

5 – Integrated pest management strategies in organic sweet corn

1. Name of faculty/research scientist mentor and contact information including Department.

Frank Stonaker; mentor

AES WCRC RSII (70/30 AES/CE appointment) and joint appointment with Dept. Horticulture and Landscape Architecture as Assistant Professor.

WCRC Rogers Mesa, 30624 Hwy 92, Hotchkiss, CO 81419

frank.stonaker@colostate.edu

Tel. 970-250-7559

Whitney Cranshaw; co-mentor

Professor and Extension Specialist

Office: C201 Plant Sciences

Lab: E202 Plant Sciences

Whitney.Cranshaw@ColoState.edu

970-491-6781 office

Meredith Shrader: co-mentor

Area Extension Agent, Entomology

Office: 2775 Hwy 50, PO Box 20000-5028 Grand Junction, CO 81502-5028

Tel. 970-244-1838

Meredith.Shrader@mesacounty.us

2. In what region will the student be working (county/region/state)?

- a. Montrose County, Tri River Area, Western Colorado

3. In less than 150 words, please describe the proposed internship goals, scope, and objectives.

- a. Scope:
 - i. The scope of the project is to increase the knowledge base of seedcorn maggot (*Delia platura M.*) biology in organic sweet corn production systems and develop BMPs for organic sweet corn growers in the region.
- b. Goals:
 - i. The intern will become familiar with the value of collaborative research, and the value of stakeholder experience and knowledge in planning an applied research project. The intern will develop an appreciation for complex biological systems at play in production agriculture. The intern will be introduced to opportunities for future livelihood and continued education in the field of applied entomology.
- c. Objectives:
 - i. The intern will participate in field research techniques including insect scouting and monitoring, working with Day Degree models, and the collection and accurate recording of field research data. The intern will learn the importance of clearly identifying goals, processes, and communicating outcomes to a stakeholder audience.

4. What student learning outcomes do you anticipate and are there opportunities for professional development (eg. attending conferences and stakeholder convenings).

- a. The student will have the unique opportunity of working closely with a stakeholder/research/extension team that has a very specific problem at hand. This experience with a diverse community of participants will illustrate the challenges and benefits of collaborative applied research in the agricultural field, and will better prepare the student for future employment and/or study. This experience will provide the student with what I believe is the purpose of Extension; serving a community need with applied science-based research. During the summer, there will be research station field days that the intern will be encouraged to attend. Additionally, a local growers' association (Valley Organic Growers Association) organizes regular on-farm gatherings (Know Your Farmer) specifically designed to allow community members to become acquainted with local farmers and their practices. Local interns are encouraged to attend these events in order to broaden their experience and meet peers with common interests.

5. Does this project already include collaboration with a specific Extension agent/office? If yes, please describe the ongoing collaboration.

This is a new project. Frank Stonaker, (30/70 CE/AES position) will be the lead on this project and will have daily contact with the intern. Frank has a MS in entomology and practiced as a pest management advisor for several years. Close interaction with Meredith Schrader (area extension entomologist) is anticipated. Whitney Cranshaw (Professor, Extension Specialist) has agreed to participate as the on-campus mentor.

6. How does this internship support identified stakeholder needs?

- a. Sweet corn production is a unique and significant enterprise on the Western Slope; sweet corn from the Olathe area is nationally recognized for its high quality. Montrose County produces about 75% of Colorado's sweet corn, and is ranked 10th nationally for production. A subcategory, that is doing very well and has potential for growth is organic sweet corn, however management of a seedling pest (*Delia platura*) severely reduces plant stands and yield potential – especially in organic plantings. Three of the largest sweet corn producers and HM Clause Seed Company in Montrose County have expressed their desire and need to have a solution to this challenge. Initiation of a series of research projects to identify viable solutions to this problem are to be initiated in the spring of 2019. The field research will actively involve student interns; monitoring traps, identifying natural enemies, monitoring pest populations, and helping to evaluate efficacy of a number of controls. The outcomes will allow organic sweet corn growers to be more competitive and expand their market share in the organic segment. It is very likely that an integrated pest management approach will be successful, and adoptable by conventional growers as well.

7. Are travel funds available? Opportunities to provide student assistance with housing?

- a. Travel funds to and from campus will be made available at the beginning and end of the internship. One collaborating farmer has indicated his interest in supporting this research and an intern. A CSU vehicle will be available for farm visits in the region. Comfortable housing on site will be provided, and may be shared with other students and/or visiting scientists.