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# The benefit of understanding biotechnology

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# The benefit of understanding biotechnology

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If you would answer yes to the questions below, then you would benefit from understanding biotechnology.

1. Do farmers ask me to predict the work-load consequences of making different seed product choices?
2. Would the farmers I serve be happy if I can help them slow the evolution of their pest populations?
3. Can I describe how biotechnology will develop to bring new approaches to addressing crop management problems in the future?
4. Am I considered an expert in my community on the science behind our food production system?

This session will provide a chance to explore several on-line resources that can be used to put an agronomist in position to expand their understanding of biotechnology and work more effectively as a professional.

The first resource we will work with is a new Web-APP developed under a joint Iowa State University-University of Nebraska program.

The screenshot shows a web browser window with the URL [passel.unl.edu/ge/](http://passel.unl.edu/ge/). The main heading is "GENETIC ENGINEERING: The Journey of a Gene".

**Here's the Problem**

**SDS Soybean Sudden Death Syndrome**

**The Problem**

**Objective:** Learn the steps of genetic engineering to help us make soybeans that are resistant to Soybean Sudden Death Syndrome.

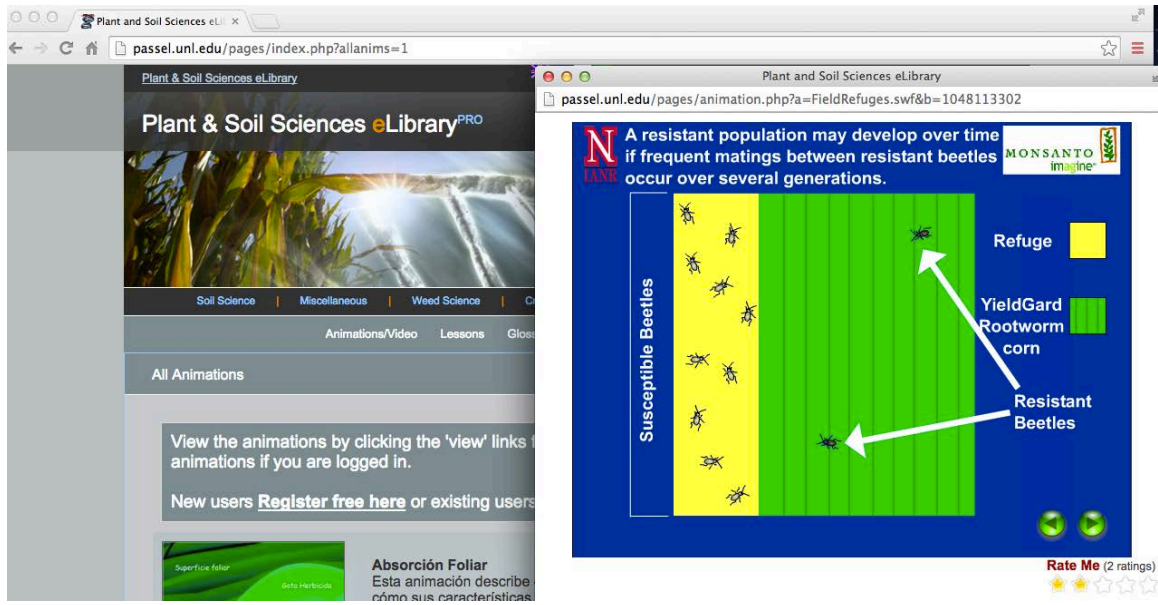
**LET'S GET STARTED**

**Steps to the Solution**

- Step 1: Designing the Gene**  
Matching the right promoter and coding region is essential for obtaining the desired gene expression in the plant.
- Step 2: Transformation**  
The transgene can be delivered to plant cells using *Agrobacterium*, a natural plant genetic engineer.
- Step 3: Breeding**  
The transgene is bred into the latest and greatest varieties for farmers to grow.
- Step 4: DNA Testing**  
We can be sure the transgene made it into the final product using genetic testing.

**Figure 1.** Journey of a Gene Web app <http://passel.unl.edu/ge/> or Google : The Journey of a Gene

The second resource we will explore is the Plant and Soil Science eLibrary which has been providing science-based, peer reviewed learning objects for over a decade.



**Figure 2.** The plant and soil science eLibrary (PASSeL) <http://passel.unl.edu>

We will use these resources to address the four questions above.