

# EVALUATION OF WHEAT VARIETIES FOR METRIBUZIN TOLERANCE

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## **INTRODUCTION**

Metribuzin is an older chemistry herbicide that is becoming an important tool in controlling Italian Ryegrass and Annual Bluegrass, as well as a number of broadleaf weed species in wheat production, due to increasing resistance to other herbicides in weeds. Wheat varieties do, however differ in tolerance to Metribuzin. With the exception of the University of Kentucky, no other public institution has evaluated soft red winter wheat varietal differences in postemergence Metribuzin tolerance in the past decade. Because new varieties are continually being released, regular evaluation is needed and Kentucky growers benefit from this information being available for commercially available varieties. With the support of the Kentucky Small Grain Growers Association, Metribuzin tolerance among wheat varieties was re-evaluated in the 2023-24 growing season.

## **METHODOLOGY**

During the 2023-24 growing season, 76 wheat varieties were rated for postemergence Metribuzin tolerance as part of the University of Kentucky Wheat Variety Trials. Metribuzin tolerance was evaluated in



Differences in Metribuzin injury among wheat varieties (half the test plot was sprayed).

both field and greenhouse trials. The field screening was conducted at Princeton, KY on two replicated plots (4 x 12 ft.) for each variety, where half the plot was sprayed. To insure damage levels were sufficient to make ratings, 21 ounces (which is twice the maximum labeled rate) of Metribuzin 75 DF was applied per acre at Feekes 4. The greenhouse screening test applied 7.6 ounces per acre on 3 replicated pots at the 3-leaf stage in a spray chamber. An injury rating scale of 1 to 5 was used to indicate if varieties were tolerant (1) or susceptible (5) to Metribuzin injury. Due to moderate correlation of field and greenhouse results, results presented are the average injury ratings from the field and greenhouse tests.

## **RESULTS AND DISCUSSION**

The rates of Metribuzin applied to these trials was much higher than would normally be applied by growers. In the field trial, 21 ounces Metribuzin 75DF was applied per acre whereas the labeled rate is 4 to 10 ounces per acre at Feekes 4. Likewise, the greenhouse trial applied 7.6 ounces per acre compared with the labeled rate of 1 to 4 ounces at the 3-Leaf stage. The recommended labeled rate varies depending on soil organic matter content and soil texture. In both field and greenhouse trials, crop injury was achieved and the averaged ratings ranged from 1.0 to 4.3 (Table 1) where 1.0 has no injury and 5.0 is plant death.

These results should help growers assess potential for crop injury for a given variety when using the herbicide Metribuzin. Likewise, seed companies can use this data to assess the potential for injury and make variety specific recommendations on the use of Metribuzin for their clients. Most growers will apply 3-4 oz per acre at the 2-Leaf to 2-Tiller stage. Injury can occur at this rate, particularly under cold and cloudy conditions where phytotoxicity is increased as a result of slower metabolism of Metribuzin. Metribuzin is a selective triazinone herbicide and its use in wheat is expected to dramatically increase as weeds develop resistance to other herbicides, such as [glyphosate](#), ALS and ACCase chemistries. Varietal tolerance to this herbicide will be a very important factor for growers needing this type of herbicide. Always follow herbicide label instructions.

**Table 1. 2024 Kentucky Wheat Variety Postemergence Metribuzin Tolerance.**

Variety	Metribuzin Tolerance	Variety	Metribuzin Tolerance
AgriMAXX 503	2.0	KWS397	3.4
AgriMAXX 505	2.1	KWS490	1.6
AgriMAXX 513	2.3	KWS500	1.9
AgriMAXX 516	1.8	KWS501	1.4
AgriMAXX 525	2.5	KWS525	1.0
AgriMAXX 535	1.8	KWS527	1.4
AgriMAXX 545	3.0	KWS529	2.3
AgriMAXX EXP 2312	2.3	KWS542	2.8
AgriMAXX EXP 2314	3.0	KWS543	1.7
AgriMAXX EXP 2405	2.7	PEMBROKE 2014	2.3
CROPLAN CP8045	1.7	PEMBROKE 2016	2.6
CROPLAN CP8081	1.8	PEMBROKE 2021	1.8
CROPLAN CP8224	3.0	Revere Reagan	2.7
Dyna-Gro 9120	2.3	Revere Valor	2.2
Dyna-Gro 9151	1.4	Revere Washington	2.1
Dyna-Gro 9172	1.9	Revere Grant	2.5
Dyna-Gro 9231	1.4	Revere Anthem	2.7
Dyna-Gro 9290	3.3	Truman	3.0
Dyna-Gro 9393	3.6	USG 3329	1.9
Dyna-Gro 9422	2.8	USG 3352	1.5
Dyna-Gro 9533	2.1	USG 3354	2.3
Dyna-Gro 9542	2.5	USG 3463	1.5
Dyna-Gro 9551	3.2	USG 3472	1.8
Dyna-Gro 9553	2.7	USG 3574	2.5
Dyna-Gro 9570	2.4	USG 3884	4.0
Go Wheat 4059S	2.2	VT Pitman	3.0
Go Wheat 6056	1.7	X11-0039-1-17-5	2.8
Go Wheat Exp 1	1.8	X14-1009-84-4-3	1.8
GROWMARK FS 597	3.3	X14-1031-103-4-1	1.9
GROWMARK FS 600	2.6	X14-1035-67-7-1	2.6
GROWMARK FS 606	3.9	X14-1049-27-10-1	4.2
GROWMARK FS 617	2.3	X14-1107-95-18-5	4.3
GROWMARK FS 624	2.8	X14-1128-23-12-5	2.5
GROWMARK FS 743	2.3	X15-1004-24-4-5-1	2.5
GROWMARK FS 745	1.3	X15-1019-48-8-3	2.9
GROWMARK FS WX24A	2.2	X16-1021-131-19-1-1	2.5
GROWMARK FS WX24B	1.6	X16-1021-13-13-3-5	2.3
GROWMARK FS WX24C	1.4	X16-3013-1-12-5	2.8
		<b>Average</b>	<b>2.4</b>

**Metribuzin tolerance (injury) ratings: 1 = no injury; 5 = severe injury.**