



Horticultural  
Development  
Company

## **Grower summary**

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### **SF 106**

Developing breeding and selection tools  
reduce spoilage of soft fruit and wastage  
the supply chain

Annual Report 2010

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Before using all pesticides check the approval status and conditions of use.

Read the label before use: use pesticides safely.

## **Further information**

If you would like a copy of the full report, please email the HDC office ([hdc@hdc.org.uk](mailto:hdc@hdc.org.uk)), quoting your HDC number, alternatively contact the HDC at the address below.

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## **Headline**

- A good start has been made to the process of identifying genes responsible for fruit softening in raspberry.

## **Background and expected deliverables**

Demand for UK fruit currently outstrips supply. Fruit softening remains the main cause of post harvest waste and lost revenue in all soft fruit. Fruit firmness is essential to maintain quality, enabling fruit to withstand extended storage before being transported across the UK. This is in addition to the 7 days of shelf-life demanded by supermarkets. A 1-2 day improvement in fruit shelf-life would increase the value of harvested fruit and reduce waste.

This project aims to identify genes associated with fruit softening, by using the Glen Moy x Latham mapping population, which is already an established and successful resource for QTL mapping. The Glen Moy x Latham raspberry map, the gene resources developed in current LINK project HL0170 and the latest sequencing technologies (454 Life Sciences, Roche), will be used in this work.

Having identified genes responsible for fruit softening, their response to abiotic stresses (eg.temperature and water) will be investigated. The most robust genes/markers can then be exploited in future breeding programmes to breed varieties with reduced fruit softening characteristics.

## **Summary of the project and main conclusions**

Work in the first year of the project has used the genetic map of the Glen Moy x Latham cross to develop screening protocols to identify genes which confer fruit firmness and good shelf life.

Work has also been undertaken to improve our understanding of the stresses that occur in the supply chain and how they relate to fruit firmness scores.

Using a number of genes already known to be linked with fruit softening, work in the first year has been undertaken to improve our understanding of the forms in which they occur.

## **Financial benefits**

This work will confer significant financial benefits to the industry:

- The volume of fruit as food waste going to landfill in the UK will be significantly reduced.
- Financial savings in the retail industry alone could reach £2.5 million annually for soft fruit, with additional savings at the farm.
- Increased shelf-life will further enhance the reputation of UK fruit as a high quality product, leading to improved fruit sales.

## **Action points for growers**

There are no action points at this stage.