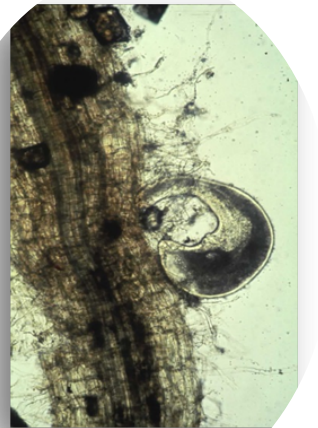


Nematode Management for Sweet Potato

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CTAHR PEPS



Reniform Nematode is a Damaging Pest on Sweet Potato



Healthy sweet potato tubers



Reniform nematode
infected sweet potato
tubers

The reniform nematode causes root necrosis resulting in severe root pruning, tuber cracking, dwarfing of the plants, cracks on swollen roots, or severe crop failure.

Reniform nematode has a broad host range



Pineapple



Papaya

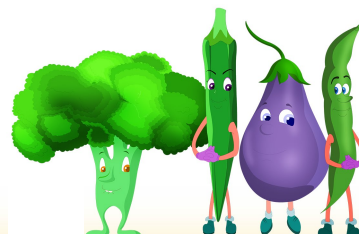


Cowpea

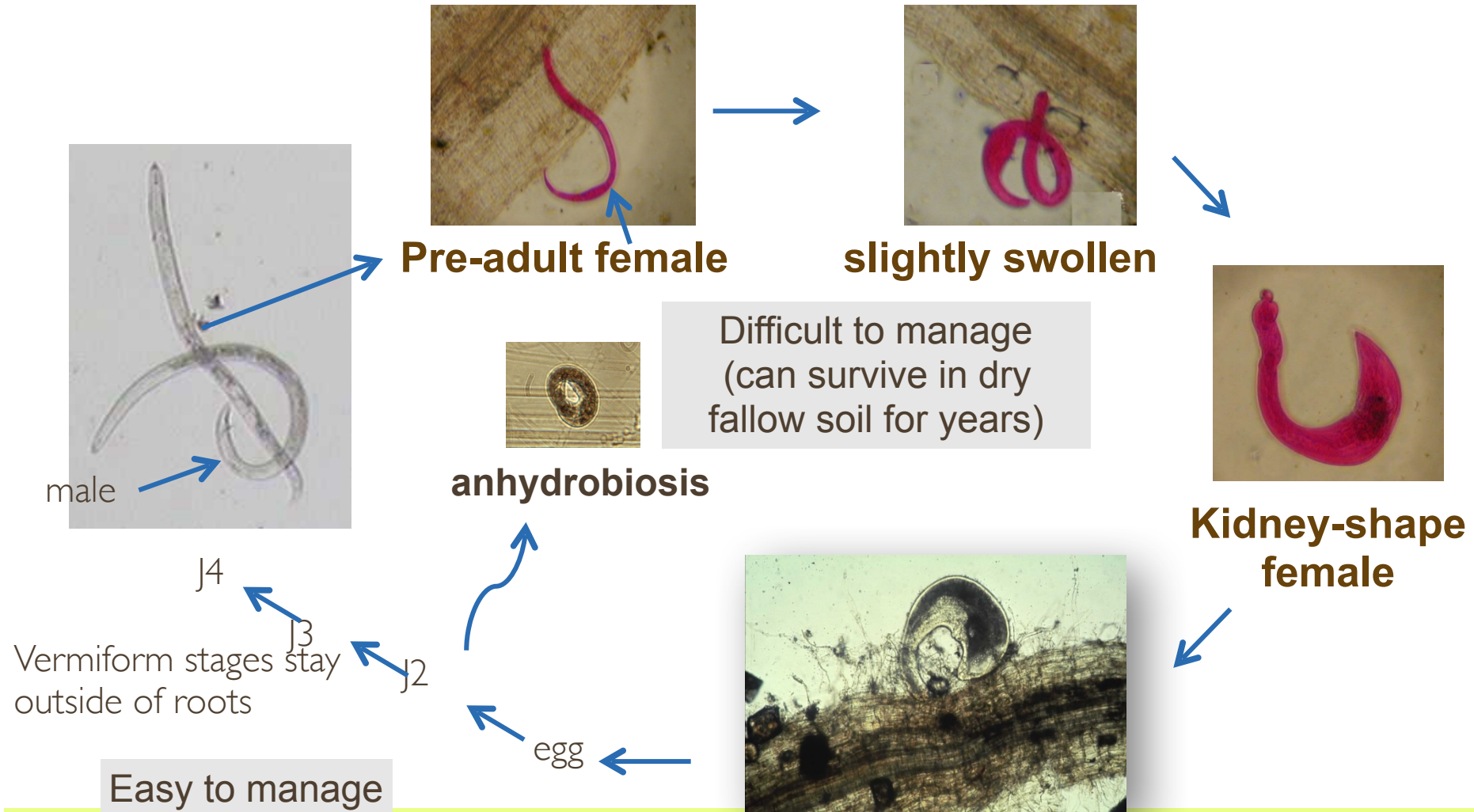


Sweet potato

...and wide
range of
vegetable
crops

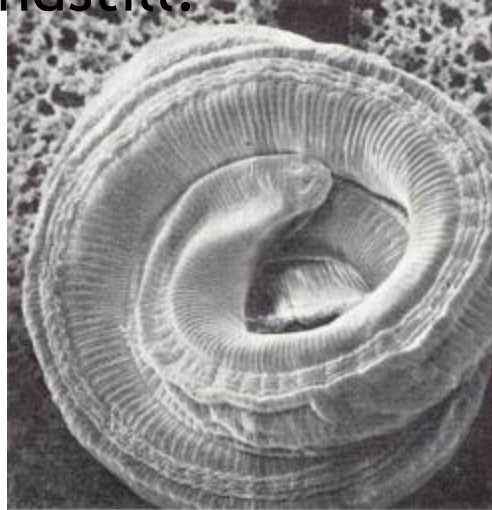


Reniform Nematode (*Rotylenchulus reniformis*)



Anhydrobiosis

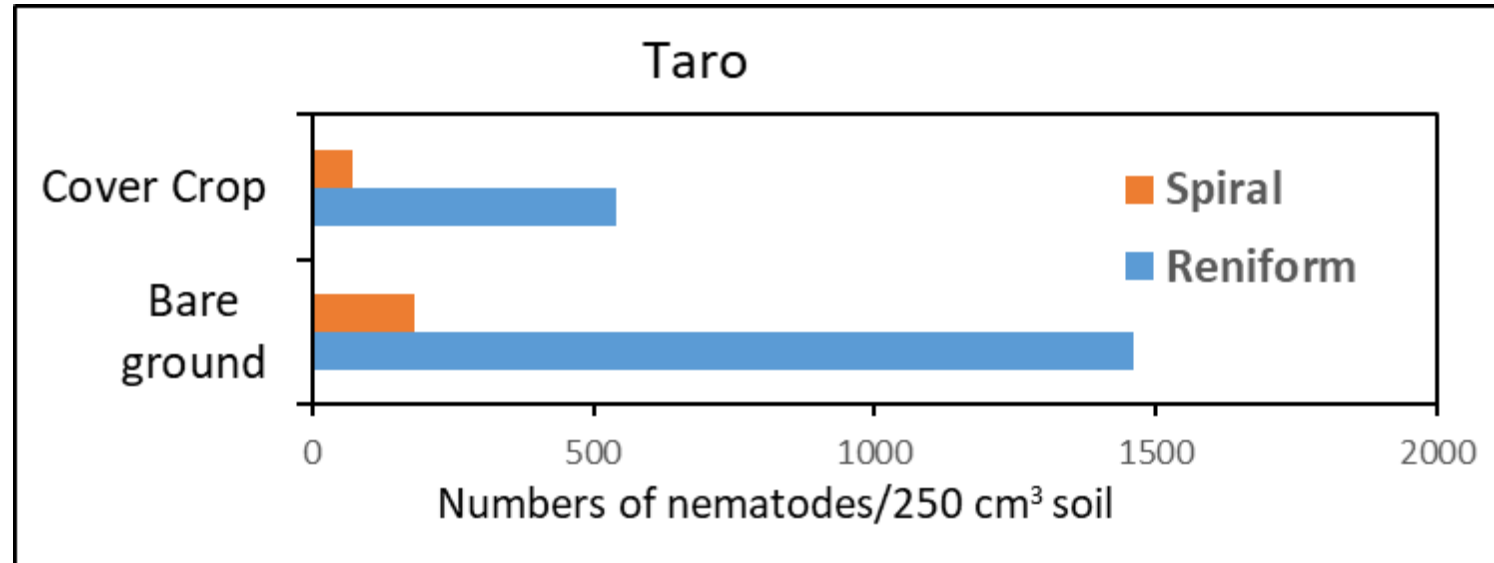
= Some nematodes can survive the loss of all their body water and enter a state of anhydrobiosis in which their metabolism comes reversibly to a standstill.



Scanning electron micrograph of a nematode after dehydration.
(Sugar Team, http://coursewares.mju.ac.th:81/e-learning47/PP300/0016sugarteam1014/5605nematode/004%20under%20microscope/page_01.htm)

This is making reniform nematode very difficult to manage.

2019 Kauai Cover Crop Trial



- Cover crop:
- Sunn hemp
 - Buckwheat
 - Cowpea

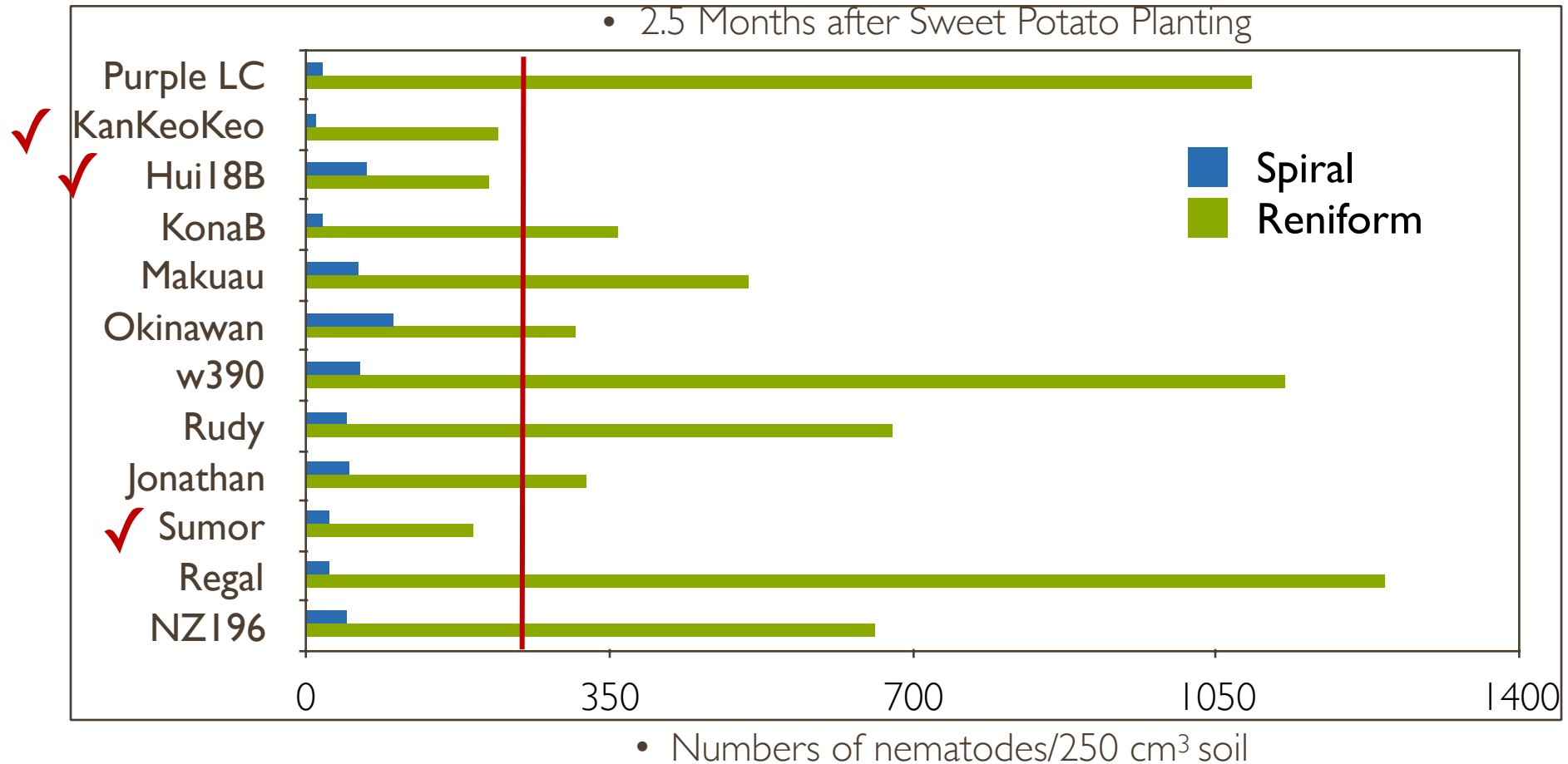


Kauai Experiment Station

2019 Screening Sweet Potato Varieties



Preliminary screening of sweet potato varieties against reniform nematodes



Reniform

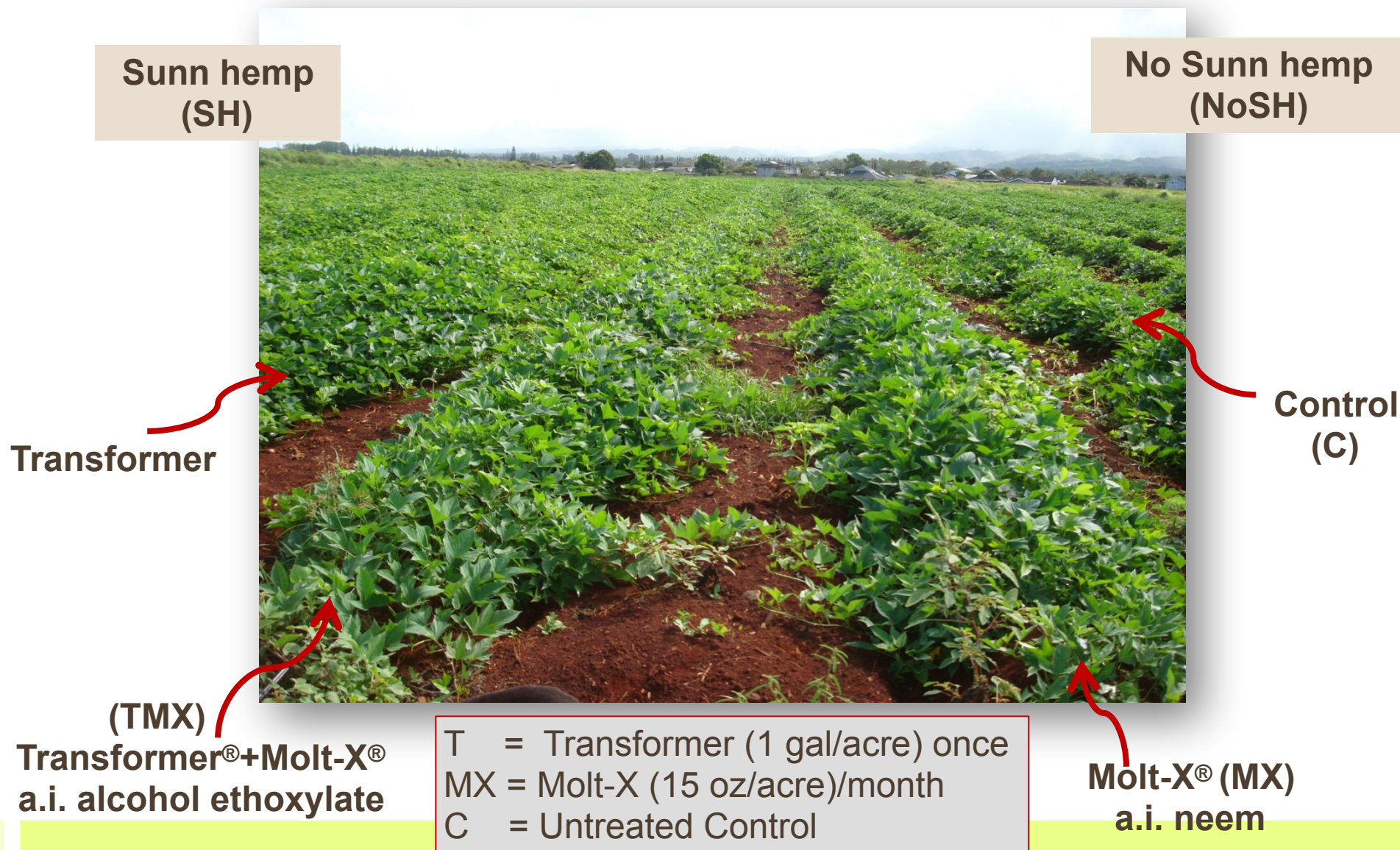


Spiral

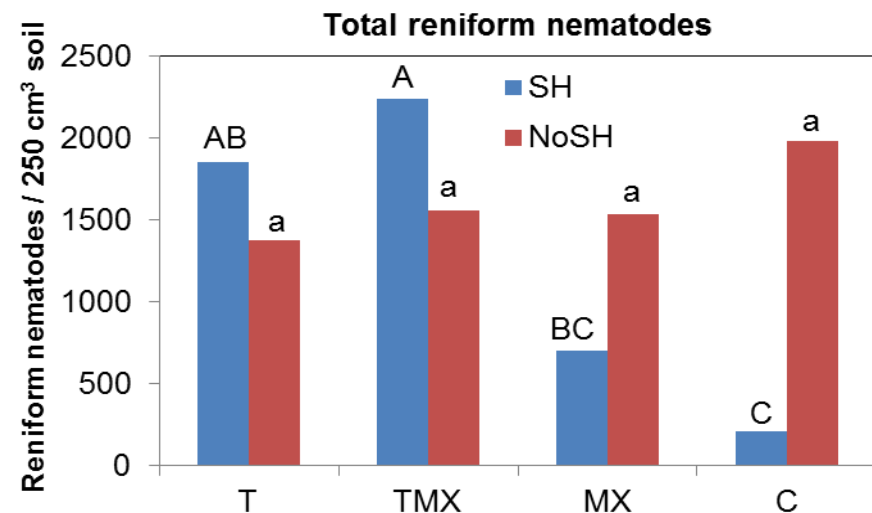
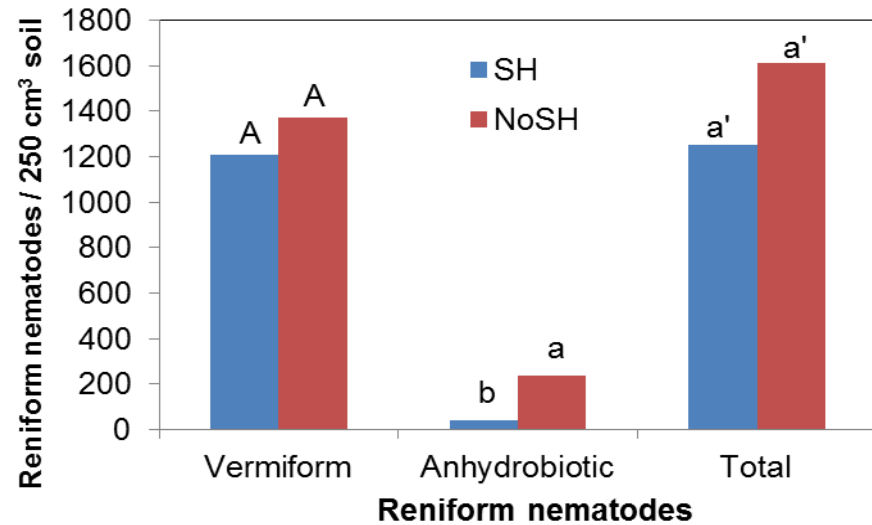
Integrating SH with Post-Plant Nematicide Injection



Integrating SH with Post-Plant Drenching



Integrating SH with Post-Plant Nematicide



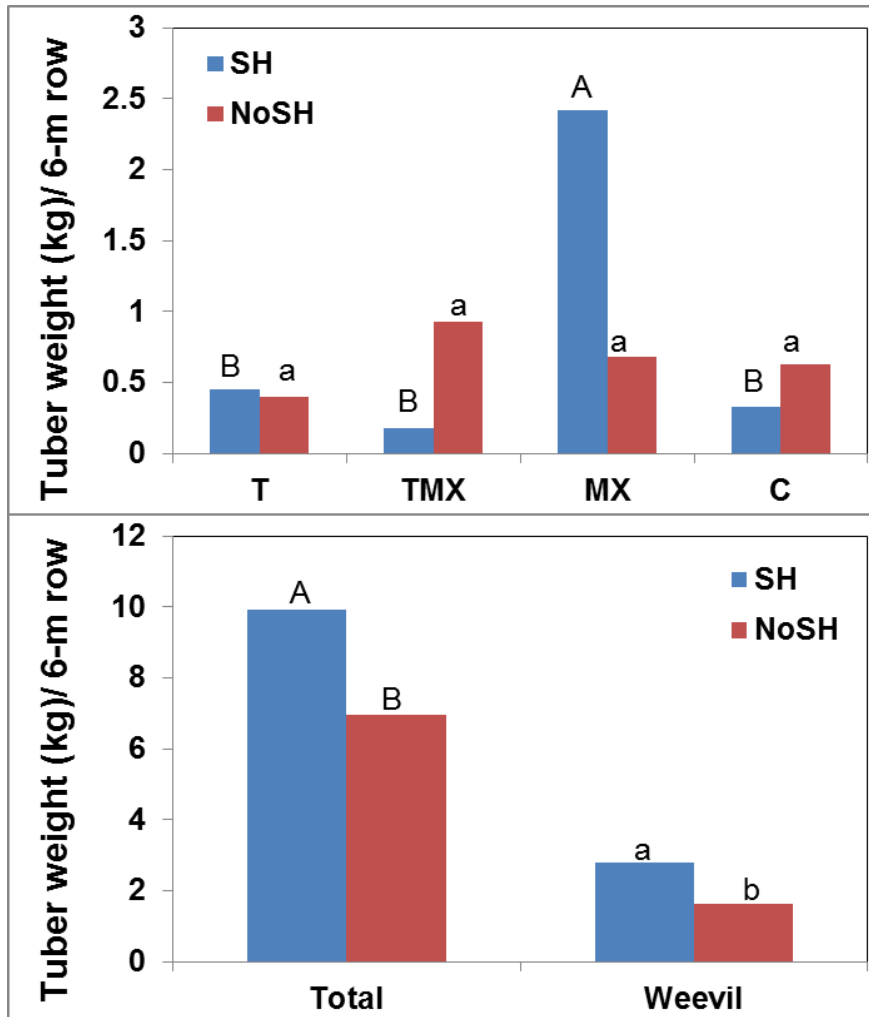
Molt-X® = a.i. azadirachtin (neem extract) OMRI listed

At 3.5 months after sweet potato planting (harvesting),

- Planting of SH only significantly reduced anhydrobiotic reniform nematodes.
- Molt-X and Untreated C had the lowest reniform nematode numbers.

T = Transformer (1 gal/acre) once
MX = Molt-X (15 oz/acre)/month
C = Untreated Control
n = 4

Integrating SH with Post-Plant Nematicide



- SH increased total sweet potato tuber weights ($P < 0.05$).
- Drenching of Molt-X only increased sweet potato weight if drenched in SH plots ($7.3 \times$ higher than C).
- C had low nematodes but also very low yield.
- Farmers need to control sweet potato weevils by other means.

Molt-X is an effective post-plant organic nematicides, but can be costly (monthly treatment)

On Going Project: New Nematicides



Velum One (a.i. fluopyrum)



Any Questions?



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COOPERATIVE EXTENSION
UNIVERSITY OF HAWAII AT MĀNOA
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