**Quarterly report for the NW Potato Research Consortium**

**Title:** **Automated identification of plant-parasitic nematodes of potato at genus and species level**

**Funded PIs:**

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**Objectives:**

1. Capture microscopic images of common plant-parasitic nematodes
2. Confirm the identity of three nematode genera with traditional and molecular methods to validate our photo library
3. Build and validate machine learning models that can identify nematodes.

**Progress:**

Objective 1 is in progress. Drs. Gleason, Zasada, Paulitz, and Chavoshi are extracting/culturing and capturing the nematode images. We are optimizing the imaging system to obtain high-quality images. No major issue has been encountered yet.

Objective 2 is in progress. Nematode genera obtained from the culture are confirmed with molecular-based methods. Other nematode images are identified and confirmed by the nematologist.

We will start working on Objective 3 once we prepare the image library. Dr. Timothy Paulitz and Sudha GC Upadhaya are working on developing an algorithm pipeline for the nematode genera classification. We expect to analyze data on time once we obtain the images.