

# DEVELOPING CLIMATE RESILIENT OILSEED RAPE



## THE CHALLENGE

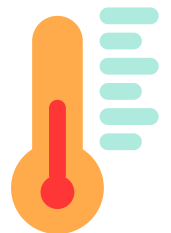
Climate change is affecting our ability to grow crops.

Oilseed rape is highly vulnerable to weather variations, and temperature changes between growing seasons has a large effect on oilseed rape yields.

Poor yielding years reduce the economic viability of the crop, and is one of the factors contributing to farmers deciding against growing oilseed rape. This makes the UK more reliant on overseas imports of rapeseed oil.

We anticipate that our research will enable the UK to develop strategies for adapting the oilseed rape crop to withstand fluctuations in winter temperature. The ultimate goal is to develop varieties that maintain a high yield whatever the weather.

Cold days have become milder and there are fewer very cold days.



STATE OF THE UK  
CLIMATE REPORT

When the temperature in early winter is warmer than average, oilseed rape yields decrease.

# OUR RESEARCH

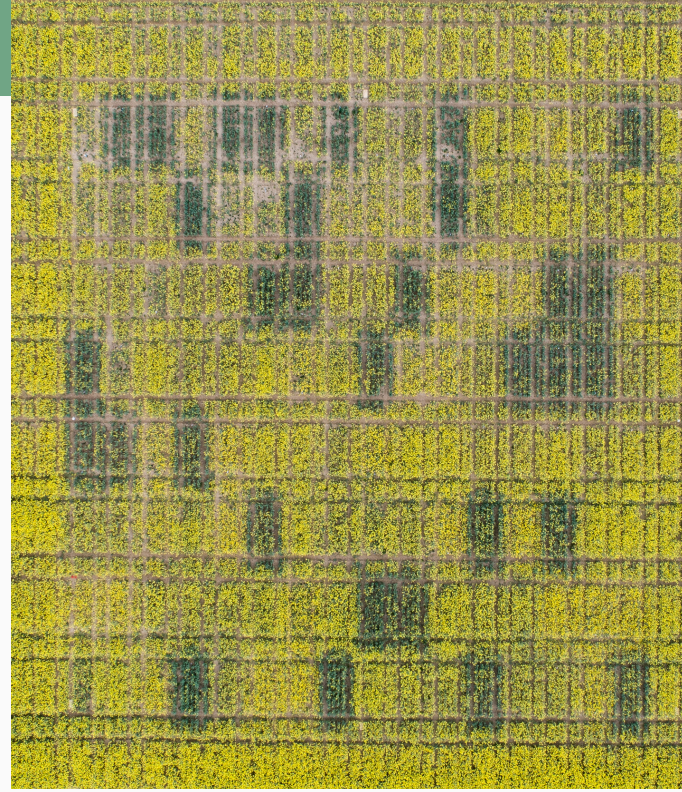
## MAINTAINING YIELD WHATEVER THE WEATHER

Our research aims to understand how the climate affects plant reproductive development and seed quality. We have shown that if the temperature in early winter (Nov – Dec) is warmer than average, this results in a decrease in oilseed rape yield.

This time of year corresponds to the first phase of flower development, and we have shown that developing flower buds need to experience a period of strong winter chilling to enable high yields.

One reason yields are lower is that seed size is reduced in warmer winters. Chilling promotes more vigorous growth in spring, greater fertility and the development of larger seeds.

We have identified an oilseed rape variety, called Castille, for which this relationship does not hold true. Castille's yield is unaffected by winter temperature, maintaining seed size whatever the weather. Castille is being studied to help us understand how to breed future oilseed rape varieties that maintain high yields even in years where winters are warmer.



**SCAN FOR  
MORE INFO**



## TECHNOLOGY

We have developed innovative in field technology to increase the temperature of field plots to allow us to investigate the link between early winter temperature and yield.

We are combining a field approach with state-of-the-art controlled environment rooms programmed to precisely simulate the entire growing season based on real weather data. This will allow us to investigate how changes in climate influence changes in gene expression within plants to identify the mechanisms behind the plant responses that we see.



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