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Short comunication

Bio-efficacy of SYN-8424 against grassy weeds in wheat

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Wheat is one of the most extensively grown cereal crops of the world which is infested with grassy as well as broad leaved weeds. The yield potential of high yielding varieties can be fully achieved only when all other production practices are coupled with weed management. Severe competition of grassy weeds like *Phalaris minor* caused 30-80% reduction in grain yield of wheat (Brar and Walia 1993). To increase its productivity, herbicides are being effectively used as a reliable economical tool to combat the problem of weed infestation, particularly grassy weeds. Information regarding efficacy of new molecules and its pronounced effect on wheat yield is lacking. Keeping this in view, the performance of SYN-8424 was studied in comparison to already recommended herbicides like clodinofop-propargyl, sulfosulfuron, fenoxaprop-p-ethyl and isoproturon.

Weed control spectrum and efficacy of various doses of SYN-8424 in wheat were evaluated during winter season of 2005-2006. Twelve treatments consisted of five doses of SYN-8424 with built in adjuvant (40, 45, 50, 60, 120 g/ha), SYN-8424 (45 g/ha) + hasten (500 g/ha), clodinofop (60 g/ha), sulfosulfuron (25 g/ha), fenoxaprop-p-ethyl (100 g/ha) both with the adjuvant at recommended dose, isoproturon (1000 g/ha) applied 33 days after sowing, weed-free and weedy checks, replicated thrice were laid out in randomized block design. All the herbicides were sprayed at 500 g/ha spray volume. Wheat variety UP- 2382 at a row spacing of 20 cm was sown on December 22, 2005. The experimental crop was raised adopting recommended package of practices other than weed control.

The major weeds of the experimental field as recorded at 30 days after sowing were *Phalaris minor* (38%), *Medicago denticulata* (15.8%), *Melilotus* spp. (13%), *Coronopus didymus* (7.7%), *Chenopodium album* (7%), *Polygonum plebijum* (5.3%). *Rumex acetosella* (5.3%), *Cyperus rotundus* (2.6%), *Anagallis arvensis* (2%). Other weeds like *Vicia sativa*, *Fumaria parviflora* and *Avena fatua* constituted 3.3 per cent of the total weed population.

Spray of SYN-8424 with the built in adjuvant was 20% more effective as compared to that of adding adjuvant separately. SYN-8424 at 50 g/ha recorded light yellowing of crop plants at 7th day of application which recovered subsequently. New leaf curling of wheat was noted with the use of SYN-8424. Contact leaf yellowing of the crop was observed by the application of fenoxapprop-p-ethyl after 3 days of its spray but the new leaves were not affected.

As a result of severe competition of grassy weed like *Phalaris minor* caused 30-80% reduction in grain yield of wheat (Brar and Walia 1993). Uncontrolled weeds on an average reduced the grain yield of wheat by more than 46% (Table 1). Walia and Singh (2006) also recorded more than 36% reduction in grain yield due to unchecked growth of weeds. The grain yield was increased significantly due

Table 1. Effect of herbicide treatments on weed dry matter production, grain and straw yield of wheat

Treatment	Doses g/ha	Grassy weed dry weight (g/m^2)		Broad leaf weed dry weight (g/m^2)		Sedges weed dry weight (g/m^2)		Grain yield (Kg/ha)	Straw yield (Kg/ha)
		30 DAS	60 DAS	30 DAS	60 DAS	30 DAS	60 DAS		
SYN 8424 with BIA	40	47.41	4.32	35.98	19.07	13.55	3.23	3239	6799
SYN 8424 with BIA	45	38.73	0.00	37.42	11.64	14.87	1.83	3068	6023
SYN 8424 with BIA	50	51.22	0.00	24.21	22.14	14.90	3.95	3201	6439
SYN 8424 with BIA	60	26.06	0.00	24.25	10.36	0.00	2.27	2992	6098
SYN 8424 with BIA	120	52.84	0.00	22.72	9.55	8.20	0.56	3182	6288
SYN 8424 with Hasten	45	29.30	4.63	29.25	7.47	0.15	0.98	2954	6345
Clodinofop	60	50.25	3.97	33.95	11.23	7.05	2.68	3409	6818
Sulfosulfuron	25	40.78	20.70	23.03	3.62	9.20	0.00	3447	6401
Fenoxaprop-p-ethyl +A	100	47.93	16.88	28.53	23.87	7.23	1.02	3295	6364
Isoproturon	1000	42.07	45.12	34.04	1.38	7.10	2.33	3182	6288
Weed-free	-	0.00	0.00	0.00	0.00	0.00	0.00	3598	6458
Weedy	-	40.78	104.47	34.94	13.34	15.36	0.00	1938	4052
LSD (P=0.05)	-	20.68	26.95	NS	13.73	NS	NS	587	1336

BIA = Built in adjuvant, A= Adjuvant at recommended dose

to different herbicidal treatments over weedy check. All the herbicides except SYN-8424 at 60 g/ha with built in adjuvant and SYN-8424 at 45 g/ha with hasten at 500 g/ha gave wheat grain yield at par with weed free treatment.

Increasing dose of SYN-8424 from 40 to 120 g/ha reduced grain yield of wheat but the difference was non-significant. Clodinofop-propargyl at 60 g/ha was also effective against grassy weeds as compared to fenoxaprop-p-ethyl, sulfosufuron and isoproturon. These herbicides were not effective against non-grassy weeds and sedges and produced wheat grain yield at par with weed free treatment.

REFERENCES

Brar LS and US Walia. 1993. Bioefficacy of sulphonyl ureas against *Phalaris minor* Retz in wheat. *Indian Journal of Weed Science* **25**: 1-5.

Walia US and Singh Buta. 2006. Performance of triasulfuron and carfentrazone-ethyl against broad leaf weeds in wheat. *Indian Journal of Weed Science* **38** (3 & 4): 237-239.