



Progress and Promising New Varieties from the National Passionfruit Breeding Program (PF22000)

Dr Patrick Mason
24/10/2025

Breeding Team: Dr Mobashwer Alam (Principal Breeder), Dr Pragya Dhaka Poudel, Ms Xinhang Sun, Mr Bishal Giri, and Dr. Dinh Cao

Industry Overview



Multi-location trial at Ian and David Constable's Dulguigan Farm. June 2025

Passionfruit (*Passiflora* spp.)

- Highly valued tropical crop
- Distinct flavour and aroma
- Rich in nutrients and bioactive compounds with medicinal potential

Australian Passionfruit Industry

- Production declining and stagnating 5,196 tonnes (2017) → 4,711 tonnes (2022–23)
- Limited genetic diversity — reliance on few cultivars: 'Sweetheart', 'Misty Gem', 'Pandora'
- Urgent need for improved varieties to meet market and production demands

Breeding Objectives

Better Fruit for Consumers

- Breed for Passionfruit that tastes like Passionfruit
- Marketability
- Consistency

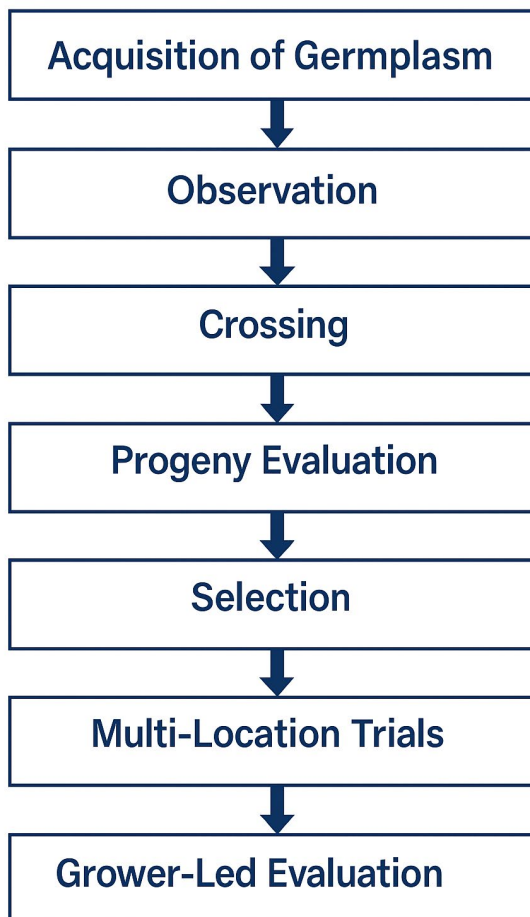
Stronger, More Reliable Vines

- Scion compatibility with Pandora
- Strong vine
- Heavy and consistent fruit set
- Disease resistance

Other

- No Blind Tipping
- Cold Tolerance for relevant areas

Breeding Program Steps



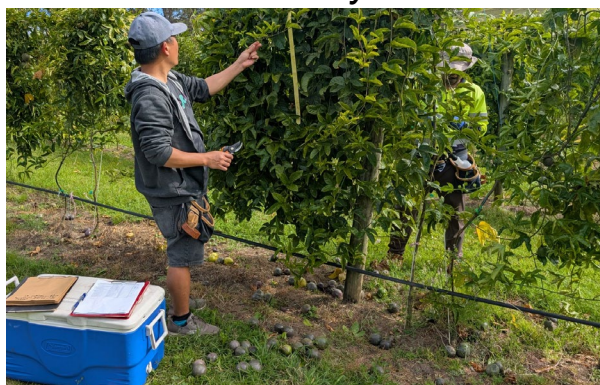
Breeding Program Overview & 2024-2025 Season Summary

700+ progeny screened → 20 Elite Accessions Selected



Progeny Trial

Sites at Woombye, MRF (Nambour),
Yandina and Woombye



Progeny Trial at Beenham Valley Passions 2025



- Selection Focus: on fruit quality traits
- Outcome: Strong Variation → clear selection gains

One of our top selections for this season:

- High Brix ~18.5
- Strong vine, high pulp recovery (>52.5%)
- Standard purple size
- Very nice colour



20 Elite Accessions selected. 5 top plants will be planted at all sites. Other 15 accession will be planted at selected single sites.

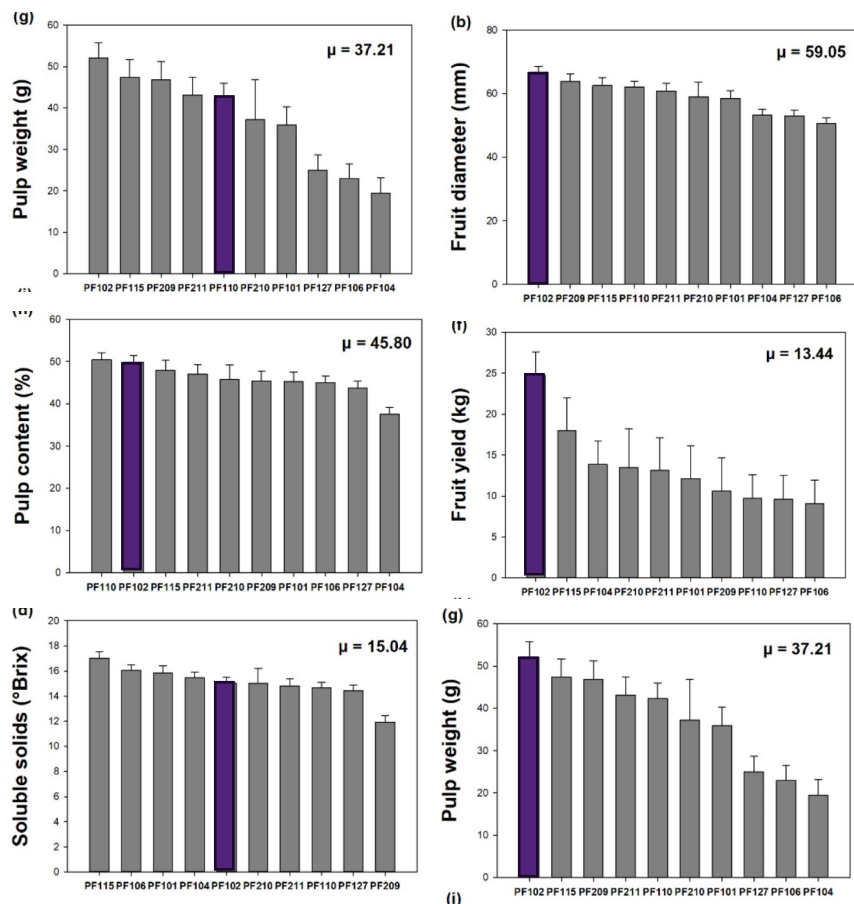
1st Stage Multi-Location Trials 2023-2026

- Varieties: PF102 (AE16) & PF110 (AH21) vs Sweetheart, Misty Gem, and Sensation/BFT
- Sites: Woombye, MRF (Nambour), Bundaberg (Moorland), Northern NSW (Dulguigan)
- Why multi-site? Confirms performance, disease response, and market fit across climates
- PF102: Very strong yields at most sites; good fruit quality
- PF110: Performs well in cooler sites (NNSW)
- Next: Second season of data this year to confirm stability before scale-up



Multi-location Trial at Woombye, 2024

New Variety Profile: PF102 (AE16)



■ PF102 (AE16)

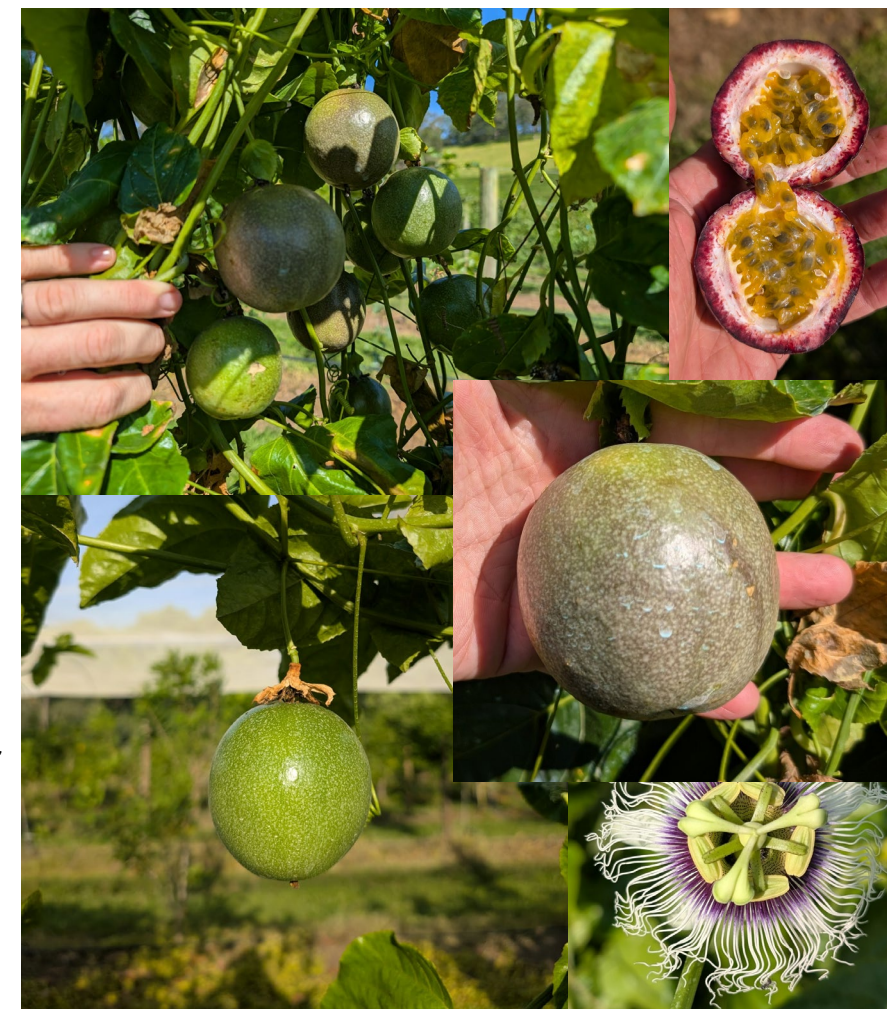
**Data collection and analysis by Xinhang Sun*

Pros

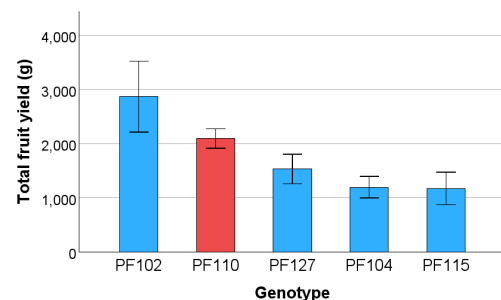
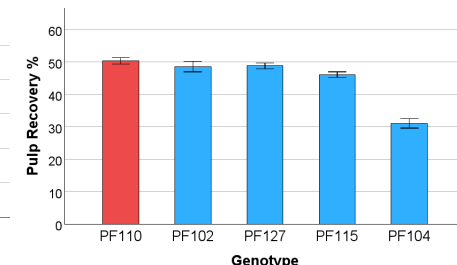
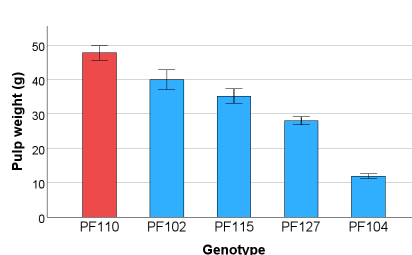
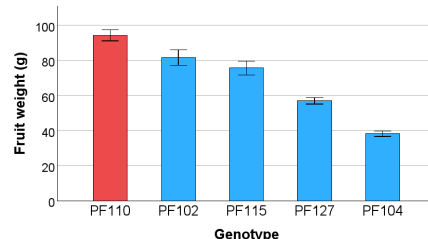
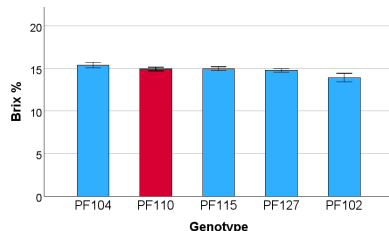
- Strong performance attributes at most sites. *Woombye shown*
- Eats well throughout season
- Purple/Red type
- By far the best yielder across multiple sites

Cons

- Unproven at scale
- Fruit colour not deep red or purple
- Some green



New Variety Profile: PF110 (AH21)



 **PF110 (AH21)**

Pros

- Strong performance attributes in Northern NSW (as shown in figures)
- Better colour in Northern NSW
- Purple/Red type
- >50% pulp recovery

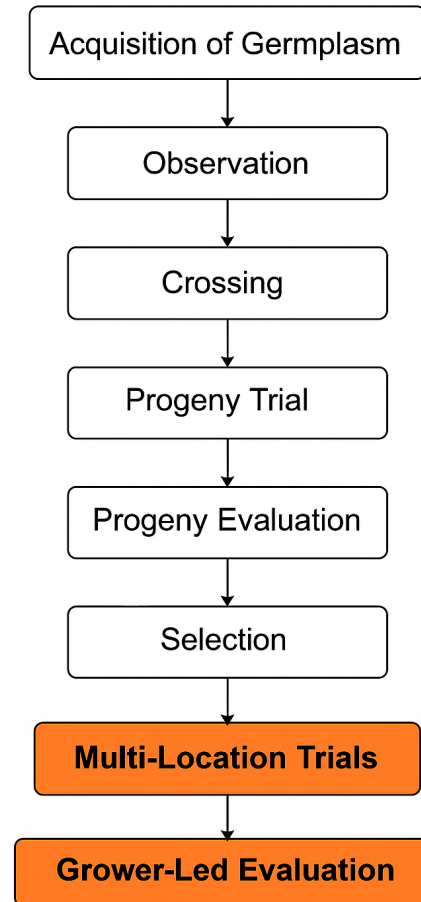
Cons

- Evidence of phytophthora damage on fruit last season
- Lower yielder than PF102 at all sites



Next Steps: Farmer Evaluation of New Varieties

- With industry blessing, we hope to release these two varieties by 2027
- Farmers can source 3-5 plants of PF102 and/or PF110 from us to do a small trial on property
- You are the best judges, please reach out if interested



Flow chart of major steps to develop a new variety



PF102 at Beenham Valley Passions, 2025

Next Steps: 2nd Gen Multi-location Trials

- 20 New elite selections
(from 2024-2025 season)
to be trialled at 5 different
sites
- 1. Dulguigan (NNSW) *(plants ready)*
- 2. Woombye *(Planted)*
- 3. Beenham Valley *(plants ready)*
- 4. South Kolan *(plants ready)*
- 5. Maybe WA? *(plants ready)*



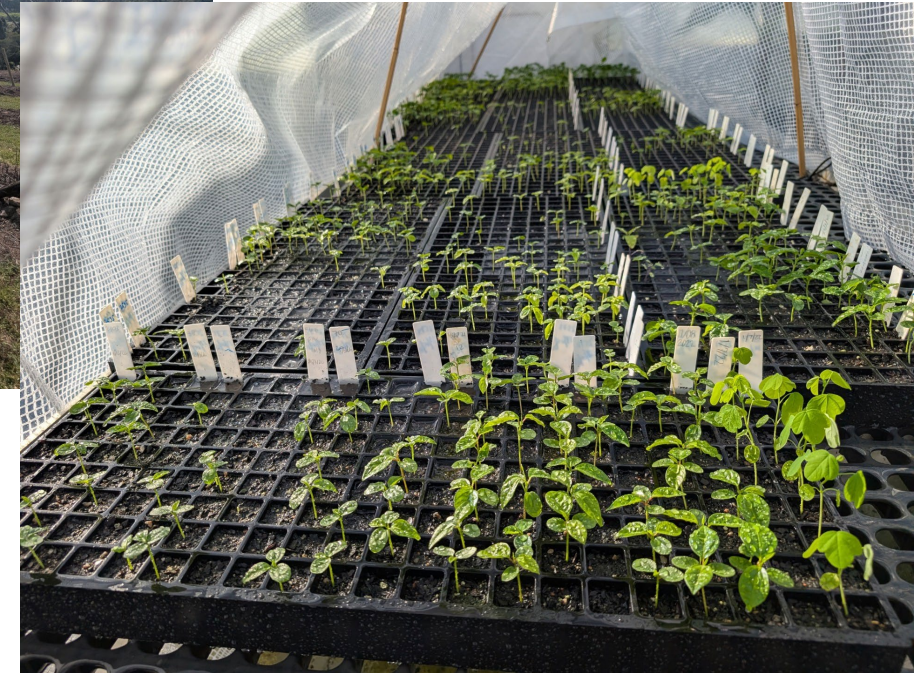
Pictures of some of the new elite selections (both accessions at Beenham Valley Passions)

Next Steps: More Progeny Plantings

- Have germinated >1500 new seedlings from 80 cross combinations
- 730 of these to be planted on new double trellises (A-block)
- Select based on fruit quality (Acidity, Brix, taste, fruit size, weight etc.)
- Select another 20-30 accessions for 3rd gen Multi-location trials



*New dual trellis erected in October, 2025
at MRF "A" block*



New seedlings germinated in April 2025

The Team

Breeding Team:

Dr Mobashwer Alam - Project
Leader

Ms. Sun Xinhang

Dr Patrick Mason - Research
Fellow

Dr Pragya Bhatia –
Postdoctoral Researcher

PhD Students:

Imas Rita Saadah
(Consumer preference)

Khusboo Fulara (Genomics)



Dr Mobashwer Alam

Academic Support:

Dr Heather Smyth: UQ. Consumer Preference
(AS19003)

Prof Rajeev Varshney: Murdoch Uni: Passionfruit
Genomics (AS21006)

Prof Bruce Topp: QAAFI/UQ

Farmers:

Keith and Judith Paxton

Brad and Hannah Millard

Ian and David Constable

Ross Brindley

Jim Gordon

Quinten Springham

Jim Walker

Vernon Moffatt

Nurseries:

Arbour Grove Nursery: Megan and Dave Crowhurst

Beenham Valley Passions: Brad and Hannah Millard

Feedback?

Thank you

Patrick Mason

p.mason1@uq.edu.au

0438 886 534

