

Coping with Climate Change (in the UK countryside)

Crops for Climate Change

Research is providing a basis for new crop varieties that

- tolerate low rainfall and high temperatures
- can be harvested before summer droughts
- increase soil water-holding and reduce flooding

This will help farmers to match varieties to their changing needs.

New computer models will also help them to target pesticide and fertiliser inputs, and to time harvesting, so as to optimise yield and minimise environmental impact.



Scientists at the John Innes Centre identified a gene in barley that controls flowering in response to day-length. This gene offers breeders the chance to produce crops that flower earlier than usual in the UK and so avoid burning up in long, hot summers.

BBSRC is the UK's principal funder of bioscience research across the spectrum from molecules to whole populations and systems. It funds research in universities and in its sponsored research institutes several of which underpin advances in agricultural and environmental science.

Drought-tolerant crops

Scientists are identifying genes that equip plants to tolerate drought. This approach is already being used in East Anglia, where drought is likely to be a worsening problem for sugar beet growers.



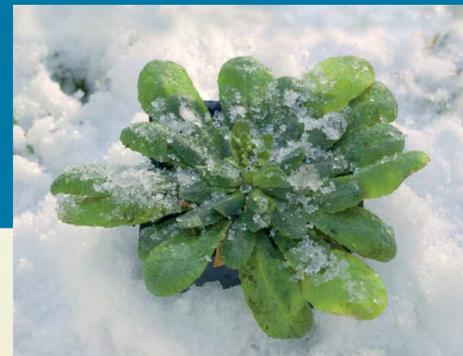
Researchers at Broom's Barn are working with an international seed company to develop drought-resistant varieties of sugar beet.

Grasses to reduce flooding

Grass varieties that develop extensive root networks deep in the soil soil increase their capacity to hold water. They could help to combat summer drought in pastures, and reduce the risk of flash flooding from surface run-off during heavy rainfall.

Clues from 'model' species

Knowledge about genes that influence plant shape, time of flowering and responses to temperature in simple 'model' species is being used to guide breeders in developing new crop varieties.



Studying the genes of the common weed, Arabidopsis, has provided insights into the genes of many other plants.



Scientists at Rothamsted Research and the Institute of Grassland and Environmental Research are combining grass genetics, plant physiology and soil science to design and test novel grass varieties for deep rooting, water use efficiency and improved soil water-holding.

Energy from crops

Research is identifying how plants can be used most efficiently as renewable sources of energy.



Rothamsted Research hosts the national willow collection. Scientists there are identifying the key factors that determine energy yield and crop sustainability.



Scientists at the Institute of Grassland and Environmental Research are making new hybrids of the energy grass Miscanthus and testing their performance under different environmental conditions.

Bioenergy

At the John Innes Centre, researchers are investigating the possibility of harnessing key enzymes used by microbes to generate hydrogen in fuel cells.

