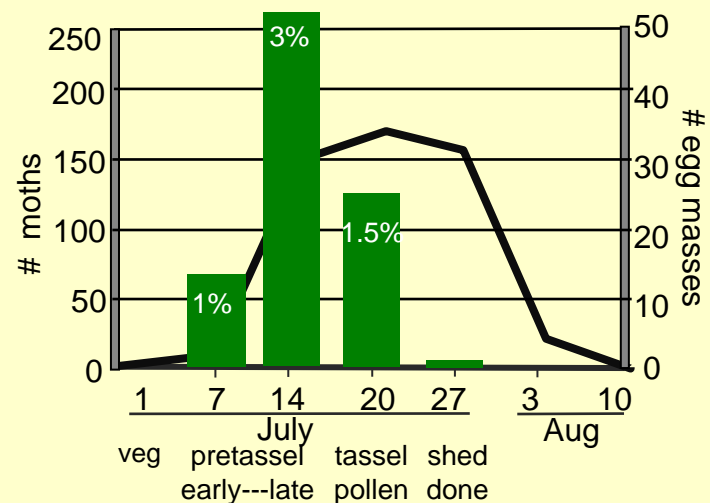


Crop stage and infestation level

Moth flight peaked at the trial site between July 7 and July 27 (black line on graph). Females preferred to lay eggs on pre-tassel and tasseling corn (July 7, 14, 20). Once pollen shed ended, egg laying shut down in the field (July 27) although large number of moths were still flying. This clearly demonstrates **the importance of crop stage in infestation**. Differential attractiveness for egg laying explains why adjacent fields or different parts of the same field can have very different levels of WBC feeding.



The percentage of plants with egg masses in the trial did not exceed the current 5% WBC threshold on any single date (1%, 3%, and 1.5% on July 7, 14, and 20), but if **egg mass counts were accumulated** over three weeks, the final percent infestation was 5.5%.

Infestation differs with type of Bt

All the Bts tested in the Montcalm trial gave excellent corn borer control, but only hybrids with the Cry1F controlled WBC. With only a 5.5% initial infestation, a majority of ears were damaged and moldy in non-Bt and VT3P corn and yield was reduced. Herculex and SmartStax ears were significantly cleaner, however feeding was not completely eliminated. **Cry1F provides moderate protection against WBC, but it isn't perfect**. It is important to assess WBC damage and quality in both Bt and non-Bt fields.

Type of hybrid	Type of Bt(s)	Expected WBC control	plants 1 st gen. ECB	ears with feeding	ears with ear rot	#kernels eaten per ear	Yield difference
Non Bt	none	none	14%	84%	71%	16	-18 bu
VT3P	Cry1A.05 + 2Ab2	none	0	74%	66%	14	-8 bu
Herculex	Cry1F	moderate	0	37%	24%	10	Avg 239 bu/ac
Smart Stax	Cry1A.05 + 2Ab2 Cry1F	moderate	0	51%	19%	8	



Kernel damage and ear rot on non-Bt corn. Damage along the side of the ear is characteristic of WBC feeding



Gibberella ear rot on Cry1F corn. A WBC larva chewed through the husk along the side of the ear, allowing the pathogen to enter.

Recommendations for 2011

- Bts differ widely in efficacy against WBC. Know which Bt hybrid you planted and what to expect from it. Note that quality is a potential concern even for Cry1F hybrids.
- Crop stage is key to infestation. Target pre-tassel/ tasseling corn for scouting during moth flight.
- Accumulate % egg masses over several weeks towards the 5% threshold.
- Walk fields before harvest to detect quality issues. Do not store damaged /moldy grain on-farm.