

Knee-Deep in Green Peppers



EVOLUTION

Carefully cut open your green pepper and remove all the seeds. Count the seeds and record the total in the box on the right.

(250 is hypothetical; results will vary)

Let's call this green pepper the first generation. We are starting with a population of only one green pepper. How big do you think this population can get in four generations?

Your prediction: _____

____ 250 ____ Seeds

Generation 1:
____ 1 ____
Green Pepper

Suppose that all of the seeds in your green pepper sprout and grow successfully into new green pepper plants. Those plants are the second generation. How many plants are in this generation?

Generation 2:
____ 250 ____
Plants

Let's estimate that each of those plants produces 10 green peppers. How many total peppers would that be?

250 plants x 10 peppers each = 2,500 green peppers

Generation 2:
____ 2,500 ____
Green Peppers

Now, let's assume that every pepper in generation 2 has the same fertility as the original one had. Suppose that each pepper in generation 2 produces the same number of seeds as the first pepper did, and that all of those seeds grow into new green pepper plants. Those plants are the third generation. How many plants are in this generation?

2,500 green peppers x 250 seeds each = 625,000 plants

Generation 3:
____ 625,000 ____
Plants

If each of those individual plants produces 10 green peppers, how many total peppers would that be?

625,000 plants x 10 peppers each = 6,250,000 green peppers

Generation 3:
____ 6,250,000 ____
Green Peppers

What if this continues for one more generation? Suppose each green pepper in generation 3 produces the same number of seeds as that original green pepper, and all of those seeds grow into new green pepper plants. How many plants are in this fourth generation?

6,250,000 peppers x 250 seeds each = 1,562,500,000 plants!!

Generation 4:
____ 1,562,500,000 ____
Plants

Are you surprised by the size of the population that could be produced in a short time by that single green pepper? Does this really happen? Do all seeds germinate to produce the expected number of plants? Does each plant produce the expected number of peppers?

Not all seeds survive to germinate. Some are destroyed by heat, being eaten, bacteria, freezing, lack of water, not enough light, etc. Not all plants produce the same number of peppers either.

Name _____

Date _____