



The Science Source for Food,
Agricultural, and Environmental Issues

Stewardship Challenges for New Pest Management Technologies in Agriculture

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Overview:

Technology is a key enabler of more efficient agricultural production as growers attempt to meet the cost-effective need for increased food, fiber, and bioenergy, while managing limited inputs, conserving valuable natural resources, and protecting environmental quality. Each new pest management technology (weed, insect, disease) developed brings a number of benefits and risks—environmental, health, resistance—that must be considered and managed through effective stewardship practices to ensure that benefits are fully realized while risks are minimized. Best stewardship practices for some new technologies have not been fully or effectively adopted, resulting in reduced effectiveness over time, and in some cases, negative environmental impacts.

Learning Outcomes

- *Explain the different challenges surrounding new pest management technologies that growers, technology developers, and stakeholders face.*
- *Identify the different practices that go into effective stewardship.*
- *Explore the ways stewardship and new pest management technologies have worked against pests, diseases, and increased our agricultural output while reducing costs.*

Resources

Access the Issue Paper, Ag quickCAST, and webinar here: <https://www.cast-science.org/publication/the-need-and-challenge-for-effective-stewardship-of-new-pest-management-technologies-in-agriculture/>

“Pink Bollworm Versus Bt Cotton: Three Countries, Three Results”:
<https://entomologytoday.org/2019/07/22/pink-bollworm-versus-bt-cotton-three-countries-three-results/>

“Pocket K No. 6: Bt Insect Resistant Technology”:
<https://www.isaaa.org/resources/publications/pocketk/6/default.asp>

“Farming Smarter Growing Stewardship”: <https://www.farmingsmarter.com/growing-stewardship/>



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Assessment Questions

1. Write a summary of this article highlighting 3-5 important facts you learned.
2. Describe different ways to manage risks when using GM crops.
3. What barriers might farmers and producers encounter while trying to fight pest resistance? How might farmers and producers overcome these problems?
4. Describe how the pink bollworm was introduced into the United States and how it was eradicated.
5. The article “Pink Bollworm Versus Bt Cotton: Three Countries, Three Results”, explains how pest management technologies have worked across the globe. What can India do differently to eradicate pink bollworm from their cotton fields? How can they learn from the United States and China?

Student Reflection

1. Besides pest management technologies, what are other ways farmers practice stewardship of the land? How do these ways ensure farms continue to produce goods to help feed and clothe the world?
2. How can farmer communities find ways to work together collectively, overcoming the interests of the individuals and highlighting the interest of the group as a whole? What are some other good examples of collective actions?