Biocontrol of Field Bindweed

RESEARCH UPDATE

Jessica Green, M.S.
Sr. Faculty Research Asst. I
Dept. of Horticulture

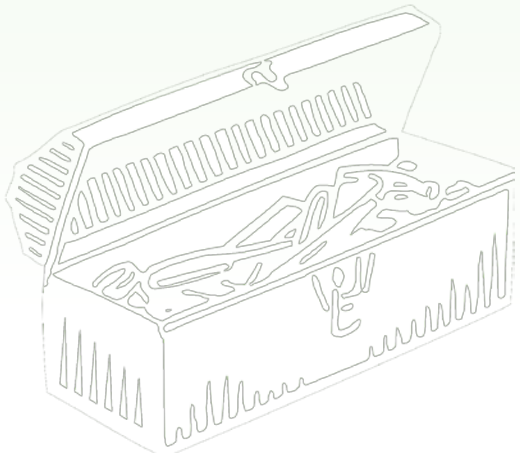
Oregon State UNIVERSITY

OSWS Annual Meeting, Hood River, OR. 25 OCT 2017

WEED BIOCONTROL

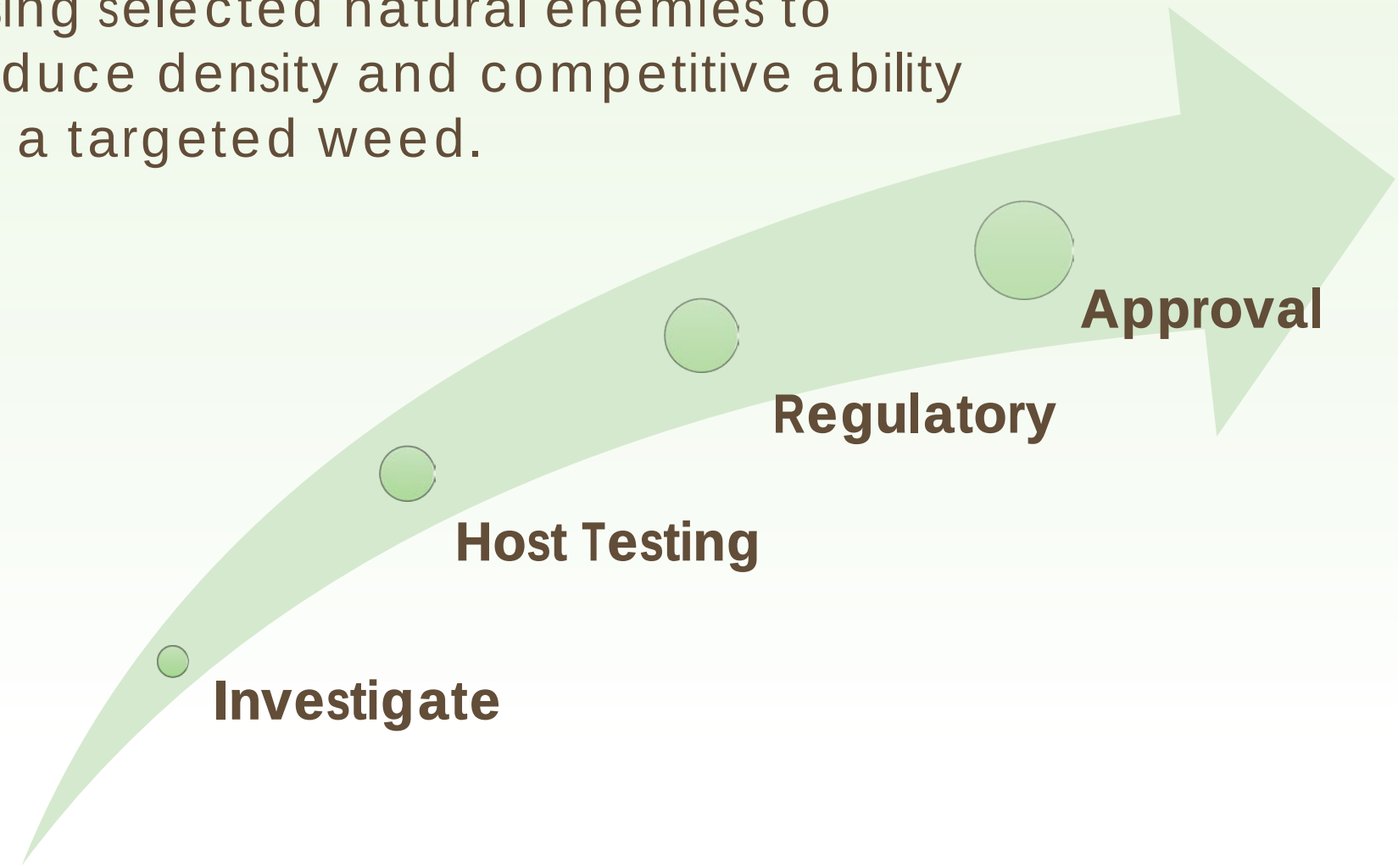
Using selected natural enemies to reduce density and competitive ability of a targeted weed.

- Pros
  - Economical
  - Self-sustaining
  - Environmentally safe
- Cons
  - Slow process
  - NOT eradication
  - Rangelands, non-crop



WEED BIOCONTROL

Using selected natural enemies to reduce density and competitive ability of a targeted weed.



RESEARCH APPROACH

Objectives:

1. Increase knowledge, raise awareness
2. Integrate BC with current strategies

   barriers, temporal synchronicity
3. Implement, establish BCAs in perennial crops

Bindweed mite

Aceria malherbae (**ACMA**)

- Easy to redistribute
- Compatibility w herbicide - potential
- Overwintering in W. OR - limited
- Not effective in irrigated systems

PHOTO CREDITS: E. COOMBS AND J. GREEN

MITE

- *Aceria malherbae*
- ACMA
- Symptoms:
  - twisted tissue
  - red mid-vein
- Collect & redistribute

MITE + IRRIGATION

- Controlled study
  - Drip 4L/hr (**LOW**)
  - Drip 8L/hr (**HIGH**)
  - Overhead 8L/hr (**OH**)

Green, J. (in prep). Arthropod-Plant Interactions. "Unexpected performance of field bindweed (*Convolvulus arvensis*) in response to gall formation by *Aceria malherbae*"

PHOTO CREDITS: E. COOMBS AND J. GREEN

MOTH

- *Tyta luctuosa*
- TYLU
- Symptoms:
  - defoliation
  - clipped petiole
- Not available

MOTH – RELEASE & MONITOR

- Perennial systems
- Release larvae (200 per)
- Monitor
  - Herbivory (YR.1)
  - Trapping (YR. 2)

E. Peachey, Green, J. , Boydston, R. Oregon State Weed Board, Oregon Mint Commission "Establishment and Detection of T. luctuosa in the PNW"

THANK YOU

jessica.green@oregonstate.edu

541-737-5456