

CONTROLLING GRASSES EFFECTIVELY IN ESTABLISHED ALFALFA

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INTRODUCTION

Grasses have been looked upon as both an ally and a pest in established alfalfa. Grass can be either an asset or liability depending on several factors which are: type, population, and the time of the growing season that it is present in the alfalfa. For example, domestic oats, a grass, can be seeded at low rates when planting alfalfa to increase total forage at first cutting and compete against less desirable weeds. In contrast, high populations of wild oats becoming established prior to or in conjunction with alfalfa germination can be detrimental to new seedling stands.

Ryegrass, a winter annual pest, can cause havoc to a winter planting of alfalfa, competing for water, nutrients as well as shading for light. However, domestic varieties of ryegrass are purposely winter-seeded into old stands of alfalfa to increase forage yields the remaining year of production. Grasses used in this scheme have been an asset in alfalfa hay management.

Unfortunately, not all grasses are beneficial as joint ventures with alfalfa. We now recognize the seriousness of such grasses as yellow and green foxtail, cupgrass, crabgrass and certain perennials like Johnsongrass or bermudagrass to be debilitating to alfalfa stands. By their competitive nature, with their ability to adapt to hay management practices, they are an undesirable pest.

To the producers of alfalfa, certain grasses have meant:

- Reduced yields
- Shorter stand life
- Lower TDN and protein hay
- Discounted hay prices
- Limited marketability of hay

To effectively combat these grasses, four steps must be addressed

- 1 Identification of grass type.
- 2 Choice of herbicide for effective control.
- 3 Appropriate rate needed.
- 4 Efficient application and timing of selected herbicide.

IDENTIFICATION OF GRASSES

Proper identification of the grasses or any pest is of absolute importance (Fig. 1). Some herbicides have unjustly been criticized for lack of performance due to misidentification. Proper ID will not only assist one in selecting the appropriate herbicide and rate but also an understanding of its biology--a necessary component in proper timing of the herbicide.

Both Treflan TR-10 and POAST herbicides are labeled for control of wild barley, yellow foxtail and crabgrass. Wild barley will germinate in the fall, yellow foxtail in late winter and crabgrass in late spring in the northern San Joaquin Valley in California. Treflan 10.G applied in January to control yellow foxtail will be ineffective against earlier germinated barley. In contrast, POAST herbicide applied after first cutting for early control of yellow foxtail will provide no benefit to later germinating crabgrass. Therefore, an accurate identification of the pest and its growth cycle will provide for the proper choice of herbicide.

HERBICIDE SELECTION

Herbicide choice should take into account several considerations. The most obvious being its effectiveness in controlling the target weed, the economics or cost-benefit relation, the length of control needed and the soil residual factor for plant back regula-

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tions. Time does not allow for a complete coverage of this subject. The chart below will aid as a quick reference for herbicides and their control of grasses most commonly used in alfalfa.

		Yellow/ Green Foxtail	Crab Grass	Barn- yard Grass	Cup Grass	Johnson- grass	Bermuda Grass	Length of control
Treflan TR-10	Pre	X	X	X	X	X ¹	O ₁	4-6 mos.
Eptam/Gened	Pre	X	X	X	O	X ¹	X ₁	4-6 weeks
POAST	Post	X	X	X	X	X ²	X ₂	no soil activity

X = control 0 = no control
 1 = from seed only
 2 = multiple applications

RATE USE

Rate use is the precise amount of herbicide needed on a per acre basis to achieve control of targeted weeds at various growth stages and conditions (Fig. 2). Selecting the appropriate rate can mean the difference between a good effective kill or only a marginal one. Rate can also influence the length of time control is achieved. Guidelines for product use rates are well defined in manufacturer's labels and must be strictly adhered to.

Rates play an important part in controlling various grasses in alfalfa hay production. To select the proper rate one must define several factors:

- Weed type
- Growth stage of weed
- Environmental conditions

An example of rate can be used with POAST herbicide applied to yellow foxtail. If yellow foxtail growth stage or size ranges between the seedling stage to approximately 5 leaf stage and prior to grass tillers being formed, a rate of 1 1/2 pts/acre is recommended. When foxtail grass is fully tillered or has been cut two times or more the rate use increases to 2 pts/acre. Rate will also effect the longevity of control as in the case of Treflan TR-10. Research trials in the early development of TR-10 demonstrated that 2 lbs/ai applied in February for control of yellow foxtail increased the season long control by 30% over the 1 lb/ai rate applied at the same time - a sizeable difference considering the serious effects of yellow foxtail.

Rates can also be inadvertently changed by improperly calibrated equipment or non-uniformity of application. Both of these problems occur each year resulting in performance complaints against the herbicides and dissatisfied customers.

TIMING OF APPLICATION

Timing of application is defined as that window of opportunity when herbicides should be applied to provide the most effective control of targeted weeds (Fig. 3). To accomplish this in the most efficient manner, one must know when problem grasses begin to germinate, over what length of time they will germinate and at what size or growth stage they are most vulnerable. Timing is a coordinated effort between the pest, the herbicide mode of action and the grower or crops cultural requirement. Any deviation from these prescribed methods may cause less than desirable weed kill and or crop injury.

SUMMARY

At the present time there are several herbicides registered for commercial use in alfalfa hay as a tool for growers to control or suppress problem grasses. University and private research is conducted annually to evaluate more effective compounds that are environmentally safe to assist growers in the future. We must keep in mind that herbicides are tools and not the total answer. As with any other type of farming tool, crop health and soil conditions must be at their best possible state to insure the greatest potential for success.

IDENTIFICATION OF COMMON WEEDY GRASSES BY VEGETATIVE CHARACTERISTICS

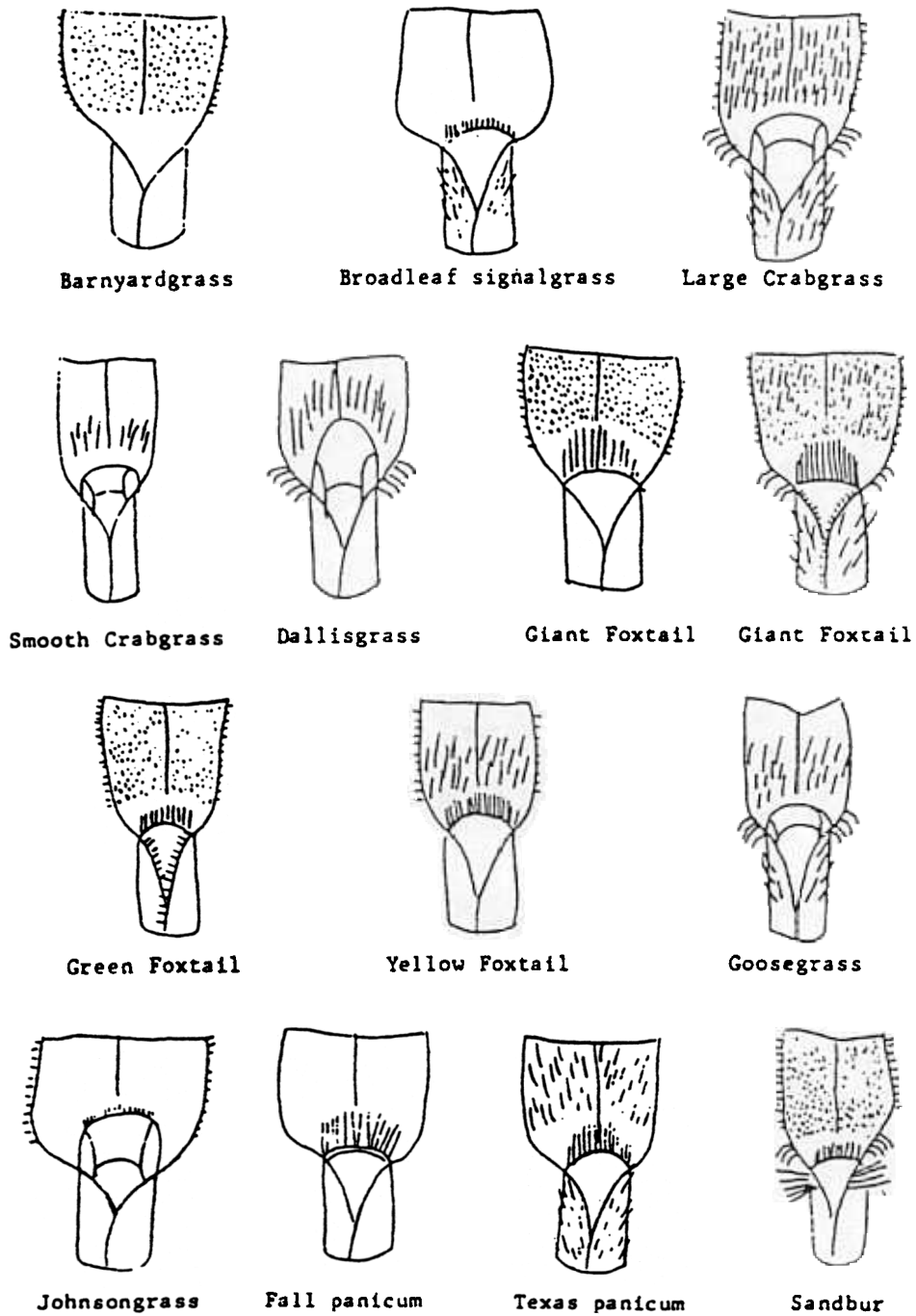


Fig. 1

YELLOW FOXTAIL CONTROL TRIAL IN ALFALFA HAY

Applied 2/22/86	LBS/A	4 PLOT AVERAGES			
	AI	Rated 5/21	Rated 6/15	Rated 8/16	Rated 9/13
Treflan 10.G	1.0	6.5	6.3	5.7	5.3
Treflan 10.G	2.0	8.5	8.2	7.2	8.2

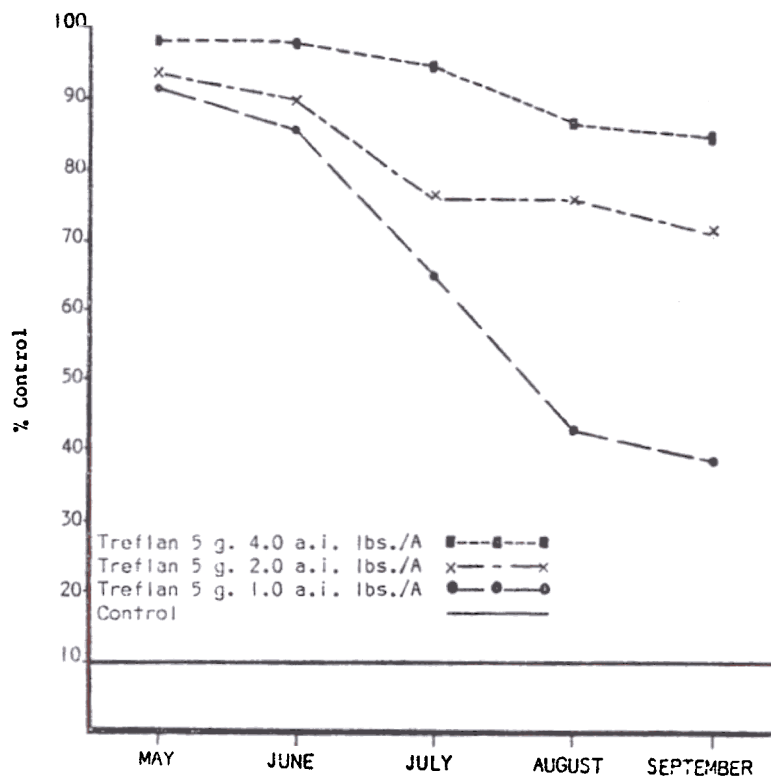
Applied 6/6/86

Treatment	RATE AI/A	YELLOW FOXTAIL CONTROL	
		7/25	8/26
POAST + oil	.2 + 1 qt	6.2	5.0
POAST + oil	.3 + 1 qt	8.5	7.0
POAST + oil	.4 + 1 qt	9.2	7.7
POAST + oil	.5 + 1 qt	9.7	8.0

Scale: 0 = no weed control
10 = 100% weed control

Fig. 2

YELLOW FOXTAIL CONTROL AS A FUNCTION OF APPLIED RATES OF
 TREFLAN (1983-1984) OVER TIME (MONTHS).
 CHECK PLOTS AVERAGED 25 PLANTS PER SQUARE FOOT.
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TIMING OF POAST HERBICIDE TO CONTROL YELLOW FOXTAIL IN ALFALFA HAY

Treatment	Rate ai/A	First	Second	Third	Date of Ratings (4 Rep Average)			
		Treatment 5/14	Treatment 6/19	Treatment 7/15	6/19	7/15	8/18	9/1
Control	--				1.0	1.0	1.0	1.0
Control	--				1.0	0	1.0	0.3
Poast + oil	.3 + 1 qt	X		X	8.5	4.3	9.4	9.8
Poast + oil	.4 + 1 qt	X		X	8.5	6.0	9.4	9.9
Poast + oil	.5 + 1 qt			X	--	--	9.3	9.3
Poast + oil	.3 + 1 qt		X		--	8.1	8.8	8.3
Poast + oil	.4 + 1 qt		X		--	8.2	9.0	6.5
Poast + oil	.5 + 1 qt		X		--	8.4	8.9	8.1
Poast + oil	.3 + 1 qt			X	--	--	8.8	6.3
Poast + oil	.4 + 1 qt			X	--	--	9.2	7.7
Poast + oil	.5 + 1 qt			X	--	--	9.5	9.2
Poast + oil	.3 + 1 qt	X			8.6	5.4	3.1	1.9
Poast	.3	X			8.4	5.0	2.5	1.6
+ DAX oil	1 qt							
Poast	.4		X			8.0	8.7	
+ DAX oil	1 qt							
Poast	.4			X			9.4	
+ DAX oil	1 qt							

Rating Scale: 1 - 10 1 = no weed control 10 = 100% weed control

Fig. 3