

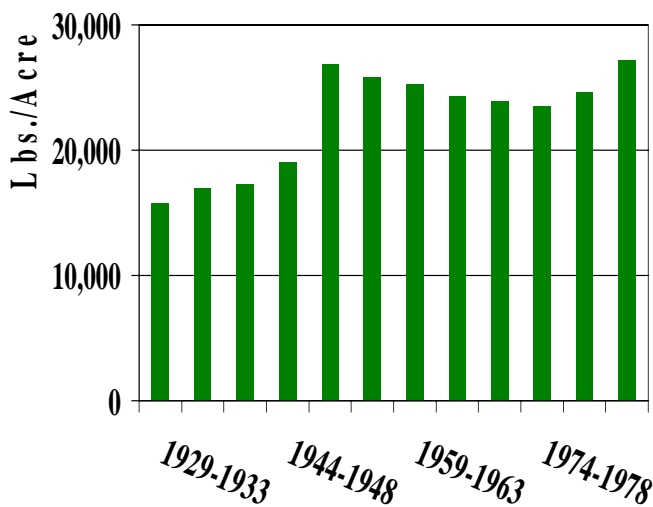
# Pesticides are Vital to Maintain High Crop Yields

Every acre of cropland is infested with 50 to 300 million buried weed seeds. These seeds can survive in a dormant state for 40 years. Every year about 2 to 5% of the weed seeds germinate and 2.5 million weeds emerge on a typical acre.

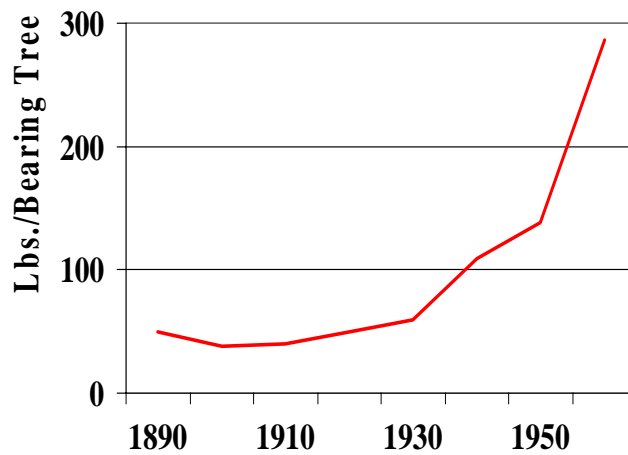
About 20,000 species of fungi are parasites that must infect plants to continue their life cycles. These parasites are well-established in crop fields, releasing trillions of spores every year.

Prior to the introduction of pesticides, crop yields in the U.S. were lowered by uncontrolled disease pathogens and weeds. In the 1800s, it was common for fruit growers to lose 50 to 75% of their crop to diseases. Fruit growers began using fungicides in the early 1900s. When synthetic chemical fungicides were introduced in the 1950s, major improvements in U.S. crop yields occurred because synthetic chemicals did a better job of controlling fungi and were less damaging to the crops than older fungicides.

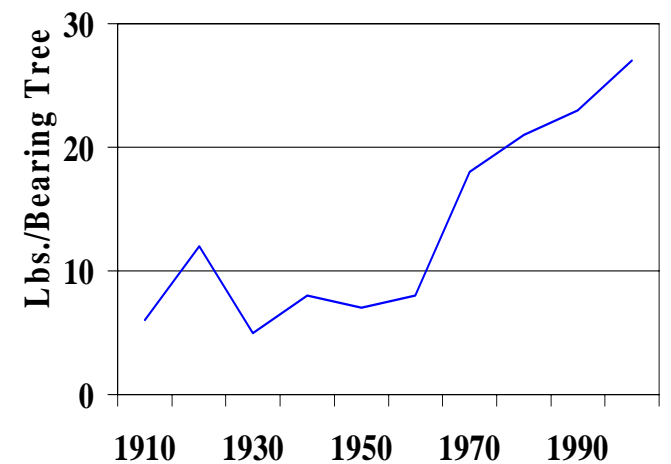
**Maine Potato Yields**



**U.S. Apple Production**



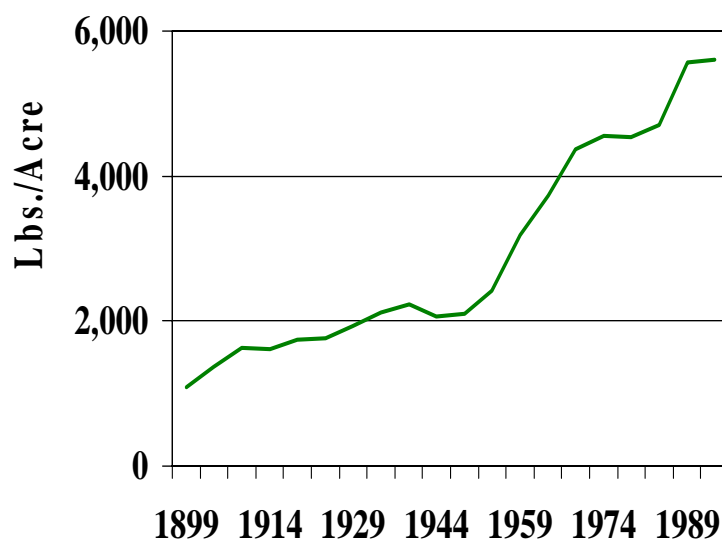
**U.S. Pecan Yields**



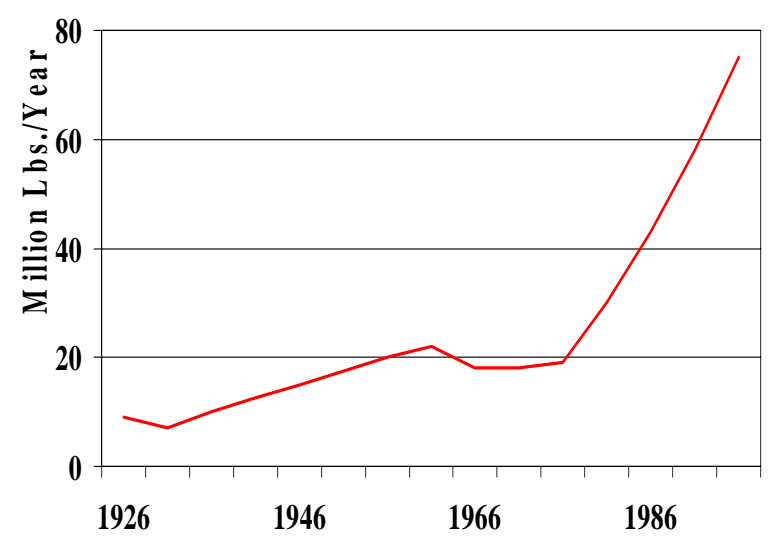
Prior to the introduction of herbicides to kill weeds, U.S. growers relied on workers to pull weeds by hand and on tractors to uproot small weeds. Yield losses occurred in most crops because not enough labor was available and the tractors could not always be used in a timely fashion due to wet fields. As a result, the introduction of herbicides led to yield increases for many crops.

*Without the use of herbicides today, there simply would not be enough laborers to pull weeds by hand; without fungicides, crops would be unprotected as in the 1800s and rots would occur.*

**U.S. Rice Yields**



**Maine Blueberry Production**



**U.S. Crop Yields Without...**

Herbicides		Fungicides	
Carrots	- 48 %	Apples	- 86 %
Corn	- 20 %	Citrus	- 49 %
Cotton	- 27 %	Cucumbers	- 70 %
Peanuts	- 52 %	Grapes	- 95 %
Rice	- 53 %	Lettuce	- 47 %
Soybeans	- 26 %	Potatoes	- 44 %



In Mississippi cotton, herbicides reduced the need for labor to hand weed by 20 million hours/year.