SPATnz PGP Programme

QUARTERLY REPORT SUMMARY

JULY - SEPTEMBER 2014

Short Title: Shellfish – the next generation

1. EXECUTIVE SUMMARY FOR MPI WEBSITE

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.
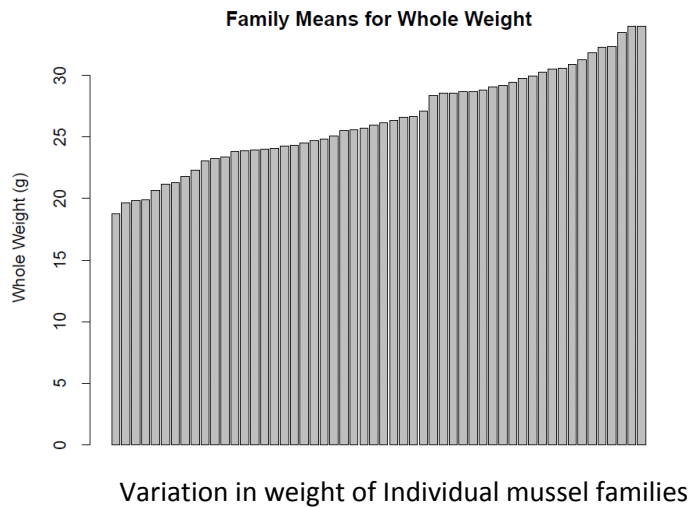
In the July to Sep 2014 quarter the major focus was on the construction of a facility to enable research on scaling up hatchery spat production. The nursery building (top photo) was completed in August and the hatchery building (lower photo) is due for completion in November 2014.

Fitout of the aquaculture equipment will overlap with construction with the aim of commencing algal production, and testing the hatchery water supply and control systems, prior to Christmas. The first spat production trials will begin in early 2015.

Assessment of the performance of the families spawned in 2012 has been ongoing throughout 2014 and is now nearing completion. We measure a wide range of traits of potential commercial interest then calculate an index that combines several traits of a good all-round mussel. Breeding values are assigned to each family based on the index values of its family members and relatives. Over time, we expect to see improvement in the average breeding value of the families retained in the breeding programme (graphs on right) as their performance improves. This is visible from the breeding values shifting right with successive cohorts (indicated by green arrow). The genetic differences between families are visually obvious, with size and weight at harvest varying greatly between fast growing and slow growing families (left graph and bottom photo). There is typically high uniformity amongst the mussels <u>within</u> a family (bottom photo) which also offers advantages during farming and processing.

Family Means for Whole Weight

Variation in weight of Individual mussel families

Two families - same age and history

Worse　　　　**Better**

**Breeding value
for 5 trait index over
successive cohorts**