The Mango Agribusiness Research Program within the Australian Centre for International Agricultural Research (ACIAR), has a broad development goal to help mango farmers and their communities in partner countries to derive greater income and livelihood benefits from the production and trade of mango and mango products. These partner countries are: Australia, Cambodia, China, Indonesia, Pakistan, Philippines and Vietnam.

Four Small Research and development Activity (SRA) projects were initiated by the Mango Agribusiness Research Program in 2017 to collectively support improved research, industry and market development and facilitate greater information exchange, capacity development and partnership opportunities.

The outcomes of these SRA mango projects will strengthen the partnership network with mango R&D colleagues and institutions in Australia, China and the five ACIAR partner countries.

Working together on collaborative research, developing capacity, and working towards common technical languages, methods and approaches will provide important strategic mutual benefits for increased mango industry and farmer profitability in all partner countries.
The 1st Mango Agribusiness Workshop held at Guangzhou brought together 45 mango researchers and students from 6 countries representing knowledge and skills from each of the 4 Mango Agribusiness SRA project disciplines. The workshop participants included large representations from China and Australia, as well as the 5 partner countries: Cambodia, Indonesia, Pakistan, Philippines and Vietnam.

The group included a large proportion of new mango researchers with less than 2 years mango R&D experience (64%), however this was complimented by the remainder of the attendees, many with over 10 years mango R&D experience.

The aims of the workshop were to identify strategic research and development opportunities for enhanced market entry to mainland China mango markets and to enhance communication, collaboration and capacity development amongst participating organisations and individuals.

Pre-workshop surveys found that 44% of the participants had directly worked on ACIAR projects previously and 62% of participants were of the opinion that previous ACIAR Mango R&D projects had achieved good or very good outcomes. Access to information and resources from previous ACIAR Mango R&D projects however was identified as an issue. Only 30% of participants considered that access to previous information and resources was good or very good, 56% were neutral and 15% thought access was poor or very poor.

The 3.5 day workshop program included 16 sessions of highly interactive activities between the 4 SRA project teams, with objectives to enhance technical knowledge, improve communication skills and facilitate improved collaboration and networking between participants. An associated field study trip to the Jiangnan Wholesale Market (China's largest fruit and vegetable wholesale market) was one of the highlights of the workshop.

Post-workshop surveys found that 84% of participants agreed the workshop content met or exceeded their expectations and 73% agreed they had learnt new information which would improve their work methods. All participants agreed that the workshop had greatly enhanced collaboration and cooperation between the 4 SRA project teams. The final outcomes of the 4 SRA projects will be presented at the 2nd Mango Agribusiness Workshop, to be held in Haikou, Hainan Island, China in March 2019.

Asia Pacific Mango Network Website and Facebook pages go live!

The Asia Pacific Mango Network Website and Facebook page went live in March 2018 and were officially launched at the Guangzhou Workshop.

These media platforms are key outputs of the Mango Agribusiness Research Program with goals to share research findings and to engage with academic and institutional researchers across the Asia Pacific region. Featured mango topics include news posts, partner country and researcher profiles, research updates and links to an archive of published ACIAR final reports and information resources.

Facebook post (23/03/18). Mango Agribusiness researchers (L-R) Dr Daryl Joyce (DAF, Australia), Dr Emma Ruth Bayogan (UOP, Philippines), Dr Zainuri (UM, Indonesia) and Mr Som Bunna (CARDI, Cambodia) inspect imported mangoes at a Guangzhou marketplace.
The ACIAR Mango Information SRA co-led by Griffith University and the Department of Agriculture and Fisheries, Queensland aims to support and enhance information access, communication, collaboration and capacity for mango agribusiness at regional and country levels in the Asia-Pacific region.

Key participants are Robin Roberts, Tracey White and Sarah Neil from Griffith University and Geoff Dickinson and Ebony Faichney from the Department of Agriculture and Fisheries, Queensland. The project has three main objectives:

Promote engagement, collaboration and partnerships among key stakeholders.

Improve information access and communication to facilitate the exchange of learnings between project partners.

Support participation and capacity development for young agribusiness researchers.

Good progress has been made towards the delivery of all 3 objectives over the first 6 months of this project. Key mango agribusiness researchers in the partner countries and China have been identified, engaged and connected with this project. Information profiles for SRA projects, researchers and stakeholder teams are being developed and are being progressively uploaded to the Asia Pacific Mango Network web portal.

An information flow evaluation between project stakeholders has been conducted and a SRA Collaboration Plan developed to promote engagement and capacity building across all the mango Agribusiness SRA projects.

Expressions of interest have also now been finalised for a suite of eight Early Career Researcher (ECR) small studies, supported by existing researchers acting as mentors, to investigate issues relevant to the Mango Agribusiness projects to enhance researcher skills. This includes one ECR study on the potential of QR codes as a tool for consumer engagement.

Summaries of all project activities were presented at the “Developing Mango Agribusiness opportunities in China” workshop held at Guangzhou, China on the 19-22nd March 2018.

Colin Leung

Mr Colin Leung is an early career researcher and a food technologist with the Innovative Food Technologies group in the Department of Agriculture and Fisheries, Queensland. He will be assessing the potential of QR codes as a communication method to connect with consumers in mainland China.

As online and social media rises in mainland China, so does the need to understand the ways information can be shared with Chinese consumers. Colin will use a pilot study approach with a planned mango consignment from Australia to mainland China at the end of 2018.

His research will form part of the Mango Quality project with the results being presented at the Mango Agribusiness Research Program Workshop 2 in March 2019.
Dr Claire Settre was awarded a PhD in water resource economics from the University of Adelaide.

She is working as an Early Career Researcher (ECR) in the Mango Markets research project. Claire will be conducting a market segmentation study of fresh mango markets in Shanghai and Guangzhou, China by undertaking qualitative in-depth interviews with specialty fruit shop and fruit stall owners in wet markets in both cities.

Claire has a diverse academic and practical background combining engineering, politics and economics. She has undertaken research widely in Australia and internationally, including China, France, Mexico and the United States.

Claire’s research interests include international trade, ecosystems, system service economics, sustainable agriculture and natural resource governance.

The Mango Markets project aims to develop a detailed understanding of challenges and opportunities to meet regulatory requirements and consumer needs in China mango markets.

China is a priority market for fresh mango consumption given the dynamic growth of its emerging middle class, the close proximity to major mango producing nations, and the free trade agreements within the Asia-Pacific region.

This presents opportunities for both Australian and Asian smallholder mango producers. The information found lacking related to:

- complex and rapidly developing regulatory requirements
- seasonality of supply
- customer and consumer motivations to purchase
- physical quality attributes and eating preferences
- supply chain losses
- cost efficient strategies to improve quality and shelf life of mangoes.

The objectives of this project are to:

1. characterise the current situation and trends in the market and segments of mainland China
2. develop an in-depth understanding of supply and demand across the segments including issues, constraints and opportunities
3. evaluate the current and potential competitive advantage with ACIAR partner countries and Australia in China and to identify strategic research, policy and development interventions.

Researchers from Griffith University, University of Adelaide and the South China Agricultural University will undertake 4 key research activities. These include a Shanghai market assessment of imported mangoes, Guangxi Vietnam cross-border mango trade study; a consumer preference survey; and an online retail pricing analysis.

Over the next year, progress of the studies and insights gained from the research activities with shared with everyone.
China represents an important export and potential market for all of the ACIAR partner countries. With its emerging middle class and relatively low consumption base, on a per capita basis, it is viewed as having substantial growth potential. Being a phytosanitary market, direct access to the Chinese market has been historically difficult, inconsistent and expensive. Some countries simply are unable to meet the requirements. Exporters and importers have often opted for the informal channels to access this growing Chinese market and recent legislative changes indicate that a much harder line approach is going to be taken to closing this trade.

The Philippines, Thailand, Pakistan and Australia already have direct access into China, and Vietnam currently has a land access agreement, although the precise details are unclear. Indonesia currently does not have direct access to the Chinese market for mango, however, small amounts are entering mainland China via the Hong Kong informal trade route.

The project will be led by Griffith University with contribution and country-level coordination from each of the partner countries, Cambodia, China, Indonesia, Pakistan, Philippines and Vietnam.

The aim of this SRA is to identify opportunities and strategies to improve biosecurity, market access and trade for selected mango markets through a better understanding of knowledge and stakeholder gaps.

The objectives are:

1. Examine and document the current import protocols and informal trade channels for the markets of mainland China (Shanghai) and Hong Kong.
2. Understand technical issues and barriers for each partner country.
3. Document issues and opportunities (core group/country level).
4. Develop a detailed five-year plan including short, medium and long-term timelines for technical priorities and strategic development.

Ivory Galang

Ms Ivory Galang is currently completing her master’s degree in statistics at the University of the Philippines. She is working as an Early Career Researcher (ECR) in the Mango Biosecurity research project. Ivory will be conducting both desk research and interviewing key stakeholders in order to maximize the potential of the direct and official access that the Philippines has gained towards Chinese markets. This case study aims to identify technical, scientific and commercial constraints that may be impeding the Philippines from meeting mango export requirements to China.

Ivory has experience in development studies, public policy and economic modelling. Her research interests include child labour, poverty and spatial data analysis.
Ms Leizel Secretaria is a researcher at the University of the Philippines Mindanao (UPM). Her research work primarily focuses on postharvest management of horticultural crops. Leizel holds a BS Biology degree from UPM and is currently pursuing her Master’s degree in Biology at the University of Southeastern Philippines.

In the Mango Quality project, Leizel’s case study focuses on the assessment of the causes of rejection of ‘Carabao’ mango from the export company to the export consignment in China. She will monitor the temperature and microenvironment during export of the ‘Carabao’ mango from Davao City, Philippines to China and evaluate fruit quality. She will use the conditions during export in a simulation trial in another mango variety to provide a comprehensive analysis of mango quality in the export supply chain, identify gaps in maintaining quality, and improve postharvest management of mango for export.

Mango fruit quality into export markets is highly variable. At present, individual ACIAR partner mango producer countries and their supply chains either do not, or cannot consistently deliver high quality mango fruit into major markets such as those in mainland China. The aim of the Mango Quality Small Research Activity (MQ SRA) is to develop a common approach to assessing, describing and improving fruit quality in Asian mango supply chains.

The objectives of the project are to develop a common language for describing physical and eating quality in fresh mango supply chains across project partner countries, enhance common understanding, develop capacity in the assessment and improvement of physical and eating quality in mango supply chains, and evaluate opportunities to improve quality in select mango supply chains and key market segments in mainland China. Outputs from the work of this SRA will be a common mango fruit quality language and assessment manual, shared understanding of regional mango supply chains, and mango fruit quality networking across the region. The overall outcome will be improved fruit quality through mango supply chains in Australasia.

From the Australian end, the key participants are Daryl Joyce, Noel Ainsworth, Philippa Tyler, and Yiru Chen (early career researcher) from the Queensland Department of Agriculture and Fisheries. From ACIAR partner mango producing countries, the key participants are Emma Ruth Bayogan and Leizel Secretaria (early career researcher) from the University of the Philippines – Mindanao in the Philippines, Som Bunna from the Cambodian Agricultural Research and Development Institute in Cambodia, Aman Ullah Malik from the University of Agriculture – Faisalabad in Pakistan, Zainuri from Universitas Mataram in Indonesia, and Anh Tram San from the Sub-Institute of Agricultural Engineering and Post-Harvest Technology in Vietnam. At the China end, Yueming Jiang and Hongxia Qu at the South China Institute of Botany within the Chinese Academy of Sciences in Guangzhou are magnanimously sharing their time and resources with the MQ SRA project team.
A new ACIAR research project (HORT/2015/042) due to commence this year, will aim to reduce fruit fly infestations using area-wide management techniques, and improve pre and post-harvest disease control to increase mango yields in Indonesia and the Philippines.

In Australia the project also aims to improve lures and baits for area-wide and farm-wide management systems for fruit fly, compare pest pressures between high density and conventional management systems and determine the critical canopy traits that impact on pest and beneficial insect populations.

The project will be led by Stefano De Faveri, Senior Entomologist with the Department of Agriculture and Fisheries, Queensland, Australia.

This exciting, new project builds on the successful outcomes achieved under the ACIAR project; ‘Area-wide management of pest fruit flies in Indonesia and Australia (HORT/2008/041)’ which showed significant improvements in mango yield and profitability from the adoption of area-wide management techniques in Java, Indonesia.

Under the new project, additional field trials and demonstrations will be established in Australia, Indonesia and the Philippines over the next 5 years.

The new project partners include the Eastern Mennonite University, the Directorate General of Horticulture Indonesia, Indonesian Centre for Horticulture R&D, Indonesian Centre for Socioeconomic and Policy Studies, University of Gadjah Mada, University of Philippines Los Banos, University of Philippines Mindanao and the Davao Del Norte Agricultural Office.

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Research Partnerships

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