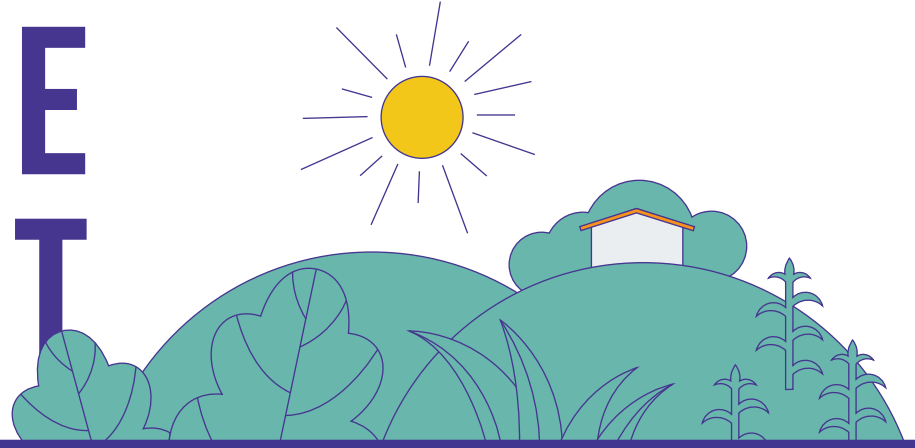
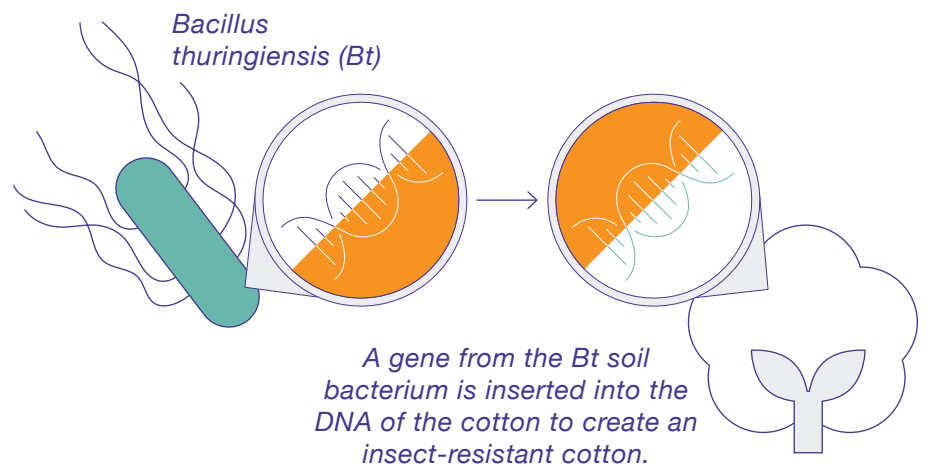


GMOs AND THE ENVIRONMENT



Genetically modified organisms (GMOs) and foods made from GMOs have been available to consumers since the 1990s. Since their introduction, researchers have studied their impacts on the environment. Overall, studies have shown GMOs can have positive environmental impacts and can be important tools for addressing the causes and effects of climate change.^{1, 2}

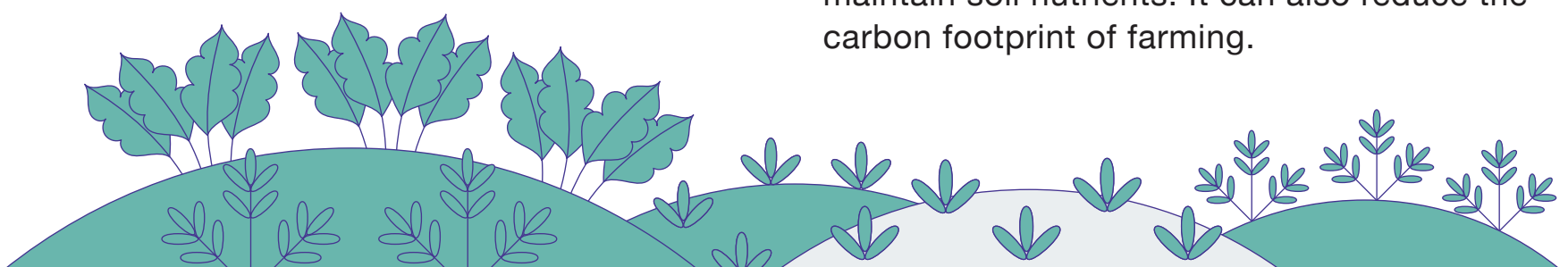
Insect-resistant crops are developed to withstand, deter, or repel insect pests and prevent them from feeding on the plant. *Bacillus thuringiensis* (Bt) crops are crops that produce proteins that are toxic to certain insect pests but not to humans, pets, livestock, or other animals.³



When farmers grow Bt crop varieties, they can apply less insecticide while still preventing insect damage to their crops. This in turn allows for a higher diversity of beneficial insects. For example, insecticide application among U.S. corn and cotton farmers decreased by over 80% from 1996 to 2017.⁴

Herbicide-tolerant (HT) crops are developed to survive the application of certain herbicides to help farmers more easily control weeds in their fields.⁵

Practicing conservation tillage is easier for farmers who grow HT crops. Conservation tillage, also called no-till farming, means farmers don't turn over the soil when planting new crops.⁶ This can reduce soil erosion from wind and water, help soil hold more water, and maintain soil nutrients. It can also reduce the carbon footprint of farming.



Learn more about GMOs and their impacts at www.fda.gov/feedyourmind.



Sources:

¹ <https://nap.nationalacademies.org/read/23395/chapter/7>

² <https://www.usda.gov/topics/biotechnology/climate-change>

³ <https://www.entsoc.org/sites/default/files/files/Science-Policy/2018/ESA-Factsheet-Bt.pdf>

^{4,5} <https://www.ers.usda.gov/topics/farm-practices-management/biotechnology/>

⁶ https://www.ers.usda.gov/webdocs/publications/45179/43668_err162.pdf?v=0