



Indigenous Native Food Development Program

The program assists First Nations owned and operated businesses develop and commercialise new food products with native food ingredients.

The Department of Agriculture & Fisheries (DAF) engaged the Food Beverage Institute to deliver the program by utilising DAF's food technologists/pilot plant services for product & process development, quality, safety & consumer assessment. The FNQ Food Incubator collaborates with the program to provide manufacturing facilities to scale up to commercial production.



The program is assisting FIGJAM and Co to review its condiment range, production methodology, raw materials, costs, supply and labelling. Products will be formulated to meet regulatory requirements, ensure optimum flavour, texture and nutrition are maintained through shelf life, and prepare for scale up trials and bulk manufacture.



Yaala Sparkling has sought assistance to modify its products in line with findings from physico-chemical testing and consumer feedback. The team will be developing new products, which will be scaled up in preparation for bulk manufacture.



Beachtree Distilling Co. are being supported to assess new production methodologies, source and screen raw materials, and develop a new range of products with native food ingredients. This will enable the company to process these products, scale up manufacturing and diversify their product offering.



The program is a collaboration between the Queensland Department of Agriculture & Fisheries (DAF), Department of Tourism, Innovation and Sport (DTIS) and the Food and Beverage Institute Limited (FBI).



North Queensland 4 & 5 April 2024

Total attendees: 25 (15 growers, 10 non-growers)

5 businesses representing 95% of total North Queensland production

NQ pineapple study group 4 and 5 April 2024

04-04-24

Lara presented the Food Incubator project, which functions similarly to a dating app, connecting producers with processors. She supports the entire process of product launch, working with those who have ideas to create value-added products.

DAF – Cairns Visit

During the visit, the team showcased the infrared devices they employ to assess and identify fruit flies. Additionally, they are actively engaged in studying mud crab populations.

For fruit detection, it requires at least three years to construct a model for detecting brix, considering various seasons need to be accounted for. If the fruit variety changes, a new model must be developed.

Electric Ant Eradication

DAF operates a dedicated team tasked with eradicating electric ants. Field staff collect ants, which are then identified in the laboratory under microscopes. These ants are spread through river flows and human activities. Typically, they migrate approximately 50 meters per year. Eradication methods include metabolic chemicals and growth regulators, which are highly specific to electric ants and do not affect other animals. Drones are employed for chemical applications with restrictions on flying closer than 30 meters to residential areas. Electric ants can inhabit tree roots, and potted plants may contain them as well. The team utilizes sniffing dogs trained to detect electric ants, as they release pheromones when foraging. Electric ant presence is contained in Far North Queensland, however they are not aggressive. Their queens are clones and possess wings but do not fly.

Market access team- Fruit fly labs

Post harvest is the last part of the chain to control fruit fly (irradiation etc). All other methods have been already applied in the field.

FNQ Food Industry Support

The Department of Agriculture & Fisheries (DAF) is the leading provider in food R&D and support services to the NQ food and agriculture sectors to ensure ongoing growth, productivity, sustainability and profitability in the food sector.

Technical expertise in food technology

- Advice on formulation
- Labelling requirements
- Regulations



Product and process development

- Product requirements
- Packaging requirements
- Processing requirements



Microbiological and chemical analysis

- Cairns NATA Food Micro Laboratory
- Water activity, pH analysis
- Outsourcing for extensive testing



Shelf-life testing, food quality and safety


- Testing for Use by dates
- Food quality and safety advice
- Line surveys for troubleshooting



daf.qld.gov.au



Queensland Government



The group develops trials to test various treatments and collects data, which is then utilized by the federal government in negotiating market agreements.

An example of this is the avocado project, where researchers are examining the fruit's developmental stage close to harvest, aiming to identify a point at which the fruit is less susceptible to fruit fly infestation (associated with dry matter content). If fruit is harvested at this stage, fruits can be exported overseas without requiring post-harvest treatments. The government utilizes this data in their negotiations.

The fruit fly labs are dedicated to maintaining, rearing, and cultivating fruit fly populations. For instance, in the case of mangoes affected by three different fruit fly species, researchers conducting trials must account for all three species. The lab needs to adhere to international standards for the cultivation and maintenance of fruit fly colonies, necessitating annual field visits to collect new specimens.

DAF microbial testing for food

DAF provides fee-for-service microbiological testing for food. This service extends across the northern regions of Western Australia, Northern Territory, and North Queensland, down to Mackay. It offers the necessary certification for food product development.

One shared example was the determination of the shelf life of barramundi.

They also mention about the edible insect's project. Were they use the insect as high protein for making breads.

Up to Mareeba- Visit to the Walkamin Research Facility and meeting the breeding team

Breeding Block – Ian Bally

DAF possesses a gene pool of mangos with more than 400 varieties; however, it is challenging to discern between pure strains and hybrids. This collection exhibits a broad spectrum of characteristics, including colour, vigour, flavour, and disease resistance, all of which are crucial for a successful breeding program.

The breeding program has distinct objectives:

- 1- Achieving uniformity in fruit size.
- 2- Developing trees with reduced vigour, resulting in smaller trees, reduced pruning costs, higher plant density per area, and increased fruit yield per unit area.
- 3- Enhancing fruit quality.
- 4- Improving disease resistance, particularly against anthracnose during post-harvest stages.

The breeding process involves selecting parental traits and manually cross-pollinating flowers. Each panicle typically contains 200 to 1000 flowers, but only 1 or 2 fruits are retained. To facilitate breeding, the number of flowers per panicle is reduced, with around 10 flowers being hand-pollinated. In some cases, open pollination is permitted.

The program exclusively works with monoembryonic varieties, avoiding polyembryonic ones.

Trees require 3 to 5 years to reach fruit-bearing maturity, followed by a selection process that spans 10 to 15 years before a new variety is ready for industry release. Molecular markers can speed this process.

Another desired trait is precocity, as early flowering often indicates high yield potential. Future varieties are sought to be less affected by environmental triggers. The initial selection focuses on the scion, with less emphasis on rootstock traits as they have minimal impact on fruit quality and colour at this stage.

Progeny Block – Astad

We visited the four-year-old progeny block. The breeders are focused on selecting scions that are smaller in size. Within this block, there are 10 plants from the same family (sharing the same mother and father). They assess around 20 traits, including flavour, colour, texture, etc. Blush is the primary trait that consumers seek in the market.

High density block

Three systems are currently under testing: high density, medium density, and low density. The high-density system, with trees planted at a spacing of 4m x 2m, has been yielding fruit for nine years. It not only yields a higher quantity of produce but also offers earlier yields. Interestingly, the utilization of trellises and high-density pruning techniques did not result in a difference in yield per hectare.

05/04/2024 - Pinata Farm Visit- Mareeba



- We looked the Fumigant trial, which tested metalaxyl and telone. Metalaxyl, despite being half the price, showed good results—it improved fruit yield tenfold and resulted in larger fruits. Metalaxyl proved to be both cheaper and more effective.
- Telone, on the other hand, is commonly used in areas infested with nematodes, which isn't an issue here. However, phytophthora remains a significant problem. This years with all the rain have been a particular issue.
- Blue tops weeds are also a challenge.

NESA trials

-Calcium sources were tested however it is too early to conclude anything.

Garth breeding variety- P16424

- Compared with 73-50 the fruit is 3X bigger with no internal issues.
- The plant crop didn't prove to be good, but the return stood out
- It is phytophthora tolerant, nematode tolerant and the plant is not that big. Didi have natural flowering so far
- The return plant was small, but the fruit was graded all size 9 and 10
- The taste is like eating candy, very sweet, not much acidity
- Golden yellow inside
- Brix 16-17
- Hard shell
- Uniform ripening- every eye turn yellow, from bottom to top
- Plant leaves look like velvet, soft
- Fruit sits right at the bottom, good for the small plant as it protect from sunburn

Courtney presentation – AP representative

- Collaboration among DAF, AP and QFVG is working well and meetings are frequent.
- DAF is responsible for the pineapple Press
- AP endorsed the DAF annual Plan
- Request for the growers to bring production data to the Field day
- Request for growers to support QFVG
- Ben will take over while Courtney will be away for maternity leave

George Russel – Hort Innovation

- Marketing program – QFVG will take the website back
- Chemicals: SAP-review occurs every 5 years to check what is still relevant to the industry
- Survey went out and only one pineapple member responded
- Claud Waren is involved with the chemical registration/permit. EG Phos acid to match what is the industry use with the label

Eloise Martin

Presented about the work the pathology team is doing

Farm in one – Fabian Gallo

Presented about a software management tool

Natalie Dillon

Explained about the work she does supporting the pineapple breeding with molecular biology techniques

Peter Malone- pineapple grower

Presented about the breeding, and we got taste a different variety

Sam Wakefield

Bromelain



Karen George – QFVG
Resilient Farms

Next study group requested topic
Decaya

