Tasmanian Blackcurrant Genetic Improvement Program

Ben Hope X L53 seedlings, October 2009

The Tasmanian blackcurrant genetic improvement program aims to increase the productivity of Tasmanian blackcurrants in a changing (warming) climate.

The industry currently grows a single variety "White Bud'. It has a high winter chill requirement. As winters get warmer, this variety produces less fruit. It is vulnerable to the devastating reversion virus, not found in Tasmania but an ever present biosecurity threat.

The blackcurrant genetic improvement program is a collaborative program between Tasmanian Institute of Agriculture (TIA), the Tasmanian Blackcurrant Growers Association (TBGA), Cascade Beverage Company and the New Zealand Institute of Plant & Food Research (NZPFR). NZPFR has access to global blackcurrant genetics including those from the world renowned Scottish Crop Research Institute. The New Zealand program has had remarkable success with a number of commercial releases in a relatively short time frame (12 years). The Tasmanian program capitalises on this by importing seed and evaluating seedlings from NZPFR's most successful crosses. This provides a superior genetic base from which to select, whilst limiting the biosecurity risk posed by importing live plant material.

What we do

•*Import and propagate:* Blackcurrant seed from PFR NZ is imported and propagated. The young seedlings are then planted at a low chill site in the Derwent Valley.

•*Harvest and assessment of advanced selections:* Seedlings are rated on a number of agronomic criteria including low chill response at bud burst, yield, plant habit, ease of harvest, pest and disease tolerance. Fruit is harvested from identified seedlings and the juice quality assessed by the Cascade Beverage Company and flavour constituents by UTAS.

•*Collaboration with NZPFR breeding team:* TIA and the plant breeding team at NZPFR evaluate the results of initial seedling assessments and flavour analyses. These indicate which are the most suitable parents to use in future crosses to produce new varieties for Tasmania.

Year Planted	Cross
2003	L20 X L31
2004	Ben Ard X L7
	L15 X L9
2006	L15 X L23
	L225 X L15
2007	Ben Hope X L53
	Ben Hope X L225
	Ben Hope X L23
2010	L225 X L419
	L225X Ben Hope
	L225 X L15
2011	L75 X L319
	L15 X L517
	L426 X Ben Hope
	Ben Avon X L225
	Ben Dorain X L20

Table 1: Plants established in Tasmanian trials

Results

From 2003 to 2010, approximately 1,500 blackcurrant seedlings have been established at 'Valleyfield' in Tasmania for evaluation. The most promising cross imported to date is Ben Hope X L53. The line produces plants with high early yield potential, good plant habit and some with suitable juice quality characters. 3 clones have been selected for semi commercial testing and evaluation:

- HAD7 (L225 X Ben Hope)
- SHO2 (Ben Hope X L53)
- SHO6 (Ben Hope X L53)

The harvest season of 2010/11 gave good selection pressure for botrytis susceptibility with high humidity during fruit development. Many previously promising lines were rejected due to disease.

Organoleptic flavour assessment, Cascade Beverage Company, 2012

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