

BRE1804: SNP Marker Panel for Profiling Pea Lines and its Effectiveness in Breeding for High Seed Protein Content

The objectives of this project are to develop a panel of markers (called single nucleotide polymorphism markers or SNP markers) which will be relatively easy to use in the pea breeding program, and which will allow for the selection of single plants carrying desirable profiles. The markers will be associated with important traits including plant height, lodging resistance, time to maturity, yield, and seed protein concentration. The markers will be developed based on research conducted in the Crop Development Centre pea breeding program over the past decade using specific genetic populations (called recombinant inbred line populations or RILs) or using a diverse variety collection (called a genome wide association study panel or GWAS). We have identified hundreds of markers using the RIL approach, and hundreds of markers using the GWAS approach. Now we are working to identify the markers identified by both approaches as we feel these may be the best ones for breeding.