Study Name: Evaluation of in-crop, pre-harvest, and post-harvest applications, or combinations of these for Canada thistle and Dandelion control.

Study Number: 9914

Objectives: Evaluate in-crop, pre-harvest, and post-harvest applications for Canada thistle and Dandelion control.

Results:

1998 In-crop evaluation

Clopyralid + 2,4-D (94%) was the most effective treatment in the study. Canada thistle control with 2,4-D amine was better than normally expected (70%). Control with dicamba + 2,4-D, tribenuron + 2,4-D, and bromoxynil + MCPA ranged from 71 to 80%. However, after harvest the Canada thistle plants were coming back very strong in the above treatments except for clopyralid + 2,4-D.

Dicamba + diflufenzopyr alone or with quinclorac provided 78 to 83% Canada thistle control. Dicamba + diflufenzopyr contains dicamba and diflufenzopyr, which BASF refers to as an auxin transport inhibitor that has a synergistic effect with dicamba on perennial weeds. The 2 oz/A rate was injurious to wheat and in not likely to be labeled for wheat.

The pre-harvest glyphosate applications were very effective as there were very few Canada thistle plants remaining when we applied the post-harvest treatments, approximately 3 weeks after harvest. The post-harvest glyphosate was also very effective as all above-ground Canada thistle vegetation was necrotic within a couple weeks after application. The fallow plots were set up to do the "Hunter Method." The Canada thistle rosettes were a little larger than desired (4-6" tall), but glyphosate burned them down very well. In contrast, Canada thistle control with dicamba + diflufenzopyr was poor. The thistle plants were curled, but were still very green.

1999 Spring Evaluation

The in-crop treatments applied in 1998 generally provided poor long-term control of Canada thistle and dandelion based on comparisons to densities in July 1999. Canada thistle density in the untreated plot increased 226% compared to the density in spring 1998. Thistle densities also increased in the other in-crop treatments: tribenuron + 2,4-D (109%), dicamba + diflufenzopyr (142%), and dicamba + diflufenzopyr+ quinclorac (175%). Thistle density was lower in the in-crop treatment of clopyralid + 2,4-D, where the density only increased slightly (2%).

Pre-harvest and post-harvest glyphosate applications provided better Canada thistle and dandelion control compared to in-crop treatments. Canada thistle control with pre-harvest glyphosate ranged from 89-94% and dandelion control was 73-86%. Post-harvest glyphosate was slightly more effective on Canada thistle (90-99%) and dandelion (97-99%) compared to the pre-harvest application. Dicamba + diflufenzopyr was not effective on Canada thistle or dandelion. We applied dicamba + diflufenzopyr at 2 oz/A, which we have since learned is lower than what will be recommended (4 to 8 oz/A) for a fall application.

Following the May 29, 1999 visual evaluation we tilled the plot area and seeded spring wheat. Canada thistle shoots started to emerge by the third week of June. By July 8, 1999 there were more Canada thistle shoots emerging that we had hoped. However, Canada thistle densities in July 1999 were generally lower than in spring 1998 where pre-harvest or post-harvest glyphosate treatments were applied. Densities in pre-harvest treatments were +20%, -5%, -20%, and -69%. Densities in the post-harvest treatments were -3%, -19%, and -37%.

It is clear from these data that in-crop applications in wheat may knock back Canada thistle during the growing season, but for long-term control a pre-harvest or post-harvest application is probably necessary. We don't get sufficient re-growth of Canada thistle following harvest every year, but we should try to take advantage of it when we can.

			Cath	Durum	Cath	Dandelion	Cath
			Control	Yield	Control	Control	
Treatment	Rate	Stage	27-Aug-98	16-Sep-98	29-May-99	29-May-99	8-Jul-99
	oz ai		%	bu/A	%	%	
Untreated			0	24	0	0	226%
In-crop treatments							
Tribenuron	0.125	5-leaf	80	29	12	0	109%
2,4-D ester	6	5-leaf					
Clopyralid+2,4-D	9.6	5-leaf	94	30	43	7	2%
Dicamba + diflufenzopyr	1.4	5-leaf	83	22	0	0	142%
Dicamba + diflufenzopyr	1.4	5-leaf	78	24	17	0	175%
Quinclorac	3	5-leaf					
Pre Harvest Treatments							
2,4-D amine	4	5-leaf	70	29	89	76	-5%
Glyphosate	12	PRE-H					
Dicamba	1.5	5-leaf	80	27	91	83	-20%
2,4-D ester	4	5-leaf					
Glyphosate	12	PRE-H					
Tribenuron	0.125	5-leaf	80	28	91	73	20%
2,4-D ester	6	5-leaf					
Glyphosate	12	PRE-H					
Bromoxynil + MCPA	8	5-leaf	71	29	94	86	-69%
Glyphosate	12	PRE-H					
Dicamba	1.5	5-leaf	77	28	37	0	71%
2,4-D ester	4	5-leaf					
Dicamba + diflufenzopyr	1.4	PRE-H					
*Percent increase or decrease in Canada thistle population in 1999 compared to 1							
Post Harvest Treatments							

Dicamba	1.5	5-leaf	79	28	95	99	-19%
2,4-D ester	4	5-leaf					
Glyphosate	12	POST-H					
Tribenuron	0.125	5-leaf	77	31	90	97	-3%
2,4-D ester	6	5-leaf					
Glyphosate	12	POST-H					
Clopyralid+2,4-D	9.6	5-leaf	93	34	99	98	-37%
Glyphosate	12	POST-H					
Fallow Method							
Fallow							
Glyphosate	12	Sept			90	99	-22%
Fallow							
Dicamba + diflufenzopyr	1.4	Sept			45	77	41%
*Percent increase or decrease in Canada thistle population in 1999 compared to 1							