



HATCH OF *GLOBODERA ELLINGTONAE* UNDER LITCHI TOMATO

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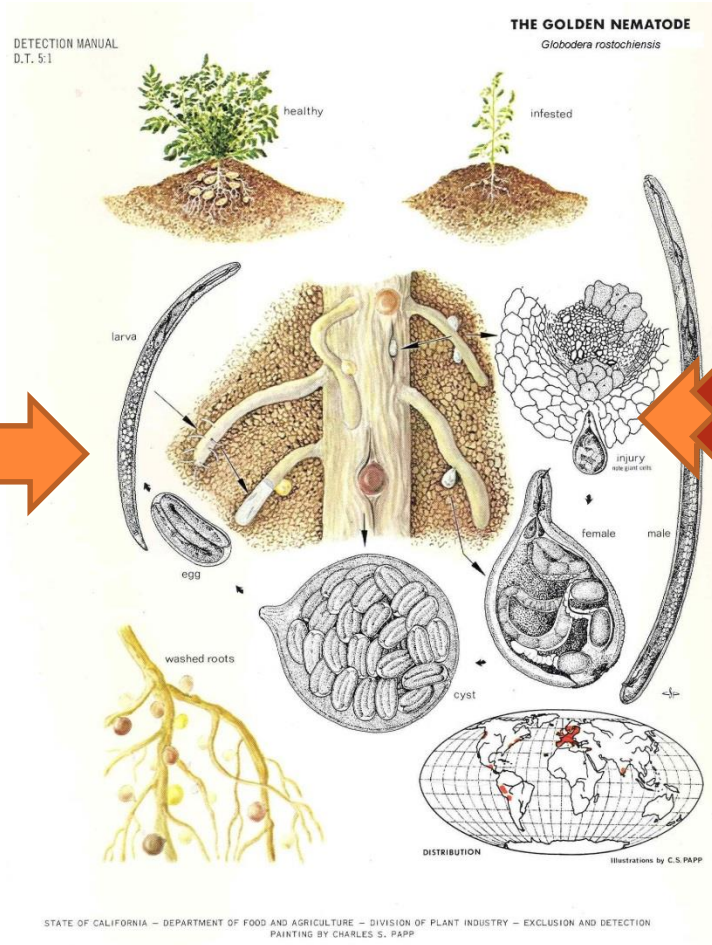
HISTORY OF *GLOBODERA ELLINGTONAE*

- In 2008 populations of *Globodera* similar to PCN were found in Oregon and Idaho
- This nematode reproduces on tomato and potato
- Elevated to a new species, *Globodera ellingtonae*, in 2012
- Research is underway at Powell Butte, OR to learn more about this nematode





Globodera require specific chemical queues to hatch



Trap crops do not allow *Globodera* to establish a feeding site



The *pallida* problem

Management of *pallida* has proved to be more difficult than of *rostochiensis* for several reasons.

Eggs of *pallida* appear to hatch over a longer period of time. Consequently, granular nematicides applied at planting do not remain at toxic concentrations in the soil for long enough to give optimum control (Figure 2).

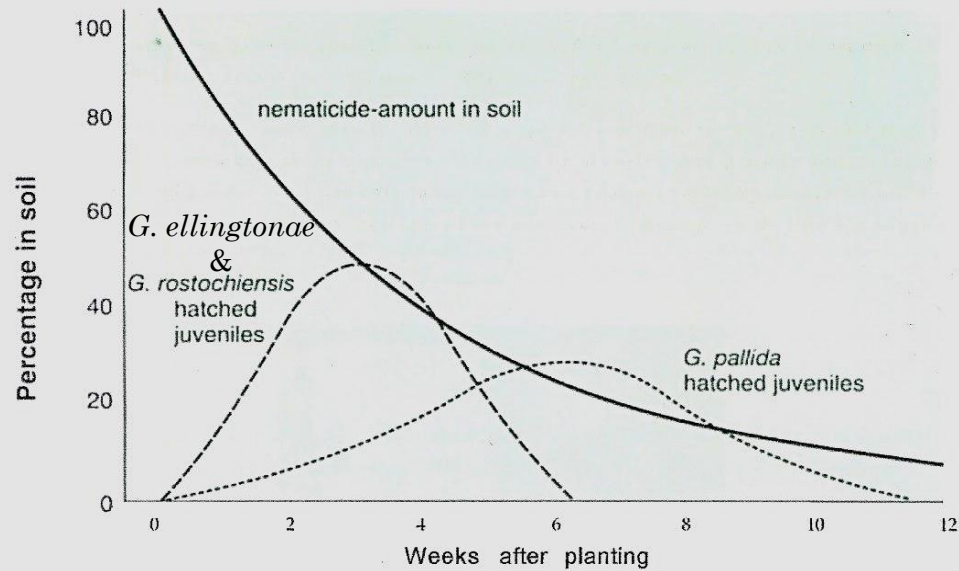


Figure 2. Hatching patterns for *rostochiensis* and *pallida* and decay curve for nematicide with three-week half-life.

(Source: IACR Rothamsted)

IMPACT OF PLANTING AND KILL DATE OF LITCHI TOMATO ON *G. ELLINGTONAE* ERADICATION

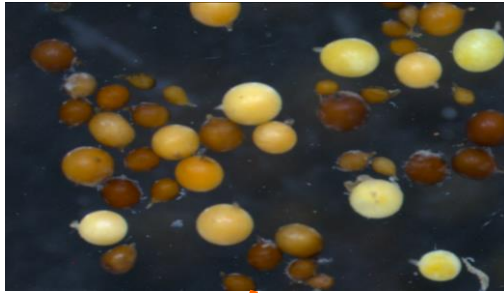
Methods



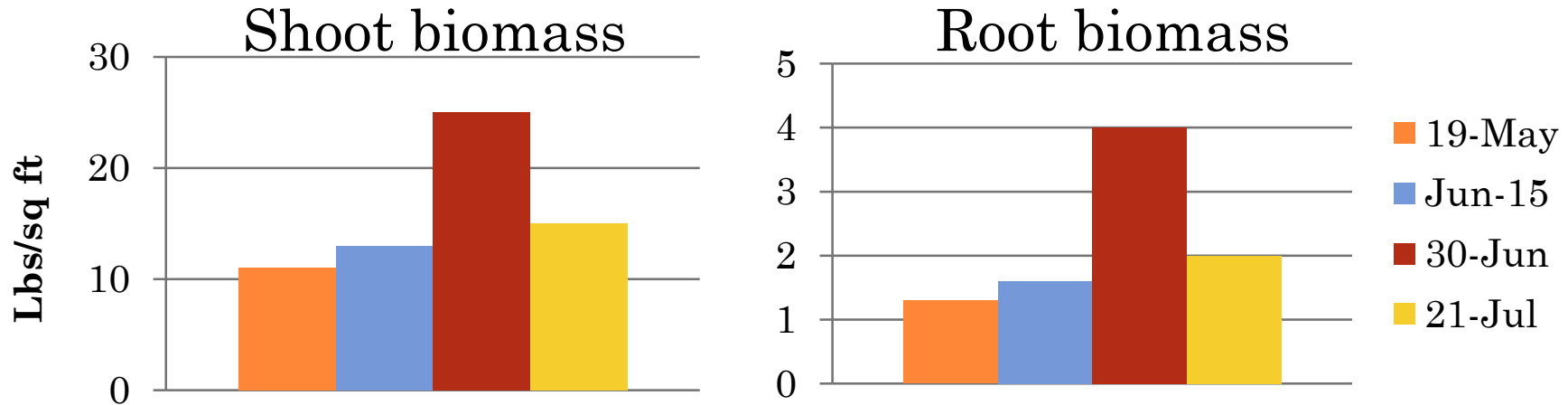
- **Treatments:** Litchi tomato and bare ground (6 reps each)
- **4 planting dates:** May 19, June 9, June 30, July 21
- **3 kill dates:** 3, 6, & 0 weeks after planting
- **At each kill date:** Shoot and root biomass; eggs/cyst in bags

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Methods



BIOMASS 9-WEEK-OLD LITCHI TOMATO



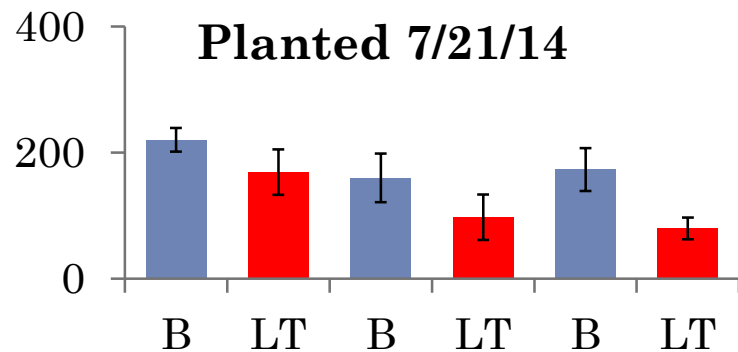
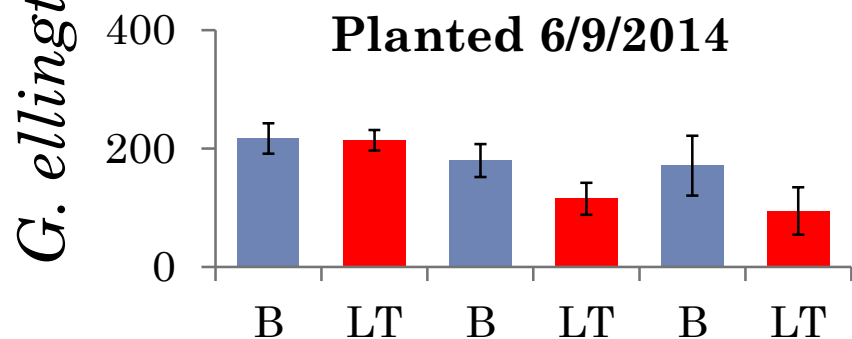
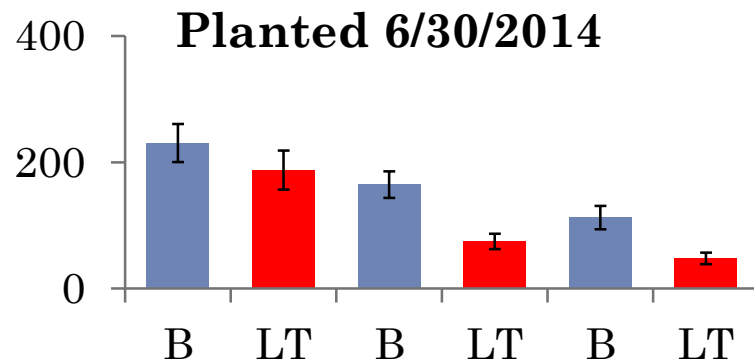
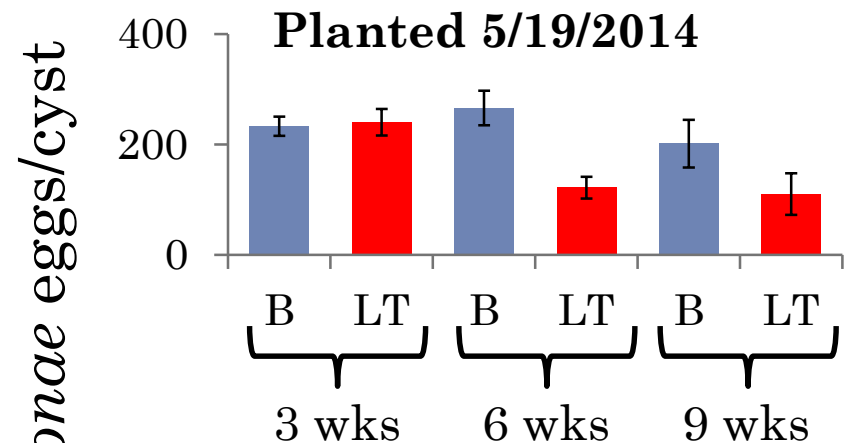
In Europe:

Shoot biomass @ 7 wks = 9 lbs/sq ft

Shoot biomass @ 14 wks = 25 lbs/sq ft



EGGS REMAINING IN CYSTS



SEASON LONG LITCHI TOMATO BIOMASS



Shoot biomass
=
32 lbs/sq ft

Root biomass
=
3 lbs/sq ft

In Europe:

Shoot biomass at 14 wks = 25 lbs/sq ft



CONCLUSIONS AND FUTURE QUESTIONS

- For *G. ellingtonae*, a minimum of 6 weeks after litchi tomato planting is required to reduce egg densities
- Greatest litchi tomato biomass was achieved when transplanted June 30
- Biomass of litchi tomato accumulated over 9 weeks or the whole season was enough to theoretically reach 75% of cyst within a 30-40 inch radius of the plant
- How deep below litchi tomato is hatch stimulated?
- Direct seeded litchi tomato and *Globodera* hatch?

