EFFECT OF 28% LIQUID NITROGEN FERTILIZER AS AN ADDITIVE TO OSPREY FOR POSTEMERGENCE CONTROL OF ITALIAN RYEGRASS IN WHEAT (UKREC 2003-2004)

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INTRODUCTION:
Osprey (mesosulfuron) is a new foliar - applied herbicide in which nitrogen fertilizers may be used as additives for managing Italian ryegrass in wheat. The use of ammonium nitrogen fertilizers such as 28% liquid N or ammonium sulfate (AMS) is recommended with methylated seed oil (MSO) during adverse conditions, but is required in all instances with nonionic surfactant. The rate for 28% liquid nitrogen is 1 to 2 qt/A, whereas, the rate for ammonium sulfate is 1.5 to 3 lb/A.

Results for a previous study indicated liquid nitrogen tended to improve ryegrass control when combined with a methylated seed oil and Osprey. The objective of this research was to continue evaluating 28% liquid nitrogen fertilizer as an additive to Osprey to determine if the enhanced control would be affected by timing of application or other tank mix partners, such as Olympus (propoxycarbozone).

METHODS:
The timings of treatments were as follows:

- Fall Treatments on 11/21/03
  Wheat 2 tillers & 5 inches tall
  Ryegrass 2 tillers & 4 inches tall

- Spring Treatments on 3/13/04
  Wheat 4 tillers & 6 inches tall
  Ryegrass 3 tillers & 5 inches tall.

(Ryegrass was controlled in the fall-treated areas; consequently, wheat in these areas was larger than those in the untreated areas and averaged 5 tillers and 7" tall on 3/13/04)

Treatments were applied with a hand-held, CO_2 – powered back pack sprayer in a spray volume of 20 GPA. Treatments were arranged in a randomized complete block design with 3 replications. Additional information on the overall management of this study is summarized in Table 1.

The data reported for this study included ryegrass seed head counts per square foot on June 3, visual evaluation of ryegrass control on June 14, and wheat yields on June 16. Wheat yields were variable due to vole damage that occurred during winter and early spring.

RESULTS:
Ryegrass control was excellent for all Osprey treatments and ranged from 97 to 100%, regardless whether or not 28% liquid nitrogen was used as an additive. Wheat yields for the Osprey treatments were variable and ranged from 68.9 to 79.6 bu/A compared with 24.1 bu/A for the non-treated check.

The fact that weather conditions at application and seven days following treatment were favorable for control, may explain why liquid nitrogen do not enhance ryegrass control with Osprey in this study. The benefit from the liquid nitrogen in the previous research may be attributed to the two cold nights during the week after application that had temperatures below 30^0 F.

TABLE 1. **EFFECT OF 28% LIQUID NITROGEN ON RYEGRASS CONTROL WITH FALL AND SPRING APPLICATIONS OF OSPREY TANKMIXES (UKREC 2003-2004)**

			Ryegrass		Wheat	
			Control	Seed heads	Injury	Yield
Chemicals	Rate	Timing	(%)	(Heads/ft^2)	(%)	(Bu/A)
Osprey MSO	4.75 oz/A 1.5 pt/A	Fall	100	1	0	77.5
Osprey MSO Liquid N	4.75 oz/A 1.5 pt/A 4 pt/A	Fall	100	0	0	78.2
Osprey Olympus MSO Liquid N	4.75 oz/A 0.3 oz/A 1.5 pt/A 4 pt/A	Fall	100	1	0	75.7
Osprey MSO	4.75 oz/A 1.5 pt/A	Spring	100	0	0	68.9
Osprey MSO Liquid N	4.75 oz/A 1.5 pt/A 4 pt/A	Spring	97	3	0	74.5
Osprey Olympus MSO Liquid N	4.75 oz/A 0.3 oz/A 1.5 pt/A 4 pt/A	Spring	100	0	0	79.6
Check			0	62		24.1
LSD (0.05)			5	15	NS	18.3

Application timing	Date	Wheat	Ryegrass
Fall:	11/21/2003	2 tillers 5 inches	2 tillers 4 inches
Spring:	3/13/2004	4 tillers 6 inches	3 tillers 5 inches

Date	Plot maintenance and data collection
10/13/03	Over seeded area to insure uniform ryegrass pressure
10/13/03	Planted Pioneer 2552 in conventional tilled seedbed
10/30/03	Wheat stand = 34 plants/ft^2
10/30/03	Ryegrass density = 39 plants/ft^2
2/18/04	Applied nitrogen (35 units/A)
3/22/04	Applied nitrogen (60 units/A)
3/25/04	Applied Mustang (3.2 oz/A)
5/1/04	Applied Tilt (4 oz/A)
6/3/04	Counted ryegrass seedheads/ft^2
6/14/04	Visual ratings of wheat injury and ryegrass control
6/16/04	Harvested wheat with small plot combine