

Corn is one of humankind's earliest innovations. It was domesticated 10,000 years ago when humans learned to cross-pollinate plants and slowly turned a messy nondescript grass called teosinte into desirable, productive modern corn. As needs change, so does plant breeding. Today, while biotech super-giants manipulate corn genetics to satisfy farmer desires and a global market, indigenous Mexican farmers do so to fulfill individual needs. Although the tools differ, the goal remains the same—to cultivate desirable traits.

Plant breeding was once restricted to sexually compatible plants, and generations of offspring were selectively bred to create unique varieties. In fact, corn, along with rice and wheat—today's global crop staples—would not exist without such techniques. With the goal of ever-widening the pool of genetic diversity, conventional plant breeding has gotten more technologically savvy in recent years. For example, realizing that natural mutants often introduce valuable traits, scientists turned to chemicals and irradiation to speed the creation of mutants. From test-tube plants derived from sexually incompatible crosses to the use of molecular genetic markers to identify interesting hereditary traits, the divide between engineering and genetics was narrowing long before kingdom boundaries were crossed.

But when geneticists began to explore microorganisms for traits of interest—such as *Bacillus thuringiensis* (Bt) genes that produce a protein lethal to some crop pests—they triggered an uproar over ethical, scientific, and environmental concerns that continues today.

QUESTIONS: (20pts)*a1-1

I. Reading Comprehension: (5pts)

A. Copy down the complete sentence containing the correct answer: (1pts)

1. *Man tamed corn ... years ago.*

- a) ten hundred
- b) one thousand
- c) ten thousand
- d) ten-point zero

2. *People manipulate corn genetics in order to ...*

- a) create unique varieties
- b) explore microorganisms
- c) cross-pollinate plants
- d) cultivate desirable traits

B. Copy down the true sentences and correct the false ones (2pts)

- 1. Corn is the earliest innovations of man.
- 2. Plant breeding was restricted to sexually compatible plants in the past.
- 3. Conventional plant breeding is more technologically practical now.
- 4. Natural mutants often introduce worthless characters.

C. Answers these questions based on the text: (2pts)

- 1. Tell us the goal of corn genetic manipulation by man.
- 2. Say what scientists do to accelerate the creation of mutants.

II. Language: (8pts)

- A. **Vocabulary:** Copy down each word from the list A with one from the list B so as to make pairs of synonyms. (2pts)



A

1. Messy
2. manipulate
3. breeding
4. microorganisms

B

- a) Pests
- b) reproduction
- c) handle
- d) disorganized
- e) bacteria

B. **Find one other way to say the same thing:** expressing permission / prohibition (2pts)

- 1) Geneticists are allowed to manipulate corn genetics to satisfy global market needs.
- 2) It's forbidden to derive mutant man from test tube.

C. **Copy down each phrase from A with one from B to have a meaningful sentence.** (2pts)

A	B
1. Crops will improve	a. they'd have produced more foodcrops
2. If Malian used modern tools	b. if dams irrigate the fields
3. Farmers can cultivate in all seasons	c. if farmers use fertilizers
4. If our ancestors had had better tools	d. they would improve their production

D. **Translate into French:** (1pt) *al*

As needs change, so does plant breeding. Today, biotech super-giants manipulate corn genetics to satisfy farmer desires and a global market.

E. **Translate into English:** (1pt)

Un maïs génétiquement modifié est une variété dont le patrimoine génétique a été modifié par l'Homme. Cela permet à ce maïs de résister à certaines conditions et d'avoir une récolte abondante.

III. **COMPOSITION:** choose only one topic (5pts)

A. After reading the text above about genetic engineering, write a ten (10) line essay to explain the benefits of manipulating crop genes for the farmers. Remember:

- Introduction (1pt)
- Development (3pts)
- Conclusion (1pt)

B. Kankou Niangaté, a farmer in Kangaba, Mali didn't make a good harvest in her corn field. She sends a letter to the great farmer Kalifa Konaré, Bassabougou, Kati to ask for advice on corn farming. Kalifa answers back.

Write Kalifa's reply letter of advice with the appropriate layout.

Performance indicators:



- Clean exam sheet: (0.5pt)
- Originality of ideas:
 - Questions based on text (0.5pt)
 - Function (0.5pt)
 - Composition (0.5pt)