

Weed Management in Small Grains

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Outline

- Weed Management in Small Grains
- Herbicide Registered for use in Small Grains
- Common Weeds in Small Grains
- Integrated Weed Management Approach







Major herbicides in wheat/small grains

	Group No.
• Pre-Plant or Preemergence	
• Certain burndown herbicides prior to planting	
• Dicamba (Banvel, Clarity)	4
• Glyphosate (Roundup)	9
• Paraquat (Gramaxone)	22
• Pyraflufen-Ethyl (ET)	14
• Preemergence herbicides	
• Pendimethalin (Prowl H2O)	3
• Trifluralin (Treflan)	3
• Flumioxazin (Chateau)	14
• Saflufenacil (Sharpen)	14

Major herbicides in wheat/small grains

• Postemergence	Group No.	SOA
• 2,4-D Amine	4	Synthetic Auxin
• Dicamba (Clarity, Banbel)	4	Synthetic Auxin
• MCPA Amine	4	Synthetic Auxin
• Clopyralid (Stinger)	4	Synthetic Auxin
• Pyraflufen-Ethyl (ET)	14	PPO-Inhibitor
• Carfentrazone (Shark)	14	PPO-Inhibitor
• Bromoxynil (Maestro)	6	PS II Inhibitor
• Chlorsulfuron (Glean XP)	2	ALS Inhibitor
• Tribenuron methyl (Express)	2	ALS Inhibitor
• Pyroxsulam (Simplicity)	2	ALS Inhibitor
• Mesosulfuron (Osprey)	2	ALS Inhibitor
• Imazamox (Beyond)	2	ALS Inhibitor
• Fenoxaprop (Puma)	1	ACCase Inhibitor
• Pinoxaden (Axial XL)	1	ACCase Inhibitor

Weed Control with Postemergence Herbicides – Small Grains

	14	14	2	2	4	4	4	6	1	1
Weeds Controlled	Shark	ET	Express	Simplicity	Dicamba	MCPA	2, 4-D	Maestro	Axial XL	Fenoxaprop
Common Chickweed	Yellow	Green	Green	Green	Yellow	Red	Red	Red	Red	Red
Fiddleneck	Green	Red	Green	Green	Yellow	Yellow	Yellow	Green	Red	Red
Filarees	Yellow	White	Yellow	White	Green	Yellow	Green	Red	Red	Red
London Rocket	Green	Green	Green	White	Green	Green	Green	Green	Red	Red
Mallow	Yellow	Green	White	White	Green	Yellow	Yellow	Red	Red	Red
Mustards	Yellow	White	Green	Green	Green	Green	Green	Green	Red	Red
Nettle	Green	Green	White	Green	Red	Red	Red	Red	Red	Red
Shepherds Purse	Yellow	Green	Green	Green	Green	Green	Green	Green	Red	Red
Sowthistle	Yellow	Green	Yellow	White	Green	Red	Green	Green	Red	Red
Groundsel	White	White	Green	White	Yellow	Green	Green	Green	Red	Red
Prickly Lettuce	White	Green	Green	White	Yellow	Green	Green	Green	Red	Red
Wild Radish	Yellow	Green	Yellow	Green	Yellow	Green	Green	Yellow	Red	Red
Italian ryegrass	Red	Red	Red	Green	Red	Red	Red	Red	Green	Red
Littleseed Canarygrass	Red	Red	Red	Yellow	Red	Red	Red	Red	Green	Green
Hood Canarygrass	Red	Red	Red	Yellow	Red	Red	Red	Red	Green	Green
Wild Oat	Red	Red	Red	Green	Red	Red	Red	Red	Green	Green
Ripgut Brome	Red	Red	Red	Green	Red	Red	Red	Red	White	Red



Shepherds Purse



Mustards

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Stinging Nettle



London Rocket

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Fiddleneck



Canarygrass



Italian Ryegrass

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Wild Oat

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Chickweed

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Mallow

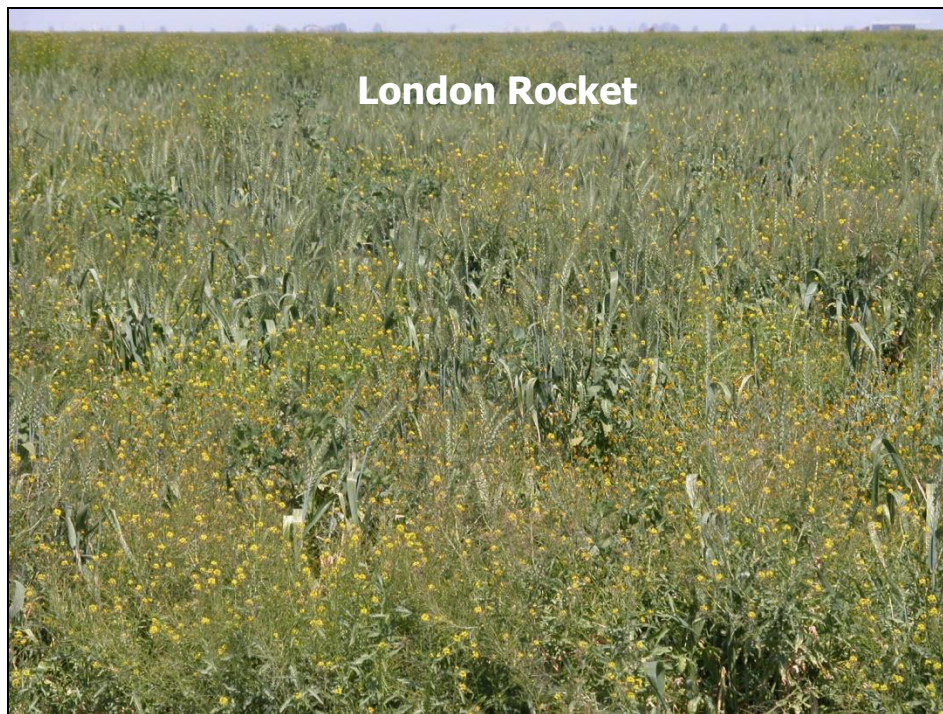
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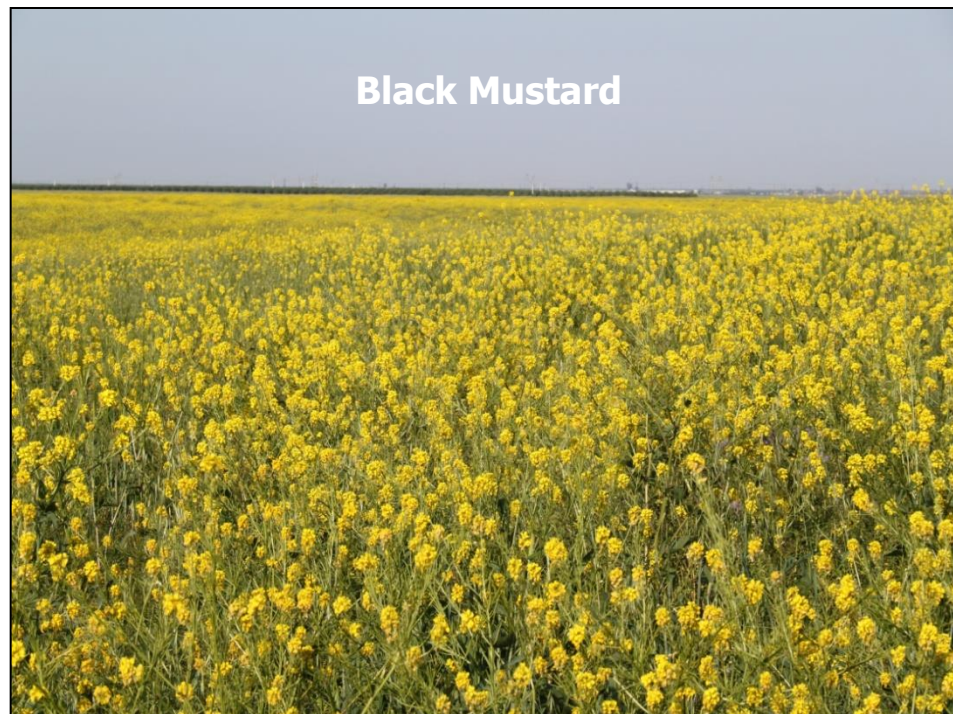
Coast Fiddleneck



Burning Nettle



London Rocket



Black Mustard



Canary Grass
Wild Oats
Italian Ryegrass
Annual Bluegrass
Ripgut Brome
Foxtail Barley



Shepherds Purse

- *Capsella bursa-pastoris*
- Mustard Family
- Winter Annual – Broadleaf
- **Concern: Toxic to Horses**
- **Control – Herbicides**
 - ET
 - Express
 - Simplicity
 - Dicamba
 - MCPA
 - Maestro



Mustards spp

- *Brassica* spp.
- Winter Annual – Broadleaf
- **Concern: toxic to livestock if consumed in high quantities.**
- **Control – Herbicides**
 - Express
 - Simplicity
 - Dicamba
 - MCPA
 - 2, 4-D
 - Maestro



Burning Nettle

- *Urtica urens*
- Winter Annual – Broadleaf
- Germinates in late fall to early spring
- **Control – Herbicides**
 - **Shark**
 - **ET**
 - **Simplicity**



Fiddleneck

- *Amsinckia menziesii* var. *intermedia*
- Winter Annual – Broadleaf
- Native Plant
- **Concern – Toxic to Livestock**
- **Control – Herbicides**
 - Shark
 - Express
 - Simplicity
 - Maestro



Common Chickweed

- *Stellaria media*
- Winter Annual – Broadleaf
- **Concern – Resistant to ALS inhibitor herbicides in areas of the Southern San Joaquin Valley**
- **Control – Herbicides**
 - Shark – partial control
 - ET
 - Express (ALS inhibitor)
 - Simplicity (ALS inhibitor)





Little Mallow (Cheeseweed)

- Malva parviflora
- Winter Annual – Broadleaf
- **Concern – Can accumulate nitrate to concentrations toxic to cattle.**
- **Control – Herbicides**
 - ET
 - Dicamba
 - Shark – partial control
 - MCPA – partial control
 - 2, 4-D – partial control



Annual Sowthistle

- *Sonchus oleraceus*
- Winter & Summer Annual – Broadleaf
- Commonly found throughout the San Joaquin Valley.
- **Control Herbicides**
 - ET
 - Dicamba
 - 2, 4-D
 - Maestro
 - Shark – partial control
 - Simplicity – partial control



London Rocket

- *Sisymbrium irio*
- Winter Annual – Broadleaf
- Highly competitive with small grain crops
- **Herbicide – Control**
 - Shark
 - ET
 - Express
 - Dicamba
 - MCPA
 - 2, 4-D
 - Maestro



Italian Ryegrass

- *Lolium multiflorum*
- Perennial – Grass
- Will grow aggressively in winter and early spring.
- **Concern – Herbicide resistant to multiple MOAs in other crops.**
- **Control – Herbicides**
 - **Simplicity**
 - **Axial XL**



Wild Oat

- *Avena fatua*
- Winter Annual – Grass
- Very competitive
- Commonly found in non-crop areas.
- **Control – Herbicides**
 - **Simplicity**
 - **Axial XL**
 - **Puma, Double Check, Beam**



Littleseed Canarygrass

- *Phalaris minor*
- Winter Annual – Grass
- Competitive weed in small grain crops.
- Suspected to be herbicide resistant to Pinoxaden (ACCCase Inhibitor)
- **Control – Herbicides**
 - Axial XL (ACCCase Inhibitor)
 - Puma (ACCCase Inhibitor)
 - Simplicity – partial control



Littleseed Canarygrass (*Phalaris minor*)



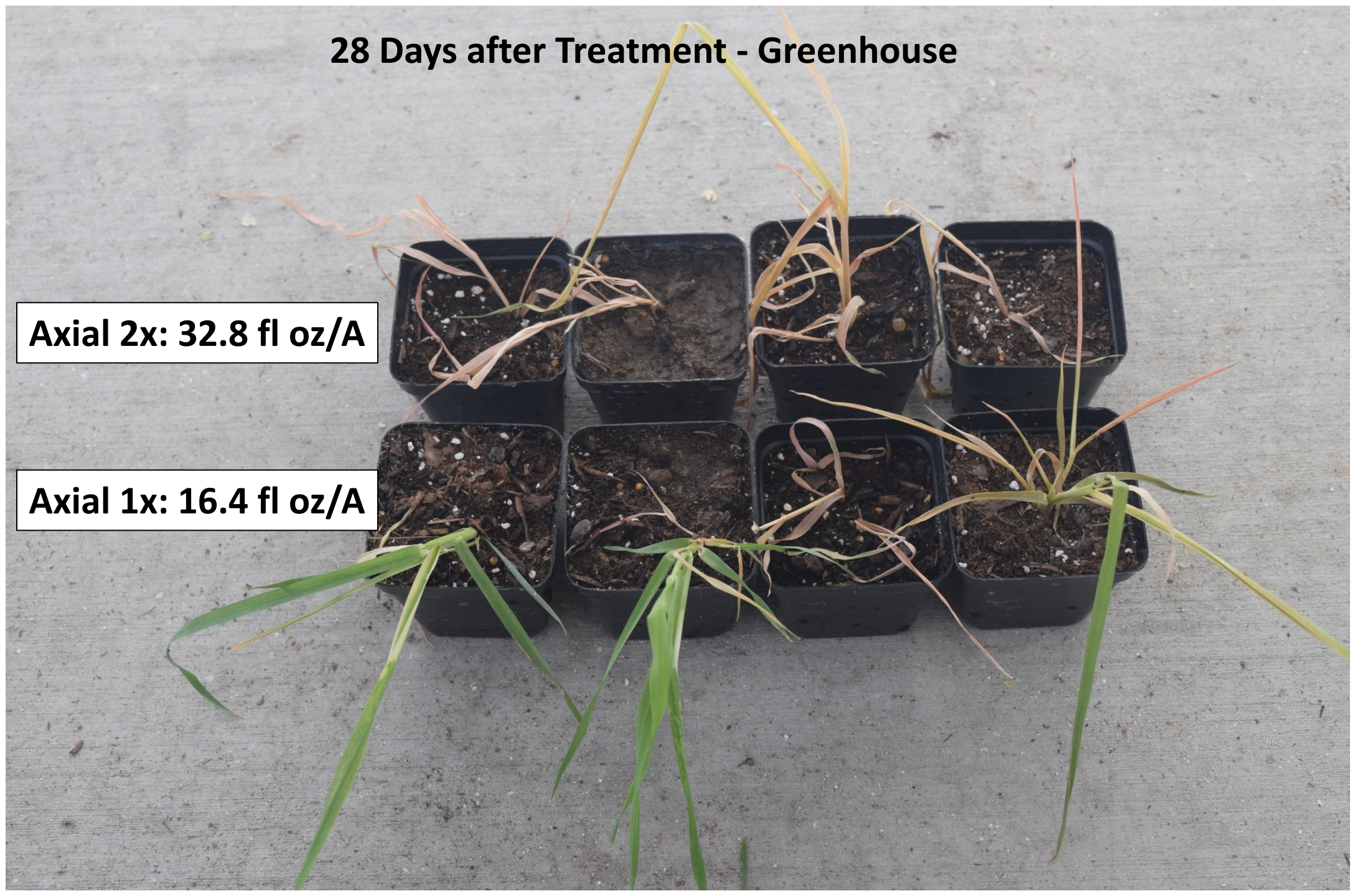
Littleseed Canarygrass (*Phalaris minor*)

- Reports of littleseed canarygrass escapes in multiple forage wheat fields in Tulare County.
- Fields with a history of Pinoxaden (Axial XL) and Pyroxsulam (Simplicity) use.
 - These herbicides no longer control littleseed canarygrass in these fields
- Alternative herbicides available to control littleseed canarygrass
 - Fenoxaprop (Puma, Beam)
- Residual herbicides have long plantback restrictions on corn
 - Tifluralin (Treflan) and Pendimethalin (Prowl H2O)

28 Days after Treatment - Greenhouse

Axial 2x: 32.8 fl oz/A

Axial 1x: 16.4 fl oz/A



How Do We Manage These Weeds?

- Weed Identification
 - Monitor and Scout Fields
- Reduce Weed Seed Production
- Use Multiple Herbicide MOAs
 - ALS, PPO, Synthetic Auxins, PS II & ACCase.
- Tank mix Postemergence herbicides
- Apply herbicides at the Right Rate & Right Time.
- Control Weed Escapes
 - Field edges.

Integrated Weed Management

- The use of multiple strategies to manage weed populations in a manner that is economically and environmentally sound
 - Cultural, Mechanical, Chemical
- **Goals of IWM**
 - Prevent or suppress weed seed production
 - Reducing the weed seed bank
 - Prevent and reduce the spread of weeds
 - Suppress weed growth

Those not participating in this war on weeds will be part of a legacy costing current and future generations of growers millions of dollars

Practice IWM (*Ignore Weed Mgmt.*)

- **Do not preirrigate**
- **Do not landplane fields**
- **Do not rotate CT with Conventional farming**
- **Do not use tillage**
- **Do not rotate herbicides or tank mix**
- **Do not use residual herbicides**
- **Do not spray weeds when small**
- **Do not maintain clean field edges, ditches, fallow**



Take Home Points

- There are limited tools available for weed management in small grains.
- Follow Herbicide Labels.
- Use herbicides with different Modes of Action to reduce herbicide resistance.
- Spray the Right Herbicide, Right Rate, at the Right Timing.
- Use an Integrated Weed Management Approach

Where to find information:

- <http://ucipm.ucdavis.edu>
 - IPM practices, herbicide treatment tables, scouting
- <http://wric.ucdavis.edu>
 - Weed/herbicide charts, weed topics, research, etc.
- <http://www.weedscience.com>
 - Weed resistance, herbicide MOA
- <http://www.cdms.net>
 - Pesticide labels

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