



Rift Valley Fever

STEM Sims

Lesson 3: How Do Vaccinations Affect the Number of Sheep Infected with RVF?

Are sheep that are vaccinated against Rift Valley Fever less likely to contract the disease? Which vaccine is more effective, one with a live culture or a dead culture? Test the different vaccines to find out!

Doing the Science

1. Start the Rift Valley Fever Simulation by clicking on the “Sim” tab.
2. Make sure that the “Rainfall” and “Pesticide” sliders are set at medium.
3. Click on the “Vaccinate” button and select “No Vaccination.”
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.” Record the number of births.
7. Click the “Reset” button. Click on the “Vaccination” button and select “Vaccination (Live Culture).”
8. Repeat steps 4 – 6.
Click the “Reset” button. Click on the “Vaccination” button and select “Vaccination (Dead Culture).”
9. Repeat steps 4 – 6.
10. 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.

Table 1

Trial	Vaccination	Initial Population	New Population	Change in Population	Number of Births
1	No Vaccination				
2	Live Culture				
3	Dead Culture				

Do You Understand?

1. Were there fewer deaths when the sheep were vaccinated?

2. Which was more effective, the live culture vaccine or the dead culture vaccine? Please discuss your response.