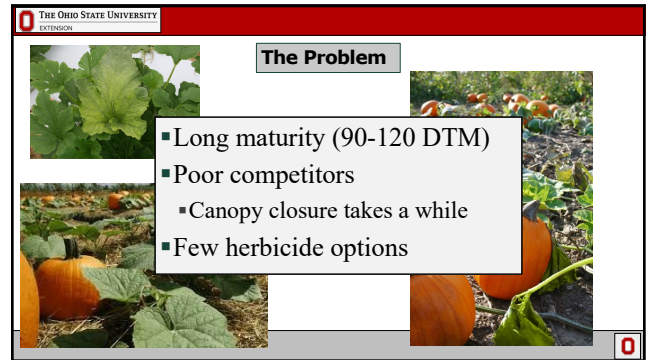
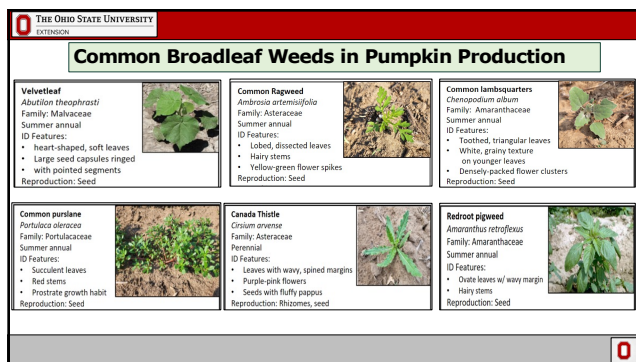




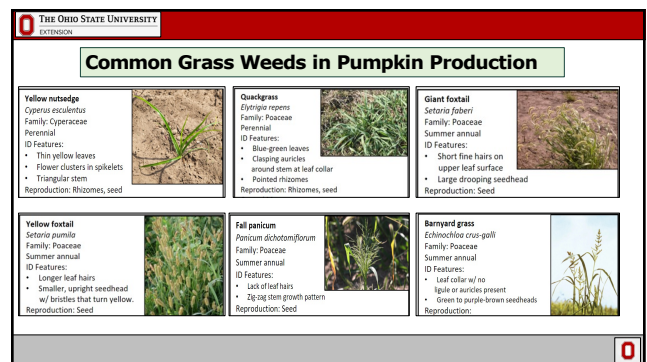
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The Ohio State University EXTENSION			
Different Pumpkin Weed Control Strategies			
Pumpkin Weed Control Systems			
	Conventional	No-Till	Plasticulture
PROS	<ul style="list-style-type: none"> Can control broad spectrum of weeds 	<ul style="list-style-type: none"> Cover crop/conservation tillage soil health benefits Weed suppression from mulch 	<ul style="list-style-type: none"> Weed suppression from plastic Minimizes soil splash. Retains soil moisture
CONS	<ul style="list-style-type: none"> Pesticide costs Negative effects of tillage. Negative effects of pesticides. 	<ul style="list-style-type: none"> Suppression relies on cover crop stand. Crop development may be slower in wet years. Mulch can contribute to rodent/slug problems. 	<ul style="list-style-type: none"> Increased <i>Phytophthora</i> pressure potential Little benefit of earlier harvest from plastic Much expense.
			

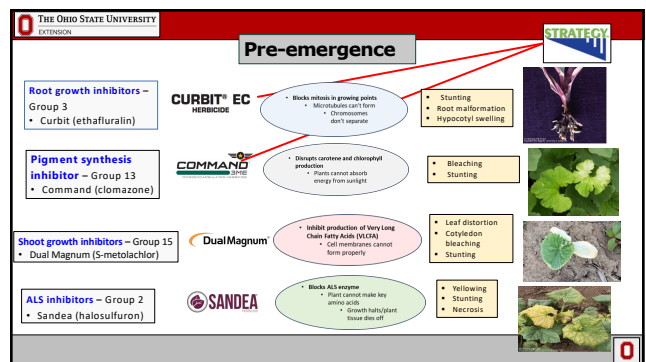
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The Ohio State University EXTENSION			
Pre-emergence – Core Products			
Herbicide Options for Pumpkins			
Trade Name	Active Ingredient	Rate (per acre)	Major Weeds Controlled
Strategy	ethafluralin + clomazone	3-6 pt	<ul style="list-style-type: none"> Annual grasses Perennials Strawweeds Pigweeds Lambquarters Chickweed Vernier
Curbit	ethafluralin	2-3 pt	<ul style="list-style-type: none"> Annual grasses Strawweeds Pigweeds Lambquarters Puncture Common ragweed Chickweed Vernier
Command	clomazone	0.67-2 pt	<ul style="list-style-type: none"> Annual grasses Lambquarters Puncture Common ragweed Chickweed Vernier
Dual Magnum	s-metolachlor	1-1.33 pt	<ul style="list-style-type: none"> Annual grasses Pigweeds Highbushes Yellow radish Lambquarters Puncture Common ragweed Marestail Marestail Highbushes Pigweeds Vernier Yellow cutgrass
Sandea	halosulfuron	0.5-1 oz	<ul style="list-style-type: none"> Annual grasses Pigweeds Lambquarters Puncture Common ragweed Marestail Marestail Highbushes Pigweeds Vernier Yellow cutgrass
			HRAC
			PHI (days)
			Notes
			<ul style="list-style-type: none"> 0.5" water within 2 days to activate 1 application per season Apply after seeding, but not overlap transplants
			<ul style="list-style-type: none"> 0.5" water within 3 days to activate Apply after seeding, but not overlap transplants Waterlogged soils can increase crop injury Do not apply on jack-o-lanterns Apply before transplanting/after seeding
			<ul style="list-style-type: none"> 0.5" water within 5 days to activate Apply after seeding Heavy rain may cause crop injury

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Pre-emergence – Other Options

Trade Name	Active Ingredient	Rate (per acre)	Major Weeds Controlled	HRAC	PHI (days)	Notes
Treflan	trifluralin	1-2 pt	<ul style="list-style-type: none"> Annual grasses Chickweed Pigweeds 	3	30	<ul style="list-style-type: none"> Apply and incorporate between rows at crop 3-4 leaf stage.
Prefar	bensulide	5-6 qt	<ul style="list-style-type: none"> Annual grasses Pigweeds 	Unknown	-	<ul style="list-style-type: none"> PREPLANT: incorporate 1-2" deep. PRE-EMERGENCE: Water in within 1-5 days.
Reflex	fomesafen	0.5-1 pt	<ul style="list-style-type: none"> Lambquarters Purdane Common ragweed Mustards Nightshades Pigweeds Horse-nettle 	14	32	<ul style="list-style-type: none"> Apply after seeding or 7 or more days before transplanting. One application every 2 years.

Herbicide Options for Pumpkins

Treflan HFP
HERBICIDE

Prefar 4-E
HERBICIDE

Reflex
HERBICIDE

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Pre-emergence

Root growth inhibitors – Group 3

- Treflan (trifluralin)

Unknown

- Prefar (bensulide)

PPO inhibitors – Group 14

- Reflex (fomesafen)

Treflan HFP
HERBICIDE

- Blocks ethyl in growing points
- Microtubules can't form
- Ovules don't separate

Prefar 4-E
HERBICIDE

- Typically grouped with metabolic inhibitors
- Organophosphate herbicide

Reflex
HERBICIDE

- Inhibits PPO enzyme
- Leads to peroxidation (degradation) of lipids
- Cell membranes are damaged

Stunting

- Root malformation
- Hypocotyl swelling

Stunting

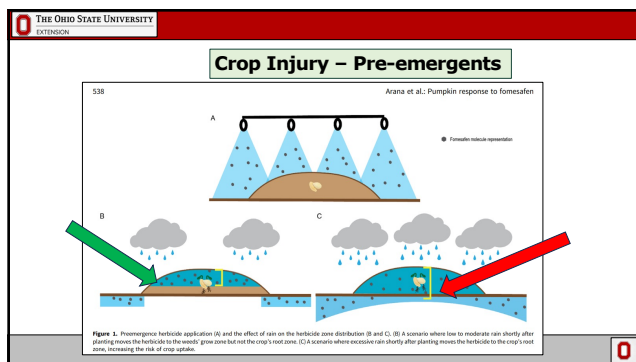
- Distorted leaves
- Necrosis

Chlorotic/necrotic spots

- Leaf crinkling

Photo credit: Arnes et al. 2012

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Winning Combinations

PRE:

- Strategy + Sandea
- Curbit + Sandea
- Dual Magnum + Sandea
- Strategy + Reflex

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Post-emergence						
Herbicide Options for Pumpkins						
	Trade Name	Active Ingredient	Rate (per acre)	Major Weeds Controlled	HRAC	PHI (days)
Post-emergence	Sandea	halosulfuron	0.5-1 oz	<ul style="list-style-type: none"> Common ragweed Mustards Pigweeds Smartweeds Violet Canada thistle Field bindweed Yellow nutsedge 	2	30
	Poast	sethoxydim	0.19-0.28 oz	Annual grasses	1	14
	Select Max	clethodim	9-16 fl. oz	Annual grasses	1	14
<p>Notes: - Temporary crop yellowing/stunting may occur. - Include 0.25% NIS - Do not apply over 2 oz/acre/year</p>						

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Post-emergence

ALS inhibitors – Group 2

- Sandea (halosulfuron)

Blocks ALS enzyme

- Plant cannot make key amino acids
- Growth halts/plant tissue dies off

ACCase inhibitors – Group 1

- Select Max (clethodim)
- Poast (sethoxydim)

Blocks ACCase enzyme

- Plant cannot synthesize fatty acids
- Growing point disintegrate

Effects:

- Yellowing
- Stunting
- Necrosis
- Halting growth
- Yellowing leaves
- Necrotic leaf sheaths

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Burn-down herbicides (between-row control)				
Non-selective Herbicide Options for Pumpkins (apply w/ hooded sprayer)				
Trade Name	Active Ingredient	Rate (per acre)	HRAC	Notes
Aim	carfentrazone-ethyl	0.5-2 fl. oz.	14	Add 1 qt COC (2% v/v) or 0.5 pt. NIS per 15 gal. of spray solution (0.25% v/v). Weeds must be actively growing and less than 4 inches tall. Do not exceed 6.1 fl. oz. per acre per season. Maximum 6.1 fl. oz. per acre per year.
Roundup 4L	glyphosate	2-3 qt.	9	
Gramoxone	paraquat	1.3-2.7 pt.	22	*Restricted use pesticide (see 1 pt. NIS/200 gal.)



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New Pumpkin Herbicides?

Pre-emergence

DualMagnum

Zidua Herbicide

SPARTAN 4F HERBICIDE

Outlook Herbicide

Post-emergence

Potentially viable?
- Will require testing

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Mechanical Control

Small-Scale
Labor-intensive
Simple

Large-scale
Efficient
Complicated

Tips for MWC:

- Cultivate when weeds are small & crops are large.
- Cultivate when soils are moist enough to flow properly.

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Mechanical Control

Between-Row

Sweeps

Basket weeder

Rototiller

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Mechanical Control

In-Row

Finger weeders

Flexline weeders

Spyder wheels

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Mechanical Weed Control

TOOL

Disc/chisel/plow
• Primary tillage

Tine harrow
• Blind cultivation & stale seed bedding

Finger weeders
• In-row control

Sweeps
• Between-row control

TIMING

Planting

Crop Emergence

Crop 1-leaf stage

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Questions/Open Discussion

Please fill out the post-program survey via the QR code below:

CFAES COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Fruits & Vegetables
Supporting and Empowering Ohio Produce Growers

Reach out to a team member at ga.ans.edu/fv@osu.edu
Keep up to date at u.osu.edu/vegnetnews




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What pumpkin weed control issues could you use support with?



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