

# Alfalfa Weed Management

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Fresno County

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# Common Weeds of Alfalfa

- **Broadleaves**

- London rocket
- Black mustard
- Shepherd's purse
- **Common groundsel**
- **Coast fiddleneck**
- Wild radish
- Common chickweed
- Sowthistles

- **Grasses**

- Hare barley
- Green & Yellow foxtail
- Barnyardgrass
- Junglerice
- Italian Ryegrass

- **Nutsedge**

**Annual Bluegrass**



**Burning Nettle**



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**Chickweed**



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**Common Groundsel**



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**London Rocket**



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**Wild Oat**



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**Fiddleneck**



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**Mustards**



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**Shepherd's-Purse**

# Winter Annuals

**Barnyardgrass**



**Goosegrass**



**Yellow Foxtail**



**Lambsquarters**



**Yellow Starthistle**



**Junglerice**



**Pigweed**



**Common knotweed**



**Black Nightshade**



**Nettleleaf Goosefoot**

# Summer Annuals

# Major Herbicides in Established Alfalfa

• Preemergence	Group No.
• Pendimethalin (Prowl H2O)	3
• Trifluralin (Treflan)	3
• Hexazinone (Velpar)	5
• <b>Metribuzin (Tricor)</b>	5
• Diuron (Karmex)	7
• EPTC (Eptam)	8
• Norflurazon (Solicam)	12
• Flumioxazin (Chateau)	14

# Major Herbicides in Alfalfa

- **Postemergence**

- Clethodim (Select Max)
- Sethoxydim (Poast)
- Halosulfuron (Sandea)
- Imazamoz (Raptor)
- Imazethapyr (Pursuit)
- 2,4-DB (Butyrac 200)
- Hexazinone (Velpar)
- Glyphosate (Roundup Powermax)\*\*
- Carfentrazone (Shark EW)
- Saflufenacil (Sharpen)
- Paraquat (Gramoxone SL 2.0)

## Group No.

1  
1  
2  
2  
2  
4  
5  
9  
14  
14  
22

\*\*only Roundup Ready varieties and Pre-Plant

# Round-up Ready Alfalfa

- **Advantages**

- Tolerates over the top applications of glyphosate
- Superior weed control across a range of weed species.
  - Controls most winter and summer annual weeds.
- No crop injury
- Can be used control weeds in between cuttings
- Controls and suppresses problematic perennial weeds
  - Bermudagrass, nutsedge, quackgrass and dandelion.

# Round-up Ready Alfalfa

- **Disadvantages**

- No residual control
- Needs to be mixed with a residual herbicide for long term control
- Glyphosate works best when weeds are small
- Herbicide Resistant concerns
- Weed shifts of tolerant weeds.



# Glyphosate Resistant vs Glyphosate Tolerant Weed Species

- Glyphosate Resistant Weeds

- Ryegrass
- Horseweed
- Hairy Fleabane
- Junglerice

- Glyphosate Tolerant Weed Species

- Cheeseweed
- Burning Nettle
- Filaree
- Common Purslane

# Integrated Weed Management Program

- Crop Rotation
- Rotation of herbicides with different Modes of Action (MOA)
- Herbicide Tank Mixes with complimentary MOAs
- Control of escaped weeds by tillage or hand weeding
- Tank-Mix Glyphosate with other soil-active herbicides
- Avoid Weed Shifts
  - Avoid continuous RR Crops (corn, sugarbeets, or cotton)
  - Avoid using glyphosate alone to control weeds.

# Selective Herbicide Trials in Alfalfa

Giuliano Galdi  
UCCE Agronomy and Weed Management advisor – Merced  
County

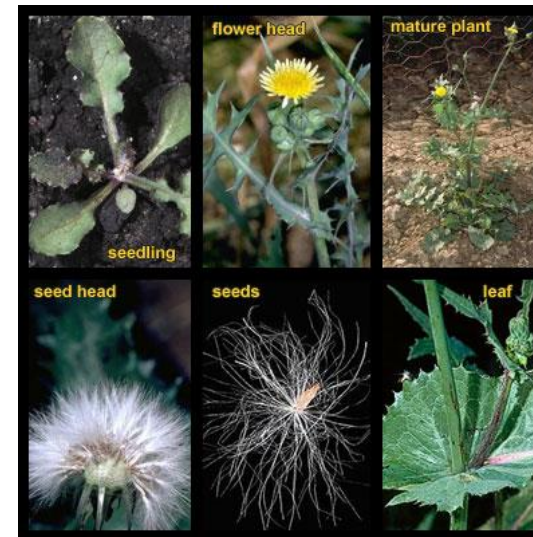
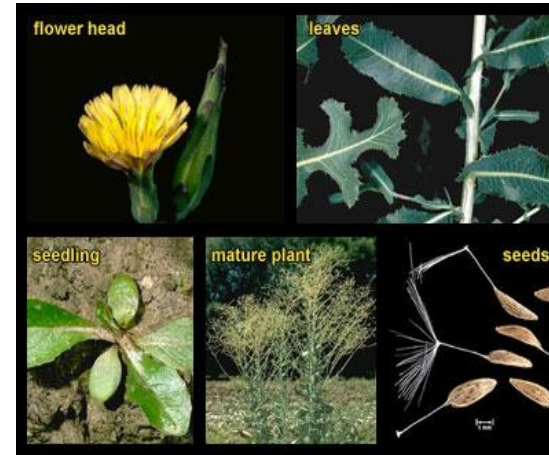
9/29/2023

# Pursuit (Imazetaphytr)

- Group 2 - ALS/AHAS inhibitors
- Systemic
  - Kill weeds by root/shoot uptake and translocation to growing points
- Residual control with adequate moisture
- Controls most broad-leaf, some grasses and sedges
- Applied when alfalfa is 2+ trifoliate during establishment
  - Some crop injury may occur but temporary
- Very efficient on mustards and shepherd's purse
- Plant-back interval of up to 40 months
  - Alfalfa 4 months
  - Field corn 8.5 months
  - Cotton 18 months
- Restricts long-term use in older stands

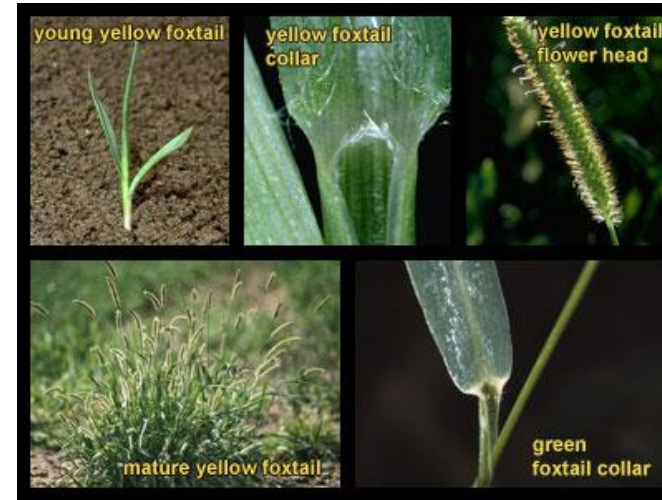
# Raptor (Imazamox)

- Group 2 – ALS/AHAS inhibitors
- Systemic
- Translocated
- Broadleaf and grass
- Similar to Pursuit but better on grasses
- 2+ trifoliolate during establishment
- Raptor + other broadleaf herbicide
  - Control prickly lettuce, fiddleneck, sowthistle
- Less crop rotation restrictions than Pursuit
- PHI 20 days
- Can show some crop injury



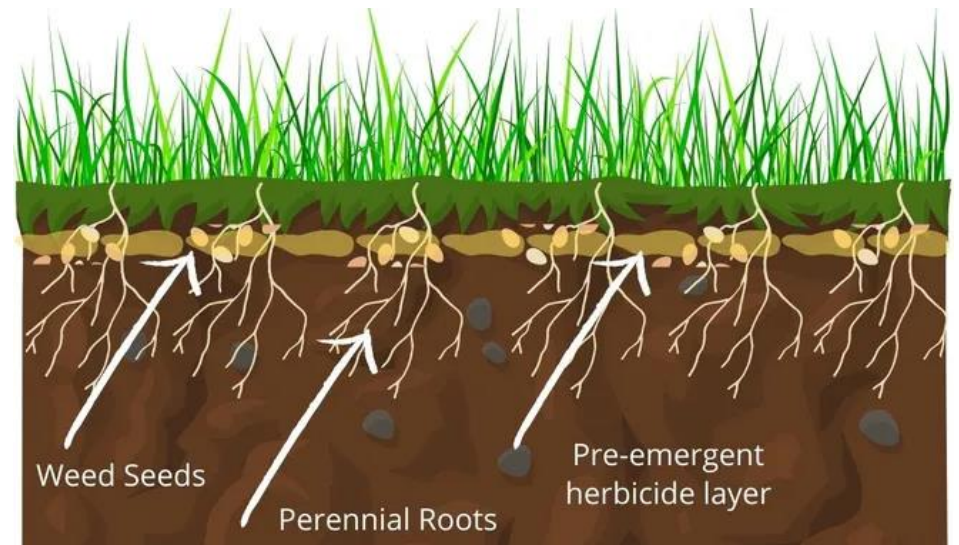
# Select (clethodim)

- Group 1 - ACCase Inhibitors
- Selective
- Grass control (annual and perennial)
- No effect on alfalfa or broadleaf weeds
- Can be applied between cuttings
  - Foxtails, barnyardgrass, Johnsongrass
- Can be mixed with broadleaf herbicides
- Big weeds → multiple applications



# Prowl (Pendimethalin)

- Group 3 – Root growth inhibitor
- Selective
- Controls most annual grasses and some broadleaf as they germinate
- Pre-emergent
- Need incorporation with rainfall, irrigation, or mechanical tillage
  - 1-2 inches deep
- Can be applied as chemigation



# Intermountain trials

- Treatments applied late winter
- Two locations
  - Scott Valley in late March
  - Honey Lake Valley in early April – Getts
- Alfalfa had a couple of inches of regrowth
- Little rain: incorporation?





# Treatments

		Rate/ A
1	Pursuit	3oz
2	Pursuit	6oz
3	Raptor	6oz
4	Pursuit + Select	3oz + 16oz
5	Pursuit + Select	6oz + 16oz
6	Raptor + Select	6oz + 16oz
7	Pursuit + AMS	3oz
8	Raptor + AMS	6oz
9	Pursuit + Select + Prowl	3oz + 16oz + 2 qt
10	Persuit + Prowl + AMS	6oz + 2qt
11	Raptor + Prowl + AMS	6oz + 2qt
12	Untreated	

NIS @ 0.25% v/v

MSO @ 1% v/v

20 GPA

AMS 15 lb/100 gallons

## Scott Valley: Weed Percent Control

Treatment	Shepherd's Purse	Persian Speedwell
Pursuit 3oz	37.5	12.5
Pursuit 6oz	75	0
Raptor 6oz	75	25
Pursuit 3oz + Select 16oz	75	37.5
Pursuit 6oz + Select 16oz	75	25
Raptor 6 oz + Select 16oz	75	37.5
Pursuit 3oz + AMS	87.5	50
Raptor 6 oz + AMS	75	37.5
Pursuit 3oz + Select 16 oz + Prowl 2qt	100	50
Pursuit 6oz + Prowl 2 qt. + AMS	87.5	37.5
Raptor 6oz + Prowl 2 qt. + AMS	75	50
untreated **	0	0

Slide courtesy Tom Getts

## Honey Lake Valley: Percent Weed Control Before Harvest

Treatment	Tumble Mustard		Prickly Lettuce		Cheatgrass	
Pursuit 3oz	78	a	20	a	17	c
Pursuit 6oz	70	a	23	a	35	bc
Raptor 6oz	95	a	10	a	69	abc
Pursuit 3oz + Select 16oz	94	a	5	a	66	abc
Pursuit 6oz + Select 16oz	71	a	15	a	51	abc
Raptor 6 oz + Select 16oz	95	a	20	a	85	ab
Pursuit 3oz + AMS	95	a	20	a	18	c
Raptor 6 oz + AMS	95	a	33	a	93	a
Pursuit 3oz + Select 16 oz + Prowl 2qt	76	a	28	a	65	abc
Pursuit 6oz + Prowl 2 qt. + AMS	95	a	35	a	64	abc
Raptor 6oz + Prowl 2 qt. + AMS	95	a	38	a	90	ab
untreated **	0		0		0	

Slide courtesy Tom Getts

## Honey Lake Valley Trial: Alfalfa Injury

	Week One		Week Two		Before Cutting	
Pursuit 3oz	25	a	7	a	7	a
Pursuit 6oz	23	a	13	a	3	a
Raptor 6oz	21	a	8	a	5	a
Pursuit 3oz + Select 16oz	23	a	13	a	0	a
Pursuit 6oz + Select 16oz	39	a	10	a	3	a
Raptor 6 oz + Select 16oz	26	a	15	a	3	a
Pursuit 3oz + AMS	30	a	15	a	5	a
Raptor 6 oz + AMS	23	a	11	a	5	a
Pursuit 3oz + Select 16 oz + Prowl 2qt	23	a	13	a	3	a
Pursuit 6oz + Prowl 2 qt. + AMS	19	a	8	a	11	a
Raptor 6oz + Prowl 2 qt. + AMS	25	a	13	a	3	a
untreated **	0		0		5	

Slide courtesy Tom Getts

# Thanks