

## Human Influence on Evolution - Option 1



Go to [www.biologybynapiers.com](http://www.biologybynapiers.com) , click Evolution Unit in left margin, scroll down to button link that says Evolution of Popcorn and left click on it or type this URL into your address bar:

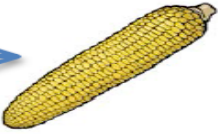



<http://www.hhmi.org/biointeractive/popped-secret-mysterious-origin-corn> . Watch the video and answer the questions.

1. Which of the following statements describes domestication?
  - a. It is the process by which animals are trained to do tricks useful for human needs.
  - b. It is the process by which wild species have been turned into species with traits that are useful for human needs.
  - c. It is the process by which animals build nests to attract mates and raise young.
  - d. It is the process by which plants have evolved to fill in ecological niches over time.
2. To illustrate how common corn is in a typical American diet, the film narrator gives many examples, from corn-on-the-cob to foods that contain cornstarch and corn syrup. The narrator also mentions meat. What is the connection between the meat we eat and corn?
3. Dr. Beadle concluded that teosinte was the likely ancestor of maize. On what evidence did he base this conclusion? Select all that apply.
  - a. Teosinte looks like maize.
  - b. Teosinte and maize have nearly identical chromosomes.
  - c. A cross between teosinte and maize produces fertile hybrid offspring.
  - d. Christopher Columbus discovered written records of maize's domestication from teosinte.
4. a. Fill in the table below to compare teosinte and maize.

	Extent of branching	Number of rows of kernels per cob	Kernel type (naked or enclosed in a hard fruitcase)
Teosinte			
Maize			

- b. Pick one of the characteristics of maize from the table and explain how it makes the crop more useful to humans than teosinte?

- Dr. Beadle planted 50,000 plants and discovered that 1 out of 500 offspring had the phenotype of one parent and 1 out of 500 of the other parent. Approximately how many plants had a teosinte phenotype? A maize phenotype? What phenotype(s) did the rest of the plants have?
- The film describes two independent sources of evidence that have been used to estimate when maize was first domesticated: genetic evidence and archaeological evidence. Do these two sources of evidence support each other? Explain your answer.
- To demonstrate how two different genes can explain the different traits in teosinte and maize, Dr. Doebley and colleagues used careful breeding to transplant each gene from one type of plant to the other. In the table below, draw and/or describe the results of each cross and explain what you can infer about the function of the genes.

Gene	Moved from	Moved into	Draw the result
<i>fruitcase gene</i>	Teosinte	Maize 	
	Maize	Teosinte 	
<i>branching gene</i>	Teosinte	Maize 	
	Maize	Teosinte 	

8. What happens when the Teosinte kernels are heated up?