Simulated glyphosate and dicamba drift on dry pea

The objective of the study was to determine the impact of low rates (simulated drift) glyphosate and dicamba on dry pea. The study was conducted in 2014 and 2015. The dicamba rates were adjusted slightly in 2015 since no effect was observed at 0.005 and 0.05 oz in 2014. Two untreated treatments were included each year. Spartan + Prowl were applied PRE and Basagran + Select applied POST to control weeds.

In 2014, glyphosate and dicamba treatments were applied just prior to flowering on July 2 when dry peas were 16-19 inches tall. The first replication of the study was severely impacted by disease and therefore the data in Table 1 below is an average of two replications. Glyphosate and dicamba applied at the two lower rates did not cause visible crop injury and did not affect dry pea yield or test weight. Glyphosate and dicamba applied individually at the high rate caused some visible crop injury, but did not affect yield or test weight. However, glyphosate + dicamba applied as a tank mix at the high rate caused significant crop injury and reduced yield and test weight.

In 2015, glyphosate and dicamba treatments were applied just prior to flowering on June 23. No visible injury was observed with the glyphosate treatments and there was no effect on yield (Table 2). Slight visible injury was observed at 0.275 and 0.5 oz dicamba. There was a very slight yield reduction with 0.275 oz dicamba, but a more significant yield reduction at 0.5 oz. Very little injury was observed and no yield reduction with the low rate of glyphosate + dicamba combined. However, there was a significant yield reduction with the tank mix at the two higher rates. Thus, there appears to be a greater effect on dry pea when glyphosate and dicamba are tank mixed compared to either product applied alone.

Table 1. Simulated glyposate and dicamba drift on dry pea in 2014. (1409)

		Dry pea				
		Injury		Height	Yield	Test wt.
Treatment[a]	Rate/A	Jul-11	Aug-08	Jul-18	Aug-19	Aug-19
		--------%--------		cm	lb/A	lb/bu
Untreated		0	0	76	3777	66.5
Glyphosate	0.01 oz	0	0	82	4201	66.3
Glyphosate	0.1 oz	0	0	78	3618	65.7
Glyphosate	1 oz	5	10	76	4054	65.9
Dicamba	0.005 oz	0	0	78	3673	65.9
Dicamba	0.05 oz	0	0	78	3982	66.0
Dicamba	0.5 oz	25	12	75	3814	65.2
Glyphosate + Dicamba	0.01 oz + 0.005 oz	0	0	76	3918	66.4
Glyphosate + Dicamba	0.1 oz + 0.05 oz	0	0	74	3907	65.7
Glyphosate + Dicamba	1 oz + 0.5 oz	40	50	71	651	58.4
Untreated		0	0	77	4441	66.2
LSD (0.05)		3.3	3.8	7.9	970.9	1.1
CV		30.6	33.8	6.1	12.0	0.7

[a]*All treatments applied Pre-flower July 2*

Table 2. Simulated glyphosate and dicamba drift on dry pea in 2015. (1509)

		Dry pea					
		Injury		Height		Yield	Test wt
Treatment	Rate	Jul-3	Jul-13	Jul-06	Jul-13	Aug-10	Aug-10
		-------%-------		-------cm-------		lb/a	lb/bu
Untreated		0	0	95	108	4067	63.8
Glyphosate	0.1 oz	0	0	91	108	4132	64.1
Glyphosate	0.55 oz	0	0	93	109	4077	63.7
Glyphosate	1 oz	0	0	92	108	4030	63.8
Dicamba	0.05 oz	1	0	96	113	4101	63.7
Dicamba	0.275 oz	4	4	91	107	3947	63.8
Dicamba	0.5 oz	8	6	92	109	3677	64.1
Glyphosate + Dicamba	0.1 oz + 0.05 oz	1	1	93	105	4516	64.2
Glyphosate + Dicamba	0.55 oz + 0.275 oz	14	7	96	109	3298	64.3
Glyphosate + Dicamba	1 oz + 0.5 oz	21	11	85	102	2851	64.3
Untreated		0	0	97	108	4583	63.7
LSD (0.05)		2.1	1.2	NS	NS	553	NS
CV		33.6	31.9	6.5	5.4	9.7	0.6

[a]*All treatments applied Pre-flower Jun 23*