

SPATnz PGP Programme



QUARTERLY REPORT

FOR Q3, YEAR 2, JAN-MAR 2014

The SPATnz PGP Programme will develop methods for hatchery production of juvenile mussels (spat) in commercial quantities. It will also develop improved strains of mussel using conventional selective breeding strengthened by the application of modern genetic techniques.

In the Jan-Mar quarter our selective breeding programme took a major step forward with the successful production of a new cohort of 80 selected mussel families. In late 2013 we began to gather harvest data on the performance of the mussel families produced in 2012. Performance data from these and the hundreds of families produced previously were processed to generate an overall score for each mussel based on a suite of important traits. A computer model was then used to predict the optimal crosses to perform on breeding day.



The prospective parent mussels are induced to spawn using water temperature changes. The eggs and sperm from each mussel are held separately until combined to make a planned cross. Fertilisation occurs within minutes, and eggs hatch to swimming larvae within a day. The next three weeks of larval rearing are the riskiest part of the breeding cycle. In the recent cohort we managed to get 80 out of 84 families through the swimming stage and transferred to marine farms, which was an excellent result. After transfer to marine farms the families follow the normal farming cycle through to harvest.



A few of the 80 mussel families being reared through their swimming stage. Each clear tube holds one family.

Assessing the performance of the families involves measurements of all sorts of characteristics throughout their life. We need to learn how well they survive through various stages of the production cycle, how quickly they grow, how easily they fatten and whether they perform better in some environments than others (eg warm water sites, or sites with lower food levels). We measure visual characteristics that affect the mussel marketing, like the ratio of orange females to white males and the colour and shape of the shell. We do seasonal sampling throughout the year hoping to find families that are fatter through the winter months when it is harder to source marketable product from farms.