	Delegates	Registration Area
10:15 - 12:15	Crop Group on Cover Crops	Delegates	Salao 3
13:00 - 16:00	Activity Group on Intellectual Property Rights and Biodiversity	Delegates	Salao 2
16:15 - 18:15	Crop Group on Field Crops	Delegates	Salao 3
Day 4 - Thursday 19 November			
08:30 - 13:00	Registration Opens	Delegates	Registration Area
08:30 - 13:00	Banquet Reservations Open	Delegates	Registration Area
08:00 - 12:30	Exhibits, Trading and Private Meeting Rooms Open	Delegates	Ballrooms A - F
08:30 - 10:30	Crop Group on Hybrid Rice	Delegates	Salao 2
09:00 - 12:00	GAM Registrations Open	Delegates	Registration Area
10:30 - 12:30	Activity Group on Trade and Marketing	Delegates	Salao 3
12:00 - 14:00	GAM Registrations Open	Delegates	Registration Area
14:30 - 17:30	APSA General Assembly Meeting	APSA Members	Ballroom
19:00 - 22:00	Grand Banquet	Delegates and Accompanying Persons	Lawns
Day 5 - Friday 20 November			
08:45 - 16:00	Post-Congress Tour(s)	Delegates and Accompanying Persons	TBA
08:30 - 12:00	APSA EC Meeting	APSA EC Members	Salao 4

- Special Notes:
- Trading table and booth areas now have extended times, opening from 13:00 to 18:00 Monday, 11:00 to 18:00 Tuesday, 08:00 to 18:00 Wednesday and 08:00 to 13:00 Thursday.
 - Coffee and tea are served from 08:30 to 17:00, daily.
 - Lunch will be served on 17, 18 and 19 November from 11:30 to 13:30 at the following venues : Lawn area, Coffee shop, and Chulah Restaurant.
 - All meeting and trading rooms as well as the exhibition area will CLOSE during the Inaugural Ceremony on 17 November, opening at 13:00.
 - All meeting and trading rooms as well as the exhibition area will CLOSE at 13:00 on 19 November for the APSA General Assembly Meeting.
 - Private meeting rooms now have extended times, opening from 09:00 to 18:00 Monday, 11:00 to 18:00 Tuesday, 09:00 to 18:00 Wednesday and 09:00 to 13:00 Thursday.



This illustration is Shin Yun-bok's 'Dan-opungjeong' which is Korean genre painting in the second half of the 18th Century.

Beyond Seeds Share the World

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• ASIA SEED CO., LTD. www.asiaseed.net Tel : +82-2-443-4303	• HYUNDAI SEED CO., LTD. hyundaiseed@hanmail.net Tel : +82-31-882-1731	• PARTNER SEED CO. kimyongjae68@gmail.com Tel : +82-10-7202-5402
• BIOTONG www.biotong.com Tel : +82-31-929-5889	• JEIL SEED CO., LTD. www.jeilseed.com Tel : +82-43-838-1174	• PEPPER & BREEDING INSTITUTE www.pepperbreeding.co.kr Tel : +82-31-296-5797
• CARROTOP SEEDS carrotop.expo@gmail.com Tel : +82-31-675-1688	• JOEUN SEEDS CO., LTD. www.joeunseeds.com Tel : +82-43-836-3514	• PYUNGHWA SEED CO., LTD. pyunghwaseed@gmail.com Tel : +82-2-563-6150
• DANONG CO., LTD. www.danong.co.kr Tel : +82-31-573-4084	• KOREGON CO., LTD. www.koregon.com Tel : +82-2-561-3822	• SAMSUNG SEEDS CO., LTD. www.samsungseeds.co.kr Tel : +82-31-668-8381
• DONGBU FARM HANNONG CO., LTD. www.agriculture.co.kr Tel : +82-2-3468-2469	• KWONNONG SEED CO., LTD. www.kwonnong.co.kr Tel : +82-43-233-7479	• SOLANUM NETWORKS paulnetworks@hanmail.net Tel : +82-31-8018-2353
• DONGWON NONGSAN SEED CO., LTD. www.dongwonseed.co.kr Tel : +82-31-339-6150	• MIRACLE CO., LTD. onioncjh@hanmail.net Tel : +82-10-3527-0368	• WOORI SEEDS CO., LTD. wooriseed@naver.com Tel : +82-44-867-4638
• HANA SEED CO., LTD. kamsay45@gmail.com Tel : +82-10-8797-4890	• NONGHYUP SEED CO., LTD. www.nhseed.co.kr Tel : +82-31-652-5528	

The Languages of Goa: Basics

Many people in Goa can speak four languages: Konkani, Goa's official language, Hindi, the most widely spoken of India's native tongues, Marathi, from neighbouring Maharashtra state, and English. Some of the older generation can also speak Portuguese. Konkani and Marathi both use the Devnagari script, like Sanskrit. The first inscription using Konkani was written in 1187 and the language was recognised as a 'National Language' in India in 1987.

Language Basics: Konkani

English	Konkani
Hello/good morning	Deu boro dis dium
How are you? (male)	Tum ko-so-asa?
How are you? (female)	Ko-shem-asa?
What is your name?	Tuchem naum kitay?
My name is (name)	Mojem naum (name)
Good night	Deu bori sanz dium
Good bye	Miochay/Adeus
Do you speak English?	Tum Inglez uloitai?
I don't understand	Hanv soz-mog-nam
How much is it?	Kitlem?
I want ...	Maka zai
Too expensive!	Ekdum mar-rogi!
What, where, why	Kitem, khuim, kiteak
Where is (Police station)?	(Police station) khuim assa?
Yes/No	Hoei/Na
Please	Upkar koroonc
Thank you	Deu borem korum
Sorry	Maaf kor
I do not want it spicy	Maka tik naka
The food is good	Jevon borem



Photos by John Clewley

1 = Ek, 2 = Don, 3 = Tin, 4 = Char, 5 = Panch, 6 = Sou, 7 = Sat, 8 = Ath, 9 = Nou, 10 = Dha, 20 = Vis, 30 = Tees, 40 = Cha-lish 50 = Pon-nas, 60 = Satt, 70 = Sottar, 80 = Voishim, 90 = Novot, 100 = Shem-bor, 1,000 = Ek-hazar

Language Basics: Hindi

English	Hindi
Hello/good morning	Namaste
How are you?	Aap kaise hain
Fine, thanks. And you?	Achha (m)/achhii (f) hoon dhanyawaad aur aap kaise (m)/kaisii (f) hain
What is your name?	Aapkaa shubhnaam kya hai?
My name is (name)	Mera naam (name) hai
Good night	Shubh ratree
Good bye	Namaste
Do you speak English?	Kya aap angrezi bolte (m)/boltii (f) hain?
I don't understand	Mujhe samajh mein nahin aaya
How much is it?	Kitne?
Please	Kripaya
Thank you	Dhanyawad
Too expensive!	Bahut Mahanga!
What, where, when	Kya, kahan, kub
Where is (the golf course)?	Golf course kahan hai?
Yes/No	Haan/Nahin
Sorry	Khed Hai
I do not want it spicy	Jyada teekha nahim chahiye
Delicious	Svadista
The food is good	Khana acha hai

1 = Ek, 2 = Do, 3 = Teen, 4 = Chaar, 5 = Paanch, 6 = Chhah, 7 = Saat, 8 = Ath, 9 = Nau, 10 = Dus, 20 = Vis, 30 = Tees, 40 = Cha-lish 50 = Pachaas, 60 = Satt, 70 = Suttur, 80 = Ussi, 90 = Nubbe, 100 = Sau, 1,000 = Ek-hazaar

APSA Tours for Accompanying Persons

There are several exciting Goa tours to choose from at this year's Congress. On each day either a half-day or full-day tour is available for accompanying persons.



Photos by John Clewley

Day 1

Heritage Trails Half-day Tour

Date: 17 November 2015
Day: Monday
Tour: Heritage Trails
Duration: Half day
Time: 13.30pm – 17.00pm

This tour takes you back to when Portuguese landowners and religious figures built grand mansions and stylish, ornately decorated houses, including the beautiful Menezes Branganza Mansion and the Palacio do Deao. You'll also see how Goan craftsmen created religious icons of great beauty.

Day 2

Spice Plantation Full-day Tour

Date: 18 November 2015
Day: Tuesday
Tour: Spice Plantation
Duration: Full day
Time: 10.00am – 17.00pm

It starts with a ramble through a spice plantation, led by a local expert who will tell you all about the crops, roots, herbs and spices grown in the plantation – dry land crops like timber, local peppers, mangoes, jackfruit and medicinal plants and wet land crops like betel nuts, coconuts, chickoo and local flowers like the love apple – using Goan traditional methods of organic farming. You also get to make your own lunch in Goan Hindu food style.

Day 3

The Old and The New Capital Half-day Tour

Date: 19 November 2015
Day: Wednesday
Tour: The Old & New Capital
Duration: Full day
Time: 10.00am – 17.00pm

In 1843 Lisbon decreed that Panjim, then a fishing village, would become Goa's administrative capital. Panjim still retains its old charm, with striking Portuguese buildings and houses (especially in the Latin Quarter and religious buildings), excellent bakeries and bustling, colourful markets. Visit the World Heritage-listed old capital and the highlight of the tour, the magnificent Basilica of Bom Jesus where the remains of St. Francis Xavier are kept in a silver casket, a entombed in a Florentine-style marble mausoleum.

Meeting place: Grand Hyatt, Goa Hotel lobby. To register go to the Congress website at: www.asianseedcongress.com/2015 and click on 'Tours'.

Get into the Swing

This year's APSA golf tournament, always popular with members, will be held at the only Championship standard golf course in Goa: The Lalit Golf & Spa Resort. The course is the centrepiece of a 5-star hotel, which is located below the magnificent Sahyadri mountain range and at the confluence of the Talpone River.

The resort is beautifully designed in Baroque-Portuguese architectural style, and includes an impressive grand lobby with golden chandeliers, long-handled ceiling fans and a sweeping grand staircase that overlooks a hand-painted tile mosaic of Sao Rafael, the first Portuguese ship to land in Goa under the command of Vasco de Gama. It is no surprise that this exquisite resort has featured as a romantic backdrop to many Bollywood films.

The facility features a links-style golf course, typically found in coastal Britain and this one runs exclusively for more than a kilometer along the pristine Raj Baga, a sandy beach with a breathtaking view of the Arabian Sea.

The course was designed by Colonel K. D. Bagga, a student of master golf course designer Alistair Mackenzie, and was designed to follow the beach. It is a 6,303 yard long 'Double T-hole' links course which offers 18 gents and nine ladies tees (playing to par 36). Players must use golf carts (maximum of two persons per cart), which are available at Rs1,200 (\$19). Green fees are Rs2,000 (\$31.50); caddies are included in the green fee. Golf shoes can be rented at the course. Please note that all payments for golf and related services should be made at the golf course.

Pick up by bus is on Monday 16 November 2015 at 6:00am in the lobby of the Grand Hyatt Goa. The deadline for golf booking is 10 October 2015. To book for the golf tournament, please register online at: <http://asianseedcongress.com/2015/index.php/social/golf-tour>. Members can register online. 🏌️

More information from: www.thelalit.com/the-lalit-golf-and-spa-resort.



Golf Pro and Course Manager Mr. Narshing



Photo by John Clewley

Pre-Congress Workshop

How to trade in seeds and establish a seed business in India

Find out all you need to know about the seed business in India at this year's Pre-Congress Workshop. Numbers are limited to 150 but the workshop is open to all delegates and APSA members. Pre-registration is required.

To access the link to register and for information on the programme and speakers, go to the Congress website at: www.asianseedcongress.com/2015

Date: Monday, 16 November 2015, 09:00 – 17:00

Location: Salao 2 and 3, Hotel Grand Hyatt, Goa

Key Information, Important Contacts

Note: India's international dialing code is +91; Goa's domestic dialing code is 0 832. SIM cards require a guarantor and take two days to process.



Photos by John Clewley

Useful Indian Government Contacts

Directory assistance:
0832-2412121

Bureau of Immigration:
www.boi.gov.in

Ministry of Agriculture:
www.plantquarantineindia.org

Government of India:
www.India.gov.in

Central Board of Excise & Customs:
www.cbec.gov.in

Ministry of Tourism:
www.incredibleindia.org

Useful Goan Contacts

Goa Tourism Development Corporation (Panaji): 226515, 2233459, also at: www.goacom.com/goatourism

Goacom - Goa portal for information on Goa at www.goacom.com

Tourist Information Centre (Vasco Da Gama): 2512644

Police HQ (Panjim): dgp@goapolice.org

Train stations: Panjim (Konkan Railway): 435054, Margao (Indian Railways) - 712790

Car rental at airport: Hertz Rent-a-car: 515367

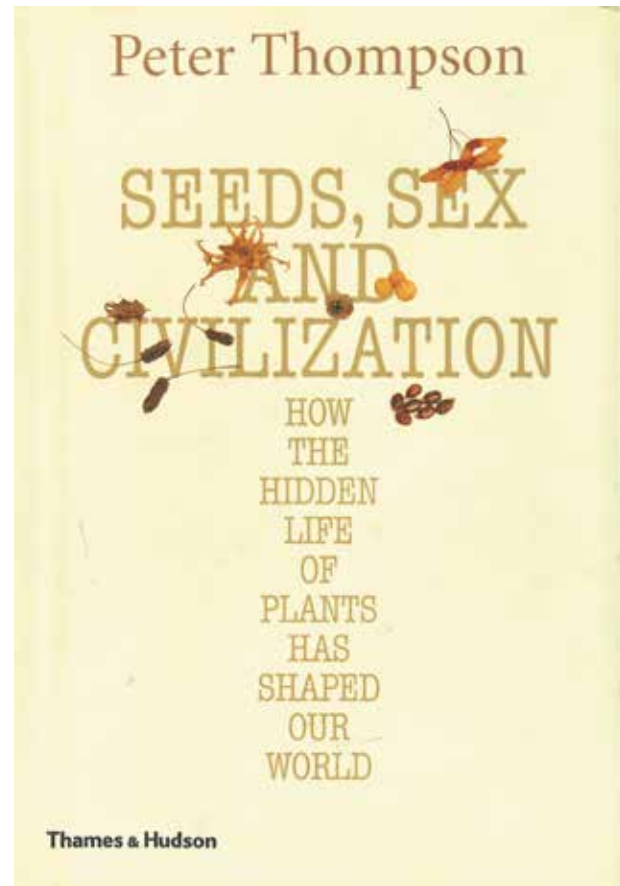
Currency: The Rupee is the currency of the Republic of India. You can change money at your hotel or at the airport. Your hotel will give you a government rate that is compatible with the rate elsewhere. There are no facilities for receiving cash against an international card at ATM machines and customers must go to the designated banks during office hours. Some hotels, bars and restaurants, shops, and airlines now accept plastic. Diners Club, American Express, Master card/Access and Visa are commonly accepted.

Weather: Goa has a consistent climate throughout the year. The hottest season is around April and May, and

the rainy season is from June to October. Between October and March is the best time to visit Goa as the temperature is pleasant, ranging from 21 to 32 Celsius. Pack a light jacket and tropical clothing for your trip.

Newspapers and magazines: There are three Goan newspapers/dailies: The Navhind Times, Gomantak Times and the Herald. Business India, Business World and Business Today magazines carry local and international stories. 📰

How the Hidden Life of Plants Has Shaped Our World



Another general book on plants, “Seeds, Sex and Civilization” by Peter Thompson, the late former Head of Plant Physiology at the Royal Botanic Gardens, Kew (and a key player in the development of the Millennium Seed Bank), arrived on the Asian Seed desk recently; although published in 2010, Thompson’s engaging guide to the history and science of plants and their seeds should be read by everyone in the seed industry, if only as an excellent example of how to write about technical subjects for a general audience.

I’m not sure why Thompson felt the need to reveal the ‘hidden life of plants’ and their ‘secret lives’; flowering plants tend to show their sex to every living creature in the form of flowers - nothing hidden there. But having recently read books on the secret lives of trees and birds, I guess this must be a trend of sorts in the publishing business.

Despite this quirk, Thompson’s book is a tour de force, every bit as interesting as Jonathan Silvertown’s excellent “An Orchard Invisible” (reviewed in Vol. 20,

issue no. 2), as he engagingly reveals what has been hidden, which as they say on TV news programmes is the ‘back story’ i.e. the history of how plants have shaped our lives through farming and domestication. He shows us how seeds were at the heart of the development of agriculture and subsequently, cities and urban life.

Particularly fascinating is the section on how flowers attract pollinators not just through a reward system, but also via a highway of natural signposts. Seeds, unmoving, silent and supposedly inert, are as Thompson reminds us, pretty ‘clever’ and are anything but inert – for instance, they use photochromic pigments to determine light intensity (and so know when to germinate in the best conditions) letting them know which way up they are in relation to the surface of the soil.

Thompson explains this scientific background while at the same time proving the social, historical and cultural context of the science of seeds and agriculture. He notes the importance of key individuals like Gregor Mendel and his mentor Cyril Napp. He also clears up the mystery of why Mendel chose peas for his genetics experiments (the German translation of a paper by an English gentleman farmer, Thomas Knight, and his experiments breeding peas).

He also reports on other ground-breaking and important scientists like Nikolai Vavilov, the widely travelled Russian plant breeder who developed the idea of genetic hotspots of crop diversity, as well as tracing the geographical origins of many of the crops we grow today. Vavilov’s aim was to find ways to develop wheat plants that could thrive in Russia’s cold climate and thereby alleviate hunger; sadly he died of complications from malnutrition in prison, having fallen foul of the dictator Joseph Stalin.

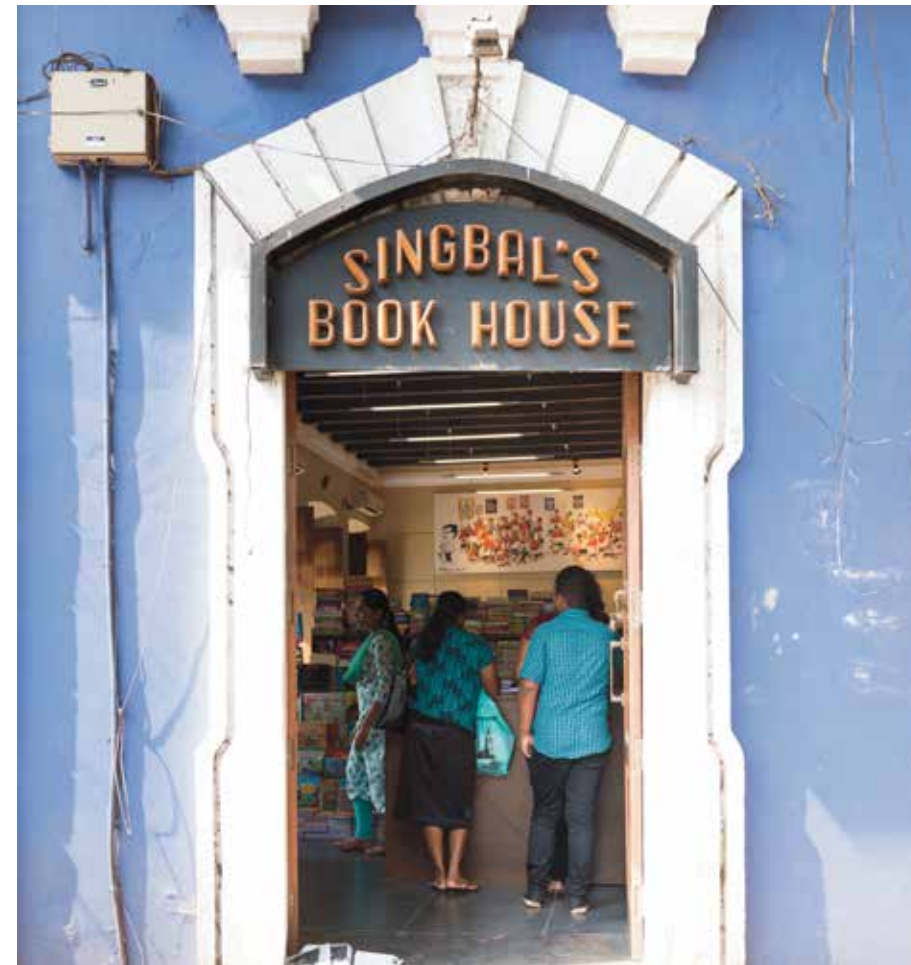
Seed lovers will probably enjoy Thompson’s explanation of his own research into bluebell seeds (the flower that most signifies Spring in the UK) from which he is able to explain just how ‘clever’ seeds can be, as bluebells, like so many flowering plants, make sure that all their seeds do not germinate all at once. Some seeds germinate early to catch the early Spring/late Winter sun, while some are held back in reserve and make sure the plant can reproduce and survive.

Published by Thames and Hudson and available online. 🍷

Books About Goa

Books are quite cheap in Goa and in India in general, and there are plenty of bookstores to browse and find what you need. Goans are known for their love of books and literature.

In Panjim, go to Singbal’s Bookstore in the Indian Tourism Building, opposite the city’s main church. Also see the biggest chain in Goa in five cities, Broadway Book Centre and Golden Heart Emporium in Margao.



Books on Goan Cuisine

Fish Curry and Rice
by Claude Alvares

A Treasure Trove of Goan Mango Dishes
by Nilima M. Kamat

The Essential Goa Cookbook
by Maria Teresa Menezes

The Best of Goan Cooking
by Gilda Mendonsa

* = Recommended

Books on Goa's Flora and Fauna

A Guide to the Flora and Fauna of Goa
by P. Killips

Flora of Goa, Daman, Dara & Nagar Havelli
by Roila Seshagiri Rao

Plant and Fungal Biodiversity and Bioprospecting
by S. Krishnan and D.J. Bhat

General books on Goa

Goa*
by Mario Cabral e Sa & Jean-Louis Nou

Goa
by John Oliver (Ed.)

Refiguring Goa: From Trading Post to Tourism Destination

Classic India: Goa
by Amrita Kumar (Ed.)

Goa – Images and Impressions
by Thomas Vaz

Markets of Goa*
by Assavri Kulkarni

In and Around Old Goa*
by Heta Pandit

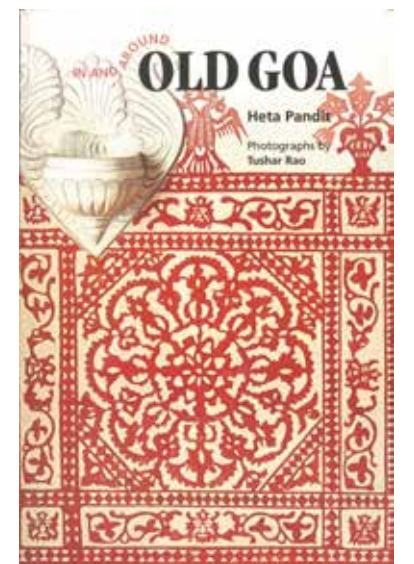
A Road Guide to Goa
by P. Poovendran (Ed.)

Goa Guidebooks

An Illustrated Guide to Bombay and Goa
by Myriam Kaye

Goa with Mumbai (Footprint Guidebook)
by Victoria McCulloch and David Stott

The Rough Guide to Goa
by David Abram



ASIAN SEED – THE NEXT ISSUE

Inside the next issue of Asian Seed, you'll find everything you need to know about the much-anticipated Asian Seed Congress in Goa.

The new issue will also focus on the Pioneers and Leaders of the Indian Seed Industry and their thoughts on one of India's quickest-growing agricultural sectors.

Insights and the facts and figures on the Indian Seed Industry, plus a potted history of the National Seed Association of India

And an in-depth report on APSA's Hybrid Rice Study Tour to China.

Spice up your life with Asian Seed magazine ...

Contact APSA Secretariat for details of advertising rates at apsa@apsaseed.org

Attention All APSA Delegates

General Assembly Meeting (for APSA members only)

Thursday 19 November 2015 at 14:30 – 17:30pm

Venue: Ballroom, Grand Hyatt Goa

Registration for the General Assembly open: 09:00am – 14:00pm

For more details see: www.apasaseed.org



Courses and Conferences for APSA Members

International Seed Academy, Bangkok

The International Seed Academy (ISA) will hold two seed treatment courses for seed professionals on 2-7 November in Bangkok, Thailand as part of its 'Seed Captain' Programme. The programmes cover theory and practical work over a five-day course. The courses are:

- Module Seed Longevity, Drying and Storage. This course is based around the moisture level of seeds and the relative humidity of the surrounding environment. The module exposes participants to existing and new technologies in order to understand drying systems and their relation to the physiology of seeds.
- Module Seed Priming, Dormancy and Enhancement. Seed priming (germination improvement) is the main focus of this course. Participants will gain a thorough grounding in theory and then utilise this knowledge in practical sessions.



Lecturers include Johan Van Asbrouck (Rhino Research Group/Centor Thai), Dr. Steven PC Groot (Wageningen UR), Dr. Kent Bradford (U C Davis) and Dr. Henk WM Hilhorst (Wageningen UR).

Registration at: info@seedacademy.org Information from: www.seedacademy.org



International Plant Breeding Congress II, in Turkey, November 2015

First held on 10-14 November 2013 in Antalya, Turkey and hosted by the Plant Breeders' Sub-Union of Turkey (BISAB). The Seed Union of Turkey consists of seven sub-unions including: plant breeders, seed producers and industrialists, seed growers, sapling producers, seedling producers, seed distributors, and ornamental plant producers.

Contact: bisab@bisab.org.tr

SOL2015 – 12th Solanaceae Conference, in France, October 2015

SOL2015, the 12th Solanaceae Conference will take place in Bordeaux, France on 25-29 October 2015. The conference features guest speakers, the latest research and workshops on all things related to solanaceae.

Contact: SOL2015@bordeaux.inra.fr



Every Seed Yields

By Dr. Benjamin Kaufman, ISTA Secretary General

As a young scientist I was fascinated with population genetics and molecular evolution and was aiming for an academic career in these fields. Seed testing did not even cross my mind as an option; the matchmaker between my scientific aspirations and seed was technology.

In the summer of 1989, as a PhD student at the University of Illinois, I was attempting to explore the molecular evolution of the dog as a possible model system for studying speciation. More importantly, I was employing what was then a new technology: the polymerase chain reaction (PCR). At that time there were not many people with actual experience in using this methodology, so I was asked to assist in Professor Torbert Rocheford's laboratory at the Agronomy Department to set up PCR capabilities. The project was extended to a PhD and that was where I was introduced to seed, breeding, agriculture, and corn.

I left corn to work on other topics, but in 1999 I joined a contract laboratory where we developed marker-assisted selection programmes. Ironically, we were aware of the growing demand to test for genetically modified organisms (GMO), but made a decision to to stay away from this application and concentrate on molecular breeding. However, in 2000, the Starlink corn recall incident happened (https://en.wikipedia.org/wiki/StarLink_corn_recall).

Aventis urgently asked us to conduct GMO testing. And so I found myself involved in seed testing for the first time.

A year later, I was hired by Pioneer Hi-Bred International to build up their GMO testing laboratory. We developed the Genetic Enhancement Testing (GET) laboratory, which became one of the most sophisticated GMO testing facilities. The Starlink episode brought the need for GMO testing to the attention of the whole seed sector, and consequently in 2001 the International Seed Testing Association (ISTA) decided to establish its GMO Task Force. I represented Pioneer on the Task Force; that is how I was introduced to the Association.

In 2013, I ran the Nucleic Acid Laboratory at what had become DuPont Pioneer. This was a remarkable position for a scientist to be in – the lab was involved in many biotech projects, and at the cutting edge of genomics technologies. However, I left and joined ISTA. What prompted my move, and what I found at ISTA, was an exceptional opportunity to make a truly significant contribution that goes beyond scientific interest.

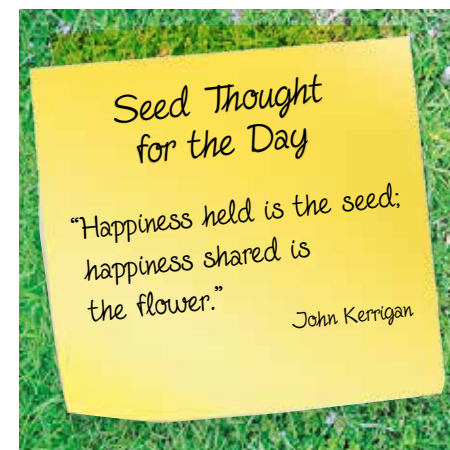
ISTA plays two vital roles. The first is to provide a means of seed quality assurance. Seed testing is the guardian of the advances made by research on their way to the end-user, the

farmer. The most innovative research matters only when the resulting seed makes it from the research plot to the farmer's field. Seed testing assures the preservation of the seed's identity along the supply chain, and keeps tabs on its quality, and ISTA provides the methods to do so through meaningful sampling and accurate seed testing.

Competition in the private sector forces research to concentrate on developing the next "blockbuster"; as a result, not much research is dedicated to seed technology. In the public sector, seed science departments and researchers at universities worldwide are few and far between. As a consequence, the development of new seed testing methods is limited. ISTA is filling this gap; at the core of the Association are forums of technical experts from government labs, industry and academia – ISTA's Technical Committees – these forums identify seed testing needs, and conduct the R&D needed to resolve them.

ISTA's second vital role is as an enabler of seed trade – ISTA harmonizes global seed testing practices and results reporting. It has created an international community of seed analysts, and an international language for them to converse in – the ISTA Seed Certificates. So when seed is sent from one country to the other accompanied by an Orange ISTA seed certificate, the recipient clearly understands what tests were run by the sender, the results, and the quality of the seed received – since both, the sender and recipient abide by the same rules and speak the same language as members of the ISTA community.

For a number of years now, the challenge of feeding an ever-growing human population has been at the heart of public discourse. To me, seed testing is the essential link that guarantees that every seed planted will provide a yield – this is our role as an association in helping to address the challenge, and I would like to think that I am making my own, small personal contribution to it.



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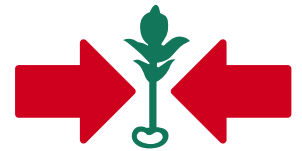
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We understand the challenges farmers face. So, on top of producing better quality vegetable seeds, **EAST-WEST SEED** actively extends knowledge to smallholder farmers. Through our Knowledge Transfer strategy, we work closely with farmers to extend knowledge and innovative, problem-solving cultivation techniques – enabling farmers to become more successful.



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