

# ALS-Resistant Pigweed Confirmed In Pa.



## CORN TALK NEWS

PENNSYLVANIA MASTER CORN GROWERS ASSOC., INC.

**Bill Curran**  
Penn State  
Weed Specialist

Lamar Witmar and Wes Martin of Brubaker Agronomic Consulting spoke with us about a pigweed control failure in soybean that one of their clients had experienced.

Although the specifics are still a bit vague, the grower had applied Pursuit herbicide POST in soybean in 1998, which failed to control the pigweed. The grower then followed this up with Classic and perhaps some Pinnacle that same season which still did not kill the weeds.

We heard about the failure that fall and were able to obtain some seeds from the uncontrolled pigweed. We tested the seed in greenhouse experiments and confirmed that it was redroot pigweed and resistant to a number of ALS-type herbicides. In fact, the pigweed was resistant to the six ALS herbicides tested belonging to the imidazolinone, sulfonylurea, and sulfonamide herbicide families (Table 1).

The treated pigweed varied in response to ALS herbicides. The triazine herbicide atrazine was the only herbicide to kill the pigweed in the greenhouse test, while

Raptor and Pursuit slowed it down (50 to 69 percent control) and Beacon showed almost no activity (Table 1). We have obtained additional pigweed seed from these sites to do further greenhouse studies and will continue to monitor the situation in the future.

The farm in question is in Lancaster County and has raised corn, soybean, wheat, and forages and several different types of animals, including chickens. The pigweed problem was relatively new on the farm and is a particular problem in a field directly behind the animal containment buildings.

Although we still haven't determined the cause, the grower did explain that he had used Pursuit before in soybean and had used other ALS-type herbicides in corn such as Exceed. It appears that this grower may have used ALS-type herbicides for about five years in a row in this field. In addition, while visiting the ALS-resistant pigweed farm, I also inspected a field that was eight to 10 miles away on a different farm that had a redroot pigweed control failure this year (2000).

It was a soybean field that had received an ALS herbicide program for STS soybean that hadn't worked. The grower apparently resprayed it with another ALS herbicide program that still didn't kill the pigweed. Could this be number two?

The real question, "did four to five years of back-to-back ALS herbicide use select for resistant weed populations in a corn-soybean-small grain rotation? Or did the grower bring the resistant pigweed onto the farm in purchased feed, forage, or seed? The grower did admit to frequently spreading livestock manure in the problem field, which was adjacent to the animal confinement area. Could the ALS-resistant pigweed be related to feed and manure?"

As a side note, I purchased some pigweed seed from a Mississippi (MS) supplier last spring for a research experiment. We were using the seed in a small weed control experiment at Rocksprings. We happened to have an ALS herbicide treatment in this small experiment, which failed to control the MS pigweed. I observed both dead and alive pigweed in the experiment. The healthy

pigweed were almost definitely ALS-resistant. This certainly suggests that ALS-resistant weeds are common enough in some areas of the country that we easily could import them into our area.

Although we still don't know exactly what happened at the Lancaster County farm, the take-home message: ALS-resistant pigweed (and maybe other weeds) will likely become more commonplace in the future in Pennsylvania, especially in corn. If we were not using ALS herbi-

cides, they would not be potential problems.

With Roundup Ready soybean, the importance of ALS resistance is probably less important than it was five years ago. However, it is important to remember that no herbicide is completely resistant to failure from resistance, tolerance, and weed shifts.

So, the bottom line — rotate potential problem herbicide modes of action annually and pay attention to where you purchase forages and feed to insure that resistant weeds are not the norm.

Table 1 Effect of several herbicides on redroot pigweed control and dry weight reduction in the greenhouse. Means are the average of two experimental runs

Treated	Rate	% Control <sup>a</sup>	% Dry wt reduction <sup>b</sup>
Untreated check	0	0 a	0 a
Beacon 75DF	0.75 oz	12 b	0 a
FirstRate 84DF	0.3 oz	15 bc	0 a
Classic 25DF	0.5 oz	22 c	9 ab
Classic 25DF	1.0 oz	18 bc	0 a
Pinnacle 25 DF	0.25 oz	22 c	2 ab
Pursuit 2AS	4 fl oz	50 d	46 bc
Pursuit 2AS	8 fl oz	65 e	67 cd
Raptor 2AS	4 fl oz	69 e	61 cd
Atrazine 90DF	2 lb active	100 f	100 d

<sup>a</sup>Percent control and dry wt reduction values within a column followed by the same letter are not significantly different from one another according to Fisher's Protected LSD at the 5% level



Want even greater savings? Make your seed purchase an NK® Brand YieldGard® hybrid with Liberty® herbicide resistance, and you'll get the added benefits of outstanding weed control and greater yields.

So, see your Hoffman Seeds dealer about this exciting, limited-time offer and ask about the Liberty® yield challenge. Or call us at **800/776-7929** or visit our web site at **www.hoffmanseeds.com**

