

Where does our food come from?

**FARMING
THE BIGGEST
JOB ON
EARTH**

Here are some tips to help you engage in conversations with people of all ages about conventional farming and how food is grown.

Farming is an international, science and engineering based industry that combines age-old techniques with new technologies to grow and rear the food we eat as well as providing energy sources.

With a growing population, we need to ensure we can produce enough healthy, affordable food in a more sustainable way, reducing the impact on the environment and leaving space for nature.

And we need be able to talk about how.

What do we grow?

Since the beginning of agriculture, over 10,000 years ago, people have grown crops that produce the most amount of food, are resistant to certain diseases, can grow fast or tall to outcompete weeds, or are more palatable to the consumer, such as growing more of the sweetest strawberries.

People have crossed different plant characteristics so the crops they grow have the best genetics for what they need. One plant may be able to grow with less water and one might be able to withstand certain diseases. Researchers are looking at ways to breed plants with both of these traits but this can take over a decade for innovations like this to reach the consumer.

Growing population

The world population is projected to grow

by **26%**

to **9.7 billion** in 2050

Source: United Nations

Farmers are needed to produce enough food to feed increasing national and international populations.

By the year

2050

farmers will have to produce more food than has been grown in the whole of human history.

Global warming could cause a

30% reduction

in food production in many regions.

Did you know?

From just 1 hectare (1.5 football pitches) of wheat, we can produce 11,500 loaves of bread. That's over 100,000 sandwiches!



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We create chemistry

Crop Protection – Why do we spray?



It is estimated that if modern crop protection products such as pesticides were not used in farming there would be a loss of between 20-40% of food produced. Without pesticides, crops yields would be reduced and produce could be in short supply, increasing food prices. Due to climate change, we are experiencing more extreme weather events, this can lead to new diseases and new pests impacting how we grow food.

What do we spray?

Herbicides

Herbicides are used to control weeds. Without this, weeds can outcompete crops and take vital resources, such as nutrients, water, sunlight, and space, thus reducing potential yields.



Fungicides

Fungicides are used to protect against diseases in crops. Disease can affect crops in different ways, like causing lesions on leaves that means the plant is unable to photosynthesize efficiently.

This can reduce the amount of yield (or food) produced from the plant.



Insecticides

Insecticides are used to control pests. Some pests can damage crops directly by feeding on the plant, such as slugs; while others can transmit viruses, like aphids. It is vital that new insecticides are targeted to pests, ensuring they are safe to beneficials such as bees and other pollinators.



Protecting beneficials

Bees and other pollinators are vital for biodiversity and rural ecosystems. They are estimated to add £500million a year to UK agriculture and are crucial for flowering crops such as oilseed rape and fruit trees.

It is in everyone's interest to ensure they are protected.



Power of pests

A Peach Potato Aphid can transmit 120 different viruses! If a seed crop of potatoes gets infected by an aphid with a particular virus, its yield can be reduced by over 60%.

With the seeds now infected, the secondary crop (the crop that we would eat) could have a yield reduction of 87%, that's a lot less chips!



Are pesticides safe?

The use of chemical pesticides is strictly regulated. They go through a lengthy and robust registration process including numerous trials before being used for widespread crop protection. From the discovery of a substance in a lab, it can take 12 years and £150million until it is sold to users.

Spray operators must be qualified to use crop protection products and strict usage guidance is provided to ensure chemicals are used correctly and don't end up in rivers and streams.



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All chemistry must pass through a vigorous registration process	
HSE/CRD	Health and Safety Executive/Chemicals Regulation Division; regulate the sale, supply, use and storage of chemicals. CRD scientists evaluate safety and efficacy data that is produced by the manufacture.
ECP	Expert Committee on Pesticides; independent scientists with expertise in relevant fields.
Government ministers	ECP give their expert and independent evaluation to government ministers. An authorisation notice is then signed, allowing the product to be sold in accordance to its label rules.