

# Food Security in CSSP China

Farming in China is essential to its economy and the well-being of its people. The Chinese government has set new food security targets for the country, including a focus on self-sufficiency and water sustainability. China produces nearly a fifth of the world's cereal grains including maize, wheat and rice, so national agriculture is essential to food security globally. Therefore, better understanding of the risks to farming from climate variability and change offers huge socio-economic benefits to China and across the world.

Scientific research in Climate Science for Service Partnership (CSSP) China is being used to help communities make better decisions for farming, to ensure sustainable agriculture, and to stay safe and thrive.

## How can research benefit agriculture?

### Building resilience to extreme weather



Providing information on the most up-to-date risk of extreme weather events will help communities build climate resilient agriculture and food systems.

### Strategies for increasing crop yield



Using adaptation strategies to optimise yield, such as crop rotation.

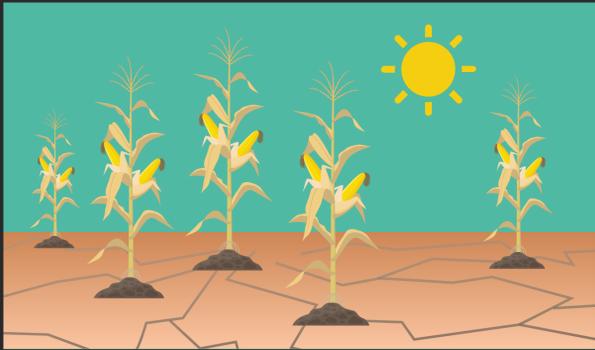
### Developing crop warning systems



Developing tools to help users better anticipate potential damage to crops.

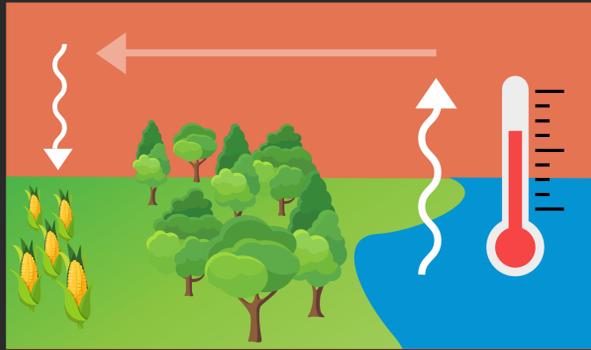
## What does our latest research show?

### Current risks to crop production



Research has shown there is a 5% chance per year of a larger area drought than any previous event, and roughly a 6% chance per decade of simultaneous maize crop failure in China and the USA.

### Predicting unfavourable conditions



Research has identified a link between sea surface temperature patterns in different oceans and yield of maize across North and North-east China. This has potential to provide advance warnings of unfavourable conditions for growing crops.

### Where and how crops are affected



Research can help to understand and quantify factors affecting agricultural yield. This is performed through the analysis of water use and crop health indicators.

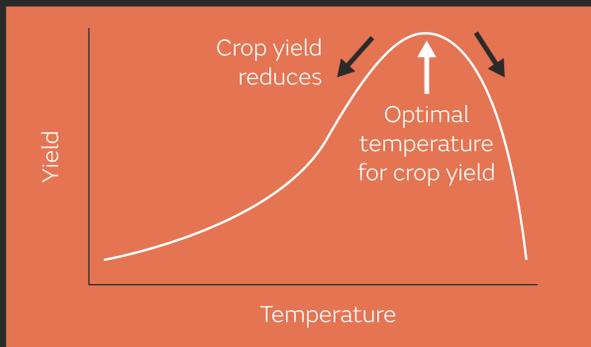
## How do scientists know this?

### Modelling extreme weather events



Using the latest climate models to simulate the most extreme weather events that are physically plausible (the UNSEEN\* method).

### Crop response to extreme weather



Using observations and models to understand how crops are affected by changes in temperature and rainfall.

### Satellite mapping of crop risks



Using images from the Copernicus Sentinel satellite database, which can be used to monitor crop stress and impact on yield.

## Find out more

†CSSP China is part of the Weather and Climate Science for Service Partnership Programme, supported by the UK-China Research and Innovation Partnership Fund as part of the Newton Fund. For more information, see <https://www.metoffice.gov.uk/research/approach/collaboration/newton/cssp-china/index>

\*UNprecedented Simulation of Extremes with ENsembles (UNSEEN) – a novel method used to predict extreme weather events, see <https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/wcssp/unseen-infographic.pdf>