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# PF15000 NATIONAL PASSIONFRUIT BREEDING PROGRAM

## PANAMA AND ROOTSTOCK BREEDING

Some big news for the National Passionfruit Breeding Program is that Hort Innovation have funded an addition to the project, to select rootstock and Panama varieties and to start crossing different potential rootstock/Panama varieties. Rootstock and Panama varieties need to be true-breeding or true-to type from seed. This can be achieved by in-breeding. A number of generations of self-pollination will produce seed that yield very similar offspring (usually only a few variations). Six generations should produce pretty uniform offspring, but it might take a little longer if the original parent was from a wide cross.

You can see why it might take a while to develop a truly new Panama or rootstock variety. We have two years for this program, so we can really only get the process started. However, crosses have been made and some old and new selections have been sourced and included for initial trial to see if they are as described and to DNA fingerprint them, to make sure they are what we think they are and for future reference. We can also trial some crosses between true-breeding varieties to see how they perform. If the parents are true-breeding then the F1 cross progeny between two true-breeders will also be uniform. This is the system used to breed and produce most modern varieties of tomatoes and maize. So, this is something we can try in the time frame and compare them against the tried and true varieties. In any case, this will form the start of crossing to obtain new in-breds.

Peasley Horticultural Services carried out the crosses for the Panama and rootstock part of the breeding program and SCU is raising the seed for the initial trial at Duranbah to determine if the Panama seed stocks produce uniform plants as expected. Next year we hope to send seedlings out for trial to growers and assess if there are any clear winners.

*By the way, if there are any Panama growers out there that would like to share a good but different variety that they grow from seed, then we would love to hear from you.*

## SELECTING SCION VARIETIES

We have been busy assessing vines to select the best seedling vines from those grown by trialists. Being new to the passionfruit industry it was essential that help was at hand and John McLeod and Leo Burgoyne did most of the work of selecting while I try to learn the ropes and keep the records. Many thanks to both of them (and Vicki McLeod and David Peasley), and also to the trialists whose properties we visited: Jim Gordon at Yandina, Joel Dunne and Ian Campbell near Murwillumbah and Shane Adams at Burringbar. There are just over 20 selections that will be grafted for a closer watch over the next season and 3 or 4 selections that can go out for 2nd stage trialling in a month or two, all being well and if we can find them some homes (eight vines, consisting of four selections in duplicate – have a think, you might be well placed to adopt them).

## SCORING TRAITS FOR DNA MARKER ASSOCIATIONS

We have been busy collecting fruit from the mapping population of ~170 Tom's Special x Lacey grafted vines, mostly from Nick Hornery's property at Newrybar because it is closer to Lismore. The fruit pulp is 'harvested' and then measured for sugar content (BRIX) and pH. So far, we have collected and 'harvested' 400+ fruit (after bagging to record vine number) with 300+ fruit measured for pH and BRIX. We will use this information along with the DNA marker map to try to find markers linked to sugar content and pH.

*Many thanks to Nick Hornery and family for tolerating all the visits from the SCU crew and for growing a copy of the mapping population.*

At Shane Adams' property at Burringbar, where there is a second copy of the mapping population, we have been scoring vines for their health and flowering. We need to keep in mind that some healthy vines produce little if any fruit and so selection for fruit production and flowering (traits which we are only starting to look at) need to take precedence, although markers for healthy vines should also be useful.

*Thanks again to Shane for making this site available.*

## NEW INBRED LINES

On 14th September, we carried out some selfing of selected Lacey x Lacey selfs at Burringbar in a bid to produce some true-breeding lines in the future. It was good to get this second generation underway to preserve the genes from Lacey before it passes away as a variety. If anyone has good healthy Lacey vines please let me know, as I would like to get a sample of leaf material and perhaps a tip or two for grafting. We have some Tom's Special x Tom's Special and Sweetheart x Sweetheart seedlings to select from in 2017-2018. Eventually we may be able to cross these inbred lines to get a great F1, but that is a while away yet!

*Thanks to David Peasley for showing us how to carry out pollination.*

This project would not be possible without the support of industry and many thanks to all who have assisted to date. Just hope that a special vine or two turn up soon to reward everyone's efforts and improve profitability.