



Rift Valley Fever

STEM Sims

Lesson 2: How Does the Pesticide Level Affect the Number of Sheep Infected?

Pesticides kill insects, so if more pesticide is used, there should be fewer mosquitos to act as vectors for RVF and infect sheep. Because of this relationship, will there be fewer sheep deaths when the most pesticide is used?

Doing the Science

1. Start the Rift Valley Fever Simulation by clicking on the “Sim” tab.
2. Click and drag the “Pesticide” slider so that it lines up with “Zero.”
3. Click on the “Sample Mosquitos” button and note which mosquitos are plentiful and which are scarce. Click “Close” when you are done.
4. Note and record in Table 1 the current population of sheep in the “Initial Population” column. (It should be 6000.)
5. Click the “Run” button. Let the simulation run until it stops when it reaches December.
6. Record the new population of sheep in the table in the column labeled “New Population.”
7. Click the “Reset” button. Click and drag the “Pesticide” slider to about the halfway position so that it lines up with “Medium.”
8. Repeat steps 3 – 6.
9. Click the “Reset” button. Click and drag the “Pesticide” slider so that it lines up with “Max.”
10. Repeat steps 3 – 6.
11. For each trial, subtract the Initial Population from the New Population, and write this number in the “Change in Population” column. Note that if there are less sheep when you finish than when you start, your answer will be negative.
12. Record the number of births as well as the aborted fetuses.

Table 1

Trial	Pesticide Level	Initial Population	New Population	Change in Population	Number of Births	Aborted Fetuses
1	Zero					
2	Medium					
3	Maximum					

Do You Understand?

1. How did the amount of pesticide affect the number of sheep that died? Was there anything surprising about your findings?
2. Why do you think the relationship between the amount of pesticide used and the number of sheep deaths occurs?
3. How did the use of pesticide affect the number of live births?