

# Sara Stricker 3MT Transcript | University of Guelph

## Campus Final 2020

**Student:** Sara Stricker, PhD Candidate, Department of Plant Agriculture, Ontario Agricultural College

**Advisor:** Dr. Mary Ruth McDonald

**Title:** Know Thy Enemy: Stemphylium leaf blight

**Transcript:** When I'm cooking dinner, the first thing I throw in the frying pan is onions. And if you were cooking, which of the two onions on the left would you prefer? The one on the top, of course you would. But I'm here to tell you, we are under an alien attack! This alien is invisible to the human eye, it doesn't sleep, and it's coming for your onions. We need to know where it lives, what it eats, and how to kill it.

This alien is actually a fungus that's been recently introduced to Ontario. It causes Stemphylium leaf blight of onion. It attacks the leaves of onions, and results in fewer, smaller bulbs that may be more prone to rotting or sprouting in storage. My research aims to better understand the fungus' life cycle so we can improve our management tactics.

The first question, is where do they live? Here in Ontario, we can have snow up to here. So, if there's no plants around, how does it survive the winter? I took infected leaf tissue, put them in a bag and stapled it to the ground so it wouldn't blow away. Then I came back every few weeks over the winter to see if the fungus was still alive. AND THERE IT WAS! This means the fungus can survive the winter in infected onion leaves left in the field.

The second question, is what does it eat? We know that it infects onion leaves, but are there other plants it might be attacking? I took local weed species and grew them in a controlled environment. I then introducing the fungus, waited a few weeks, and came back to see if the fungus was still alive. AND IT WAS! This means, of the 8 weed species I tested, all of them can be hosts without showing symptoms.

The third and most importantly question, is how to we kill it? There are a certain number of chemicals that we are currently using in the field to control this fungus. Now, after two years of field research, I can honestly say, that I don't have good news. It doesn't seem to matter how often we spray, or which chemicals we use, the fungus doesn't seem to be bothered.

This got me thinking...are the chemicals we're using actually toxic the fungus? So I took the fungus back to the lab and I exposed it to increasing concentrations of the chemicals we currently use in the field, to see what's actually toxic. From what I found, Azoxystrobin doesn't work at all, pyrimethinal can kill about half the population, and difenoconazole is the only chemical I've tested thus far that's actually toxic.

The answers to these three research questions lead to important management recommendations. If we know where it lives, we know where to fight it. If we know what it eats, we know how to starve it. And if we know what kills it, we can save time and energy focusing on using chemicals that actually WORK.

This research is important for growers, the environment, and YOU, the consumer. Because no one wants a small, sprouted onion for their frying pan.

**[End of Transcript]**