



UNDERSTAND

The Irish Potato famine (DM8)

In the 1800s many Irish farms planted the "lumper" potato variety. And since potatoes reproduce asexually, all of these lumpers were clones, genetically identical to one another.

The genetically identical lumpers were all susceptible to a rot caused by *Phytophthora infestans*, which turns non-resistant potatoes into inedible slime.

During the summer of 1845, an airborne fungus devastated Ireland's potato crop, the basic staple in the Irish diet. A few days after potatoes were dug from the ground, they began to turn into a slimy, decaying, blackish "mass of rotteness."

The fungus spread throughout the potato fields as fungal spores settled on the leaves of healthy potato plants, multiplied and were carried in their millions by cool breezes to surrounding plants. Under ideal moist conditions, a single infected potato plant could infect thousands more in just a few days.

The food gap created by the loss of the potato was so enormous that it could not be filled. Over the next ten years, more than 750,000 Irish died and another 2 million left their homeland for Great Britain, Canada, and the United States. Within five years, the Irish population was reduced by a quarter.

What should farmers have learnt from this?

Other examples:

The widespread planting of a single corn variety contributed to the loss of over a billion dollars worth of corn in 1970, when the U.S. crop was overwhelmed by a fungus.

And in the 1980s, dependence upon a single type of grapevine root forced California grape growers to replant approximately two million acres of vines when a new variety of the pest insect, grape phylloxera (*Daktulosphaira vitifoliae*, shown at right) attacked in the 1980s.

A lot of agriculture continues to depend on genetically uniform crops. **Why do you think some farmers still chose this method of growing crops?**