

Evaluation of Potential for Carryover of Fall-applied 2,4-D and Dicamba in Dry Pea, Lentil, Chickpea, and Sunflower.

A trial was conducted to evaluate response of spring broadleaf crops (dry pea, chickpea, lentil, and sunflower) to fall application of dicamba. Dicamba and 2,4-D treatments were applied on November 2, 2020. While this late application date is generally later than when these herbicides would be applied, it would represent a latest possible date with the highest potential for carryover. Conditions following application were such that carryover potential was high due to lack of winter and spring precipitation. This allowed for more of the herbicide to remain on the soil surface, avoiding degradation. Dry pea were planted on April 28, chickpea on April 29, and Lentil on April 30; sunflower were planted on May 14, 2021. Under these conditions, injury was dry pea, chickpea, and lentil 18 days after crop emergence. However, no injury was observed to sunflower. At 37 days after crop emergence, injury was still visible in dry pea and lentil, but not in chickpea or sunflower. When crop height was measured at 32 days after emergence, there were no significant reductions in height for any of the crops evaluated. However, there was a reduction in lentil population for both dicamba treatments. No other crop had a significant reduction in stand population due to herbicide treatment. Yield of lentil was reduced only at the higher dicamba rate (8 oz/A). There were no significant reductions in crop yield in dry pea, chickpea due to dicamba or 2,4-D treatments. Sunflower was not harvested due to damage from birds and deer that left little available for harvesting. This trial supports the safety of fall application of 2,4-D for weed control prior to planting spring broadleaf crops. However, there is potential risk for injury, especially in lentil, for fall applications of dicamba.

Treatment	Rate – oz/A –	Crop injury		Crop height		Crop stand – No./ m ² –	Yield – LB/A –	
		18 DAE %	37 DAE	32 DAE cm	63 DAE			
Dry Pea								
1	Untreated		0 e	0 c	32 ab	55 def	1163 bc	
2	2,4-D ester	16	0 e	0 c	33 a	66 d	1193 abc	
3	2,4-D ester	32	0 e	0 c	30 bcd	57 de	1143 bc	
4	Dicamba	4	8 de	5 c	31 abc	56 def	1119 bcd	
5	Dicamba	8	48 b	24 b	31 abc	53 def	1082 bcd	
Chickpea								
6	Untreated		0 e	0 c	28 e	40 ef	1300 ab	
7	2,4-D ester	16	0 e	0 c	29 cde	39 ef	1184 abc	
8	2,4-D ester	32	0 e	0 c	27 e	36 f	1288 ab	
9	Dicamba	4	1 e	0 c	28 e	49 def	1176 abc	
10	Dicamba	8	29 c	5 c	28 de	43 ef	1397 a	
Lentil								
11	Untreated		0 e	0 c	21 hi	219 a	945 cde	
12	2,4-D ester	16	0 e	0 c	21 ghi	205 a	807 ef	
13	2,4-D ester	32	5 e	3 c	20 i	215 a	872 def	
14	Dicamba	4	14 d	6 c	21 hi	180 b	819 ef	
15	Dicamba	8	58 a	46 a	19 i	132 c	694 f	
Sunflower								
16	Untreated		0 e	0 c	23 fgh	85 -	45 def	
17	2,4-D ester	16	0 e	0 c	24 f	86 -	41 ef	
18	2,4-D ester	32	0 e	0 c	21 ghi	81 -	46 def	
19	Dicamba	4	0 e	0 c	23 fg	78 -	48 def	
20	Dicamba	8	0 e	0 c	21 ghi	79 -	45 def	
LSD P=.10			8.05	8.47	2.41	21.15	15.29	230.4
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001	0.6979	0.0002