HATCH OF *Globodera ellingtononae* UNDER Litchi Tomato

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**History of *Globodera ellingtoniae***

- In 2008 populations of *Globodera* similar to PCN were found in Oregon and Idaho.
- This nematode reproduces on tomato and potato.
- 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).

![Graph showing the hatching patterns of *G. ellingtonae*, *G. rostochiensis* hatched juveniles, and *G. pallida* hatched juveniles over weeks after planting.](Image)

*Figure 2. Hatch ing 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. ELLINGTONONAE 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
Impact of planting and kill date of litchi tomato on *G. ellingtononae* eradication

Methods
In Europe:
Shoot biomass @ 7 wks = 9 lbs/sq ft
Shoot biomass @ 14 wks = 25 lbs/sq ft
G. ellingtonae eggs/cyst

**Planted 5/19/2014**
- B: 200 ± 10
- LT: 250 ± 15

**Planted 6/9/2014**
- B: 220 ± 12
- LT: 270 ± 17

**Planted 6/30/2014**
- B: 180 ± 11
- LT: 220 ± 12

**Planted 7/21/2014**
- B: 160 ± 10
- LT: 200 ± 12

**Eggs Remaining in Cysts**
Season long Litchi tomato biomass

In Europe:
Shoot biomass at 14 wks = 25 lbs/sq ft

Shoot biomass = 32 lbs/sq ft
Root biomass = 3 lbs/sq ft
CONCLUSIONS AND FUTURE QUESTIONS

- For *G. ellingtonnae*, 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?