

Climate change and plant behaviour

Project led by Bill Finch-Savage and Steve Footitt

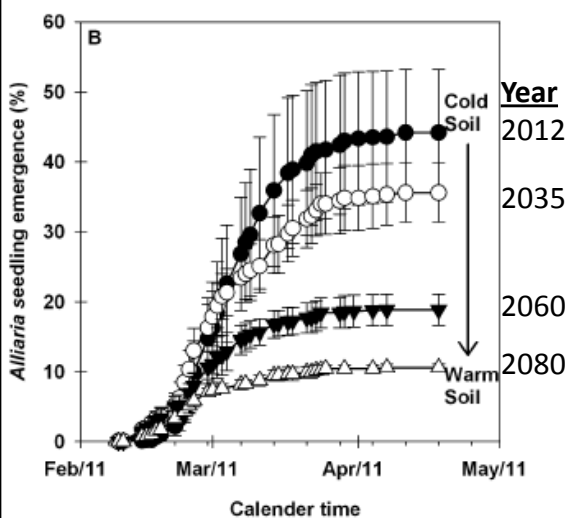
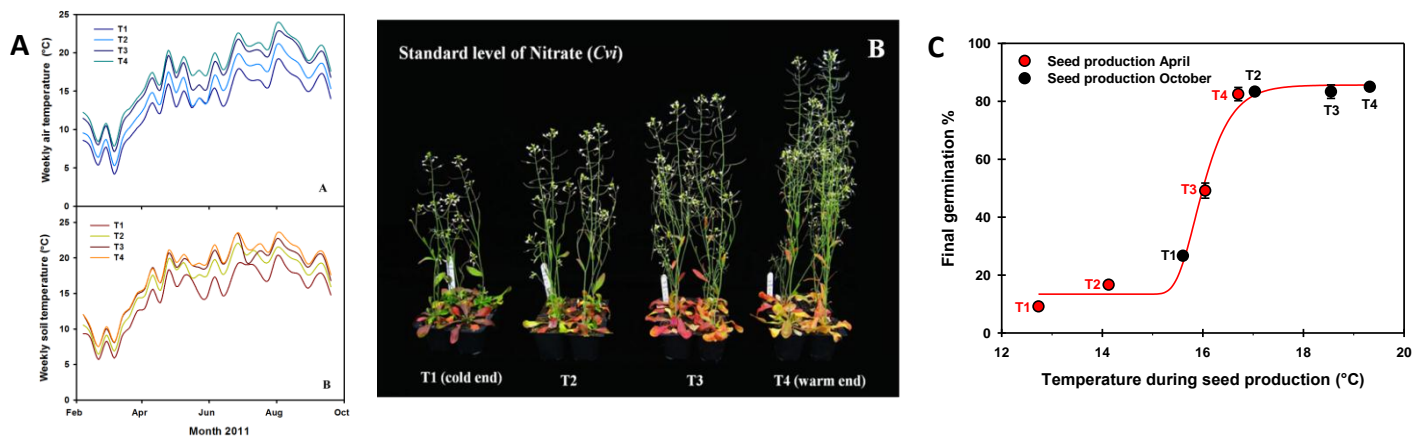
Climate Change To improve our understanding of the impact of climate change on the growth of native plants and weeds we are using Warwick Crop Centres unique thermal gradient tunnels. These use a system of heaters and fans to establish a temperature gradient that tracks the outside temperature to give a range from ambient to 4°C above ambient temperature. This gives a temperature range from today to that predicted for 2080.

Climate change and Arabidopsis as a model weed

A.) Air and soil temperature at four positions in the tunnel. T1 cold end > T2 > T3 > T4 Warm end.

B.) Arabidopsis plants grow larger as the temperature increases.

C.) Arabidopsis seeds produced at T1 – T4 in April and October germinate less (more dormant) when produced at lower temperatures and germinate more (less dormant) when produced at high temperature. This may be good news for weed's but bad news for farmers.



Climate change and a woodland plant

Alliaria petiolata more commonly known as Garlic Mustard or Jack in the Hedge is a common woodland plant. Its seeds require chilling over the winter to induce germination in early spring so new plants can emerge and flower before the woodland canopy cuts out the light. This and similar species are important food sources for pollinating insects.



As the climate warms in response to green house gases soil temperature will increase and this species and others like it will not receive sufficient cold to induce germination.

We are using these results to determine the impact of climate change on weed competition and natural plant communities.