

Vegetable Pests and Climate Change—Sue Scheufele, UMass Extension

Incursion of new pests e.g. Hawaiian beetle webworm

Hawaiian beetle webworm (*Spoladea recurvalis*), a Pyralid moth, cannot overwinter in New England, but survives and breeds throughout the year further south and migrates northward as the season becomes warmer. If it reaches MA at all it is usually not until mid to late-September or later in autumn, and breeds here until it is killed by cold weather. Its principal hosts are beet, spinach, lambsquarters (*Chenopodium album*) and pigweeds (*Amaranthus* spp.), but it is also known to attack carrots, brassicas and purslane (*Portulaca oleracea*).



Identification and Damage. The adult moths are brownish gray and at rest have a broad, white band across the back and white dashes on the wing margins. Caterpillars can consume large amounts of foliage and can also cause cracks or deformations to the crown of beet roots. Young larvae typically feed on the lower surface of leaves, creating large, smooth-edged holes or skeletonizing leaves. As they mature, caterpillars may consume the entire leaf and can completely defoliate a field in a very short period of time. As they feed, they may spin a web drawing or **folding individual leaves together** to form a tube in which they hide when disturbed, although presence of webbing is often minimal compared to other species of webworm. This webbing and abundant frass (small, dark, wet-looking, round) may clue you in to presence of feeding caterpillars.

Management. Weed control is an important management strategy as infestations often appear to be worse in weedy fields where lambsquarters and pigweed are present. Dipel (OMRI-approved), Pyganic 5.0 (OMRI-approved), Molt-X, Intrepid 2F, Evergreen EC 60-6, and Coragen are labeled to control webworms in these crops.

Increased overwintering survival of old pests e.g. Corn earworm

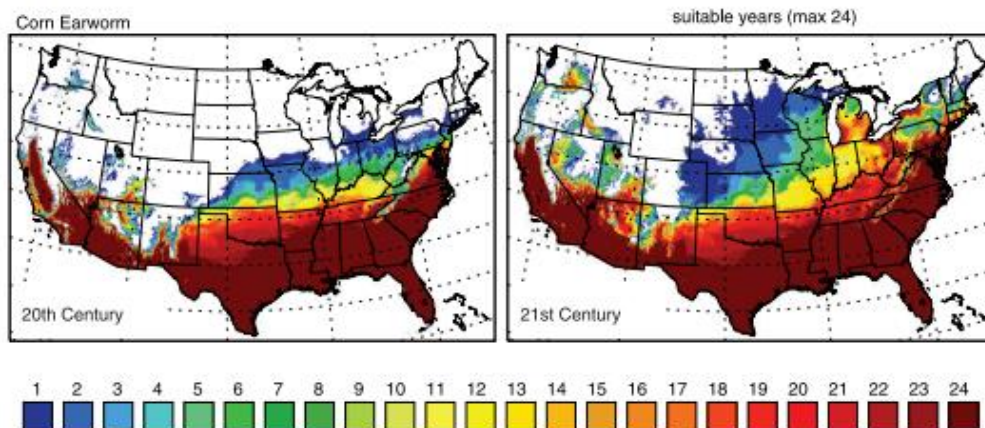
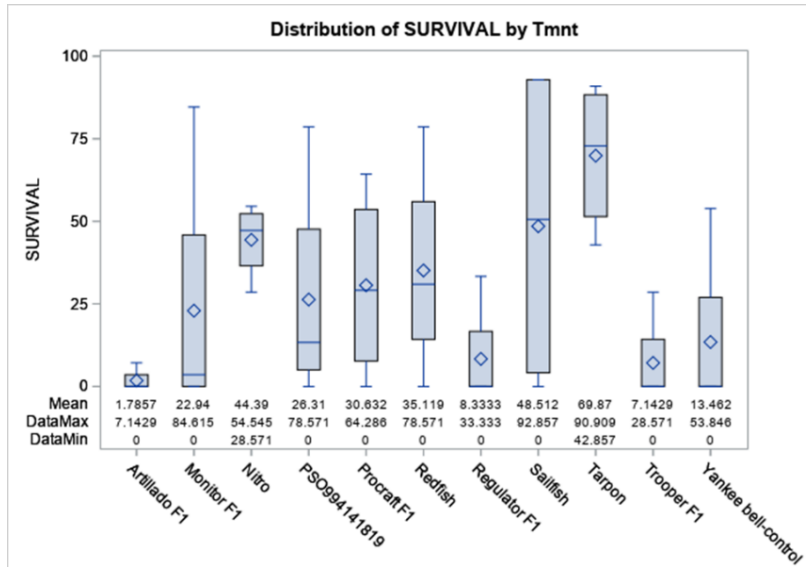


Figure 1. Current and future temperature envelope for a migratory, cosmopolitan taxon. 20th century distribution (left panel) and 21st century distribution (right panel) for corn earworm. Color contours show the number of years that are suitable (out of a maximum of 24).

Weather conditions that favor pest growth e.g. Phytophthora Blight

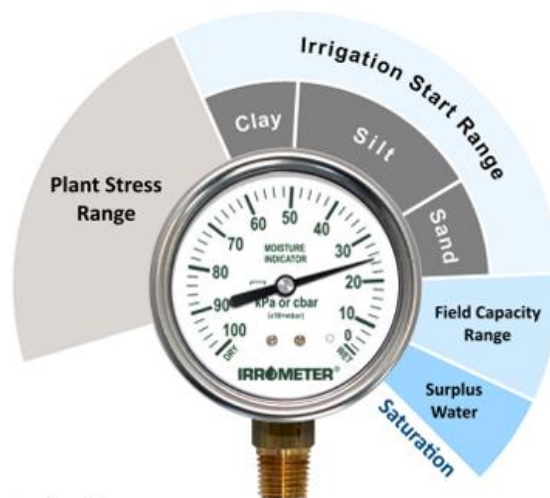
Saturated field conditions stimulate release of swimming spores in soil. More frequent large rain events (≥ 2) result in more infection incidents.



Integrated management Approach:

- ↑ soil structure and OM: increases water penetration and reduces soil saturation
- Stimulate “good” microbes with biofumigation
- Plant on raised beds with plastic to shed water away from crown
- Chemigate with fungicides through drip
- Use ~~resistant~~ more tolerant varieties!

Fungicide Treatments	
1	Untreated control
2	AVIV
3	Revus-drench
	Presidio; Alt. Elumin; Alt. Orondis
4	Gold
5	AC203
6	YSY
7	Howler
	Alt. Orondis Gold
8	Theia



0-10 Centibars: Saturated soil

10-30 Centibars: Most soil is adequately wet. Coarse sands and potting media are drying and in the range for irrigation.

30-60 Centibars: Typical range of irrigation for most soils.

60-100 Centibars: Usual range for irrigation in heavy clay.

100-200 Centibars: Soil is becoming very dry.

The chart sheets included with the Meter can be used to manually plot readings over time and analyze trends. The rate of change can be a key indicator of when to irrigate, and having the history of each cycle can help identify under or over irrigation.

<https://www.irrometer.com/pdf/949.pdf>