

## Possibility of GMOs reducing genetic diversity, resilience of wild populations causes concern

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Many are concerned that GMOs will cause reduced genetic diversity of organisms in the wild. Maintaining genetic diversity is important for the environment and agriculture because increased variability in DNA will provide a better opportunity for organisms to adapt to a changing environment.

How might GMOs affect genetic diversity? One possibility is that GMOs may crossbreed with wild plants or animals. A second is that favorable traits could allow GMOs to take over a population.

Opponents to GMOs are concerned that if modified genes are introduced into wild plant populations by hybridization, they could impart a fitness advantage in the hybrid species. This fitness advantage would lead to the engineered gene being maintained in the population and thus reduce the genetic diversity of the wild species.

A [study](#) of creeping bentgrass uncovered clear hybridization events between GM crops and wild grass; however, it is important to recognize that cross-pollination is not equally likely for all crops. Many crops commonly cultivated in the US, such as corn, soybeans, and cotton, are not perennials and do not have wild relatives growing in close proximity.

GMOs can also affect genetic diversity through uncontrolled growth. If GMOs have advantageous genes, they may outcompete their wild relatives. One GMO animal where this is a concern is a fast-growing Atlantic salmon engineered by AquaBounty technologies. But the company is taking precautions to prevent GM salmon from propagating in the wild, the salmon are all female, grown in land-based tanks, and are sterile due to increased chromosome number.

Although there is little evidence that GMOs have impacted genetic diversity in today's environment, scientists are very aware of the potential influence of GMOs on biodiversity. Therefore, researchers are investigating how to better prevent crossbreeding and spreading of GMOs.

Many of the concerns with genetic diversity in agriculture are not restricted to GMOs, as standard crop cultivation faces very similar issues. Therefore, it is imperative that researchers continue to study the impact of GMOs and agricultural practices on genetic diversity and discover new ways to minimize their influence on biodiversity.

*Editor's Note: This post is part of a series on GMOs in a special edition of the online magazine "Signal to Noise", produced by Science in the News. You can read the entire series here: [Signal to Noise Special Edition: GMOs and Our Food](#)*

**Read full, original post:** [Challenging Evolution: How GMOs Can Influence Genetic Diversity](#)