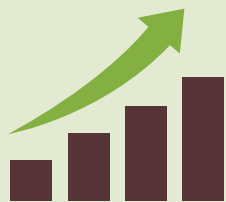


Technological Advances for PLANT HEALTH

Plant health is **your** health.



Conventional and modern plant-breeding techniques can help us select positive traits to develop plants that are resistant to diseases, pests, and environmental changes, **increasing yields and improving plant health.**



Modern plant breeding modifies the plant genome to **improve food quality and safety, and achieve sustainable food security.**



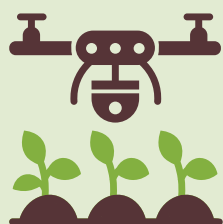
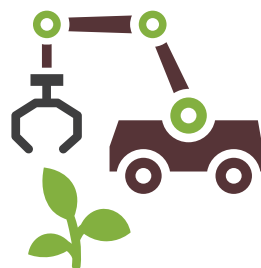
Bringing Back the American Chestnut

- The American chestnut once dominated forest in the eastern United States. Its wood was used to build houses and furniture, and to provide fuel for fires. The chestnut crop also was an important source of food for humans and animals.
- In the late 1800s, chestnut trees from Asia were introduced to the United States, bringing a parasitic fungus that caused chestnut blight disease. By 1950, 99.9% of American chestnut trees had rotted to death because of the blight.
- Using modern technology, plant scientists have developed an American chestnut that's resistant to the blight, bringing hope of recovering this magnificent tree and many others that have been destroyed by diseases and pests.



Scientists work with federal agencies to regulate genetically modified crops and plant technologies to ensure the safety of food crops.

Modern farming has incorporated **new technologies**, such as robotics and artificial intelligence to increase crop productivity and quality, and lower environmental impacts.



Plant pathologists use machine-learning techniques to develop crop decision support systems that help **improve disease surveillance and management.**

Sources: Jacobsen, 2019 (<https://psmag.com/ideas/most-controversial-tree-in-the-world-gmo-genetic-engineering>); Ku, 2019 (www.plugandplaytechcenter.com/resources/new-agriculture-technology-modern-farming/); USDA-NIFA, n.d. (<https://nifa.usda.gov/topic/agriculture-technology>); Zaidi, 2019 (<https://science.sciencemag.org/content/363/6434/1390>); Mehta, 2018 (<https://allianceforscience.cornell.edu/blog/2018/05/perils-gmo-research-scientist-speaks/>); and U.S. Food and Drug Administration, 2020 (www.fda.gov/food/agricultural-biotechnology/how-gmos-are-regulated-food-and-plant-safety-united-states).



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