

CROP PROTECTION

Insect, disease and weed pressures are one of the greatest threats to our food supply as they compete with crops for essential nutrients and rob them of their yield and quality.

Farmers rely on **CROP PROTECTION PRODUCTS** to prevent these pests from damaging their crops and limiting their harvest.

AN ETERNAL CHALLENGE

Farmers have battled insects, weeds and disease since the first crops were planted. In fact, the first recorded use of crop protection products was **4500 years ago** by the Sumerians.

A DAUNTING CHALLENGE

There are an estimated **10,000 different insect species** that feed on crops and in a single farm acre there can be as many as **50 to 300 million buried weed seeds**.¹

A GROWING CHALLENGE

As the impacts of climate change grow, pest pressures are expected to intensify. For example, with a rise of just 2° Celsius, aphids, which transmit plant disease, can reproduce an **extra 5 generations per year**.



TODAY'S BENEFIT

Crop protection products currently **reduce staple crop losses by half** each year. However, with pest pressures becoming more extreme, developing new, more comprehensive protections is becoming more important than ever before.²

TOMORROW'S BENEFITS

If maize, wheat and rice farmers worldwide are able to better control pest pressures in 2050, there will be **90 million fewer people** at risk of hunger and **2.3 million fewer malnourished children**.³

INVESTMENT IS NEEDED

Developing a new crop protection product can take **10 years and cost up to \$256 million**, which is why IP protections are essential for continued development.⁴

INNOVATION DRIVES AGRICULTURE

¹ ii. Evans, K.A. 2012. Do we need to be worried about the potential threat of invasive species to crops as the climate changes? Proceedings Crop Protection in Northern Britain. 55-60.
iii. Roos, J., et al. 2011. The impact of global warming on plant diseases and insect vectors in Sweden. *European Journal of Plant Pathology*. 129:9-19.
iv. Patterson, D. 1995. Weeds in a changing climate. *Weed Science*. 43:685-701.

² v. Oerke, E.C., 2006. "Crop losses to pests," *Journal of Agricultural Science*

³ International Food Policy Research Institute. *AgriTech Toolbox*, <http://apps.harvestchoice.org/agritech-toolbox>

⁴ Phillips McDougall, "The cost of new agrochemical product discover, development & registration and research & development predictions for the future" http://www.cropifeamerica.org/sites/default/files/node_images/PM%20R%26D%20Study_2%2025%2010.pdf