



***Assessing four winter squash cultivars as trap crops to improve cucumber beetle management in organic cucumber production***

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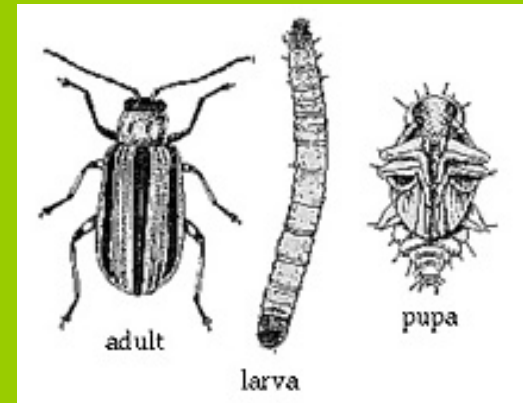


## Objectives:

- ❖ Availability of organic cultivars
- ❖ Best organic cultivars suited as trap crop

# Striped cucumber beetles (*Acalymma vittatum*)

Major pest in Midwest



## Damages:

### Adult :

- Feeding flower, leaves, stem
- Disease: Bacterial wilt...

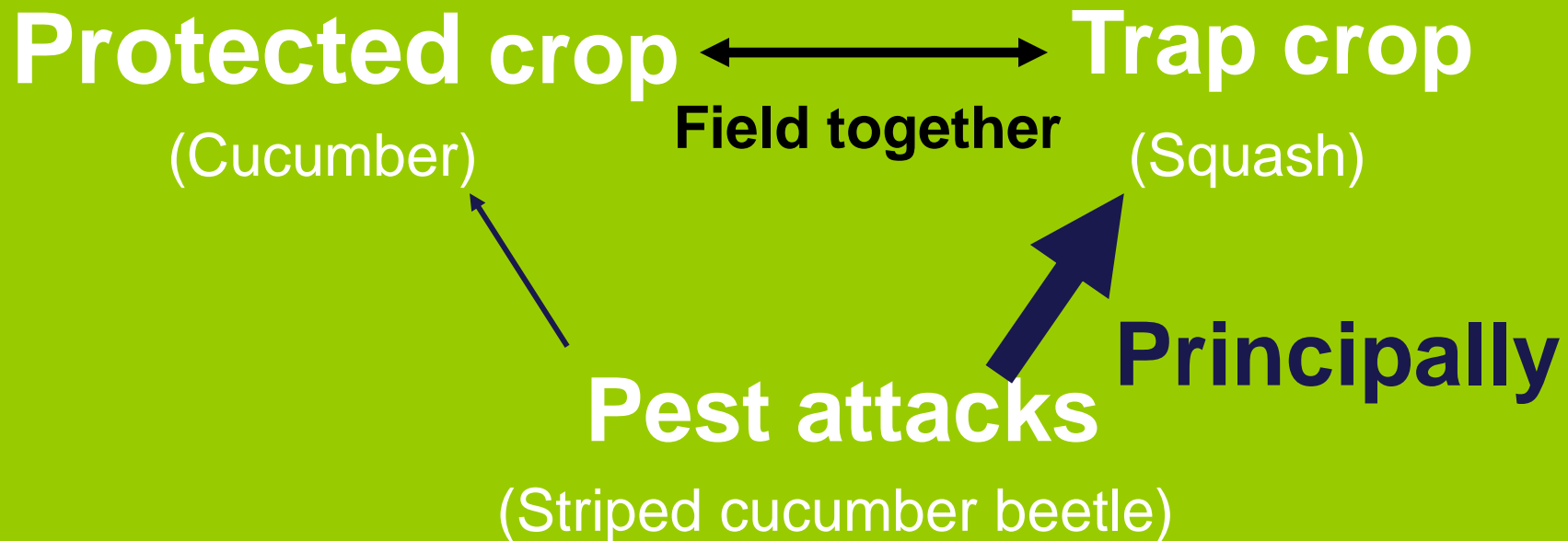
### Larvae:

- Feeding roots



# Trap Crop

**Principle: difference of attractiveness between two plants**



# For cucurbits

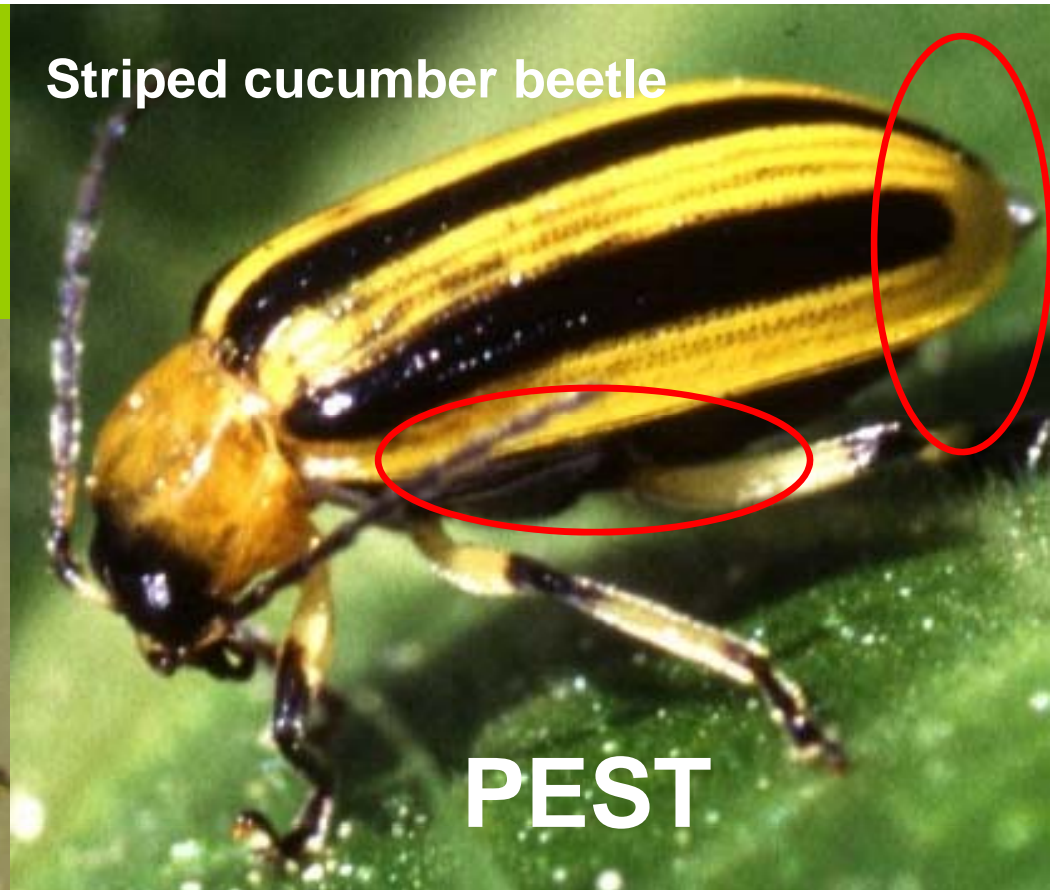
Western corn rootworm

**NOT PEST**




Striped cucumber beetle

**PEST**



- ✓ Wings shorter than body
- ✓ Abdomen color is yellow not black

FAO/J. KISS

A photograph of a greenhouse trial setup. Several black plastic pots are arranged on a surface. Each pot contains a young plant seedling, likely a squash or cucumber, which is supported by a clear plastic bag. The plants are in various stages of growth. The background shows more pots and a chain-link fence. The text is overlaid on the image in yellow and cyan colors.

**Comparison of attractiveness of different organics cultivar of trap crop with cucumber**

**(Green house trial)**

**4 cultivars of squash:**

**Blue Hubbard**

**Waltham Butternut**

**Burgess Buttercup**

**Table Queen Acorn**

**1 cultivar of cucumber:**

**Cucumber Cobra**

| <b>Reference number</b> | <b>Address of web site</b>  |
|-------------------------|---|
| 1                       | <a href="http://www.highmowingseeds.com/home.php?cat=21">http://www.highmowingseeds.com/home.php?cat=21</a>   |
| 2                       | <a href="http://www.groworganic.com/search.html?sText=winter+squash&amp;sCategory=352&amp;sSort=Best">http://www.groworganic.com/search.html?sText=winter+squash&amp;sCategory=352&amp;sSort=Best</a> |
| 3                       | <a href="http://www.b-and-t-world-seeds.com/commsearch.asp">http://www.b-and-t-world-seeds.com/commsearch.asp</a>   |
| 4                       | <a href="http://www.neseed.com/Certified_Organic_Winter_Squash_Seed_s/353.htm">http://www.neseed.com/Certified_Organic_Winter_Squash_Seed_s/353.htm</a>   |
| 5                       | <a href="http://www.naturalgardening.com/shop/Veg_Seeds.php3">http://www.naturalgardening.com/shop/Veg_Seeds.php3</a>   |
| 6                       | <a href="http://www.mainstreetseedandsupply.com/ossquash.htm">http://www.mainstreetseedandsupply.com/ossquash.htm</a>   |
| 7                       | <a href="http://www.jlHUDSONSEEDS.NET/VegetablesO-Z.htm">http://www.jlHUDSONSEEDS.NET/VegetablesO-Z.htm</a>   |
| 8                       | <a href="http://seeds.omri.org/index.php?Supplier=SUPP0026">http://seeds.omri.org/index.php?Supplier=SUPP0026</a>   |
| 9                       | <a href="http://www.fedcoseeds.com/seeds/SeedsOrderList.php?listname=Squash">http://www.fedcoseeds.com/seeds/SeedsOrderList.php?listname=Squash</a>   |

| <b>Web site number where you can find</b> | <b>Name of cultivar<br/><i>Winter squash</i></b>      |
|---|---|
| 1,6                                       | <b>Table queen Acorn “<i>cucurbita pepo</i>”</b>      |
| 1,  | <b>Sweet REBA Bush Acorn “<i>cucurbita pepo</i>”</b>  |
| 1,2,4,5,6,9                               | <b>Waltham Butternut “<i>Cucurbita moschata</i> ”</b> |
| 3   | <b>Early Butternut “<i>Cucurbita moschata</i>”</b>    |
| 1,2,5,6                                   | <b>Burgess Buttercup “<i>cucurbita maxima</i></b>     |
| 2,  | <b>Bitterroot Buttercup</b>                           |
| 1,5,8,9                                   | <b>Zeppelin Delicata “<i>cucurbita pepo</i>”</b>      |
| 1,  | <b>Spaghetti</b>                                      |
| 7   | <b>Squash Yokohama</b>                                |
| 7   | <b>Squash Yugoslavian Finger</b>                      |



**Blue Hubbard and  
Cucumber**



**Defoliation after  
24 hours**

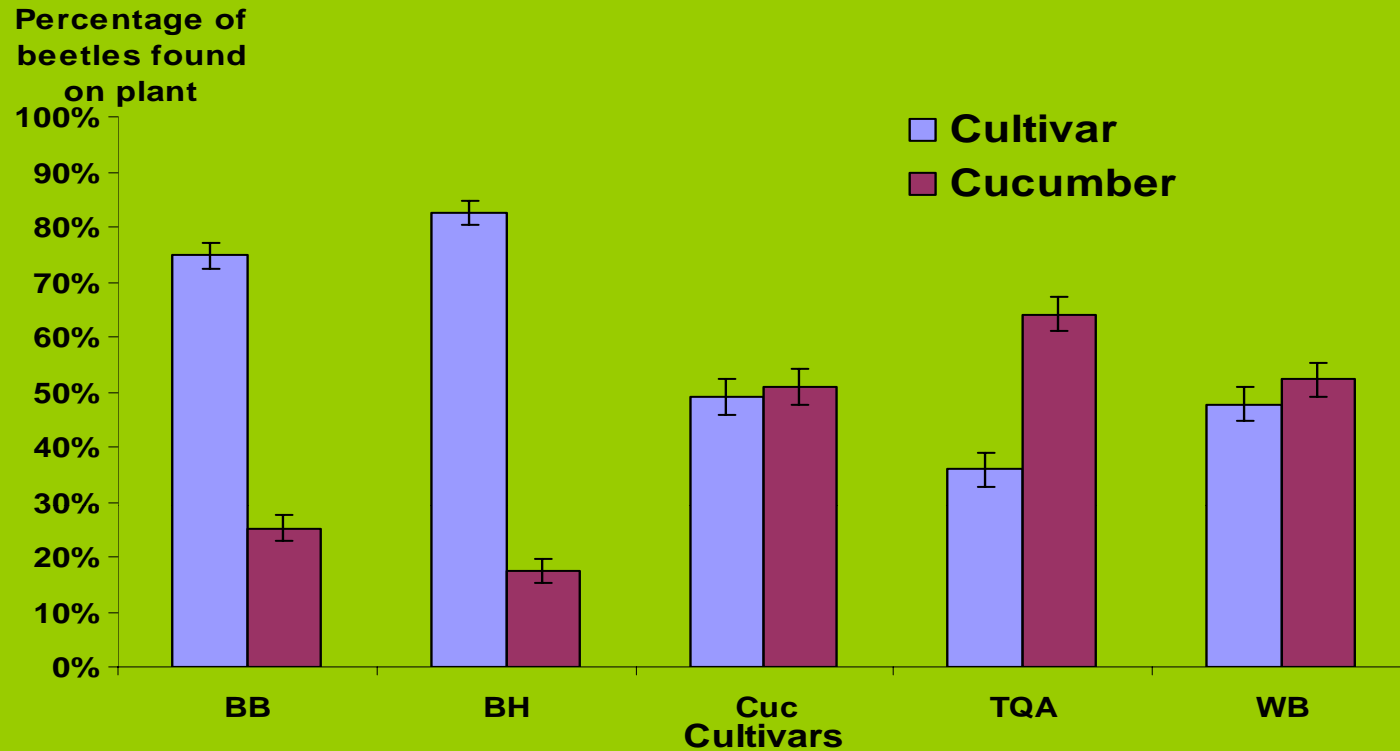


**Feeding on Blue  
Hubbard after 24 hours**



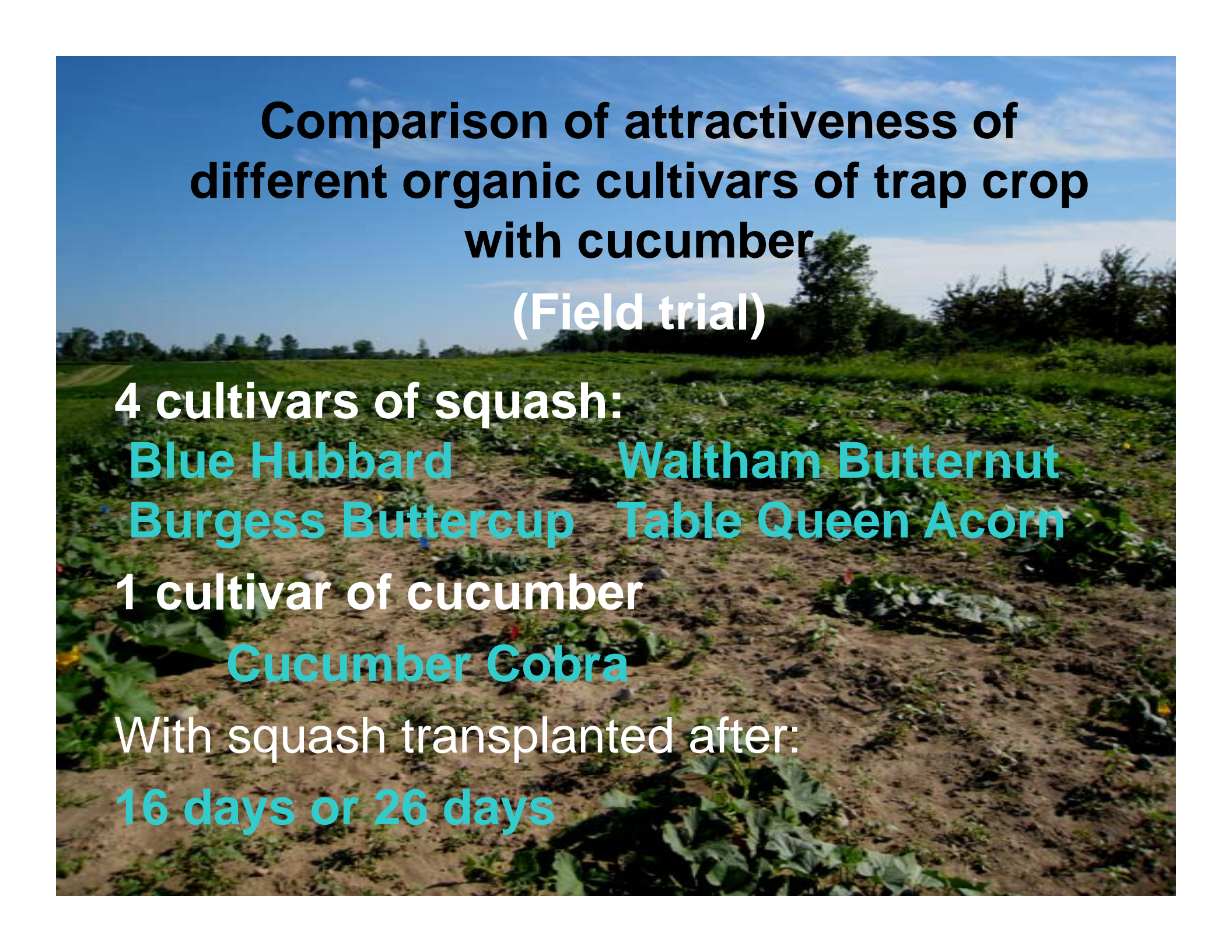
**Striped cucumber beetles  
eating**





**BH: Blue hubbard; BB: Burgess buttercup; WB: Waltham butternut;  
TQA: Table queen acorn; Cuc: Cucumber**

**Best Cultivars: Blue Hubbard and  
Burgess Buttercup**



**Comparison of attractiveness of  
different organic cultivars of trap crop  
with cucumber**

**(Field trial)**

**4 cultivars of squash:**

**Blue Hubbard**

**Waltham Butternut**

**Burgess Buttercup**

**Table Queen Acorn**

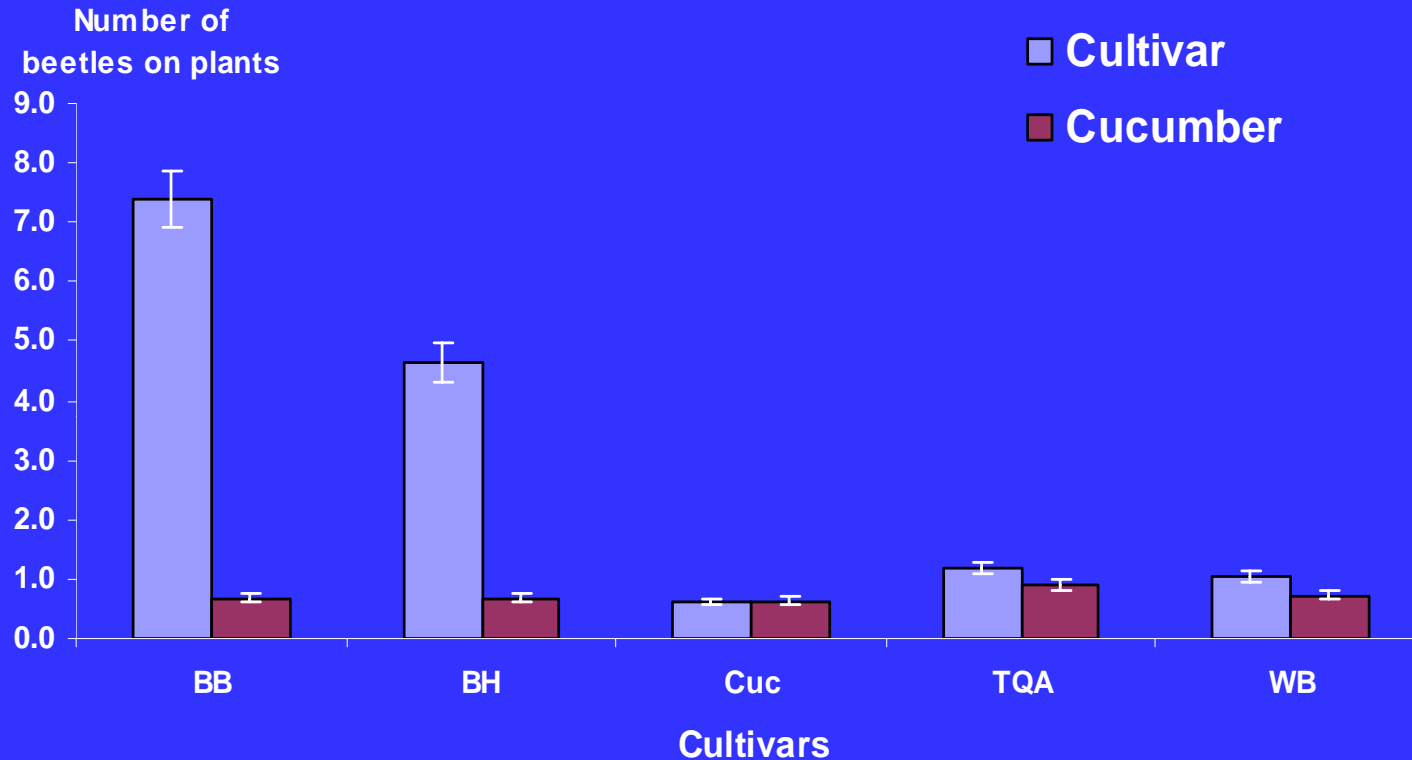
**1 cultivar of cucumber**

**Cucumber Cobra**

**With squash transplanted after:**

**16 days or 26 days**

# Squash transplanted in field after 16 days



BH: Blue hubbard; BB: Burgess buttercup; WB: Waltham butternut;  
TQA: Table queen acorn; Cuc: Cucumber

# Squash transplanted in field after 26 days



Both cultivars Blue Hubbard and Burgess buttercup show a good efficiency to attract beetles as shown in green-house



**Table queen acorn  
flower**



**Striped cucumber beetles  
eating a squash**



**Blue hubbard flower  
With striped cucumber beetles and  
western corn root worm**



Striped cucumber beetles on  
burgess buttercup flower

# Summary

## ❖ Availability of organic cultivars

Blue Hubbard      Table Queen Acorn  
Burgess Buttercup      Waltham Butternut

## ❖ Best organic cultivars suited as trap crop

Burgess buttercup  
Blue hubbard

# Trap crops applied in field

Protected plant

2 rows of  
Trap crops

