Residual Herbicide Evaluations in Corn with Verdict and Zidua

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Two trials were established in 2012 at the Carrington Research Extension Center in collaboration with BASF to evaluate residual weed control options in corn with two different strategies. The first trial was initiated with several soil-applied residual herbicide application timings. The second trial was established with only a preplant (PP) residual herbicide timing followed by post-emergence (POST) application of glyphosate. The trials were planted on May 10 and harvested on October 8. PP treatments were applied on May 9 and incorporated mechanically to one inch while POST treatments were applied at the V4 growth stage on June 22. The three highlighted treatments in Table 1 were applied just after corn emergence on May 18 and had no other herbicide treatment the remainder of the growing season. All POST treatments for both studies included Roundup Powermax at 22 fl oz/ac with 8.5 lbs/100 gal AMS and 0.25% v/v NIS.

When herbicide products were applied at corn emergence, initial weed control was much greater compared to PP. The lack of further weed management significantly reduced corn yields. Had a mid-season herbicide application been made, these treatments likely would have been amongst the best performing treatments. As it stands, these plots only reached roughly half the yield of the two-application plots, although they were still far better than the non-treated plots.

Very high weed control levels were observed after the second herbicide application in all cases. Weed emergence was very poor after the POST application timing. Below average precipitation and closure of the corn canopy would have contributed to this. Thus, even treatments containing no residual component still had little weed pressure until near the time of corn maturity.

There were not many yield differences between treatments. In the second trial all treatments had statistically equivalent yields except the non-treated plots. In the first trial there were more differences. Most importantly, there was a 12 percent yield hit to the plots that received only Roundup Powermax, even though weed control was quite good after the second application. The yield hit was likely due to the enormous early-season weed pressure experienced this growing season. Without the residual component, weeds quickly emerged and competed with corn to likely reduce the yield potential even though the weeds were removed with a relatively early Roundup application.

Late-season control of common lambsquarters and green foxtail using a combination of glyphosate and residual herbicide products.

Table 1. Weed control with Verdict and Zidua in corn.

----------PP----------			----------POST----------		----------Control----------				----------Harvest----------		
Product		Rate	Product	Rate	3 weeks after PRE		3 weeks after POST		Moisture	Test Weight	Yield
		oz/a		oz/a	Foxtail[1] %	Lmbqtrs[2] %	Foxtail %	Lmbqtrs %	%	lb/bu	bu/a
Trial 1. PP and POST residual treatments											
non treated		-			0	0	0	0	16.1	50.15	17.9
Zidua		2.25	Status	4	54	44	95	93	16.6	55.04	138.6
Zidua		2.25	Armezon + AAtrex	0.75 + 1 (qt)	48	48	95	93	16.2	55.02	144.8
			Zidua + AAtrex	2.25 + 1 (qt)	83	95	79	23	18.4	53.02	93.2
			+Armezon	+ 0.75							
Zidua + Sharpen		2.25 + 2.5	Status	4	56	56	95	88	16.0	54.87	133.7
Verdict		13	Status	4	38	60	95	91	16.2	55.65	140.7
Verdict		13	Armezon + AAtrex	0.75 + 1 (qt)	46	48	95	88	16.6	54.35	147.5
Verdict		13	Zidua + Status	2.25 + 2.5	34	41	95	93	16.4	54.83	154.4
Verdict		13	Status + Headline	4 + 6	48	55	95	93	16.6	54.97	158.4
Dual II		1.33	Laudis + AAtrex	3 + 1 (pt)	30	36	95	89	16.2	55.27	151.5
			Capreno + AAtrex	3 + 1 (pt)	83	95	78	21	18.1	52.62	83.1
			Surestart	1.75	89	88	56	21	18.3	51.83	76.1
Roundup Powermax		22	Roundup Powermax	22	0	0	95	94	17.3	54.35	130.1
LSD (0.05)					14	23	8	5	0.8	1.57	20.9
Trial 2. PP followed by glyphosate											
non treated		-			0	0	0	0	16.1	51.19	9.4
Zidua + Sharpen		2.25 + 2.5			50	54	95	99	16.5	55.71	143.7
+ AAtrex		+ 1 (qt)									
Zidua + Sharpen		2.25 + 2.5			56	44	94	99	16.3	55.92	157.1
Verdict		13			43	60	94	99	16.4	55.37	142.7
Verdict + AAtrex		13 + 1 (qt)			60	64	95	99	16.4	56.00	146.9
Zidua + Verdict		2.25 + 10			63	68	94	99	16.0	55.96	151.2
Lumax		2 (qt)			50	66	94	99	16.4	55.25	145.7
Surestart		1.75 (pt)			38	48	95	99	16.8	55.09	141.6
Harness Xtra		1.5 (pt)			69	69	93	99	15.8	55.68	138.7
LSD (0.05)					16	18	3	0	NS	3.20	23.4

[1] green and yellow foxtail [2] common lambsquarters