

Understanding the regulation of flowering in the herbaceous plant *Coriandrum sativum* L.

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Department/Institute: NIAB

Industrial Partner: Elsoms Seeds Ltd

Project outline:

Early floral initiation and subsequently bolting is a major cause of crop loss in many leafy crops including *Coriandrum sativum* L. Bolting refers to the early flowering stem produced in agricultural and horticultural crops before harvesting which can lead to rejection during preparation for consumption. Early bolting therefore makes crop harvesting and management more difficult and costly for growers. As floral initiation is an event induced by the coordinated effects of various environmental factors and endogenous genetic components, understanding its regulation in *C. sativum* is key to reducing food waste in a wide range of growing environments. However, little is known about the signaling pathways and molecular functions involved in bolting mechanisms in this species. Delayed bolting would allow producers to have more flexibility of harvest – with less pressure to harvest before the floral phase is started - and could facilitate repeat cropping over a longer time.

The goal of this project is to understand genes involved in the promotion of flowering in the herbaceous plant *C. sativum* and characterize their role in regulating flowering under both ideal and stressed conditions. The project will transfer knowledge from model species to understand the regulation of flowering and create novel mutations to characterize identified genes in coriander for their role in regulating flowering initiation and should produce mutants which are directly useable as improved delayed-bolting varieties.

This project will train a student in bioinformatics, tissue culture and molecular biology including CRISPR to improve coriander production both here in the UK and abroad.

BBSRC DTP main strategic theme: Bioscience for sustainable agriculture and food