



Vegetable Genetic Improvement Network

University of Warwick

The VeGIN project (2009-2012) was DEFRA funded and followed several previous DEFRA funded projects aimed at the genetic improvement of vegetables. VeGIN focussed on Brassicas, lettuce, carrot and onion.

VeGIN produced three resources for Brassica growers, breeders and researchers:

1. Genetic Diversity and Genomic resources

VeGIN generated two genetically fixed diversity sets representing the majority of genetic diversity in both domesticated and undomesticated C genome gene pools. These Diversity Fixed Foundation Sets (DFFS) are ideal for replicated experiments to investigate traits. Transcriptome sequencing of the DFFS founder lines provides a unique knowledge of allele variation and frequency, and indicates wild species contain a large number of novel or rare alleles not present in crops but that could be exploited for crop improvement.

VeGIN have identified a common set of polymorphic SNPs, which have been mapped in the three populations, creating a new integrated map for *B. oleracea*.



2. Novel alleles for beneficial traits

Several DH mapping populations were used to map a number of traits, such as water use efficiency where ~20 different QTL have been identified including, seedling vigour, mineral use efficiency, broccoli post-harvest shelf-life and leaf senescence.

Lines conferring beneficial phenotypes for key traits including water use efficiency; resistance to turnip yellows virus; diamond back moth resistance; post harvest quality; levels of metabolites beneficial to human health; and tolerance to salt have been identified in the Bo and Cg DFFS. These lines will be used in future experiments to identify alleles and associated markers for breeding these traits.

3. Stakeholder Network

An important aspect of VeGIN was the active and enthusiastic support from the stakeholder network at the regular annual meetings and via the VeGIN website (www.warwick.ac.uk/go/vegin). The website is still kept up to date with information on resources and links to useful web sites.

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UK Brassica



Research Community

www.ukbrc.org.uk