Result Demonstration Report

2007 Runnels County Wild Oat Control Demonstration in Wheat
Cooperator: Lowell Freeman

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Summary

Eighteen treatments were applied over the top of wheat on March 2, 2007 to control Wild Oats. The plots were established on the Lowell Freeman farm located at Hatchell, Texas on the west side of Highway 83 in Runnels County. The herbicides were applied to Wild oats that were in the one to four leaf stage. Soil moisture at the time of application was good and the targeted weeds were growing rapidly. The number of Wild oat plants averaged 25 per square foot at the time the chemicals were applied. Wild oat control ranged from 10 to 99 percent.

Problem

Wild oat (*Avena fatua*) is a weed of roadside, ditches and other areas of moist, disturbed soil. It is an introduced, cool-season annual. Wild oat is leafy and palatable to livestock but short-lived and seldom abundant enough to provide significant amounts of forage. This weed has encroached the past few years from roadside to the fields. Competing with the wheat for moisture and nutrients resulting in lower grain yields. Also, with the contamination of harvested grain with wild oat causes a considerable price dockage for producers.

Objectives

Through the use of a field test: 1) determine the effectiveness of herbicides at controlling the weed, 2) provide producers the opportunity of observing how effectively the herbicides control the weed, and 3) determine the economic feasibility of applying the herbicides for weed control.

Materials and Methods

Cooperator:	Lowell Freeman
Location:	West side of Highway 83 at Hatchell, Texas
Variety:	WinMaster
Planting Date:	November 11, 2006

Herbicide Application Information:

Date Applied:	March 2, 2007
Wind Speed:	3.0 to 7.0 miles per hour
Wind Direction:	North by Northeast
Air Temperature:	47 to 61^0 Fahrenheit
Relative Humidity:	11 to 24%
Carrier:	16.0 gallons of water per acre
Pressure:	32 pounds per square inch
Nozzle Size:	11002 Air Induction on 20 inch centers
Boom Height:	12 inches
Ground Speed:	3.00 miles per hour
Application Device:	Self propelled rig with 13.3 foot boom
Plot Size:	13.3 feet X 50 feet
Time Applied:	10:00 a.m. until 2:15 p.m.
Test Design:	Replicated (3 times), Randomized Complete Block
Test Plot Evaluated:	Final Evaluation May 17, 2007

At the time of application the wheat was three to four inches tall and most plants had five to six leaves. The Wild Oats were in a three to four leaf stage and actively growing with approximately 25 plants per square foot.

Evaluations: The plot was evaluated three times. The first evaluation was to determine the amount of chemical injury to the wheat; none was found in any treatment. The second evaluation was conducted on March 26 and the Axil and Puma treatments had a high level of wild oat control. The final evaluation was conducted on May 17 to determine the percentage of Wild Oat control that is reported in Table 1. The percentage of weed control was determined in all 57 plots. Data collected was analyzed using a statistical program called SAS and treatment differences were based on Duncan's mean separation.

Maximum and Minimum Air Temperatures for March 1 - March 16, 2007

Date	Max Air	Min Air	Date	Max Air	Min Air
1	64	35	9	80	50
2	64	26	10	86	46
3	55	29	11	67	51
4	62	20	12	71	52
5	71	22	13	78	48
6	74	30	14	79	52
7	80	35	15	80	53
8	80	42	16	67	46

Results and Discussion

This test was established later than usual because Wild Oats were emerging late. Temperatures were ideal for plant growth for two days prior to applying the chemical. At the time the herbicides were applied wind speeds stayed within an acceptable range, and the air temperature was comfortable. Relative humidity was low and reduced the amount of time the spray droplets remained on the leaf surface. Also, other conditions existed at the time the herbicides were applied that should improve performance; good soil moisture, weeds growing rapidly and in the desired growth stage. After the herbicides were applied the night temperatures stayed lower than desired for five days.

The Syngenta Crop Protection, Inc. herbicide Axial, achieved a high level of wild oat control as long as it was mixed with the surfactant Adigor. In this test the level of control was reduced by 50 percent by leaving Adigor out of the tank mix. In this test the Axil herbicide had the wild oats completely killed by 14 days after application. Data collected from the test is reported in Table 1.

The DuPont company herbicide Finesse Grass and Broadleaf, achieved a high level of wild oat control at the 0.9, 0.75 and 0.60 ounce per acre rates. Even though there was no statistical difference between the rates their was visibly less wild oats at the higher rates.

The Bayer Company herbicide Osprey, did not achieve the level of wild oat control expected. This has been one of the best herbicides in plots the last two years. I am not sure that the cold temperatures following application was the problem. I have had less control with the herbicide Puma when applied under these conditions. The level of control using 56 ounces of Hoelon was the same as the best herbicide treatments in the plot. But this rate of Hoelon was for test purposes and 14 ounces more per acre than the highest labeled rate.

Until recently Puma was the only herbicide without a grazing restriction. For the producers in a dual purpose system that limited the herbicide selection to Puma only. With Osprey and Finesse Grass and Broadleaf allowing for livestock grazing shortly after application, two additional herbicides are now available to producers.

Economic Analysis

The high levels of Wild oat control should result in higher yields due to the weed competition being removed. Wild oats competes with the wheat for moisture and nutrients and can reduce wheat grain yield by more than 10 bushels per acre. If the wheat is for grazing only the control of Wild oats would be hard to justify since it is a productive useful forage plant. By controlling the Wild oats, in small grain being harvested for grain, you avoid dockage at the Elevator. In most years the loss of income from the dockage on the grain was more than the cost of herbicide and its application.

Acknowledgements

A word of thanks is given to Lowell Freeman for providing the test plot site and his support. Also, a word of thanks to the chemical companies that provided products and support for the test plot.

Axial provided by Syngenta Crop Protection, Inc.
Axiom, Hoelon, Olympus Flex, Osprey and Puma provided by Bayer Company
Finesse Grass and Broadleaf provided by DuPont
Maverick provided by Monsanto
Induce provided by Helena Chemical Company

Table 1. Information Collected from Wild Oat Control Test (Runnels County, 2007)
Evaluation conducted on May 17, 2007

Herbicide and rate per acre	% Wild Oat Control
Axil @ 8.2 oz. + Adigor (adjuvant) @ 9.6 oz.	99 a
Axil @ 8.2 oz. + Adigor (adjuvant) @ 9.6 oz. + Fertilizer (28-0-0)	99 a
Axil @ 8.2 oz. + Adigor (adjuvant) @ 9.6 oz. + Amber @ 2.8 oz.	82 a
Axil @ 8.2 oz. + Fertilizer (28-0-0)	33 efg
Finesse Grass and Broadleaf @ 0.90 oz. + 0.5% v/v Induce (Non Ionic Surfactant)	90 a
Finesse Grass and Broadleaf @ 0.75 oz. + 0.5% v/v Induce (Non Ionic Surfactant)	85 ab
Finesse Grass and Broadleaf @ 0.60 oz. + 0.5% v/v Induce (Non Ionic Surfactant)	78 abc
Hoelon @ 56 oz. + 0.5% v/v Induce (Non Ionic Surfactant)	80 abc
Puma @ 10.8 oz.	63 bcd
Olympus Flex @ 3.5 oz. + 21 oz. Hasten (Methylated Seed Oil)	63 bcd
OSPREY @ 4.75 oz. + 21 oz. Hasten (Methylated Seed Oil)	57 cde
OSPREY @ 4.75 oz. + Amber @ 0.28 oz. + 21 oz. Hasten (Methylated Seed Oil)	47 def
OSPREY @ 4.75 oz. + Axiom @ 10.0 oz. + 21 oz. Hasten (Methylated Seed Oil)	37 efg
OSPREY @ 3.5 oz. + 21 oz. Hasten (Methylated Seed Oil)	37 efg
OSPREY @ 3.5 oz. + Amber at 0.28 oz. + 21 oz. Hasten (Methylated Seed Oil)	27 fgh
Axiom @ 10.0 oz. + Hoelon @ 32 oz. + 21 oz. Hasten (Methylated Seed Oil)	43 def
Axiom @ 10.0 oz. + 21 oz. Hasten (Methylated Seed Oil)	17 ghi
Maverick @ 0.66 oz. + 0.5% v/v Induce (Non Ionic Surfactant)	10 hi
Check	0 c