



Pumpkin Update

Ben Gilbert
Gilbert Pumpkins

A little about our operation






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





Where to buy Seed

- 
- ▶ Seedway
 - ▶ Clifton
 - ▶ Rupp
 - ▶ Stokes
 - ▶ Harris
 - ▶ Holmes
 - ▶ Outstanding
 - ▶ NeSeed

Recommended Pumpkin Varieties

▶ Wholesale

Jack-O-Lantern

- ▶ 'Gladiator'
- ▶ 'Kratos'
- ▶ Orange Sunrise
- ▶ Adonis
- ▶ Olympus
- ▶ Rhea
- ▶ Zeus
- ▶ 'Magic Lantern'
- ▶ 'Aladdin'
- ▶ 'Apollo'

▶ Large Fruited

- ▶ Cronos
- ▶ 'Early King'
- ▶ 'Hulk'
- ▶ 'Large Marge'
- ▶ Sweet Baby Jane

▶ Small Fruited ("Pies")

- ▶ 'Cannon Ball'
- ▶ 'Field Trip'
- ▶ Jack Sprat
- ▶ 'Hybrid Pam'
- ▶ 'Mystic Plus'



Specialty Varieties



- ▶ Edible Types

- ▶ 'Buckskin'
- ▶ 'Small Sugar'

- ▶ White

- ▶ Cotton Candy
- ▶ Moonshine
- ▶ Lumina

- ▶ Stackables

- ▶ 'Rouge Vif d'Etampes'
- ▶ 'Fairytale'

- ▶ Other Specialties

- ▶ 'Grey Ghost'
- ▶ 'Queensland Blue'

- ▶ Kabocha

- ▶ Red (orange)
 - ▶ 'Red Kuri'
 - ▶ 'Sunshine'

- ▶ Green

- ▶ 'Cha-Cha'
- ▶ 'Black Forest'

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, 2023

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

Kratos



Gladiator



BB Robinson 2014

Magician



Cronus



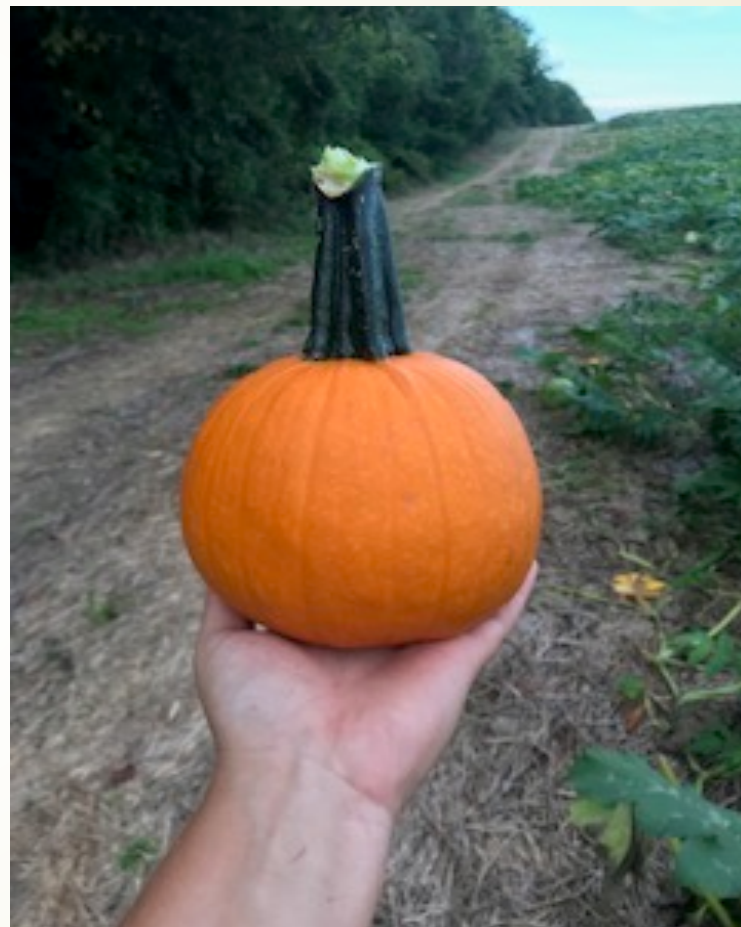
Orange Sunrise





Small Pies Varieties, 2023

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



Field Trip



Jack Sprat



BB Robinson 2014

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, 2023




Large

-  'New Moon'
-  'Polar Bear'



Medium

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





Stackable

-  Flat White Borer
-  Flat Stacker
-  Moonlight
-  Snow White



Small

-  Snowball
-  Snow Drop



Miniature

-  Baby Boo
-  'Casperita'

Casperita



BB Robinson 2014



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 Warded'

➤ 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
- **Personally 1/2 hive/A**





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

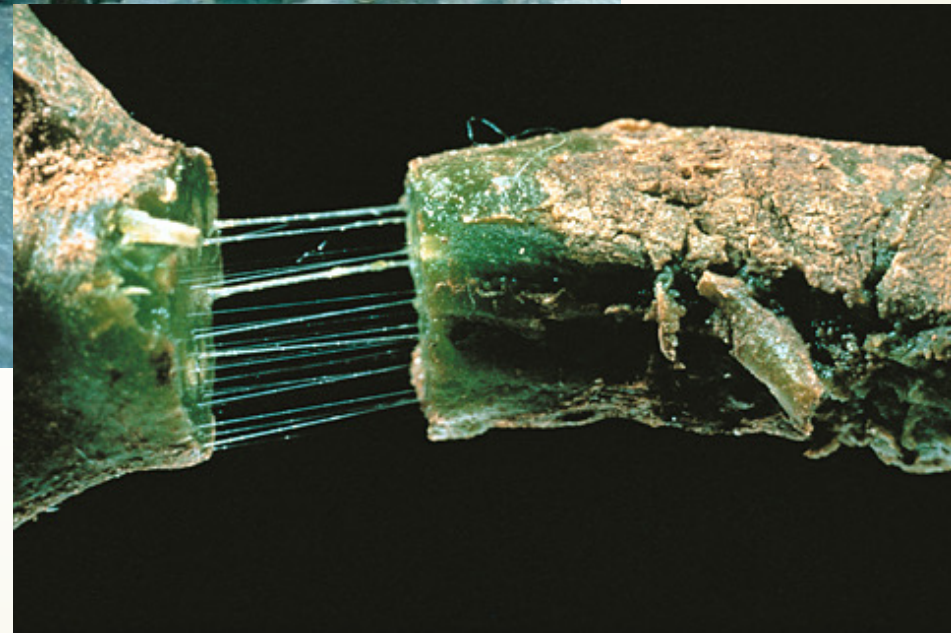
➤ Aphid Control (?)

- 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



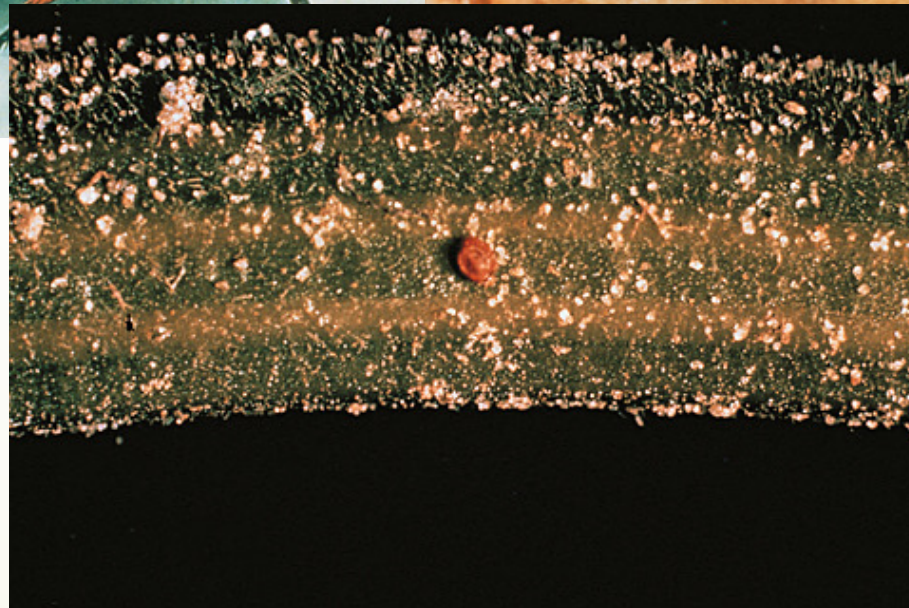
Control

- ▶ 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**

Everything Fall besides pumpkins



Mums

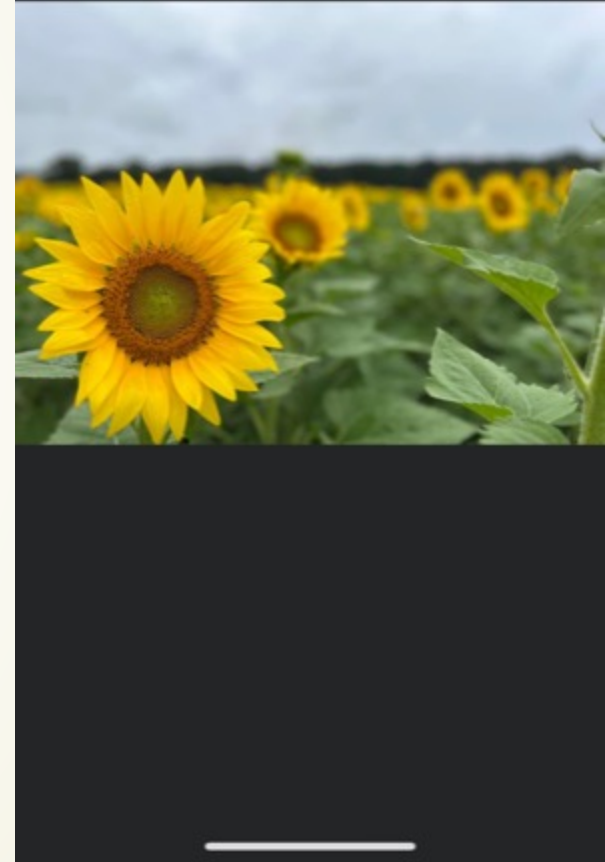
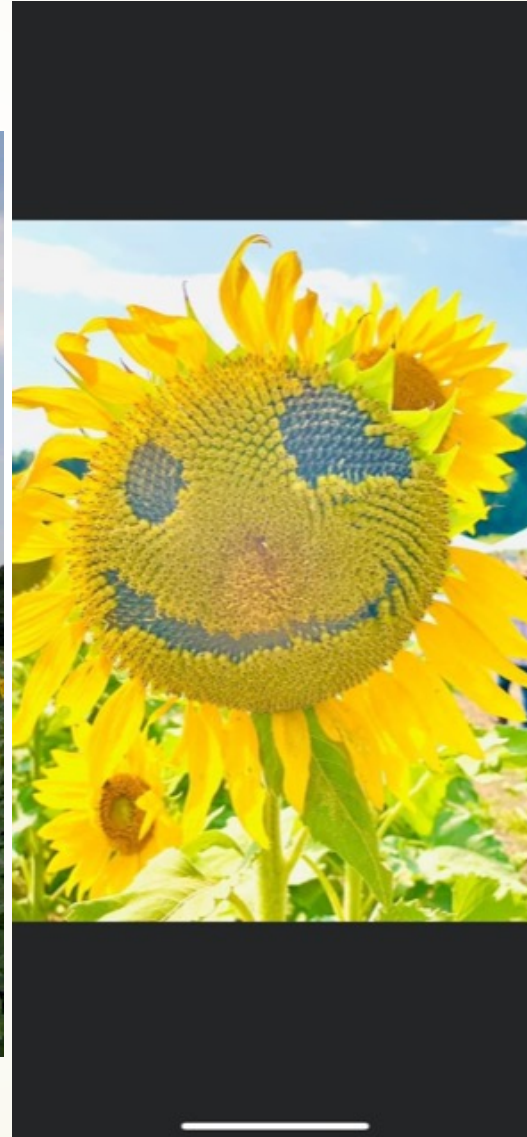
We grow 8", 10", and 12"



Mums



Sunflower

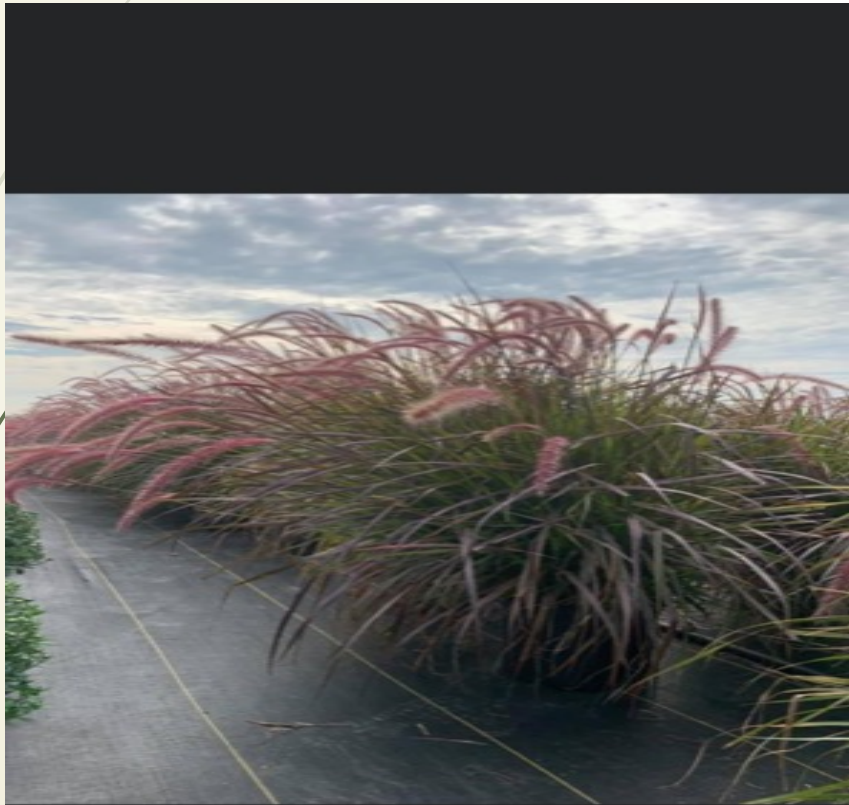




Sunflowers in Pots



Purple Fountain Grass



Potted Flowers



Corn Cabbage



Ornamental Pepper



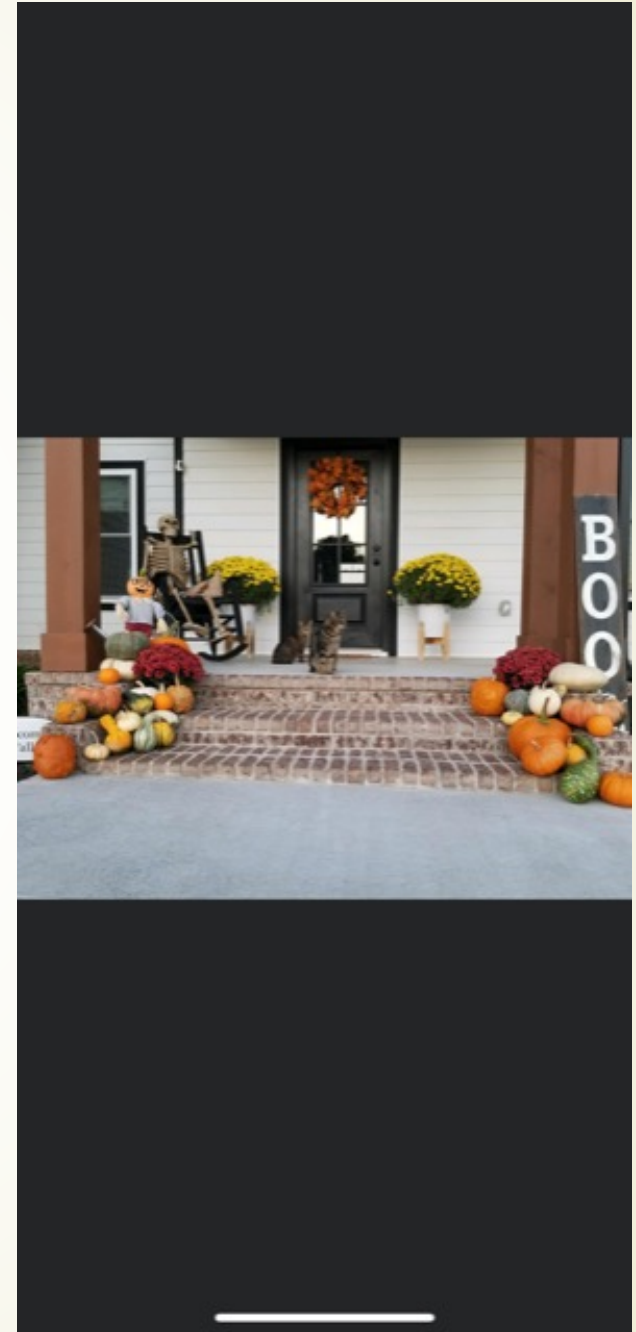
Kale and Cabbage



Business Decorations



Display Contest



Questions



Good Luck in 2023 growing Season



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





Thank You!!!!

➤ Ben Gilbert

➤ Gilbert Pumpkins

➤ 865-712-2032

