Transgenic Plants

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What are transgenic plants?

Transgenic plants are plants that have been genetically engineered, a breeding approach that uses recombinant DNA techniques to create plants with new characteristics. They are identified as a class of genetically modified organism (GMO).

What is the purpose of Transgenic Plants?

The purpose of Transgenic plants is to make the crop efficient and productive, make the crop adaptable, such as growing in bad weather condition, or against insects.

Greatest advancement

The first genetically modified crop plant was produced in 1982, an antibiotic-resistant tobacco plant. The first field trials occurred in France and the USA in 1986, when tobacco plants were engineered for herbicide resistance. In 1987, Plant Genetic Systems (Ghent, Belgium), founded by Marc Van Montagu and Jeff Schell, was the first company to genetically engineer insect-resistant (tobacco) plants by incorporating genes that produced insecticidal proteins from Bacillus thuringiensis (Bt).

Best uses of Transgenic plants

Edible Cotton Seeds

- By nature, cotton seeds are inedible because they contain gossypol, a component that keeps bugs away. In 2006, Texas A&M University and Cotton Inc. collaborated on research to produce genetically engineered seeds without the inedible part while keeping it in the plant for protection. The researchers made nutty-tasting meal from the seeds that could be used for flour, but the discovery has many regulatory and logistic hurdles to clear before it could be a reality in cotton-growing areas.

Flood-Resistant Rice

- Husband and wife team Pamela Ronald and Raoul Adamchak bridge the biotech-environmental divide in their book Tomorrow's Table, arguing that genetic-engineering and organic farming can be blended. Ronald, a professor of plant pathology at University of California-Davis, has been working with David Mackill of the International Rice Research Institute in the Philippines on genetically-modified rice that can withstand flooding. If field trials are successful, the rice could be available as early as next year.

Cons of this biotechnology

- The development of highly productive crops with improved nutritive value could make Third World farmers dependent on international seed companies.
- If genes for pharmaceutical products are raised in food crops, they pose a risk of accidental ingestion.
- Potential to inadvertently introduce allergens into foods.
- There's a risk that genetically engineered genes could be introduced into wild plants, reducing biodiversity and creating super-weeds while reducing pesticide use.
- Not enough is known about whether genetically engineered plants are safe for human consumption.
- In the U.S., foods are not labeled to show whether they contain genetically engineered plants.

How is this biotechnology changing the world as we advance towards the future?

First, they are equipped to handle the climate changing, any insects or viruses. Second, it helps to grow population of crops, so there will not be lacking.

Conclusion

In conclusion, transgenic plants may or may not be helping the world in the future, but it is worth a try because since scientists make transgenic plants, there was no big problem.

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