



Pumpkin Update


Ben Gilbert
Gilbert Pumpkins



Soil Testing

- ▶ A soil test is the only accurate method of determining the amount of:
 - ▶ Lime to apply.
 - ▶ Fertilizer to apply.
- ▶ Too much fertilizer:
 - ▶ Wastes money and fertilizer.
 - ▶ Can injure, even kill plants.
- ▶ Low pH and poor fertility:
 - ▶ Reduce yield and quality.






Fertility – Bare Soil

- Nitrogen (N)
 - 45 – 90 lb/A total
 - 30 – 40 lb/A at planting
 - 15 – 30 lb/A at 12" runner development
- Phosphate (P_2O_5)
 - Low 90 lb/A Medium 45 lb/A
- Potash (K_2O)
 - Low 60 lb/A Medium 30 lb/A



Fertilization – Bare Soil

- Pre-Plant (medium soil test)
 - 50 – 50 – 50 lb/A
 - 500 lb/A of 10-10-10 or equivalent
 - (10 – 12 lb/1,000 ft² of 10-10-10 or equivalent)
 - Sidedress at 12” runner
 - 21 – 0 – 0 – 24S lb/A
 - 125 lb/A of ammonium sulfate
 - (1 – 2 Tablespoons / plant)
 - 31 – 0 – 0 lb/A
 - 200 lb/A of calcium nitrate
 - (3 – 4 Tablespoons / plant)
- 

Fertility – Plastic Mulch & Drip

■ Nitrogen (N)

- 50 – 150 lb/A total

- 25 – 50 lb/A at planting

- Remainder throughout the growing season

■ Phosphate (P_2O_5)

- Low 150 lb/A Medium 100 lb/A

■ Potash (K_2O)

- Low 200 lb/A Medium 150 lb/A

- Split Potash

Fertilization – Plastic Mulch & Drip

- **Pre-Plant (medium soil test)**

- **50 – 100 – 100 lb/A**

- 1,000 lb/A of 5 – 10 – 10 or equivalent

- **8 to 10 weekly applications after planting)**

(beginning 3 to 4 weeks

Alternated

- **7.75 – 0 – 0 – 9.6 (Ca)**

- 50 lb/A/week of calcium nitrate

- **6.875 – 0 – 23**

- 50 lb/A/week of potassium nitrate

- **20-20-20**

- 50 lb/A/week of water soluble 20-20-20

Fertility - Organically

- ▶ Limiting Factor in Organic Production is poor soil fertility!
 - ▶ Start several years ahead of time, building soil fertility
 - ▶ Don't rely on foliar sprays or drip applications alone



Fertility – Organically (cont.)

- Build Fertility in Soil
 - Cover Crop
 - Green Manure Crops
 - Legumes
- Apply Manure / Compost 120 days before harvest
 - 2 to 4 (6) tons/A
- Drip or Sidesress
 - Water Soluble
 - Dry
- Foliar Products
 - Supplemental additions not primary fertilization





Foliar Sprays



- At vine running

- 1qt Maximizer / A
- 7# 20-20-20 /A
- 1 qt Boron /A

- At Fruit Set and Heavy Fruit

- 1qt Maximizer / A
- 7# 20-20-20 /A
- 1 qt Boron /A
- 1 qt Calcium / A
- DO NOT SPRAY IN HEAT OF THE DAY!!!!!!



Planting Dates

- Factors affecting Planting Dates
- Relative Maturity
- Markets
- Harvest Window
- Growing Method
- Soil Moisture

- Most Varieties have a relative maturity of 90-120 days

- NOT EXACT

This info comes out of Northeast and varieties will mature fast in heat.

Planting Dates

- No Till / Strip Till
 - June – Early July
- Bare Ground
 - Late June – Early July
- Plasticulture
 - Early July



Pumpkin Spacing

- Traditionally
 - 8' between rows
 - 4' in-row
 - 32 ft²
- Grower Practices
 - 6' between rows
 - 3' – 4' in-row
 - 18 – 24 ft²
- Personally
 - 5' between rows
 - 3' -4' in-row
 - 15 – 20 ft.
- Plant Type
 - Bush
 - 12 – 18 ft²
 - Semi-Bush
 - 18 – 32 ft²
 - Prolific Vining
 - 32+ ft²
- Extremes
 - 12 ft²
 - 100 ft²





Pumpkin Spacing (cont.)

➤ The more equidistant the spacing the better!

- 4 x 5
- 5 x 5
- 5 x 6
- 6 X 6
- 10 X 10
- 20 X 20

➤ Factors affecting spacing:

- Plant Vigor
- Fruit Size Desired
- Moisture
- Equipment
- Weed Control Strategy

Spacing



Pumpkin Seed Per Acre

▶ Pumpkin

▶ Bush

▶ 2,420 – 3,630

▶ Semi-Bush

▶ 1,360 – 2,420


▶ Prolific Vining

▶ 1,360 or less

▶ Personally

▶ 2178 - 2905





Pumpkin Yields - Conventional

- ▶ **Pumpkin**
 - ▶ **Bush**
 - ▶ 5,000 – 15,000 pumpkins/A
 - ▶ **Semi-Bush**
 - ▶ 2,000 – 4,000 pumpkins/A
- ▶ **Prolific Vining**
 - ▶ 1,500 to 2,000 pumpkins/A



Pumpkin Yields - Organic

- ▶ Pumpkin

- ▶ Bush

- ▶ 2,000 – 8,000 pumpkins/A

- ▶ Semi-Bush

- ▶ 1,000 – 2,000 pumpkins/A

- ▶ Prolific Vining

- ▶ 750 to 1,500 pumpkins/A

Planting Methods

Our System





Pumpkin Weed Control

➤ Preplant Burndown

- Aim 2EC @ up to 2 fl oz/A
- Glyphosate
- Paraquat

➤ PRE

- Curbit 3EC @ 3 to 4.5 pints/A, PRE
- Dual Magnum 7.64EC @ 1 to 1.33 pints/A (not over row)
- Prefar 4EC @ 5 to 6 quarts/A, PPI
- Sandea 75DG @ 0.5 to 0.67 oz/A, PRE
- Strategy 2.1L @ 2 to 6 pints/A, PRE

Pumpkin Weed Control

➤ POST

- Sandea 75DG @ 0.5 to 0.67 oz/A (?)
- Poast 1.5EC @ 1 to 1.5 pints/A
- Select Max 1EC @ 9 to 16 fl oz/A

➤ POST-Directed

- Aim 2EC @ up to 2 fl oz/A
- Glyphosate
- Sandea 75DG @ 0.5 to 1 oz/A
- Treflan 4EC @ 1 to 1.5 pints/A



Gourds

- Have seen stand reductions
- Consider:
 - Command @ 16 to 21 fl oz/A
 - Dual Magnum @ 1 to 1 1/3 pints/A
 - Sandea @ 1/2 to 2/3 oz/A



Pumpkin Weed Control



➤ Option A

- Command @ 1 to 1 1/3 pints/A
- Dual @ 1 to 1 1/3 pints/A
- Reflex 1 1/2 to 2 pints/A
- Sandea @ 1/2 to 2/3 oz/A

• Option B

- Command @ 1 to 1 1/3 pints/A
- Dual @ 1 to 1 1/3 pints/A
- Sandea @ 1/2 to 2/3 oz/A

Row middle spray if needed



Larger the Assortment the better



Flat White Borer



Porcelain Doll



Blue Bayou/Blue Doll



Cinderella



Daybreak



Colorado Sunrise



Rascal



Long Island Cheese



Peanuts



Cushaws





Large Jack Varieties, 2022

- 
- ▶ **Gladiator**
 - ▶ **Kratos**
 - ▶ Orange Sunrise
 - ▶ Sweet Baby Jane
 - ▶ Hulk
 - ▶ Aladdin
 - ▶ Denali
 - ▶ Olympus
 - ▶ Large Marge
 - ▶ Conestoga Special

Kratos



Gladiator



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Magician



Cronus



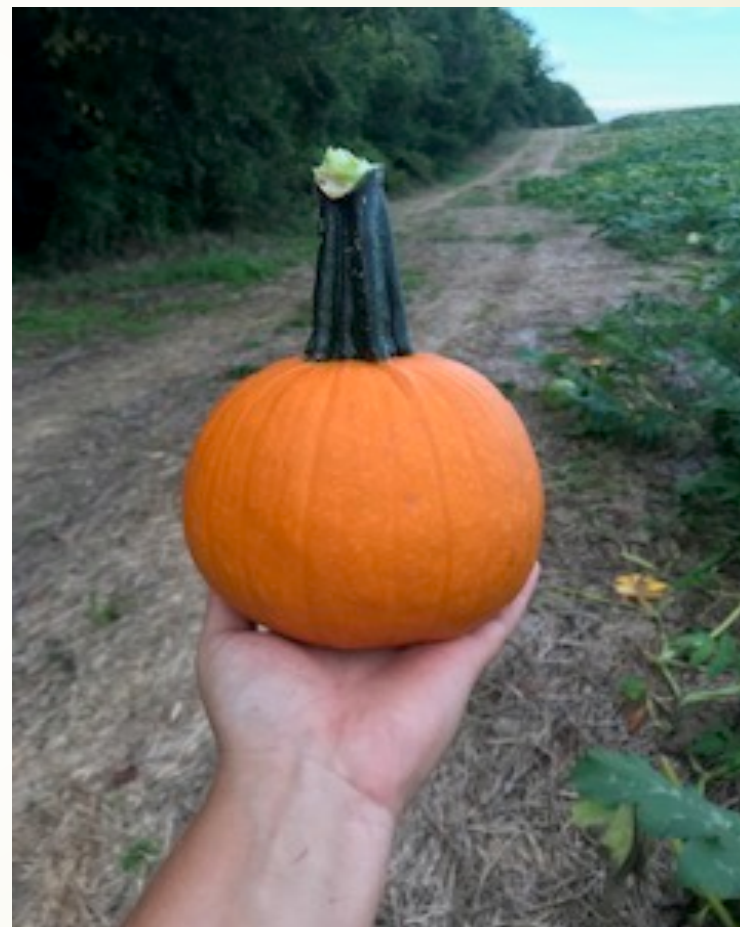
Orange Sunrise





Small Varieties, 2022

- ▶ Field Trip
- ▶ Little Giant
- ▶ Cannon Ball
- ▶ Jack Sprat
 - ▶ 3 lb. “pie”



Field Trip



Jack Sprat



Cannon Ball



Iron Man



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Moonglow



Blaze



Lil' Pump-ke-mon



Mixed Bins



Warty Goblin



Mini Warts



Warty Gnome



Red Warty Thing



Grizzly Bear







White Varieties, 2022



Large

-  'New Moon'
-  'Polar Bear'






Medium

-  'Blanco'
-  'Cotton Candy'
-  'Moonshine'
-  'Lumina'



Stackable

-  Flat White Borer
-  Flat Stacker
-  Moonlight



Small

-  'Snowball'



Miniature

-  'Poco Blanco'
-  'Casperita'

Casperita



Snowball



Blanco



New Moon



Polar Bear



Flat White Boer



Specter



Mixed Gourds





Ornamental Gourds



➤ Small Fruited

- 'Autumn Wings'
- 'Nest Egg'
- 'Orange'
- 'Pear Bicolor'
- 'Shenot Crown of Thorns'
- 'Small Flat Striped'
- 'Spoon'
- 'Super Select Warted'

➤ Large Fruited

- 'Apple'
- 'Birdhouse/Bottle'
- 'Caveman's Club'
- 'Dipper'
- 'Snake/Italian'
- 'Swan/Goose Gourd'



Lemonade and Fools Gold



Turks Turban



Gizmo



Newton



Grow what your buyers want!!



Do I Need Pollinators?????



Pollination

- Rule of thumb:
 - 1 hive/A
- Observations
 - 0 hives/A
 - Native bees
 - Cucumber beetles
 - 2 hives/A
 - Competition





Irrigation



- Many of the cucurbit crops have been grown utilizing Dry Land Production
- Trends
 - Pumpkins
 - Overhead Irrigation (Traveling Gun)
 - Following annual plasticulture strawberries with pumpkins, utilizing the mulch and trickle irrigation system
 - Possible Future Trends - Trickle Irrigation of bare ground production
- Needs:
 - 1 to 2 1/2 inches of water/A/week



seed
treatment

- ✗ Contains the neonicotinoid systemic insecticide – Thiamethoxam
- ✗ Contains fungicide active ingredients in:
 - ✗ Apron XL®
 - ✗ Maxim® 4FS
 - ✗ Dynasty®
- ✗ Purchase seed pre-treated with FarMore



Disease Control



Diseases – Viral and Bacterial

- ▶ Viral
 - ▶ Mosaic Viruses
- ▶ Bacterial
 - ▶ Bacterial Wilt
 - ▶ Yellow Vine



Mosaic Viruses

- Mosaic Viruses
 - Cucumber Mosaic Virus
 - Papaya Ringspot Virus
 - Watermelon Mosaic Virus
 - Zucchini Yellow Mosaic Virus



Cucumber Mosaic Virus



Papaya Ringspot Virus



Viral Disease Control

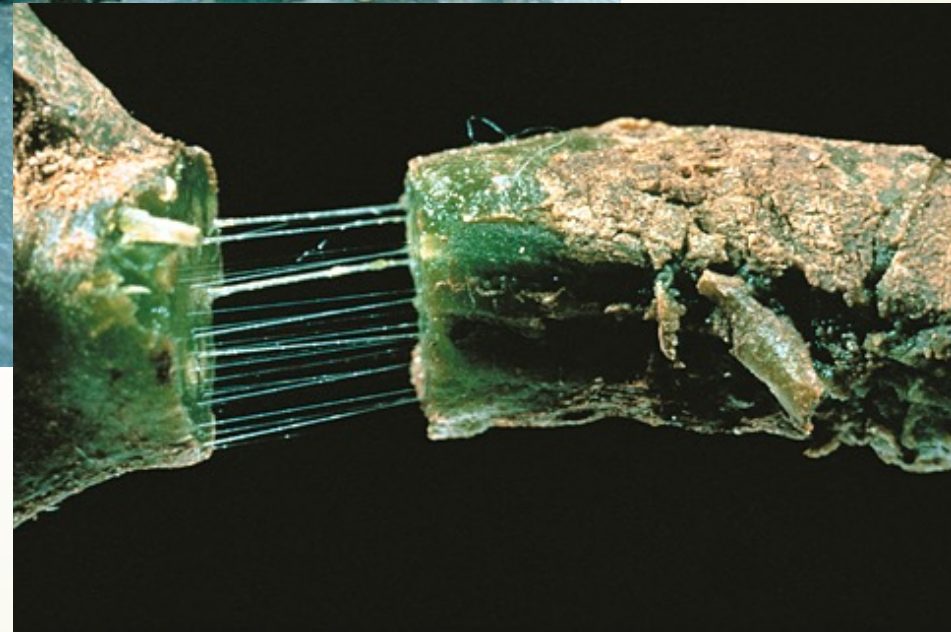
➤ Aphid Control (?)

- Very hard to prevent by controlling aphids
 - It only takes a few seconds of feeding for an aphid to transmit the virus
 - However, many people have seen reduced incidence by using a systemic insecticide
 - Admire
 - Platinum
 - Venom

➤ Aphid Control (cont.)

- Use yellow mulch (?)
 - Yellow repels aphids
 - Yellow attracts cucumber beetles
 - Yellow mulch also delays maturity
- Lannate LV @ 1 quart/A
 - (?)
- Fulfill @ 2.75 fl oz/A
- Use Resistant Varieties
 - 'Magician' (ZYMV)
 - 'Kratos'

Bacterial Wilt



Yellow Vine



Bacterial Wilt and Yellow Vine Control

➤ Cucumber Beetle and Squash Bug Control

➤ Opposite viral transmittal by aphids, cucumber beetles and squash bugs must chew for several minutes to transmit bacterial wilt and yellow vine

❑ Systemic Insecticides are very effective

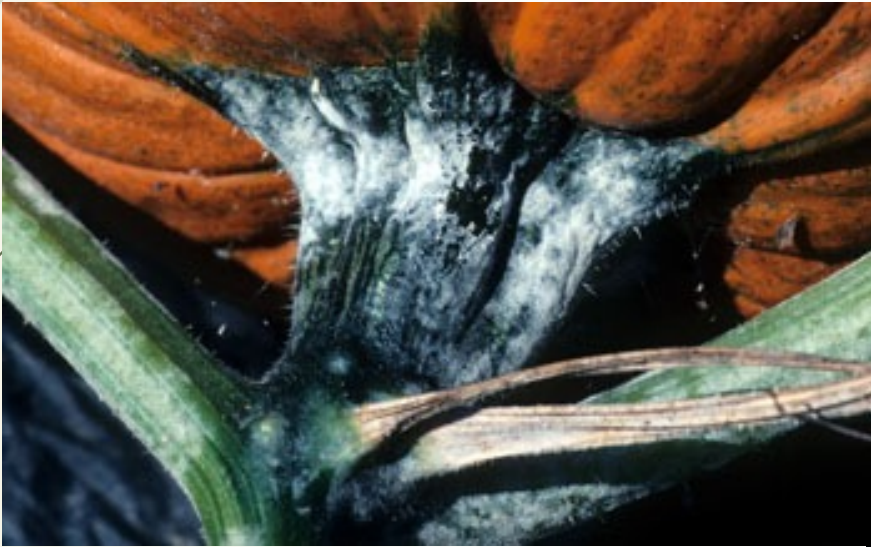
- ❑ Admire
- ❑ Platinum
- ❑ Venom



Powdery Mildew - Pumpkin



Powdery Mildew on Stems



Powdery Mildew Control

- Cultural
 - Resistant Varieties
- Chemical
 - **Torino @ 3.4 fl oz/A**
 - Quintec @ 4 to 6 fl oz/A
 - Sulfur
 - Inspire Super @ 16 to 20 fl oz/A
 - Aprovia Top @ 10.5 to 13.5 fl oz/A
 - Chlorothalonil
 - Fontelis @ 1 pint/A
- Chemicals (cont.)
 - Pristine
 - Merivon
 - Quadris Top
 - Luna Experience
- Labeled, but ???
 - Actigard
 - Swith
 - Tebuconazole
- Resistance (Possible)
 - Rally 40WSP
 - Procure 50WS



Spray Schedule



- ▶ Early Season

- ▶ Rotate or tank mix

- ▶ Chlorothalonil

- ▶ Mancozeb

- ▶ **Then Add**

- ▶ Powdery Mildew

- ▶ Torino @ 3.4 fl oz/A

- ▶ Quintec @ 4 to 6 fl oz/A

- ▶ Sulfur

- ▶ Downy Mildew

- ▶ Orondis Ultra

- ▶ Orondis Opti

- ▶ Ranman @ 2.75 fl oz/A

- ▶ Presidio @ 4 fl oz/A

- ▶ Zampro @ 14 oz/A

Downy Mildew - Pumpkin





New Products for Control of Downy Mildew

- ▶ Presidio 4F @3 to 4 fl oz/A
- ▶ Previcur Flex @ 1.2 pints/A
- ▶ Ranman 400SC @ 2.75 fl oz/A
- ▶ Revus 2.08F @ 8 fl oz/A
- ▶ Tanos 50WP @ 8 oz/A
- ▶ Rotation is very important!
- ▶ Tank mixes are recommended!
 - ▶ Chlorothalonil
 - ▶ Mancozeb
- ▶ Sonata (organic)

Microdochium Blight



Fusarium Fruit Rot





Fusarium Control



- At least 11 different species of Fusarium that infect pumpkins
- Manifestation
 - It often appears after periods of stress
 - Drought
 - Heat
 - Sometimes, even during excessively wet seasons

➤ Fusarium Control

- Irrigation
- Use of calcium nitrate at sidedressing
- Foliar applications of calcium
- Foliar fertilizer applications (?)
- Use of no-till or minimum tillage systems (?)
- Rotation (?)

Phytophthora capsici (Fruit Rot)





Phytophthora Control



- No such thing!!!
- Very persistent in the soil
 - Resting spore
 - At least 8 years (15)
 - Alternate host plants
 - Cucurbits
 - Squash and pumpkins most sensitive
- Phases
 - Root Rot
 - Plant
 - Fruit & Foliar
- Management
 - Avoid fields with Phytophthora
 - Avoid low or wet areas
 - Ridomil Gold at planting
 - Ridomil Gold Bravo applied to foliage
 - Presidio
 - Tanos

Bacterial Diseases



The best control is foliar
copper sprays.

Tanos

Mancozeb

Copper



Bacterial spots on a pumpkin leaf (T. A. Zitter)



Bacterial spots on a
pumpkin leaf (M. Babadoost)

Bacterial Spot on Fruit



The best control is foliar copper sprays. Tanos + Mancozeb + Copper



Bravo and Sunburn

- ▶ Sunburn issues with Bravo on mature Watermelon and Pumpkins
- ▶ Could mature pumpkins be sensitive to Bravo?
- ▶ Grower experience suggests a good possibility





Good Quality Mature Stems

- Dark Green (Black)
- Hard
- Free of Disease
- If you cut immature stems they will shrivel or rot!
- Your pumpkins will be rejected!



Stem Quality

- Control Diseases
 - Powdery Mildew
 - Microdochium Blight
- Vine Health
 - Fertility
 - Sidedressing
 - Foliar
 - Irrigation



Late season Insect Issues



Aphids

- Multiple species can attack vegetables
- Most species feed on multiple host plants
- Sap sucking feeders
- Transmit viruses
- Possess cornicles "tail pipes"
- Winged adults
- Asexual reproduction (parthenogenesis)
- Produce honeydew





Aphid Control products

- ▶ Assail 30SG @ 2.5 to 4 oz/A (0)
 - ▶ Beleaf 50SG @ 2 to 2.8 oz/A (0)
 - ▶ Belay 50WDG @ 1.6 to 2.1 oz/A (7)
 - ▶ Fulfill 50WDG @ 2.75 oz/A (14)
 - ▶ Sivanto 200SL @ 7 to 12 fl oz/A (1)
 - ▶ Verimark 1.67SC @ 10 to 13.5 fl oz/A (1)
-
- ▶ Actara 25WDG @ 1.5 to 3 oz/A (0) Bee Concerns?
 - ▶ Admire Pro 4.6F @ 7 to 10.5 fl oz/A (21) Bee Concerns?
-
- ▶ Harvanta 50SL @ 10.9 to 16.4 fl oz/A (supression) ?)

CUCUMBER BEETLES

Striped cucumber beetle



Spotted cucumber beetle



Cucumber Beetle Feeding Damage



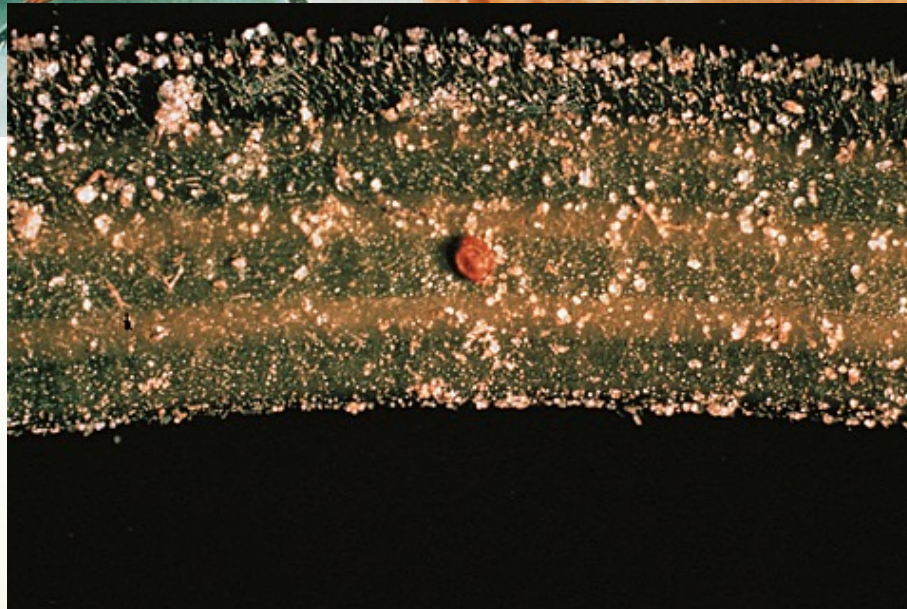
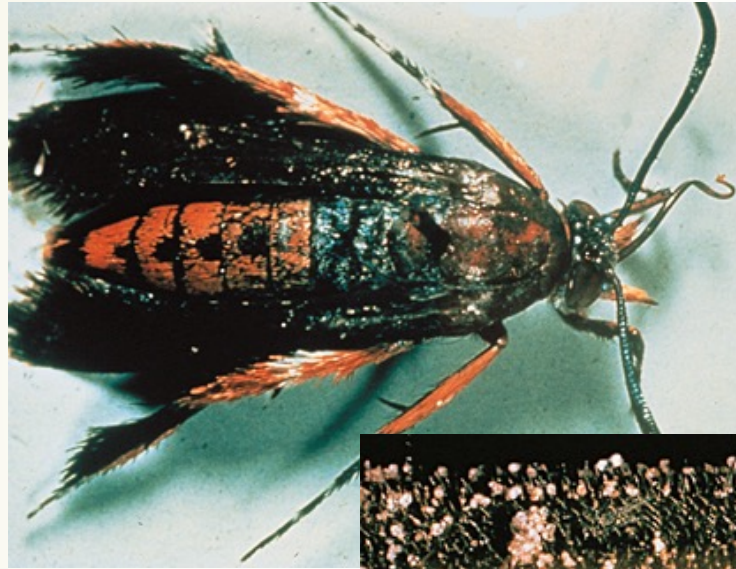
Control

- Assail 2.5 to 5.3 oz/A (0)
- Belay 50WDG 1.6 to 2.1 oz/A (7)
- Sevin XLR Plus @ 1 quart/A (3)
- Venom 70SG @ 1 to 4 oz/A (21) **Bee Concerns**
- Admire Pro 4.6F @ 7 to 10.5 fl oz/A (21) **Bee Concerns**
- Pyrethroids (?) **Aphids**

Squash Bugs – Transmit Yellow Vine



Squash Vine Borer



Squash Vine Borer - Larvae



Pickleworm Feeding Damage



Control

- Avaunt 30WDG @ 2.5 to 6 oz/A (3)
- Coragen 1.67SC @ 3.5 to 5 fl oz/A (1)
- Harvanta 50SL @ 10.9 to 16.4 fl oz/A (1)
- Intrepid 2F @ 4 to 10 fl oz/A (3)
- Radiant 1SC @ 5 to 10 fl oz/A (3)
- Bt's (?)
- Pyrethroids (?) **Aphids**

Questions



Good Luck in 2022 growing Season



Most of ALL have **FUN!!!!**





Thank You!!!!

- ➡ **Ben Gilbert**
 - ➡ **Gilbert Pumpkins**
 - ➡ **865-712-2032**
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