

# Results for Low Incidence Infection

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## 1 Introduction

The goal of this set of treatments was to examine the ability of a small localized infection within a nematode population to propagate. Here, we summarize results of the simulation given initial parameters of variable infection rates, virulences, and viral loads (how did we determine them?). The modeling in this study uses initial conditions listed in Table 1. The simulation was performed over 5 iterations per treatments over 5 years (every 4 days). Additionally, the simulation was repeated 20 times.

Table 1: Simulation parameters for the low incidence infection treatment.

Agent	Variable	Value(s)	Units
Virus	Durability	0.2	
	Viral Loads	0.1, 0.2, 0.5, 1, 2, 5, 10	
	Infection Rate	0.01, 0.1, 0.2, 0.5	Fraction
	Transmissibility	0.5	
	Virulence	0.2, 0.8, 1, 1.2	

## 2 Objectives

1. Determine how the low incidence infections affect the Nematode populations over time
2. Determine how similar/ different varying levels of infection rates affect the various life stages of the SCN
3. Determine which parameters are responsible for resulting changes in nematode populations

## 3 Results and Discussion

### 3.1 Distribution analysis–Kolmogrov Smirnov

To visually discern whether or not the virus infection had an impact on SCN populations over time, the nematode population data were compared between the low incidence infection treatments and the zero infection treatments using the Kolmogrov-Smirnov (KS) test. s

### 3.2 Virus Parameters over Time

Here we observe a decrease in the virus' infectiousness overtime in all treatment cases

### 3.3 Contributing factors to Nematode Suppression

Table 2: Reported nematode means after 5 years. The Wilcoxon Rank Sum test was used to determine the significance of infection. Standard Deviations are in parentheses (n = 50 for control, n = 100 for the rest)

Crop Year	0	1	2	3	4	5
Infection Rate						
0	9334	14857	24647	34552		
0.01			Durability	0.2		
0.1			Viral Loads	0.1, 0.2, 0.5, 1, 2, 5, 10		
0.2			Infection Rate	0.01, 0.1, 0.2, 0.5		
0.5			Transmissibility	0.5		
				Virulence	0.2, 0.8, 1, 1.2	

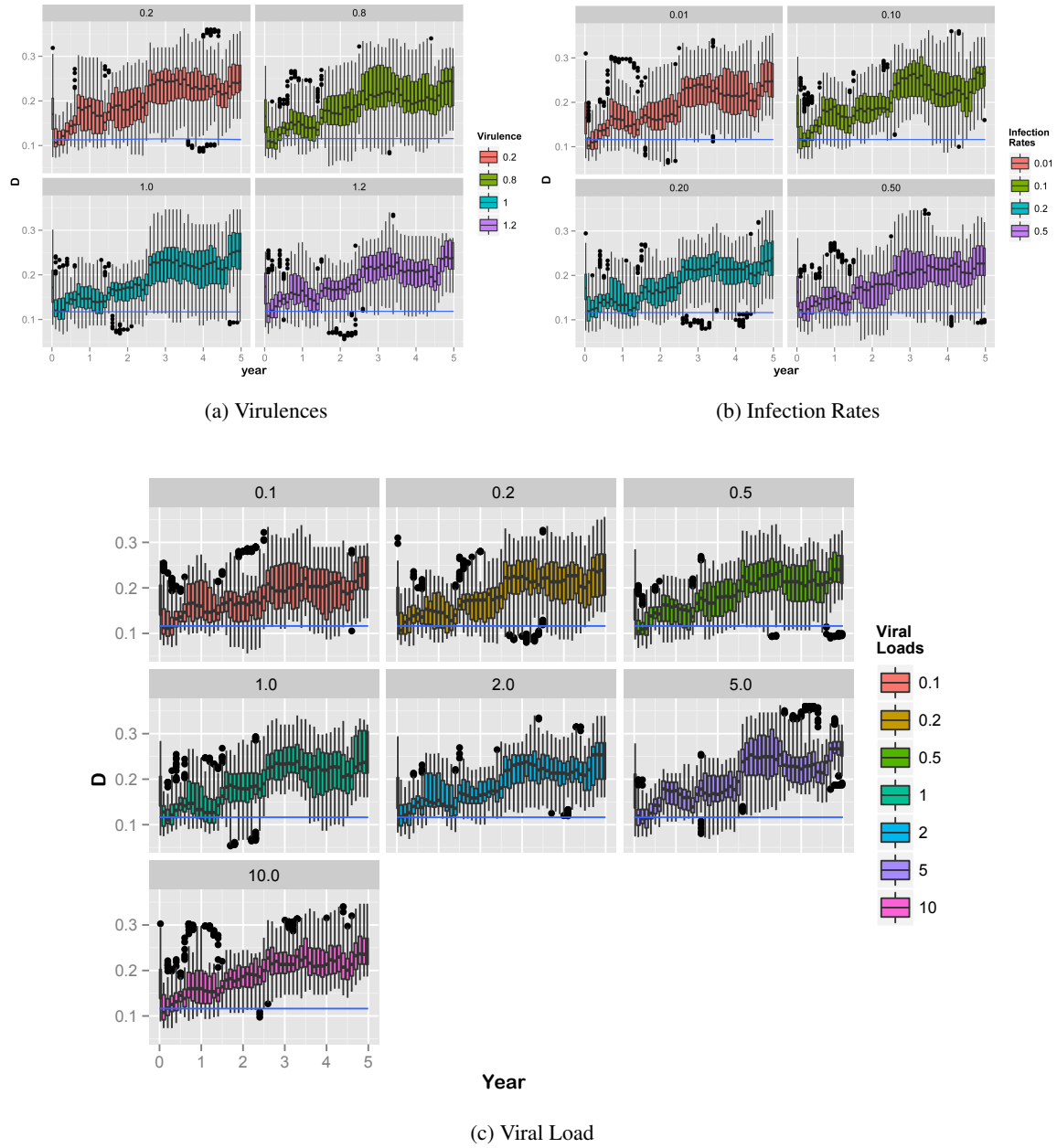


Figure 1: The D stat was calculated between infected and non-infected SCN populations and evaluated over time across initial virulences (a), infection rates (b), and viral loads (c). All boxplots have a width of 0.1 years. Baselines are drawn in each plot, which were derived from Kolmogorov-Smirnov statistics calculated between randomized subsamples of SCN populations within the low incidence infection treatment, to compare the results with natural variation of the D statistic.