

Butterflies and *Bt*

Monarch butterflies are large orange and black butterflies that can migrate up to 5000 km from Canada to central Mexico. They spend the winter massed in trees. In the spring, adult monarchs leave Mexico and migrate north, mating and reproducing along the way. Each generation produces millions of caterpillars, which eat only milkweed plants that grow in fields and roadsides. In late summer, several generations removed from the one that departed from Mexico, adults reach southern Canada.

Monarch butterflies also live in Australia.

Pollen from *Bt*-modified plants falls on milkweed leaves when it is carried by the wind. Some research suggests that monarch butterfly caterpillars that eat these pollen-covered leaves die.

In this activity, you will clarify your own values on the possibility of monarch butterflies being killed by pollen from genetically engineered plants.

You will need:

- access to the internet

What to do:

1. Work in a small group of 4 or 5 people.
2. Select some articles from the list below. You will not need to read all of them. You might decide to ask each member of the group to read one.
3. Summarise the main ideas in each article. A useful way to do this is to ask each group member to make a list of dot-points from the article they read and to supply these to each group member.
4. Each group member may ask questions of the other group members to clarify something they do not understand in the summary of an article.
5. Think about the issue and ask yourself whether you are not concerned, mildly concerned or very concerned about the effect of *Bt* pollen on monarch butterflies.

What to do with your information:

1. Work with your group to write a letter of about 150-200 words establishing your position. Begin with one or two short sentences setting out facts, not opinions. Follow this with a statement about your concern. End with a statement about what you think should be done about the problem.
2. You may choose to send your letter to a newspaper or magazine that publishes letters.
3. Make a list of all the sources that you referred to.

Useful resources

- Monarch butterflies and toxic pollen
http://www.ucsusa.org/food_and_environment/genetic_engineering/environmental-effects-of-genetically-modified-food-crops-recent-experiences.html
- Biotech and butterflies http://www.whypiotech.com/about/faqs_cotton.asp#14
- EPA report finds biotech crops have little impact on monarch butterflies
www.biotech-info.net/butterfly_PR.html
- United States Department of Agriculture Q&A: Bt Corn and Monarch Butterflies
<http://www.ars.usda.gov/is/br/btcorn/>
- Bt Corn Pollen Impacts on Nontarget Lepidoptera: Assessment of Effects in Nature http://www.biotech-info.net/Bt_impacts_nontarget.html