**Insect frass in vegetable crop production**

Faculty Mentor

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Internship location:Fort Collins, Larimer County

**Research/outreach project goals and objectives:**

1. Share the impacts of insect waste products (i.e. frass) on vegetable crop yields, germination, and quality.
2. Conduct additional germination experiments in the greenhouse.
3. Describe peat alternatives for controlled environment vegetable crop producers that meet their media and fertility needs.
4. Disseminate research results by writing two fact sheets for specialty crops producers.

**Student learning objectives:**

1. Statistically analyze existing yield, germination, and quality data and place it in a Colorado context.

2. Expand student’s professional network through collaboration with Colorado vegetable producers, Extension agents, and industry interactions. Specifically, the Extension Mentor will facilitate communication with Larimer County farmer’s market vendors with interest in this information.

3. Gain vegetable crop management experience with Colorado specialty crops.

**Background and scope:**

Black soldier fly larvae (BSFL) have become a species of particular interest for research in the past few decades. They are a valuable resource to livestock farmers who accumulate considerable amounts of wet manure, which happens to be increasingly problematic for farmers as it is expensive and labor intensive to manage. BSFL are incredibly efficient in reducing and metabolizing waste. Additionally, the protein content of the larvae is extremely high, around 42 to 48 percent, depending on diet (Miranda et al., 2019). As such, farmers can use them to reduce manure moisture and dry matter, while also harvesting the larvae themselves as a protein rich food source for other livestock. This process has sparked a growing industry around the larvae. However, **one major issue is the leftover substrates produced by the larvae after they have been fed**. At the same time, the horticultural food crop industry needs an **alternative to non-renewable peat as a growing media, and expensive vermicompost as an amendment.** The BSFL industry could provide an amendment similar to vermicompost and/or peat, but at a much lower cost. We plan to use frass and vermicompost as an additional amendment in greenhouse germination experiments of horticultural food crops, then disseminate the findings to Colorado stakeholders.

\*There may be some travel funds available for the internship to visit stakeholder farm(s).