Insect Pests of Cucurbits in New Hampshire

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UNH Cooperative Extension

Cucurbit School Jan 11, 2017

Insect Pests of Cucurbits in NH

Squash bug

Squash vine borer

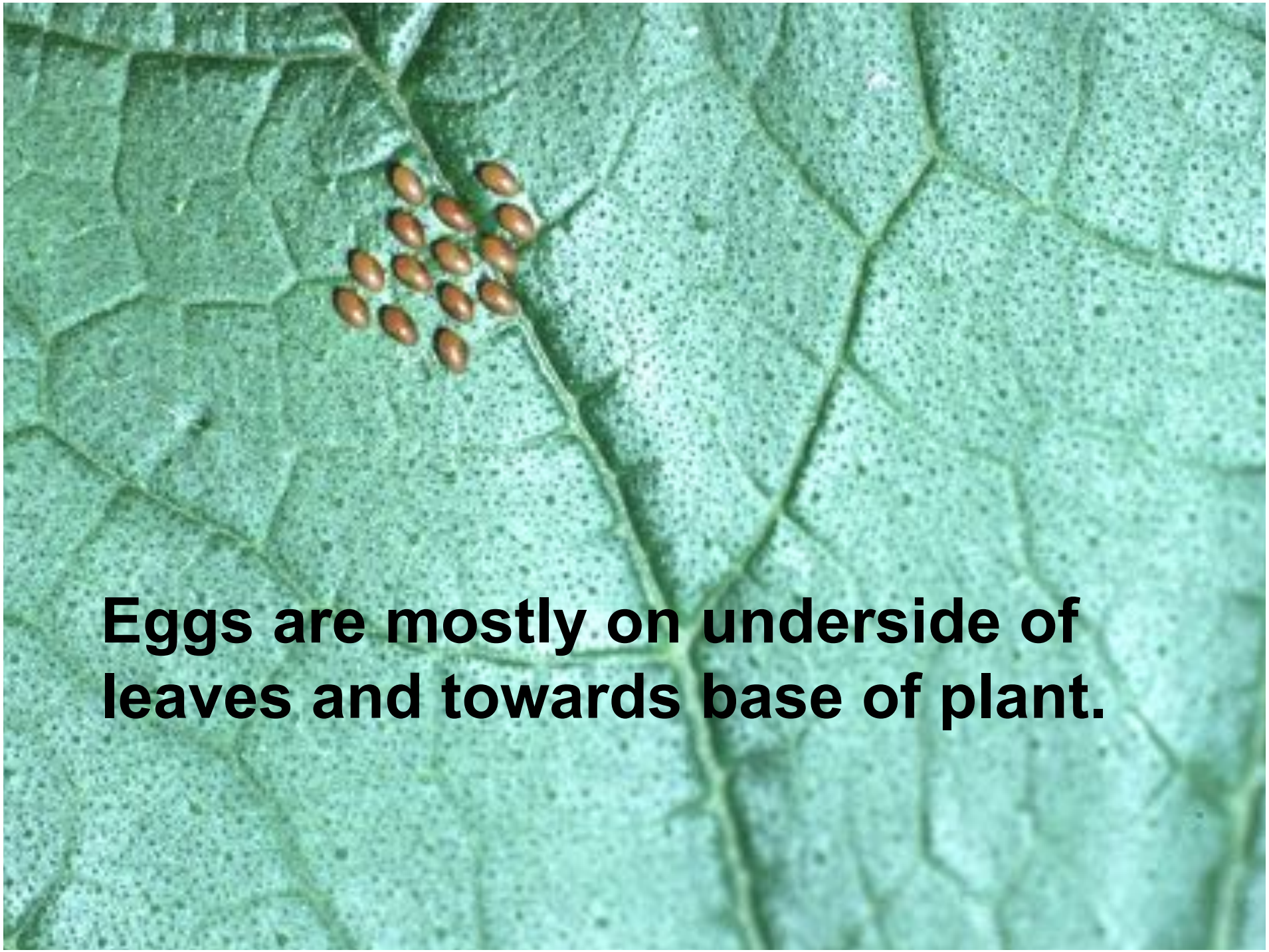
Striped cucumber beetle

Seed corn maggot

Twospotted spider mites


Squash bug has 1 gen./year
Look at base of plants and leaf undersides.


Destroy crop residues
right after harvest.


Eggs are mostly on underside of
leaves and towards base of plant.


The nymphs are whitish.
They are the stage that is
most vulnerable to sprays.


METRIC 1

Spunbonded row covers can control squash bugs until flowering.

Rotate, destroy debris (in fall) under which adults might overwinter.

Cover plants before bugs appear.

Remove to allow pollinators in.

Pesticide choices (Squash bug) include

Sevin XLRplus 1

Asana, Azera, Danitol, Declare, Mustang, Pounce, Pyganic, Pyrenone, Warrior, Venom 3,3a

Assail, Sivanto 4a, 4d

Surround 25

Neemix, Azatin (for small nymphs)

Threshold: avg 1 egg mass/plant

Tips:

Aim towards base of plants, esp. undersides of leaves. Covering tops of leaves does little for SqB.

Destroying crop debris promptly after harvest really helps, along with rotation.

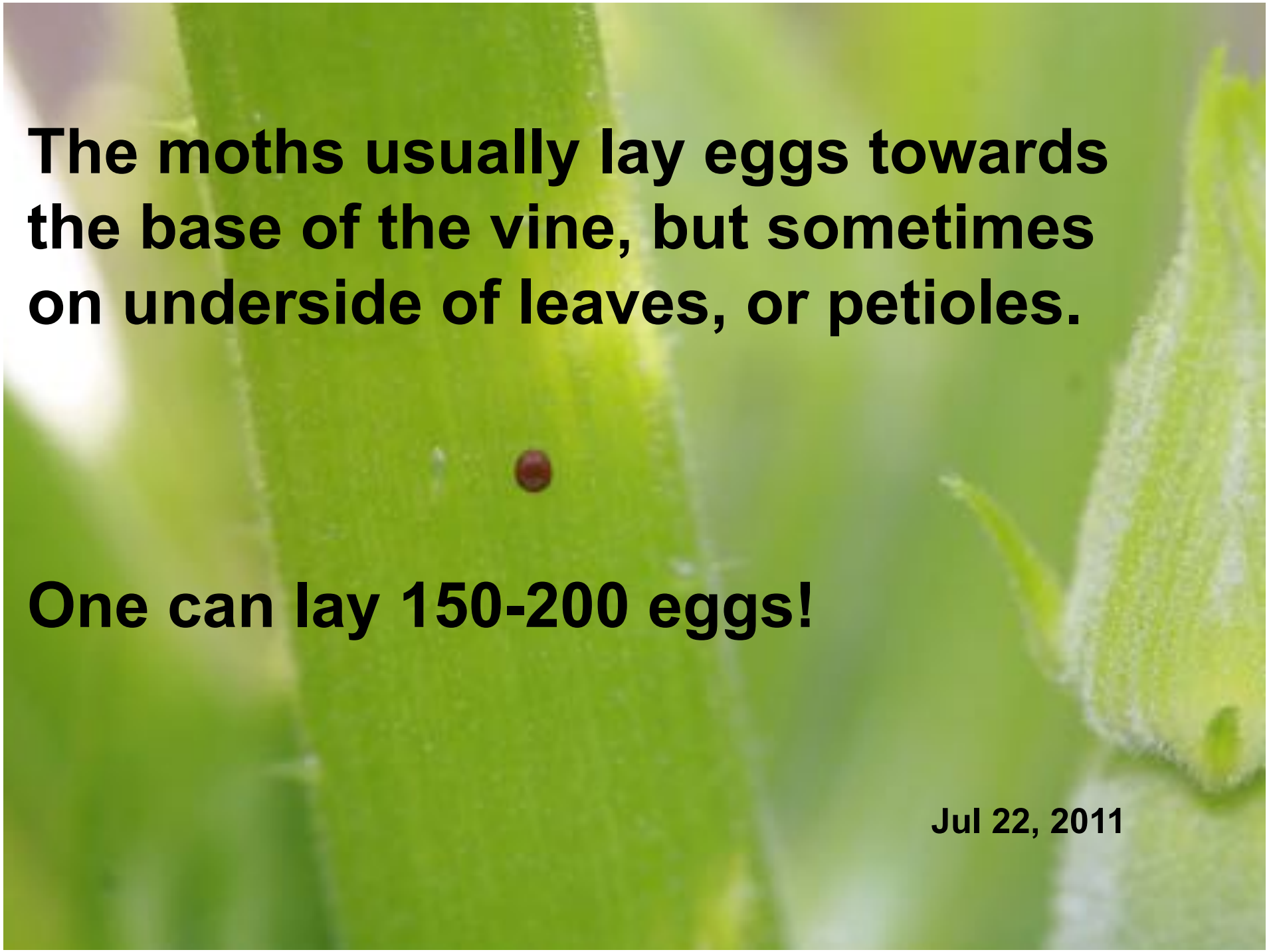
Perimeter trapping ?

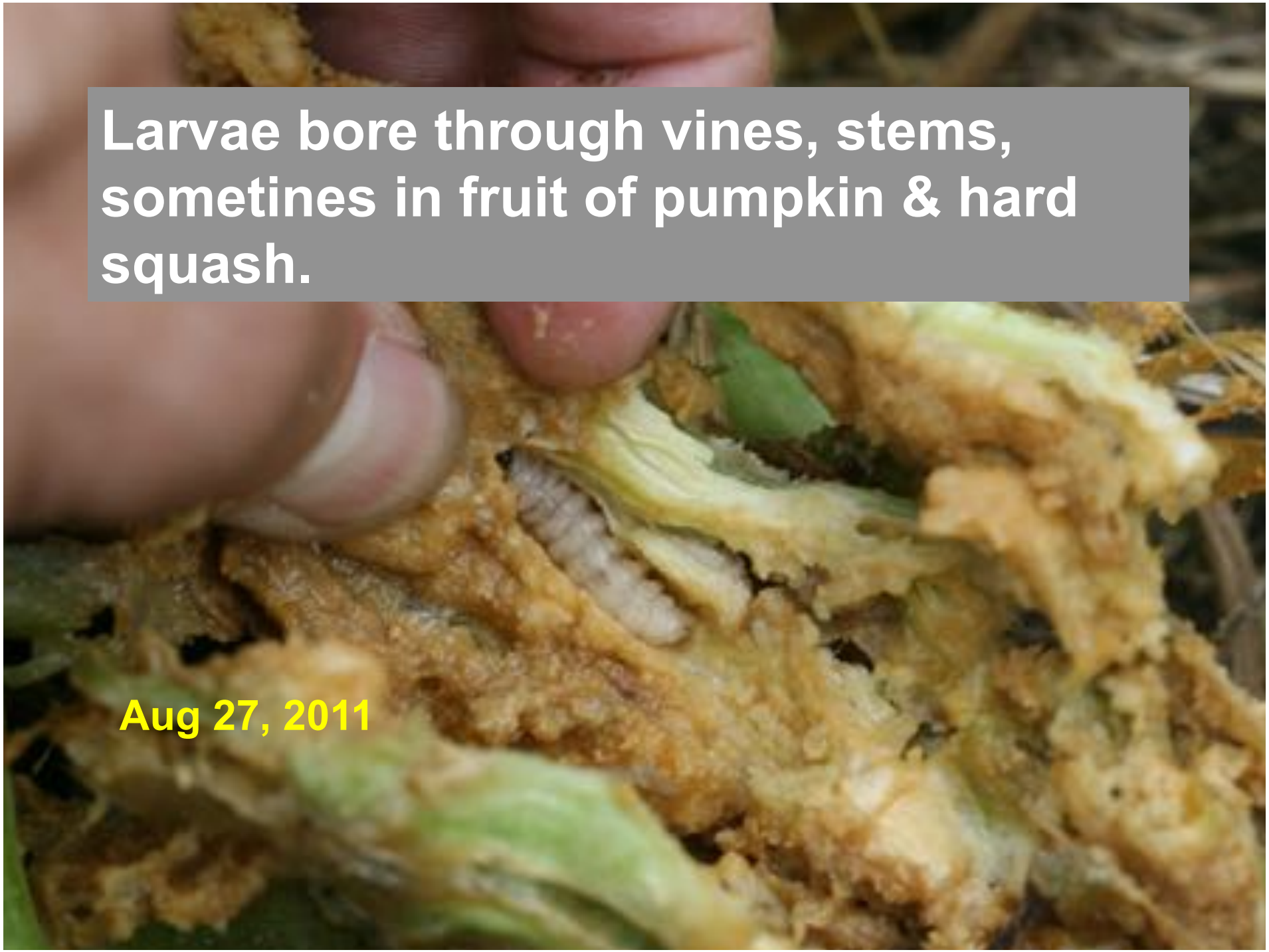
Squash Vine Borer

1 gen./year

Overwinter as larva or pupa, in soil, 2” down

Rotation can help (overwinter in soil where you grew them last year). A short distance helps very little. Long distance helps more.


The moths usually lay eggs towards the base of the vine, but sometimes on underside of leaves, or petioles.
One can lay 150-200 eggs!
Jul 22, 2011


Larvae bore through vines, stems, sometines in fruit of pumpkin & hard squash.
Aug 27, 2011


Aug 6, 2011

Squash and pumpkin varieties vary greatly in their "susceptibility" to SVB.

How? From preference of the moths when laying eggs, survival of larvae, and/or from the plant withstanding the damage.

- **Zucchini & summer sq. very susc. *C. pepo***
- **Pumpkins are susc. *Cucurbita pepo***
- **Butternut (*C. moschata*) not preferred, and larvae don't survive well. "resistant"**
- **Giant pumpkins & Kubocha sq (*C. maxima*) are susc.**

Bush-type varieties seem to suffer more than vine-types, within the same group. George Hamilton notes that vine-type plants often root at the nodes. This may lessen the effect of attacks.


Deep plowing in fall or spring can kill many pupae (usu. abt 2” down).
If SERIOUS problem, consider skipping 1 year of susceptible squash or pumpkins.

Pesticides are effective if used starting June 26 or later. Vulnerable period lasts 4-5 weeks. Aim spray at the bases of the stems, and the vines, rather than foliage.

Spray late in day, to minimize risk to bees.

The products vary in their protection period, so see labels. Most last for 1 week, Pyrenone only 3-4d.

Some sites & crops might have even longer risk period.

Pesticide choices (Sq. vine borer) include

Asana, Azera, Danitol, Mustang, Pounce, Pyganic, Pyrenone, Warrior 3,3a

Assail 4

Vetica 16 & 28

Neemix ?

Pesticide must kill adults, or eggs, larvae before they get inside the vine.

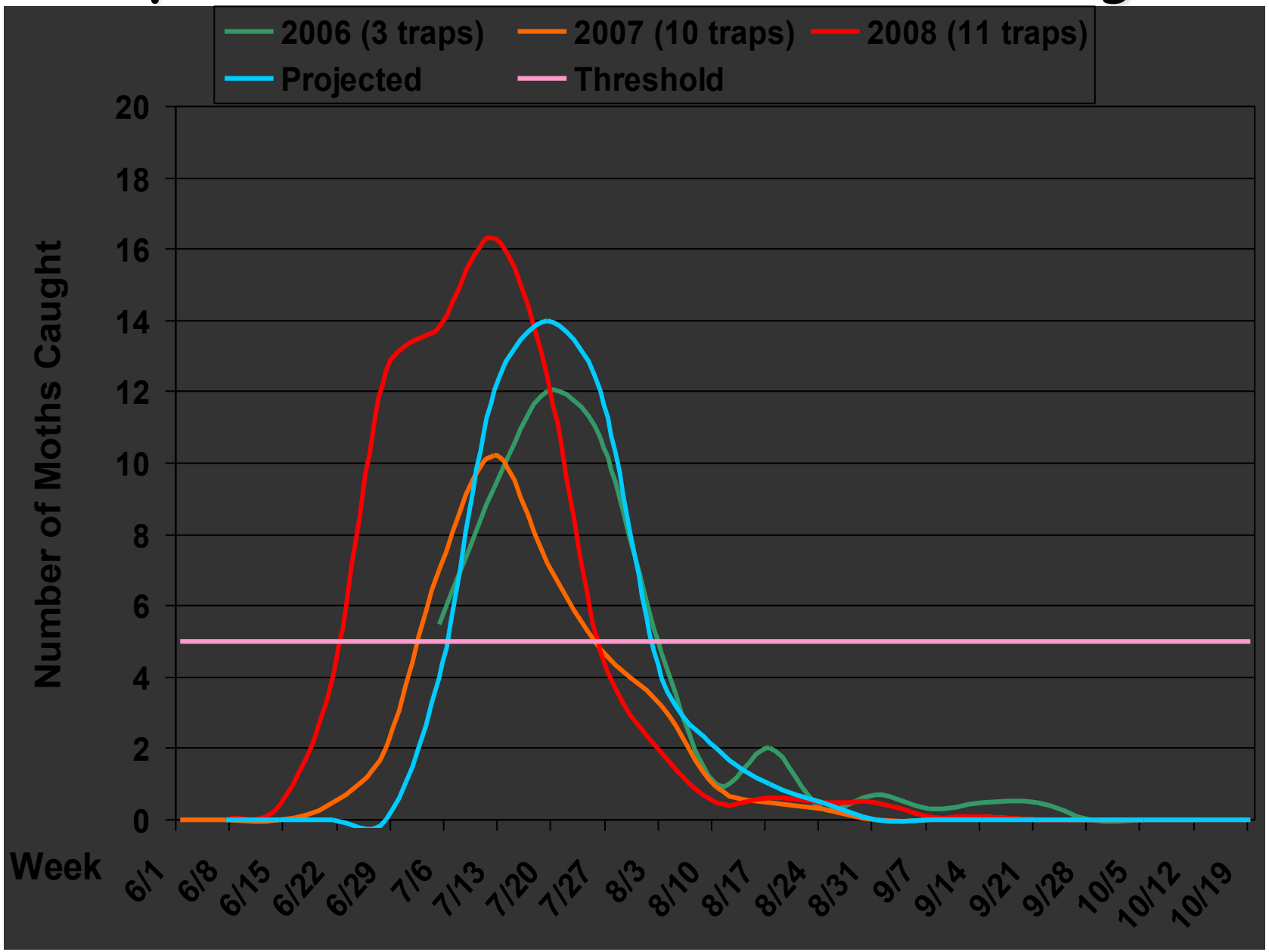
Target: esp toward plant bases, rather than tips.

Organic growers:

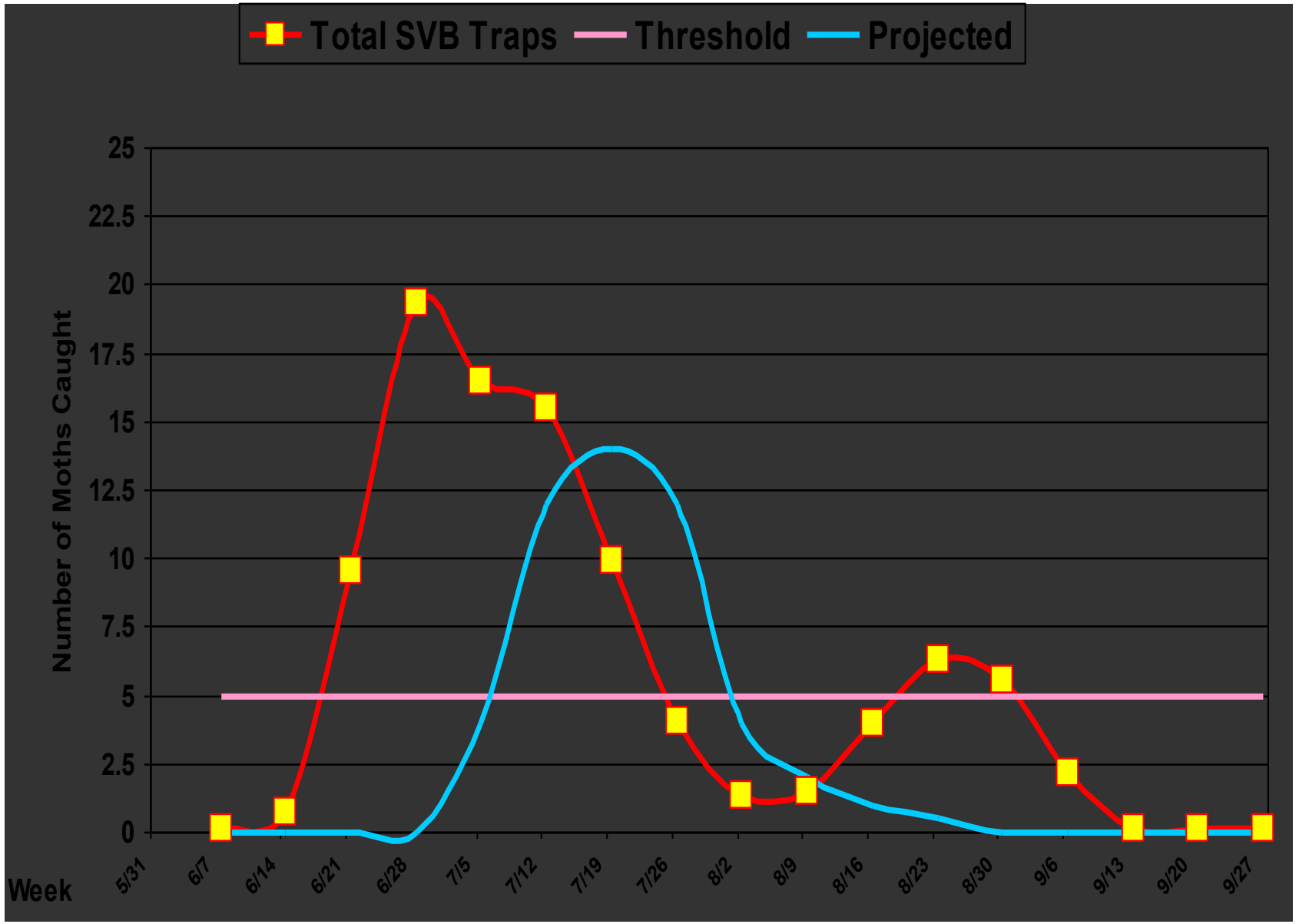
Consider emphasizing butternut sq.
Row covers before flowering
Azera (Neem & Pyrethrins)
Pyganic? Prob not effective


In Southern NH:
Jun 26 through Aug 5
Northern NH:
June 30- Jul 30?

Squash Vine Borer – Male Moths Caught



2010 Squash Vine Borer – Male Moths Caught



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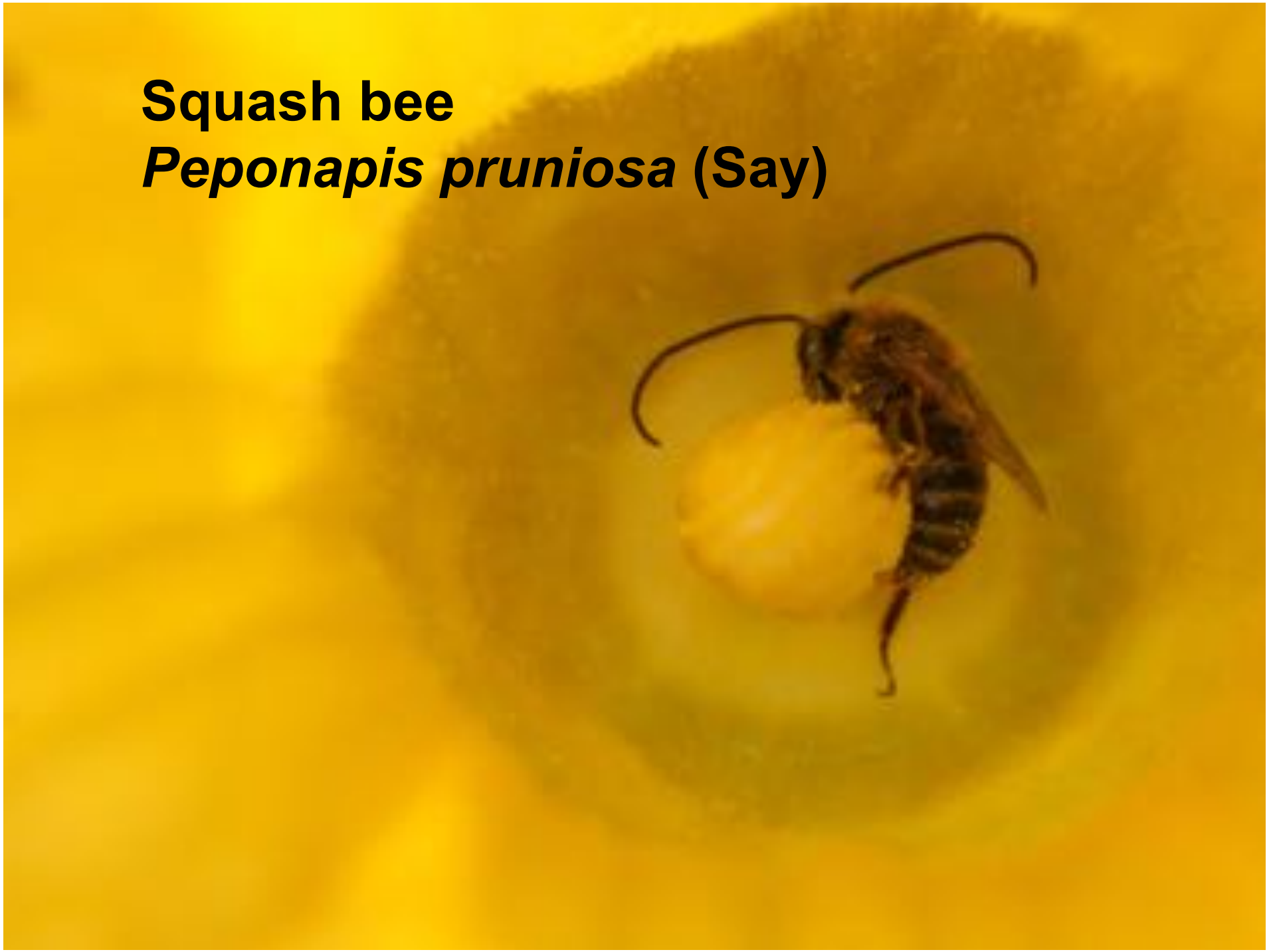
Vegetable Insect IPM Summary

Vegetable Insect IPM Program for Hollis_B

For The Week Ending mm/dd/yy	Corn Earworm* # caught for week	Fall Armyworm* # caught for week	European Corn Borer* # caught for week		Squash Vine Borer* # caught for week	
			ECB I (NY strain)*	ECB II (IA strain)*	Net Trap #1	Net Trap #2
06/02/2008	n/a	n/a	5	0	n/a	n/a
06/09/2008	n/a	n/a	17	1	0	n/a
06/17/2008	n/a	n/a	42	1	0	n/a
06/25/2008	1	0	22	0	1	n/a
07/01/2008	1	0	0	0	12	n/a
07/08/2008	2	0	1	0	20	n/a
07/15/2008	3	1	0	0	17	n/a

Squash bee
***Peponapis pruniosa* (Say)**



Protecting pollinators

Sq/Pumpk flowers usu. close in afternoon, so most pollinator activity is in morning.

Wait until dusk to spray (protects honey bee and many squash & bumble bees).

Avoid spraying sq/pumpk in the morning.

Select toxicants with low bee toxicity.

Spray insecticides only when needed.

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Spraying Sq Bug: the most effective (and difficult) part is: hit the undersides of the foliage.

Pesticide	Target Stages	Bee Risk	
Assail	Ad & Nymphs	M	
Thionex	Ad, Nymphs	M	until 7/31/15
Sevin XLR	Ad, Nymphs	H	
Asana, Warrior, Pounce, Brigade, Declare, Mustang & Venom	Ad, Nymphs	H	
Sivanto (Sq bug only)		L	
Neemix	Nymphs	M	
Pyrenone	Nymphs	M	
Soap?	Nymphs	L	
Surround?	Ad & Nymphs	L	

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The pesticides on the preceding slide can be used on Squash vine borer too. Another (new) choice for SVB (but not squash bug) : Vetica (combination product)… has Low bee risk

So… lowest bee risk (& effective for Squash Vine Borer): Assail (Mod bee risk); Vetica (Low bee risk)

Low risk to bees, but not so good on SVB: Neemix, Pyrenone

New!

Research by Jude Boucher (Univ CT) in summer 2016 showed that a single application of Coragen (group 28, 5 oz rate) in soil at planting time controlled SVB in summer squash!!

This product should have pretty low pollinator risk.

No, it did not work well on pumpkins. They root at multiple points (nodes) on vines, so probably did not pick up & translocate the material well.

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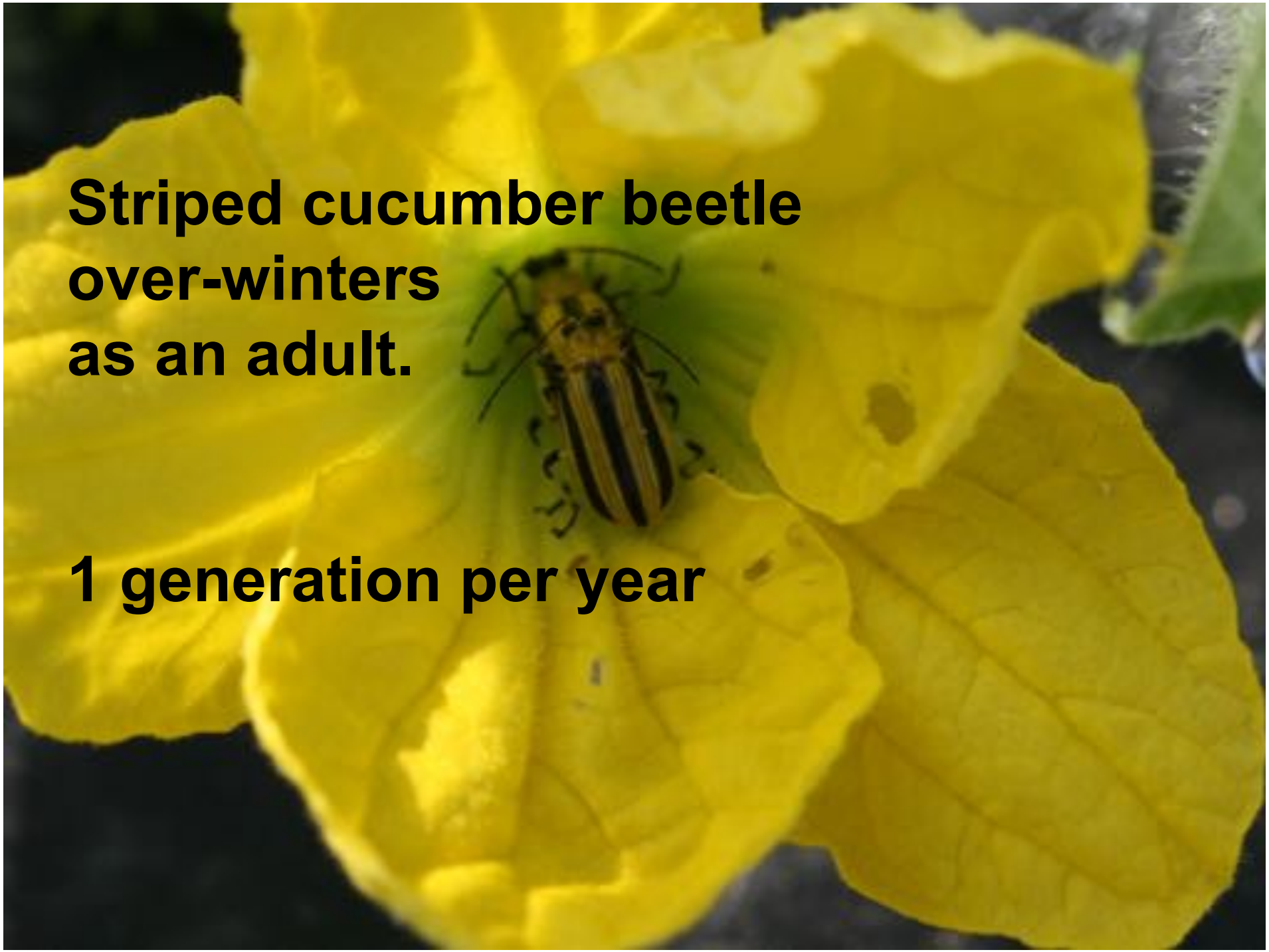
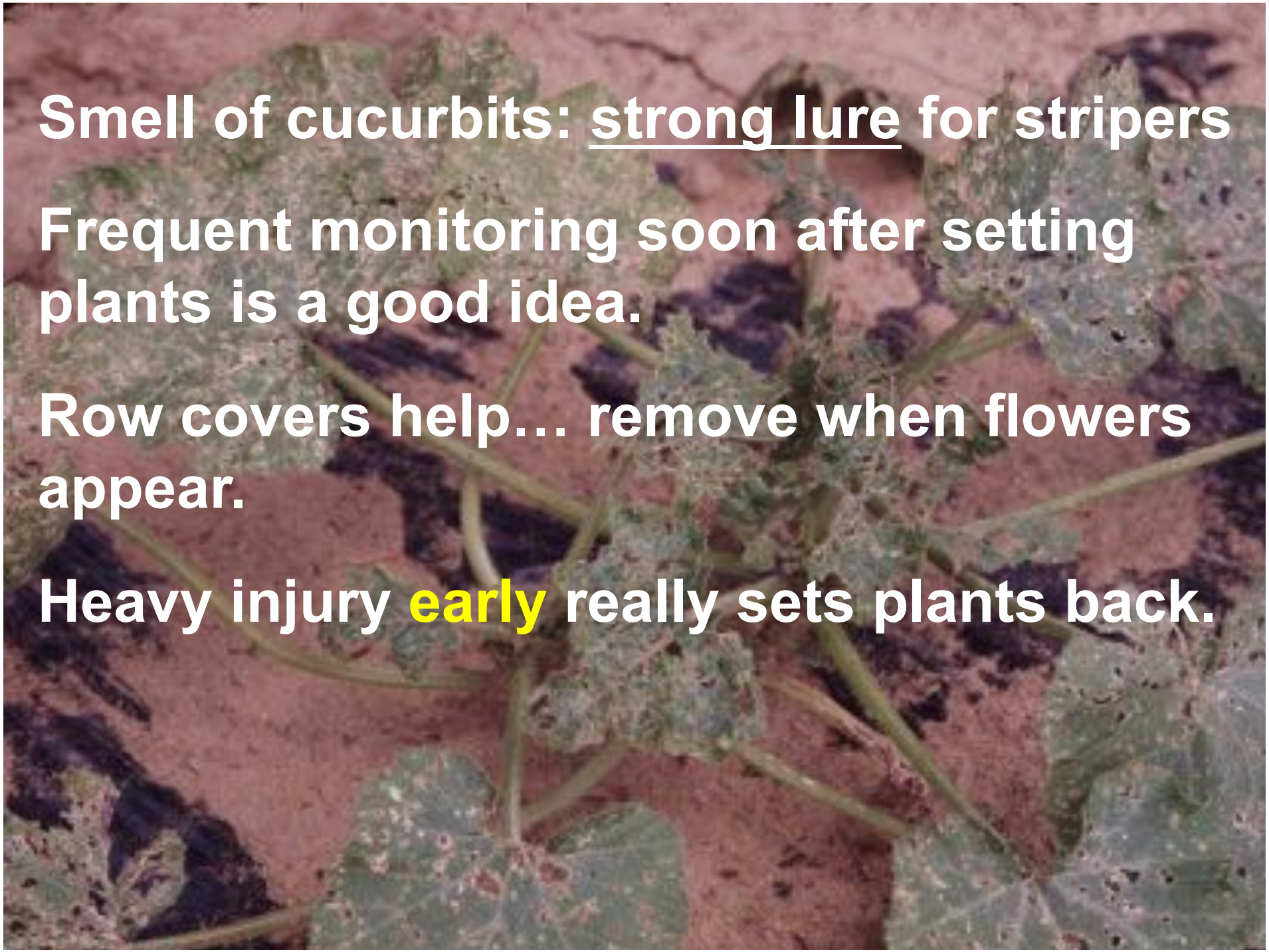
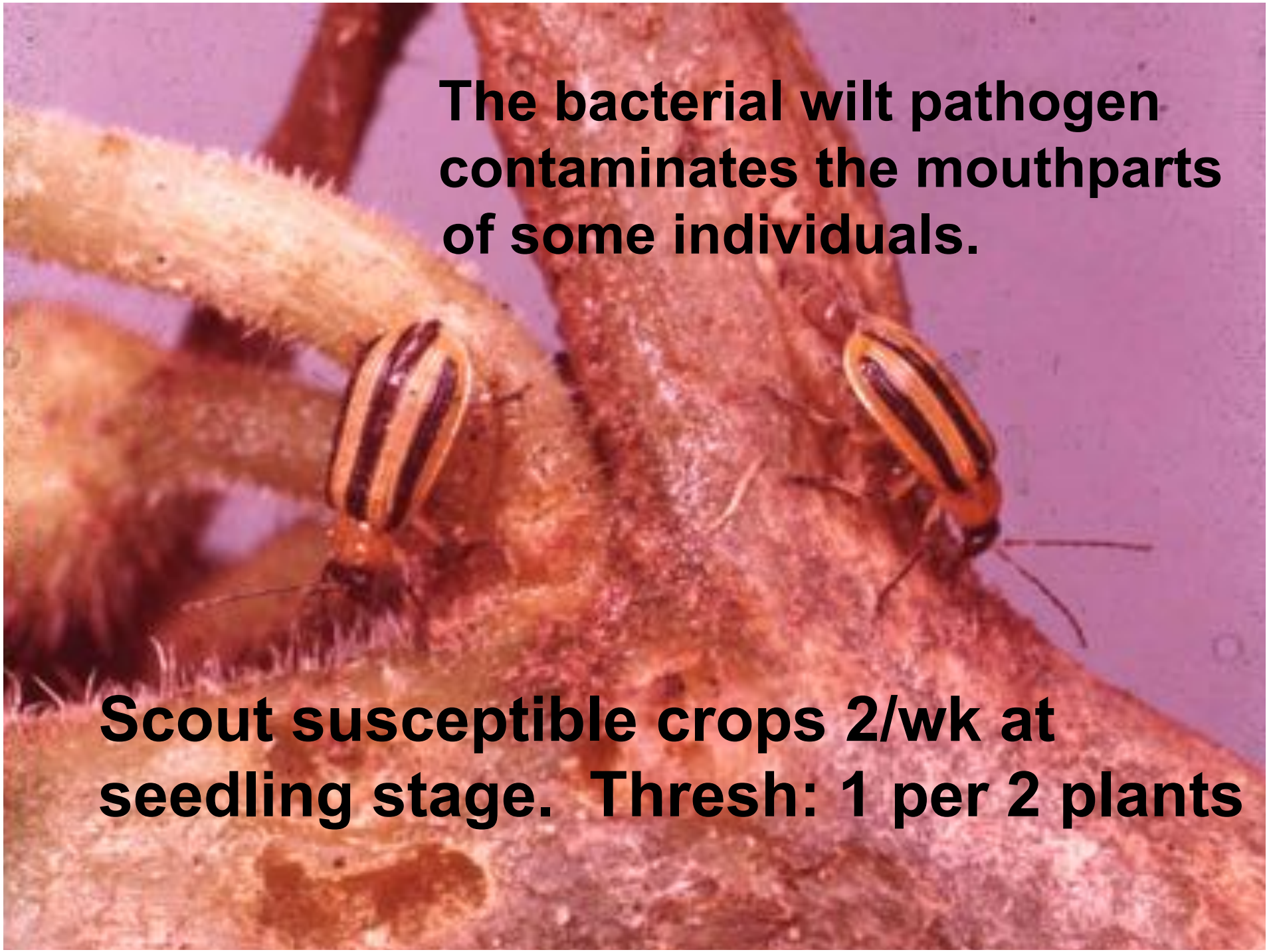

Striped cucumber beetle
over-winters
as an adult.
1 generation per year


Smell of cucurbits: strong lure for stripers
Frequent monitoring soon after setting plants is a good idea.
Row covers help… remove when flowers appear.
Heavy injury early really sets plants back.


Muskmelon is highly
susceptible to bacterial wilt,
which is spread by stripers.


The bacterial wilt pathogen contaminates the mouthparts of some individuals.
Scout susceptible crops 2/wk at seedling stage. Thresh: 1 per 2 plants

Pesticide choices (Cucumber beetles)

Sevin XLR plus, Lannate SP, MSR 1

Thionex ? 2a

Asana, Baythroid, Capture, Decis, Danitol, Mustang, Pounce, Pyganic, Pyrenone, Warrior 3,3a

Admire Pro, Assail, Platinum 4

Surround 25

Neemix ?

Consider treating very susc. plants right after removed from greenhouse, before being set in the field.

Organic growers:

Row covers before flowering
Monitor for adults when covers come off
Pyganic, Surround as insecticides

Seed Corn Maggot

- large seeded crops
- worst in cool, wet springs
- worst on soils with high OM content
- Manure really attracts the adults


Adults look a lot like house fly.
243-8

Seed Corn Maggot

1 generation/yr that is a problem (spring)

Direct seeding into high OM-content soil, with recent manure application, during cool, wet weather is riskiest pattern.

Setting transplants (rather than direct seeding) completely avoids the problem.

Questions?