**Letter of Intent**

**By Jessica Clippinger**

**Directions**: *Length: 0.5 pages. Letters should propose the research question and outline planned efforts. Please include a brief description of the data source, structure of the data set, and potential analyses to be conducted.*

Phomopsis cane and leaf spot is a serious disease of grapevines grown in the Lake Erie grape growing region. The EPA has purposed deregulating Mancozeb, a multisite fungicide inhibitor that is very effective against Phomopsis. Strobilurins may be an effective alternative to Mancozeb, however there is very little research on their effectiveness against Phomopsis in this area. The objective of this study is to see if strobilurins are as effective as the present standard fungicide used as well as how much control they provide compared to the water sprayed control. A randomized complete block design was set up for two grape cultivars: Concord and Niagara. Concord had 5 replicates (blocks) and Niagara had 4 replicates (blocks). I applied approximately 6 spray treatments at about 10 day intervals from prebloom to about a month post bloom. The treatments included a water control, a positive control (standard spray treatment) and high and low concentrations of 2 different strobulurins. Mid season, for each block/treatment, I randomly selected 10 shoots and rated the cane, clusters, and leaves separately for disease severity using the Barrat-Horsfall scale. 20 cluster were rated from each block/treatment again just prior to harvest. The data consists of response variables of disease severity (cane, leaf, cluster) and incidence (cane, leaf, cluster). Independent variables are treatments, blocks, and variety. Analysis will first consist of tests of assumptions followed by appropriate statistical tests. If assumptions are met ANOVA would be the first choice for testing if treatment means are equal or not.

Instructor response:

Nice job on your letter of intent! The goal is to determine whether an alternative fungicide is effective at controlling Phomopsis for grapes grown in the Lake Erie region. Based on the description of your response variables, it seems like you may have several for disease severity and incidence. For this course project, I encourage you to select two response variables (perhaps one for severity and one for incidence) to assess. You mention an ANOVA, but a mixed effects model may be more appropriate (of course, we haven't covered those yet). You have a blocking variable that will need to be included in the model, but are there other aspects of the experimental design that should be considered as random/nuisance variables (more on this coming soon)? For example, do the 10 shoots samples come from the same plant or multiple plants? How will you handle mid-season vs before harvest assessments?