

The following population simulation activities will show how quickly a small population of animals can multiply. Both white-tailed deer (a native species) and wild pigs (an invasive species) have relatively low mortality (death) rates when they have adequate food supplies and are not controlled by human intervention. After reading the information about wild pigs, what is your hypothesis on how quickly pig populations will grow compared to white-tailed deer?

Hypothesis: *The wild pig population will grow more quickly than the white-tail deer population.*

Population Simulation #1
White-Tailed Deer

Take your bag of tiles/paper and remove 10 tiles - 2 BLUE (males) and 8 RED (females). These represent the starting population of deer. At each time interval, randomly draw from the bag the number of new tiles that equal the females to add to your population. Tiles with a black X represent deer that have not survived, and those tiles will be set aside. All living females will continue to reproduce. Complete the simulation until you have reached a population of 100. How long did it take?

Year	Males	Females	Total Pop.
0	2	8	10
1	4	10	14
2	5	13	18
3	12	16	28
4	18	21	39
5	26	26	52
6	34	33	67
7	40	44	84
8	52	57	109
9			
10			

Population Simulation #2
Wild Pigs

Add all the tiles back to the bag. Start with 5 tiles this round - 1 BLUE (male) and 4 RED (females). These represent the starting population of pigs. Follow the same instructions, but now **draw 4 new tiles for each female** every six months instead every year. Wild pigs average 2 litters per year of 4-6 piglets each. Complete the simulation until you reach a population of 100. How long did it take compared to the deer? Discuss why we may consider control measures.

Year	Males	Females	Total Pop.
0	1	4	5
.5	4	7	11
1	17	12	29
1.5	33	28	61
2	60	60	120
2.5			
3			
3.5			
4			
4.5			
5			

MATH EXTENSION: Create graphs to represent both simulations.

Conclusion:

Use evidence and reasoning from the article to provide at least **TWO** claims to complete the following statement.

The population of wild pigs in the United States continues to grow rapidly due to their:

Claim #1 <i>High reproduction rate</i>	
Evidence <i>According to the author, wild mother pigs have on average 4 to 6 pigs per litter and 1 to 2 litters per year.</i>	Reasoning <i>The rapid population growth was confirmed in the simulation because a mother pig produced 4 piglets every six months, and each female born could have their own litter within 6 months.</i>
Claim #2 <i>Low death rate</i>	
Evidence <i>The article stated that predators play a small role in pig mortality rates.</i>	Reasoning <i>This is because there is not a high population of predators in the U.S. larger than wild pigs, and adult pigs can defend themselves against predators with strength and their tusks.</i>
Claim #3 <i>General diet</i>	
Evidence <i>The expert in the article said that pigs are omnivores and will eat plants, nuts, algae, mushrooms, insects, and small animals.</i>	Reasoning <i>The ability to find and eat a large variety of foods available all year long allows pigs to survive and thrive in many environments.</i>
Claim #4 <i>Intelligence</i>	
Evidence <i>According to the USDA Extension Foundation web site on feral hogs, control measures for other hoofed big animals are not successful for controlling wild pigs.</i>	Reasoning <i>They explain controlling wild pigs is difficult because wild pigs are very intelligent, secretive, and adaptable.</i>

Other claims for rapid population growth could be:

- Adaptability to many environments*
- Keen smell and hearing*
- Living in groups*

1. What environmental factors could positively or negatively affect the wild pig populations?

The amount of available food and water, weather patterns, presence of disease and parasites, number of predators.

2. What human intervention factors could positively or negatively affect the wild pig populations?

Hunting, providing or removing food supplies, not allowing domestic pigs to enter wild pig populations.

3. Pretend you are a wildlife conservationist. Write an argument of whether a pig is an invasive species and how their presence affects other components of the ecosystem where they are present. Then propose a method or methods to control the population. How would you share this information? What groups of people will need to be involved?

See <https://feralhogs.extension.org/> - this comprehensive site provides a wealth of text related to wild pigs as an invasive species and management/control measures.

In addition to a website, a wildlife conservation group may hold public meetings and trainings for those involved, such as biologists, farmers, game wardens, and people who live near high populations of wild pigs.