

**Soil and Water Sciences Department  
Graduate Student Exit Seminar**

- Speaker:** Andree George  
**Ph.D. Degree Candidate**
- Advisor:** Dr. Max Teplitski
- Title:** **The Ecology of *Salmonella* Proliferation in Tomatoes**
- Date:** Monday, February 13, 2017
- Time:** 3:00 pm – 4:00 pm
- Location:** McCarty Hall A, Room G186

The increase in produce-associated outbreaks of foodborne illnesses continues to be a rising public health concern. While there has been a significant research to better understand attachment to and persistence on plant surfaces, the question of how human pathogens are able to invade and establish within the plant's microbiome remains unanswered. In order to answer these questions, the effect of the soft-rot plant pathogen *Pectobacterium carotovorum* on the growth of *Salmonella enterica* sv Typhimurium in the tomato fruit was studied. While it has been well documented that *Salmonella* is able to benefit from the presence of *Pectobacterium* in tomatoes, it remains unclear what factors contribute to this phenomenon. To begin, we tested the central hypothesis that *Salmonella* is able to benefit from metabolites freed from the tomato as the soft rot progresses. To this end we investigated the role of the metabolic regulator KdgR in controlling the carbon metabolic profile of *Salmonella* and *Pectobacterium* by constructing full-length deletion mutants. Growth of *Salmonella* mutants within tomatoes infected (or not) with *Pectobacterium* was then compared against the growth of the wild-type *Salmonella* strain. We observed a shift in *Salmonella* metabolism in response to the soft rot caused by *Pectobacterium* which indicate that *Salmonella* and *Pectobacterium* make use of distinct carbon sources during their colonization of tomatoes. Finally, analysis of the high-throughput Tn-seq data indicates that *Salmonella* also makes use of the genes involved in amino acid utilization, motility, and nucleic acid synthesis for its persistence in soft rots.

For our off-campus students, off-campus faculty, and on-campus students who cannot attend, this seminar can be viewed via live or watched at a later date via this link: [Andree George](#). In addition, all seminars are archived for viewing on our [SWSD Seminar Page](#).