



# ***Snap Bean Weed Control in Mid-Atlantic States***

**Mark VanGessel, Quintin  
Johnson, and Barb Scott**

**UD Weed / Crop Management**



# Outline

- Review herbicides
- Resistance issues
- Summarize snap bean research
- Discussion cultural and mechanical weed control
- Odds and ends

# Snap Bean Herbicides

- **SOIL-applied**
  - **Dacthal**
  - **Dual Magnum**
  - **Command**
  - **Eptam**<sup>PPI</sup>
  - **Prowl**<sup>PPI</sup>
  - **Reflex**
  - **Sandea**
  - **Treflan**<sup>PPI</sup>
- **POST**
  - **Basagran**
  - **Reflex**
  - **Sandea**
  - **Assure II/Targa**
  - **Poast**
  - **Select Max**

PPI, pre-plant incorporated only

# Eptam<sup>®</sup>

Selective Herbicide

- EPTC - 2.5 to 3.0 lb ai/A
- Eptam 7E 3 to 3.5 pts/A or 15 pounds of Eptam 20G
- PPI, *immediately after application*
- *Do not use on flat-podded varieties, except Romano*
- Provides nutsedge control, annual grasses, and some broadleaf weeds
  - tankmix to broaden spectrum of control
- Rotation: after harvest

# Treflan



- trifluralin - 0.5 to 0.75 lb ai/A
- 1.0 to 1.5 pints per acre of Treflan 4EC or 10 to 15 pounds per acre of Treflan 5G
- Incorporate within 8 hours after application
- Primarily controls annual grasses and a few broadleaf weeds
- Potential problems with root rots
- Rotation: up to 5 mos (depending on crop)



# Prowl



- pendimethalin - 0.7 to 1.4 lb ai/A
- 1.5 to 3 pts/A Prowl 3.8 H2O  
or 1.8 to 3.6 of 3.3 EC formulation
- Incorporate thoroughly
- Primarily controls few annual grasses and certain broadleaf weeds
  - do not use when soils are cold and/or wet soil during emergence, or crop injury may result
- Rotation: next year for most crops

# Dacthal

- DCPA – 6 to 10.5 lb ai/A
- 8 to 14 pts/A of Dacthal 6F - PRE only
- Primarily controls annual grasses and a few broadleaf weeds, including common purslane
- Results have been most consistent when used in fields with coarse-textured soils low in organic matter and when the application was followed by rainfall or irrigation
- Rotation 8 mos for most crops



- s-metolachlor - 0.63 to 1.91 lb ai/A
- Apply 0.66 to 2 pts/A per acre Dual Magnum 7.62E - PPI or PRE
- Primarily controls annual grasses, nutsedge, and small-seeded broadleaves
- *Other generic versions of metolachlor and s-metolachlor may be available, and may or may not be labeled for use in the crop*
- Rotation: up to 12 mos



# Sandea<sup>®</sup>

Herbicide

- halosulfuron - 0.024 to 0.047 lb ai/A
- 0.5 to 1.0 oz wt/A Sandea 75DF - PRE
- Yellow nutsedge and many annual broadleaf weeds. PRE applications will control lambsquarters, jimsonweed, and purslane
  - POST will not control these three
- More than ~0.5" of water before emergence can increase injury
- Rotation: 3 to 18 mos depending on crop



- fomesafen - 0.25 to 0.38 lb ai/A
- 1 to 1.5 pt/A Reflex 2SC - PRE
- Controls a range of broadleaf weed species, including lambsquarters
  - will not control lambsquarters POST
- Do not apply to fields more than once every two years
- Rotations: 4 to 18 mos depending on crops

# Region 2: max Rate 1.5 pts/A alternate years

**DE, KY, MD, VA, WV**

**PA: South of I-80 to  
intersection of US-15  
and east of Highways  
15 and 522**



# Region 3: max Rate 1.25 pts/A alternate years

CT, ME, MA, NH, NJ,  
NY, RI, VT

PA: except areas in  
Region 2





- imazamox - 0.031 lb ai/A
- 4 fl oz/A of Raptor 1 L
  - at least 1 fully expanded trifoliate
- Use NIS (no COC or N)
- Use Basagran (8 to 16 oz) to reduce risk of injury
- Snaps more sensitive to Raptor than limas
- Not labeled in NJ
- Rotations: 3 to 18 mos



- bentazon - 0.5 to 1.0 lb ai/A
- Apply 1.0 to 2.0 pts/A Basagran 4SC
  - when beans have fully expanded first trifoliate
- Controls common cocklebur, mustards, jimsonweed common lambsquarters, and common ragweed – will not control pigweeds
- The use of COC increases risk and severity of crop injury – use NIS when weeds are small and soil moisture is adequate
- Do not spray when temperatures are over 90°F
- Rotations: no restrictions



- fomesafen - 0.125 to 0.25 lb ai/A
- 0.50 to 1 pts/A Reflex 2SC
  - one to two fully expanded trifoliate leaves
- Use NIS; 30 days PHI
- Tank-mix with bentazon (Basagran) to improve the control of common lambsquarters (0.75 pt + 1.5 pt)
- DO NOT apply to any field more than once every two years in the region
- Rotations: 4 to 18 mos depending on crops

# Sandea<sup>®</sup>

Herbicide

- halosulfuron - 0.024 to 0.031 lb ai/A
- 0.50 to 0.66 oz wt/A of Sandea 75DF
  - beans should have 2 to 3 trifoliate leaves
- Add NIS
- Controls yellow nutsedge and certain annual broadleaf weeds
  - will not control lambsquarters POST
- Rotations: 3 to 18 mos depending on crop





# Grass Herbicides

**Assure® II**  
herbicide

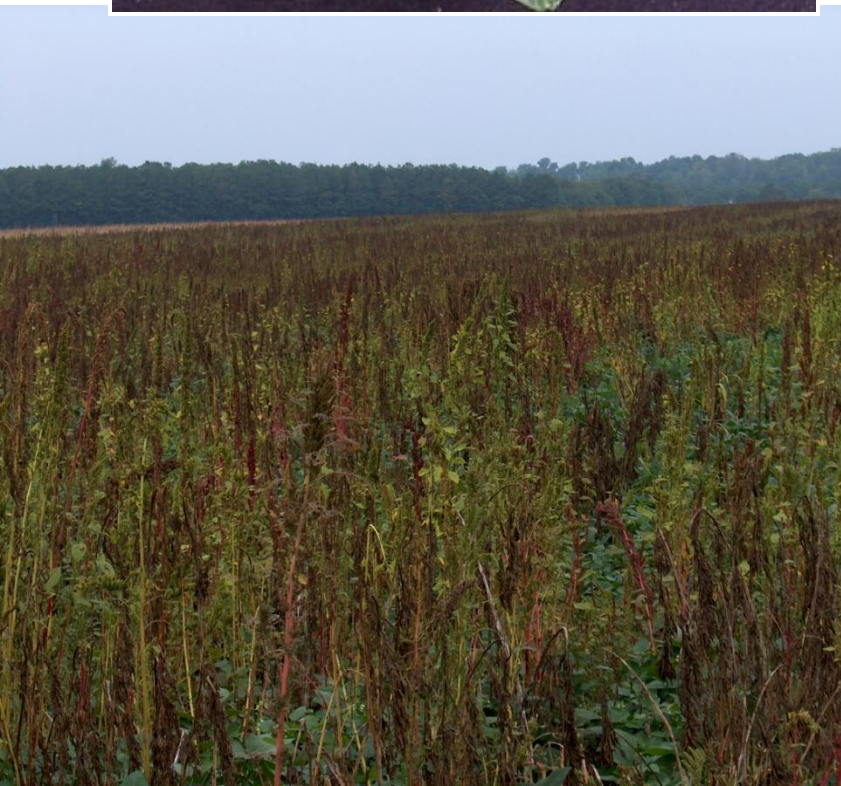
**Targa®**  
Herbicide

**SELECTMAX®**  
HERBICIDE  
WITH INSIDE TECHNOLOGY™

**Generics also available**



# Wide-spread ALS-R pigweed



**Snap beans:**  
**Sandea**  
**Raptor**  
**Lima beans:**  
**Pursuit**



# Notes

- Most soil-applied products caution about use under cool, wet conditions
  - concerns for early-planted crops
- Most POST require snap beans to be at 1<sup>st</sup> trifoliate stage or later AND recommend weeds no larger than 2 to 3" tall
- S-metolachlor followed by Reflex plus Basagran has been most consistent program in UD trials

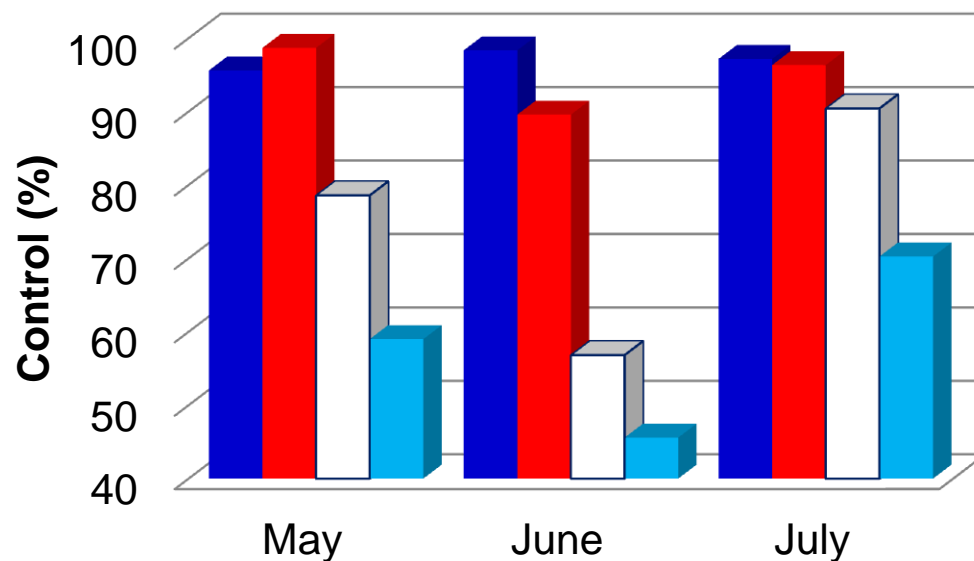
# Timing of POST Treatments

- Four-year trial (2000 to 2004)
  - 4 reps each year
- Three planting dates
  - mid-May, mid-June, and mid-July
- Six weed removal timings\*\*
  - POST applications at 10, 20, 30, or 40 DAP
  - Weed-free and weedy check
- Percent weed control, yields, and grades

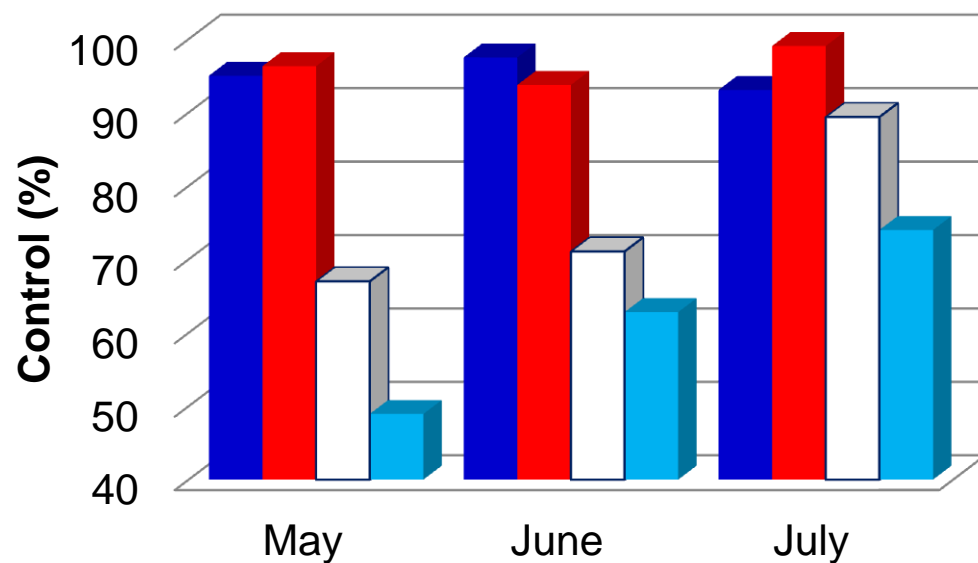
**\*\**Reflex (1 pt) + Basagran (1.5 pt) + Poast (1.25 pt)***



## Smooth Pigweed

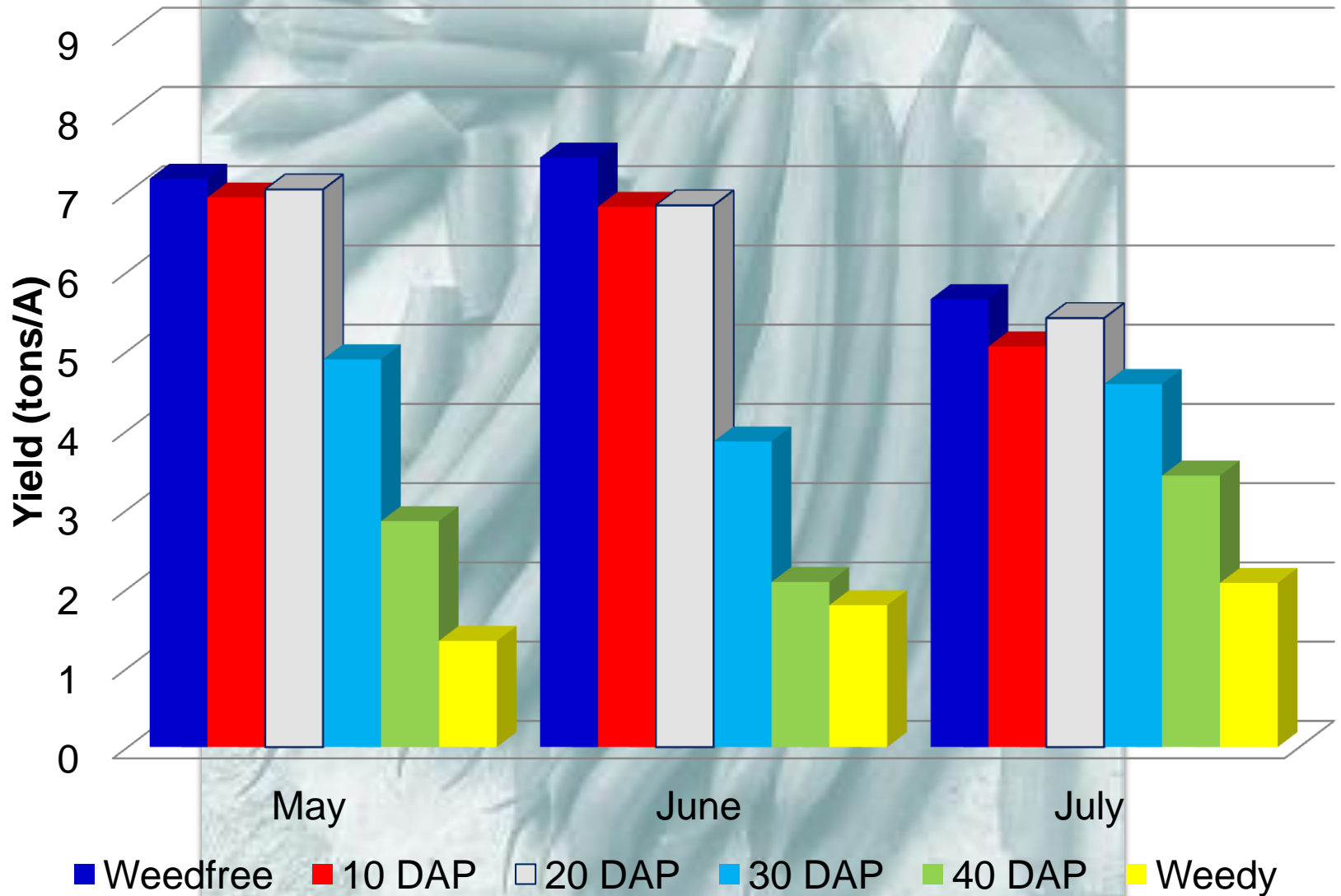


## Common Lambsquarters



■ 10 DAP ■ 20 DAP □ 30 DAP ■ 40 DAP

# Snap Bean Yield



# Summary

- Timely POST treatments is critical
- Application to weeds <3"
- PRE herbicide selection is challenging
  - Potential injury with early planted crops
  - Sandea injury with coarse-textured soils
  - Only one applic. of Reflex per 2 yrs
    - often better as POST on some species

# Cultural

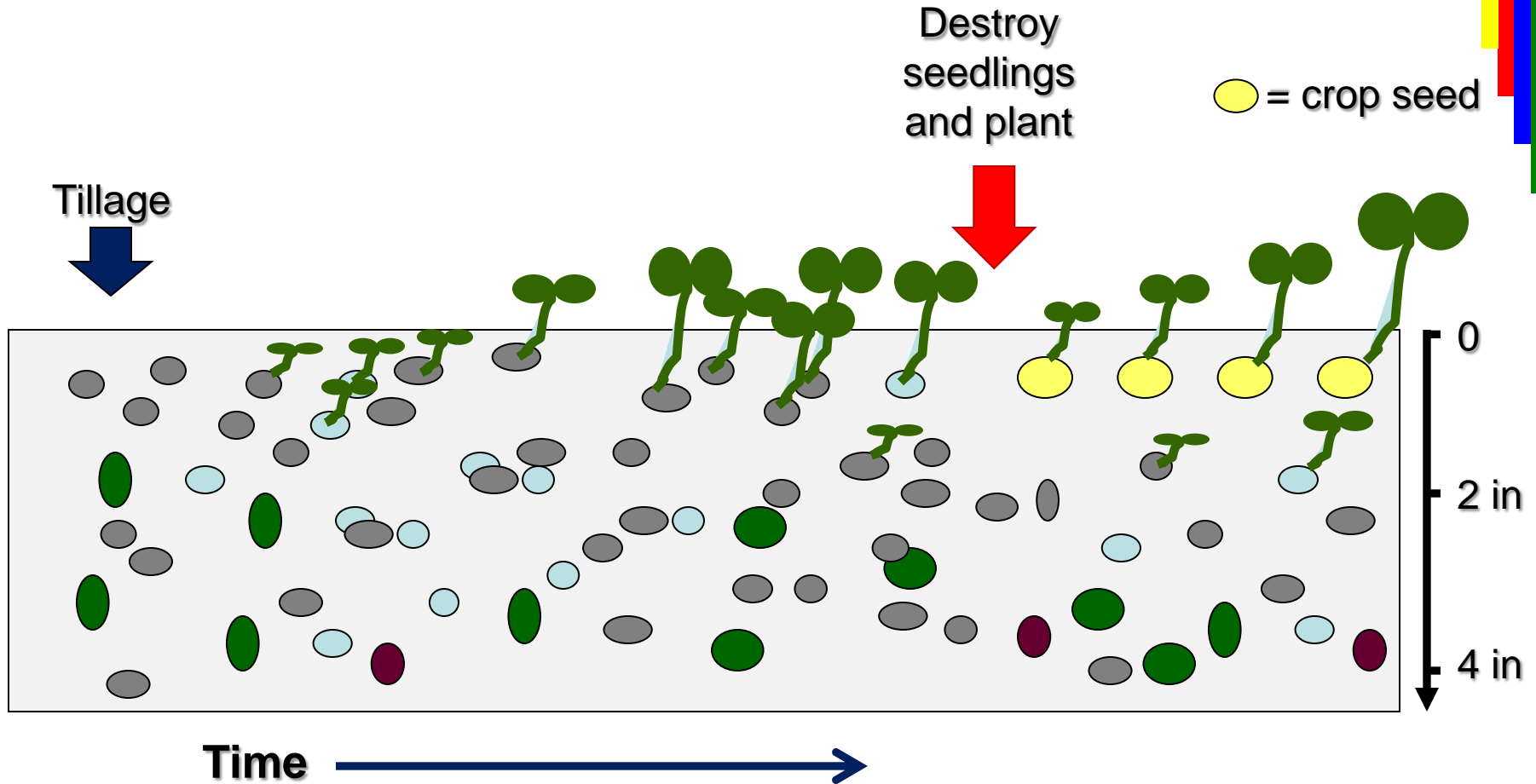
- **Stale** seedbed or **False** seedbed
- Concept allow seeds to germinate, kill weeds before crop emergence, few weeds growing in the crop
- **Stale**: prep soil 2 to 4 weeks prior to planting and then kill weeds at planting
  - Shallow tillage, flaming, chemical



# Cultural

- **False seedbed:** weeds emerging in response to tillage are killed by two or more additional shallow cultivations at weekly intervals
- Crop is planted immediately after the final cultivation
  - final cultivation is as shallow as practical to avoid stimulating further weed seed germination
  - leaves the soil surface loose and open, forming a dry, crumbly layer from which weed seeds are less able to take up moisture and germinate

# Concept of False/Stale Seedbeds



# Stale and False Seedbed Considerations

- Need time before planting to start tillage
  - 2 to 3 wks for Stale; longer for False
- Irrigation can be used to encourage seed germination
- Increased risk of soil erosion and crusting during the cultivated fallow period
- Planting or transplanting equipment can disturb the soil sufficiently to stimulate weed emergence in the crop row
- More successful with early germination species (i.e. lambsquarters)

# What should you do first?



Typically spray first because waiting to allows:

- the weeds in the row to get larger
- snap beans to grow and increase likelihood of intercepting herbicide spray



# Comments

- UD work with rotary hoe and beans have looked favorable if done timely
  - “white-thread” stage
- Timeliness of cultivation just as important as timeliness of herbicide treatment



# Thank you to

- Pennsylvania Vegetable Marketing and Research Program
- Hanover Foods
- Seabrook Bros
- PictSweet
- Agri-chem Companies
- Dwight Lingenfelter, PSU

