

DEVELOPING A DNA TEST FOR JOHNE'S RESISTANCE IN DEER

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A DNA TEST FOR JOHNE'S RESISTANCE: GOALS

An archive of DNA samples from 1000 Johne's infected deer and 1000 uninfected controls

completed

Identify 20,000 SNP's spread evenly across the Deer Genome for a SNP chip

completed

SNP Association study

Awaiting funding decision

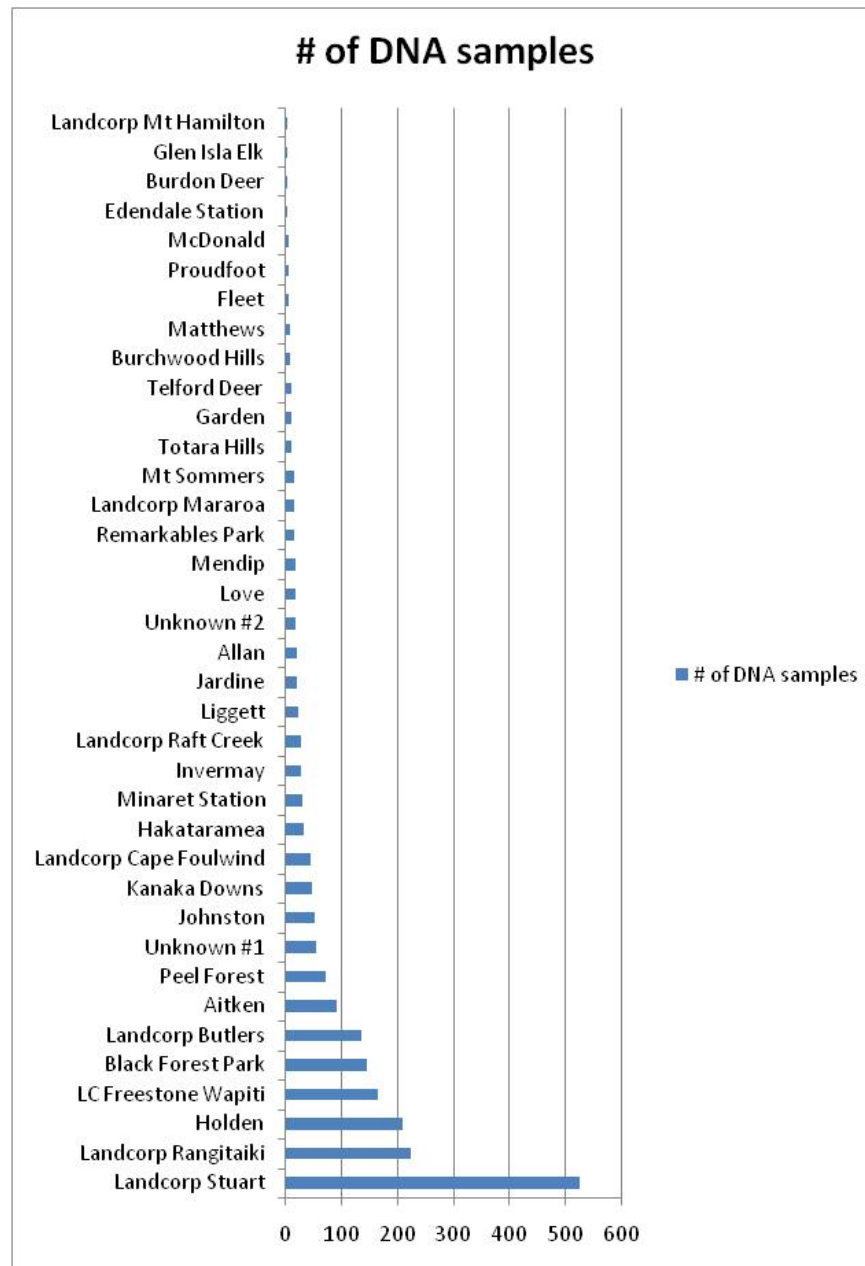
A predictive DNA test for resistance / susceptibility to Johne's disease

DNA ARCHIVE



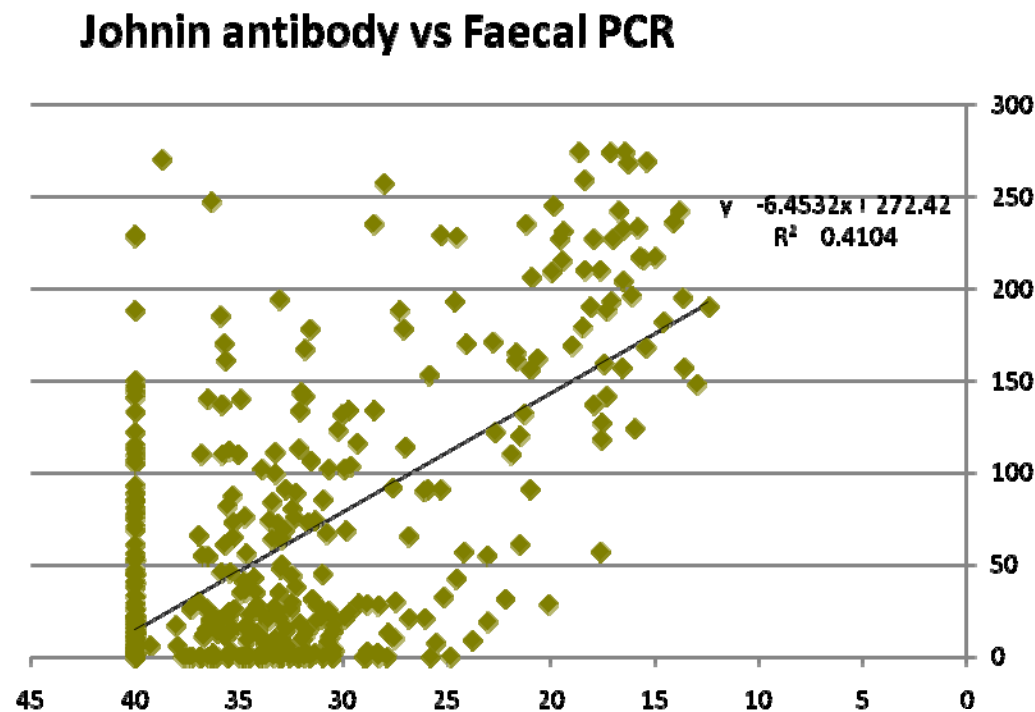
- 2095 samples collected from 37 different deer herds
- 1567 of these samples are from animals recorded in *DEERSelect*, the deer industry trait database
- DNA is purified ready for use
- All data associated with the sample is held in a large secure relational database

SOURCE OF DNA SAMPLES



STRATEGIC ISSUES #1

Is Johnin antibody a good measure of susceptibility ?



STRATEGIC ISSUES

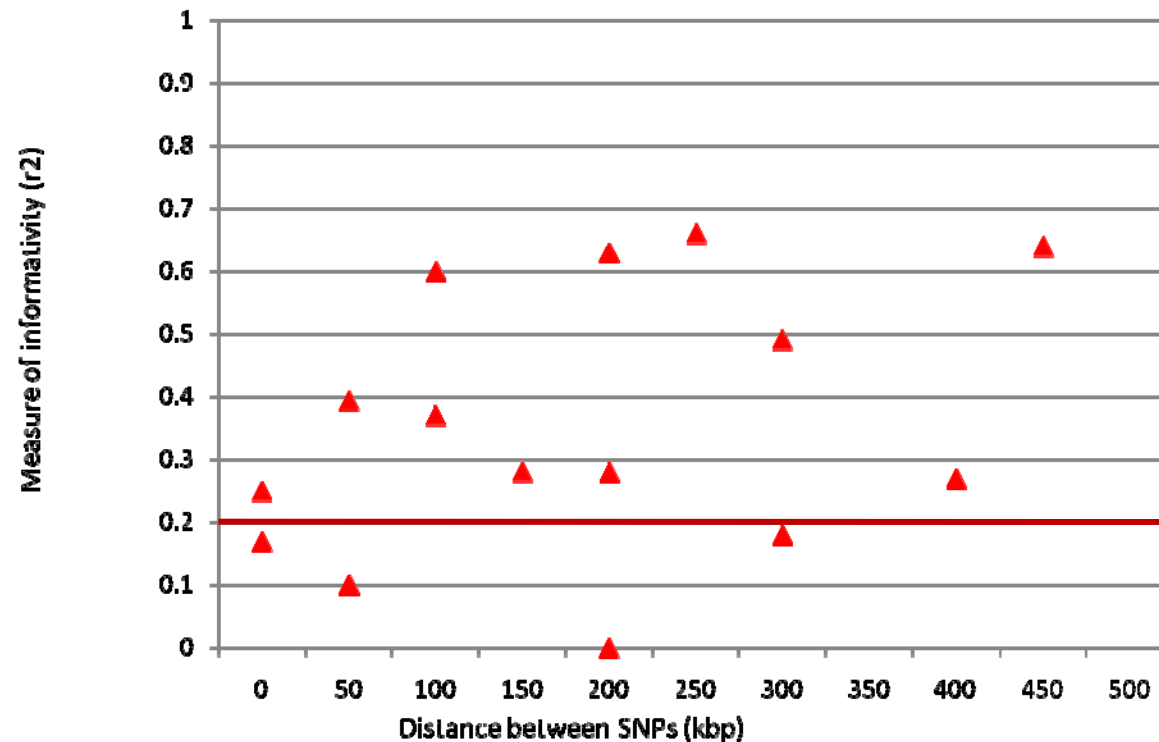
Is the NZ deer population suitable for Association studies?

- Preliminary heritability estimates in two breeder pedigrees have shown that the trait for Johnin antibody response is moderately heritable (0.24 – 0.18)
- A pilot trial using 384 deer from the DNA archive and 250 SNP's covering 8 small regions of the genome was undertaken using the Sequenom SNP genotyping system

STRATEGIC ISSUES #2

Can we confirm the expected Linkage Disequilibrium in farmed NZ red deer ?

Comparison of marker pairs with similar allele frequencies in the Chr 17 centromere region



SUMMARY

Everything is now in place for a SNP Association study of the farmed red deer population