

TITLE:

Broadleaf Weed Control in Peanut When Using Different Surfactants at Halfway, TX, 2012.

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MATERIALS AND METHODS:

Plot Size:	4 rows by 30 feet, 3 replications
Soil Type:	Pullman Clay loam
Planting Date:	May 1
Variety:	Olin (Spanish market type)
Application Date:	Postemergence, June 2
Rainfall (Apr to Sep.):	6.16 inches

RESULTS AND DISCUSSION:

Producers are continually looking for ways to better manage production costs. Choosing the correct herbicide and herbicide rate for the target weed(s) and the timeliness of the application are all critical steps to obtain effective weed control while managing cost. In addition, knowing the importance of using an adjuvant, and which adjuvant to use could be the difference between success and failure, or simply good to excellent postemergence weed control. The objective of this research was to evaluate Palmer amaranth control and peanut injury following several postemergence (POST) broadleaf herbicides when applied at different use rates in tank mix combination with crop oil concentrate (COC), non-ionic surfactant (NIS), or no adjuvant. A Spanish market type (Olin) was planted May 1. Postemergence applications were made on Jun 2 to Palmer amaranth plants that were 10 inches in height. Percent peanut injury and Palmer amaranth control was estimated visually on July 5 (33 days after application). A herbicide by surfactant interaction was observed for both peanut injury and Palmer amaranth control; therefore all data are listed without pooling over herbicide or pooling over surfactant.

Peanut injury did not exceed 5% following applications of Pursuit, Cobra, or 2,4-DB regardless whether a surfactant was used (data not shown). The full rate of Cadre (4 oz/A) plus NIS (8% injury) or COC (10% injury) was more injurious than this rate of Cadre without a surfactant (5% injury). Ultra Blazer at 12.5 oz (full rate) injured peanut 5 to 6% regardless of whether a surfactant was used.

Cadre at 4 oz/A plus NIS or COC controlled Palmer amaranth 93%, which was more effective than when no surfactant was used (78%). Cadre at 2 oz/A controlled this weed 68 to 70% and no differences were observed among surfactants or when no surfactant was used. Pursuit at 4 oz/A plus COC controlled Palmer amaranth 82%. This control was more effective than this rate of Pursuit plus NIS (67%). Pursuit at 4 oz/A plus either type of surfactant was more effective at controlled Palmer amaranth when compared to this rate of Pursuit without a surfactant (47%). Pursuit at 2 oz/A plus COC was also more effective at controlling Palmer amaranth when compared to this same rate plus NIS or when no surfactant was used. Palmer amaranth control following Cobra at 12.5 oz/A ranged from 22 to 35 % and was similar regardless among surfactant options or when no surfactant was used. Palmer amaranth control following the reduced rate of Cobra was less than when the full rate was used, and no differences were observed among COC, NIS, and the no surfactant treatment. UltraBlazer at 24 oz/A plus COC or NIS was more effective at controlling

Palmer amaranth compared to UltraBlazer without surfactant, although control did not exceed 47% for any treatment. 2,4-DB plus COC controlled Palmer amaranth 87%, which was similar to this same rate plus NIS (83%) but greater than 2,4-DB used without surfactant (73%). Palmer amaranth control following the reduced rate of 2,4-DB (13 oz/A) was greater when COC or NIS was added when compared to no surfactant.

In summary, when using the full herbicide rate, the use of COC helped to improve weed control over the use of NIS when Pursuit was used. The use of COC was similar to NIS for Cadre, Cobra, UltraBlazer, and 2,4-DB. In all instances, the use of either surfactant improved weed control compared to when no surfactant was used. When the reduced herbicide rate was used, COC was superior to NIS when Pursuit was used, COC or NIS improved control when 2,4-DB was used, and no differences were observed for Cadre, Cobra, and UltraBlazer among the COC, NIS, and no surfactant treatments.

Table 1. Palmer amaranth control as affected by broadleaf herbicide applications when using different surfactants at Halfway, TX, 2012^a.

Treatment	Rate	Prod.	Timing	Palmer amaranth Control July 27
	lb ai/A	oz/A		%
Cadre	0.0313	2	POST	70
Cadre + NIS	0.0313 + 0.25% v/v	2 + 3.2	POST	70
Cadre + COC	0.0313 + 1% v/v	2 + 12.8	POST	67
Cadre	0.0625	4	POST	78
Cadre + NIS	0.0625 + 0.25% v/v	4 + 3.2	POST	93
Cadre + COC	0.0625 + 1%	4 + 12.8	POST	93
Pursuit	0.0313	2	POST	10
Pursuit + NIS	0.0313 + 0.25% v/v	2 + 3.2	POST	11
Pursuit + COC	0.0313 + 1% v/v	2 + 12.8	POST	27
Pursuit	0.0625	4	POST	47
Pursuit + NIS	0.0625 + 0.25% v/v	4 + 3.2	POST	67
Pursuit + COC	0.0625 + 1% v/v	4 + 12.8	POST	82
Cobra	0.098	6.25	POST	15
Cobra + NIS	0.098 + 0.25% v/v	6.25 + 3.2	POST	20
Cobra + COC	0.098 + 1% v/v	6.25 + 12.8	POST	22
Cobra	0.195	12.5	POST	22
Cobra + NIS	0.195 + 0.25% v/v	12.5 + 3.2	POST	37
Cobra + COC	0.195 + 1% v/v	12.5 + 12.8	POST	35
UltraBlazer	0.188	12	POST	22
UltraBlazer + NIS	0.188 + 0.25% v/v	12 + 3.2	POST	25
UltraBlazer + COC	0.188 + 1% v/v	12 + 12.8	POST	30
UltraBlazer	0.375	24	POST	32
UltraBlazer + NIS	0.375 + 0.25% v/v	24 + 3.2	POST	47
UltraBlazer + COC	0.375 + 1% v/v	24 + 12.8	POST	47
2,4-DB	0.203	13	POST	37
2,4-DB + NIS	0.203 + 0.25% v/v	13 + 3.2	POST	60
2,4-DB + COC	0.203 + 1% v/v	13 + 12.8	POST	63
2,4-DB	0.406	26	POST	73
2,4-DB + NIS	0.406 + 0.25% v/v	26 + 3.2	POST	83
2,4-DB + COC	0.406 + 1% v/v	26 + 12.8	POST	87

LSD_(0.05)

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^aAbbreviations: COC, crop oil concentrate; NIS, non-ionic surfactant; POST, post emergence topical