

Weed Management in Alfalfa: Stand Establishment

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End goal: dense, vigorous alfalfa stand to compete with weeds

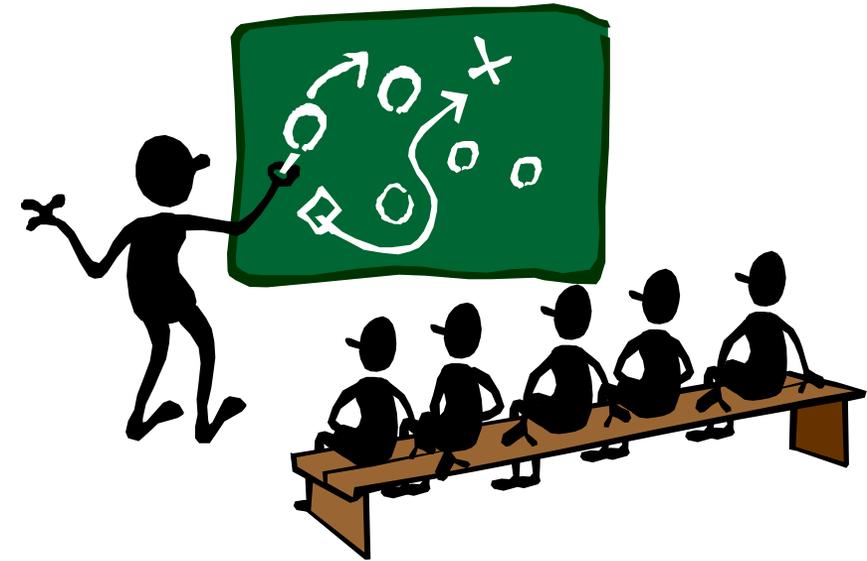


“The sins of planting will haunt you all season”
- Bob Nielsen, Corn Agronomist, Purdue Univ.



Keys to weed control in establishment

1. Control perennials before alfalfa
2. Time planting to minimize weeds
3. Plant weed-free seed
4. Do something to control weeds
5. Know weed identity and size
6. Understand herbicide nuances
7. Roundup Ready alfalfa
8. Organic and non-chemical options



#1 Control perennials before planting alfalfa



Perennial weed control with alfalfa herbicides

Control level	Field Bindweed	Dandelion	Quackgrass
Excellent	None	Glyphosate	Glyphosate
Good	Glyphosate	Velpar	Select
Fair	Chateau	Metribuzin	Kerb, Poast, Raptor
Poor to none	Everything else	Everything else	Everything else



#2 Time planting to minimize weeds



Weed	Spring			Summer			Autumn			Winter		
	F	M	A	M	J	J	A	S	O	N	D	J
common ragweed <i>Ambrosia artemisiifolia</i>												
common lambsquarter <i>Chenopodium album</i>												
Pennsylvania smartweed <i>Polygonum pennsylvanicum</i>												
hairy galinsoga <i>Galinsoga ciliata</i>												
redroot pigweed <i>Amaranthus retroflexus</i>												
foxtail <i>Setaria sp.</i>												
horseweed <i>Corypha canadensis</i>												
shepherd's purse <i>Capsella bursa-pastoris</i>												
field pennycress <i>Thlaspi arvense</i>												

Source: Penn State

#3 Plant weed-free seed

- “Brown bag seed” vs Certified
- Certified gives assurance of good quality seed:
 - Genetic purity
 - Clean, free of weeds
 - Highly viable



Dodder contaminated alfalfa seed (planted at 20 lb per acre)

Dodder seed by wt (%)	No. of dodder seeds sown per acre
0.001	160
0.01	1,600
0.1	16,000
0.25	40,000







Is this a problem?



#4 Do something to control weeds in the seedling crop

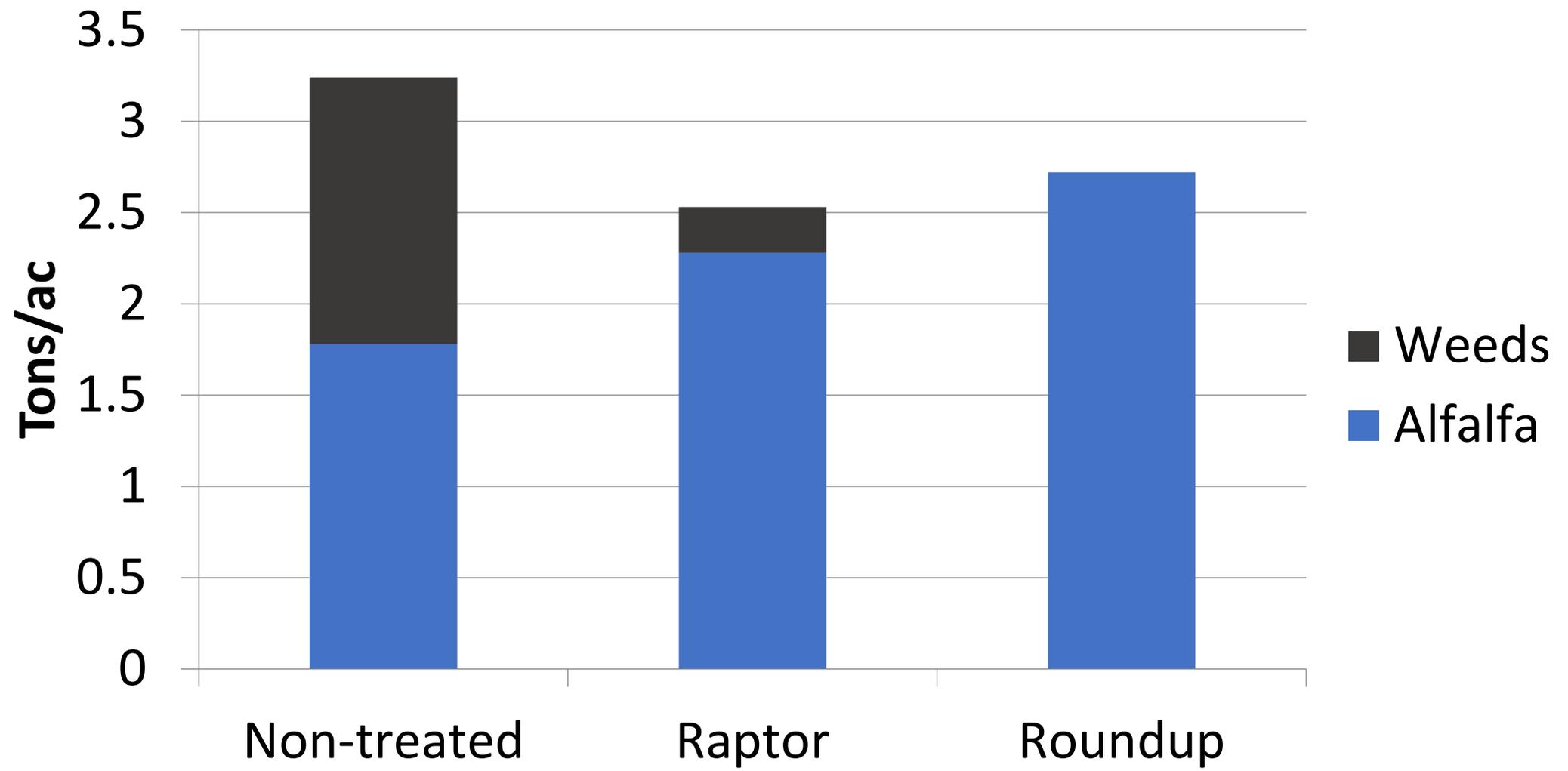
- *RR alfalfa seeding rate trial*
 - Herbicides – applied once in seeding year only
 1. Roundup WeatherMax (glyphosate) @ 0.75 lb/A
 2. Raptor (imazamox) @ 5 oz/A
 3. Non-treated check



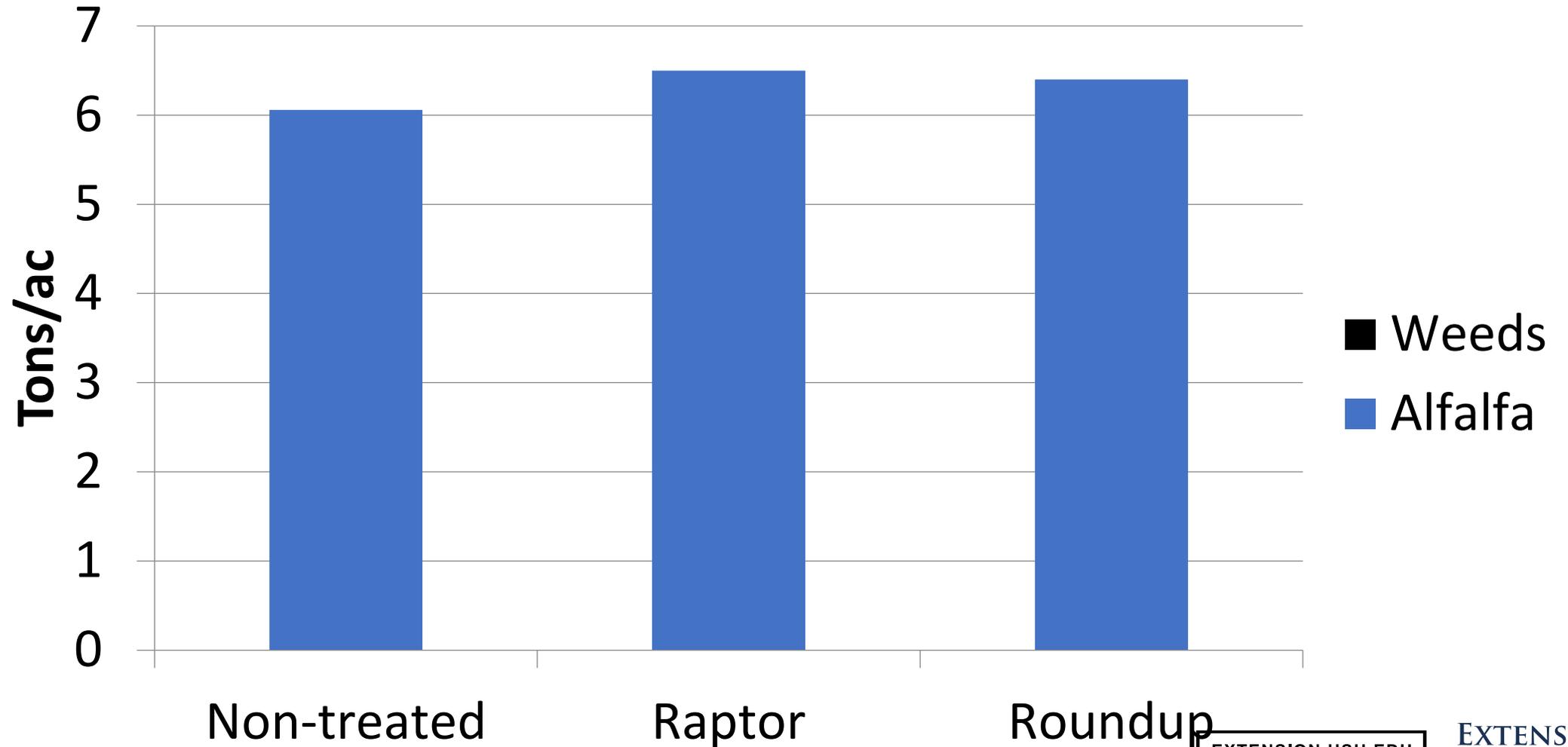




Yield – Year 1



Yield – Years 2-5 (yearly ave)



A Fact of Life...

“A field can look pretty darn good from the seat of your pickup tooling down the blacktop.”

-Bob Nielsen, Purdue Univ.



#5 – Scout to know weed identity and size



Maximum weed size for selected alfalfa herbicides

Product	Weed size
Prowl	Before weed emergence
Velpar	Alfalfa dormant to 2 inches in regrowth
Metribuzin	Less than 2 inches
Pursuit	Less than 3 inches
Raptor	Less than 3 inches
Butyrac 200	1-3 inches, depending on species
Buctril	Less than 2 inches
Poast	Less than 4-8 inches
Select	Less than 6-8 inches



Photo: livingafield.com



Photo: junipermountain.net

Herbicides for alfalfa stand establishment

PRE PLANT INCORPORATED

- EPTC (Eptam)
- Trifluralin (Treflan)

POST CROP/PRE WEEDS

- Pendimethalin (Prowl)
- Acetochlor (Warrant)

POSTEMERGENCE

- 2,4-DB (Butyrac)
- Imazethapyr (Pursuit)
- Imazamox (Raptor)
- Sethoxydim (Poast)
- Clethodim (Select)
- Bromoxynil (Buctril)

#6a – Nuances of PPI herbicides

(Eptam, Treflan)

- Must mechanically incorporated.
 - Often not perfect, so some weed escapes
- Some stunting and stand loss expected
 - Made worse by cool, wet conditions
- Eptam is volatile. Don't apply to wet soil
- Treflan is broken down by sunlight

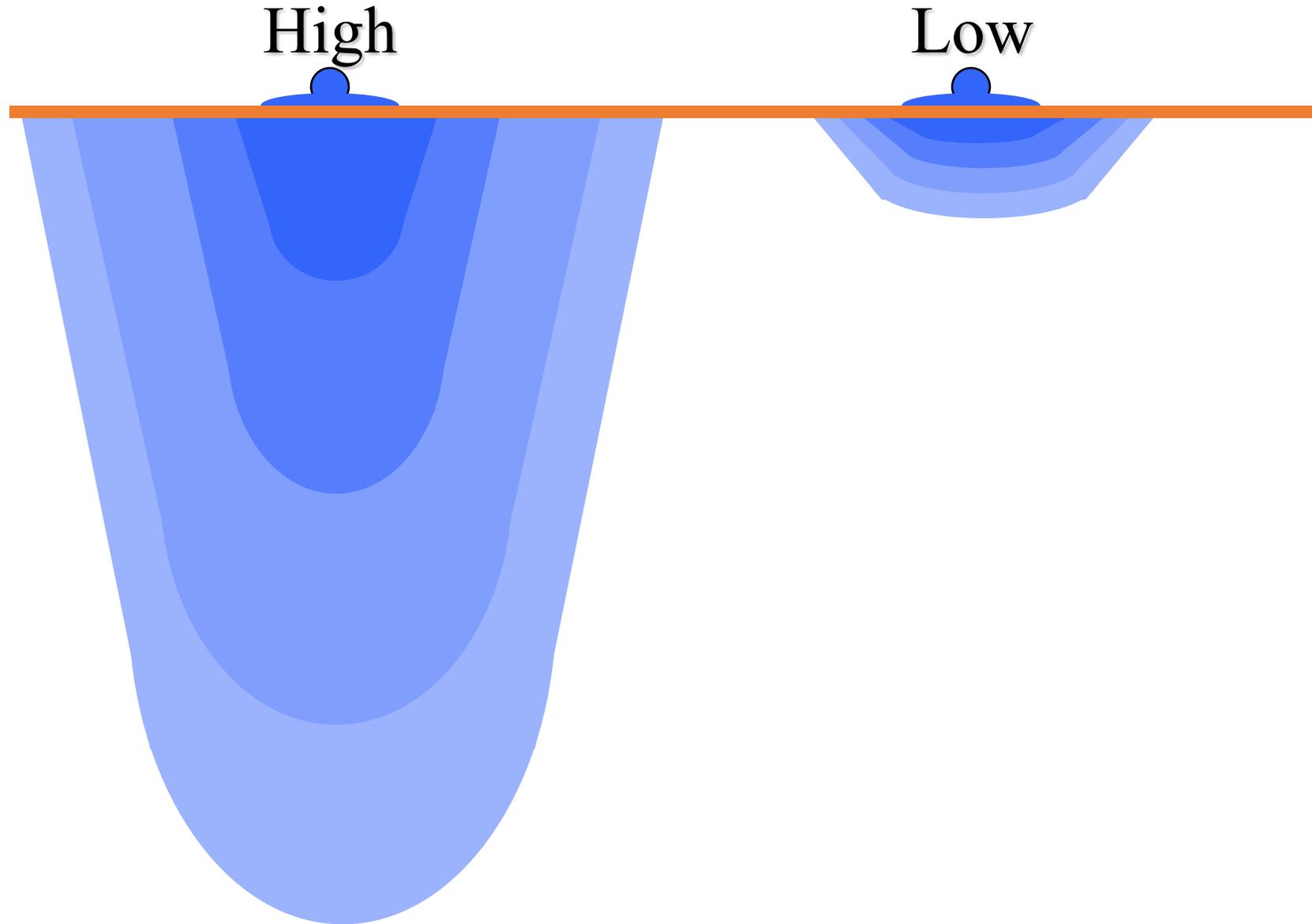


#6b Nuances of POST alfalfa/PRE weed herbicides (Prowl and Warrant)

- Narrow use window with crop emerged but weeds not
 - Plant in one month and weed problem in another
 - If you know you have dodder, Prowl can protect seedlings
 - Warrant for green foxtail in spring seeded
- Moisture incorporated/activated



Prowl and Warrant need moisture activation



6c Nuances of POST herbicides

- Butyrac –
 - Environmental conditions - do not apply when you can have wet plants (delay irrigation 7-10 days) – Beta oxidation can happen on leaves.
 - Be aware of adjuvant and tank mix restrictions
- Post/Select –
 - Requires COC, will generally increase injury of any tank mix partners
 - EC formulation – often requires different PPE
- Bromoxonil –
 - Do not apply when temps exceed 80F on or 3 days after application (70F in non-western states)
- Raptor/Pursuit
 - Plant back issues - Pursuit especially – Raptor more effective on grasses.
 - Any kind of plant stress enhances injury
 - Lots of required additives - Can do NIS and under drought **MSO**

#7 Roundup Ready alfalfa



#8 Organic or non-chemical options

1. Companion crops
2. Early mowing
3. Stale seedbed with flaming or cultivation



Standard disclaimer about herbicides...

- Remember to ALWAYS read and follow label directions!!!
 - Many different formulations, label updates, special exceptions, unique circumstances on your farm, etc.
 - Labels often change
- Really nice database at www.cdms.net



Thank You!

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