

# NEMATODES: FRIEND OR FOE

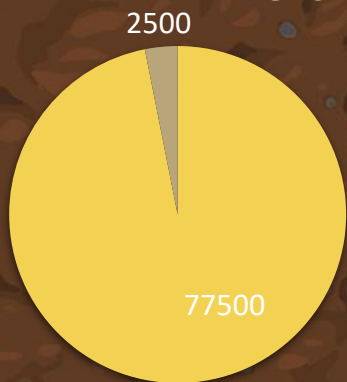
## What Are Nematodes?

Nematodes, are found throughout the world, including Washington State. Commonly called round worms, nematodes are microscopic, multicellular insects that can exist free-living, as animal and plant parasites, in fresh water, marine environments and in many types of soil.

Plant parasitic nematodes can cause harm to many agricultural crops.

Free-living nematodes exist in huge populations and are beneficial members of many ecosystems.

## Are All Nematodes Bad?



**NO!**

- Non-Plant Parasitic Nematode Species
- Plant Parasitic Nematode Species,



## Plant Parasitic Nematodes of Washington State Crops



### Potatoes

- Columbia Root Knot Nematode
- Potato Cyst Nematode



### Wheat

- Root Lesion Nematode
- Cereal Cyst Nematode



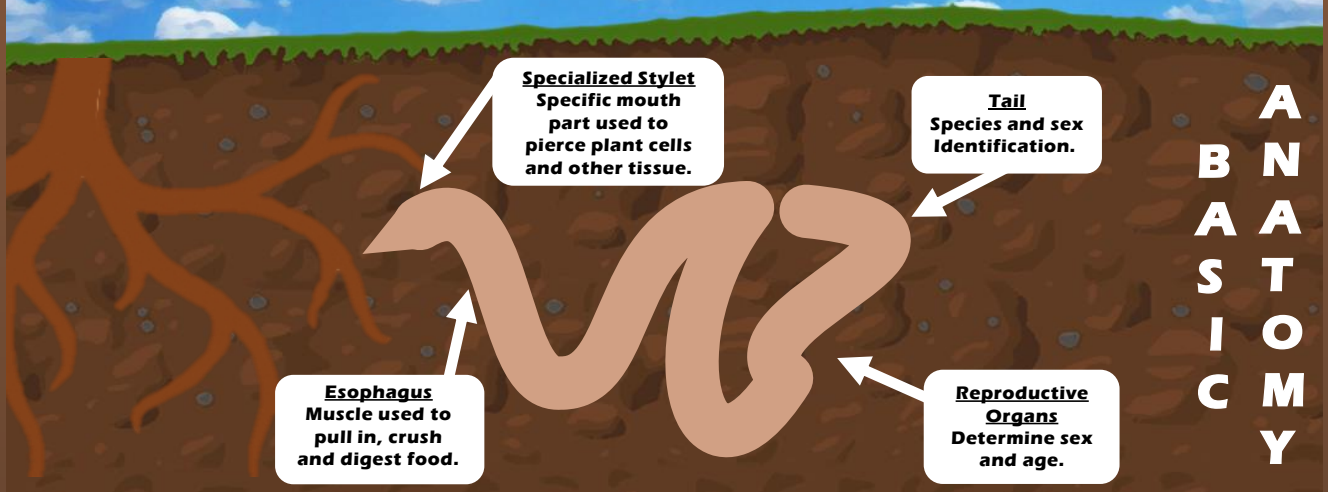
### Wine Grapes

- Northern Root Knot Nematode
- Dagger Nematode



Many nematodes like me can suspend life processes and undergo hibernation to survive very harsh conditions

# Digging Deeper



## How Nematodes are Identified



### Bacterial Feeders

Have a straight or "V" shaped mouth with no teeth or stylet.



### Fungal Feeders

Have a smooth mouth with a smooth stylet.



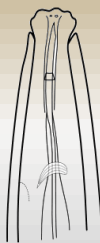
### Plant Parasitic

Distinct stylet and segregated mouth.



### Predatory

Very large mouth with teeth.



### Omnivore

Smooth stylet with protruding mouth.

Testing Services Database



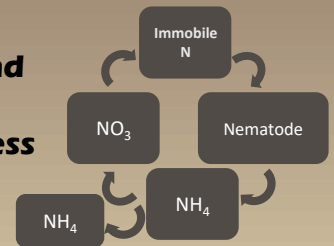
Soil and Plant Nematode Encyclopedia



## Benefits of Having a Healthy Nematode Population

### Increased Nitrogen Cycling

Nematodes can consume parasitic microorganisms and then release the byproducts as excess plant available nitrogen.



### Translocation of Microorganisms

Plants can gain access to more vital nutrients that would otherwise be inaccessible, if not for nematodes cycling bacteria throughout the rhizosphere and surrounding area.

Footnotes/References

<sup>1</sup> I. Zazada, personal communication, November 2020  
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Downey, L., Hirnyck, R. 2007. *Pest Management Strategic Plan for Pacific Northwest Potato Production*

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"Washington State University." Wheat & Small Grains | Washington State University, smallgrains.wsu.edu/disease-resources/nematode-infestation/.

Nemaplex, University of California- Davis, nemaplex.ucdavis.edu/.