7 – Soil-Borne Potato Pathogens

CSU Extension Internship application for CAS and AES faculty and staff

1) Name and contact of faculty/research scientist mentor

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2) In what region will the student be working?

The student will be working in the San Luis Valley region, which is comprised of Colorado counties of Rio Grande, Saguache, Alamosa, Conejos, Costilla and Chaffee.

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

Colorado is the second largest producer of fresh market potatoes, but soil-borne pathogens causing surface blemish diseases such as powdery scab, common scab, silver scurf and black dot make tubers difficult to store and unfit for sale in the fresh market. Approaches such as crop rotations and amending soil with chelated iron products are being considered for managing these diseases. However, from a systems-based approach it is essential to determine the effects of these management practices on the inoculum levels of the target pathogen as well as other potato pathogens existing in the soil. Hence, the intern will utilize molecular approaches and quantify at least four soil-borne potato pathogen populations causing surface blemishes with response to various soil amendments and crop rotations.

4) What student learning outcomes do you anticipate and are there opportunities for professional development?

The proposed project comprises field work, laboratory research as well as interaction with growers thereby providing a holistic research and extension experience to the student intern. Following are some specific learning outcomes for the student:

- Implement and troubleshoot molecular techniques to detect potato pathogens
- Identify and isolate various potato pests and pathogens
- Synthesize data and integrate results to develop new hypothesis
- Develop skills for communicating with growers and other stakeholders

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

I have a 60 % research and 40% extension appointment, and the student will be working under my direct supervision at the San Luis Valley Research Center (SLVRC). In addition, SLVRC has three more researchers with extension appointments providing ample interaction opportunities for the student.

6) How does this internship support identified stakeholder needs?

San Luis Valley farmers grow approximately 52,000 acres of potatoes annually accounting for more than 90% of total potato production in Colorado. Soil-borne pathogens are a continual problem for potato growers in the SLV and little information is known about the effect of various management practices that affect these pathogen populations. The student intern efforts will contribute to the continued commitment of SLVRC to the SLV growers to provide research information and conduct extension education.

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

The San Luis Valley Research Center can support with student housing. The housing facility is located adjacent to the San Luis Valley Research Center office building and will be shared with other people working on the farm during the summer.