

Chapter 22

Homework 17

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1. Measure the proportion of infected mice along a horizontal line across the country over a period of several years. Graph the results and see if the wave retains its shape.

2. r is the growth rate. Check the proportion of infected mice in a given area (using random sampling) at frequent intervals to determine this rate.

Once we have r , measure u at time t and position x , then solve the diffusion equation for u .

3. c) is probably the best strategy since the border region is where the virus is spreading the most

4. Slow waves are steep because the ^{slower} rate of left to right movement allows more individuals to become infected before the wave passes.

Faster waves move from left to right at a rate such that only a small proportion of individuals are infected before the wave continues moving, thus they are less steep.