Chickpea pre-harvest dessication (2004)

Studies were conducted in 2003 at Bozeman, MT and in 2004 at Minot, ND.

Minot

Large kabuli chickpea, "Sierra," was planted on April 27 at Minot. The study was seeded on barley residue and arranged in a randomized complete block design (RCBD) with three replications. Herbicides were applied with a backpack sprayer delivering 10 gpa at 40 psi through XR8001 nozzles.

Six herbicides were applied prior to harvest on Aug 31, Sep 7, and Sep 15. Treatments were evaluated visually for percent desiccation two or three times following application (Table 2).

Bozeman

Large kabuli chickpea, "Yuma," was planted May 16 at Bozeman, MT. The trial was seeded on fallow and arranged in a RCBD with four replications. Applications were made with a CO_2 backpack sprayer delivering 10 gpa at 40 psi through 8001 flat fan nozzles.

Six herbicides were applied prior to harvest on Aug 12, 18, and 25. Treatments were evaluated visually for percent desiccation at 3, 7, and 14 DAT (Table 3).

Results:

Minot

- Paraquat provided more chickpea desiccation within 3 DAT.
- Paraquat and glufosinate provided faster desiccation than glyphosate at 7-10 DAT (Table 2).
- Glufosinate and glyphosate provided similar desiccation by 17-21 DAT.
- Carfentrazone, flumioxazin, and lactofen did not provide adequate desiccation.

Bozeman

- Paraquat provided faster desiccation by 3 DAT; however, by 14 DAT glufosinate and glyphosate provided similar or better desiccation (Table 3).
- Carfentrazone, flumioxazin, and lactofen provided less desiccation.

Table 1. Herbicide Costs

Treatment*	Rate/A	Cost/A

Paraquat	0.5 lb ai	6.50
NIS	0.25% v/v	0.50
Carfentrazone	0.26 oz ai	5.00
COC	1% v/v	0.70
Glufosinate	0.44 lb ai	16.20
AMS	3 lb/A	2.65
Lactofen	0.195 lb ai	13.67
COC	1% v/v	0.70
Glyphosate	0.75 lb ae	5.70
AMS	8.5 lb/100 gal	0.75
Flumioxazin	0.765 oz ai	5.65
COC	1% v/v	0.70

*NIS - Preference at $19.50/G

*COC - Prime Oil at $7.00/G

*AMS - liquid at $3.00/G

Table 2. Percent desiccation after application in Minot, ND. 2004

Treatment*	Application Date	Product Rate/A	2 DAT	3 DAT	7 DAT	10 DAT	13 DAT	17 DAT	21 DAT
			% Desiccation						
Paraquat	31-Aug	0.5 lb ai		82	92			99	
Carfentrazone	31-Aug	0.26 oz ai		15	23			67	
Glufosinate	31-Aug	0.44 lb ai		50	82			99	
Lactofen	31-Aug	0.195 lb ai		20	33			77	
Glyphosate	31-Aug	0.75 lb ae		22	43			94	
Flumioxazin	31-Aug	0.765 oz ai		20	33			77	
Paraquat	7-Sep	0.5 lb ai				88			99
Carfentrazone	7-Sep	0.26 oz ai				27			76
Glufosinate	7-Sep	0.44 lb ai				94			99
Lactofen	7-Sep	0.195 lb ai				53			85
Glyphosate	7-Sep	0.75 lb ae				58			96
Flumioxazin	7-Sep	0.765 oz				47			82

		ai							
Paraquat	15-Sep	0.5 lb ai	85				96		
Carfentrazone	15-Sep	0.26 oz ai	54				76		
Glufosinate	15-Sep	0.44 lb ai	55				97		
Lactofen	15-Sep	0.195 lb ai	42				77		
Glyphosate	15-Sep	0.75 lb ae	37				87		
Flumioxazin	15-Sep	0.765 oz ai	42				78		
LSD (P=.05)			21	8	8	21	8	21	8
C.V.			19	12	9	19	5	19	5

*Paraquat was applied with nonionic surfactant (NIS) at 0.25% v/v. Carfentrazone, lactofen, and flumioxazin were applied with crop oil concentrate (COC) at 1% v/v. Glufosinate and glyphosate were applied with ammonium sulfate (AMS) at 3 lb/A and 8.5 lb per 100 gallons of water, respectively.

Table 3. Percent desiccation after application in Bozeman, MT. 2003 Application Product 3 DAT 7 DAT 14 DAT

Treatment*	Date	Rate/A	——— % Desiccation ———		
Paraquat	12-Aug	0.5 lb ai	69	80	91
Carfentrazone	12-Aug	0.26 oz ai	15	20	67
Glufosinate	12-Aug	0.44 lb ai	39	79	96
Lactofen	12-Aug	0.195 lb ai	23	30	74
Glyphosate	12-Aug	0.75 lb ae	33	70	99
Flumioxazin	12-Aug	0.765 oz ai	43	68	88
Paraquat	18-Aug	0.5 lb ai	65	84	80
Carfentrazone	18-Aug	0.26 oz ai	16	76	79
Glufosinate	18-Aug	0.44 lb ai	39	93	94
Lactofen	18-Aug	0.195 lb ai	26	68	73
Glyphosate	18-Aug	0.75 lb ae	26	88	100

Flumioxazin	18-Aug	0.765 oz ai	48	81	74
Paraquat	25-Aug	0.5 lb ai	79	83	88
Carfentrazone	25-Aug	0.26 oz ai	62	66	68
Glufosinate	25-Aug	0.44 lb ai	63	81	95
Lactofen	25-Aug	0.195 lb ai	61	64	72
Glyphosate	25-Aug	0.75 lb ae	61	83	99
Flumioxazin	25-Aug	0.765 oz ai	73	76	80
LSD (P=.05)			11	11	10
C.V.			17	11	8

*Paraquat was applied with NIS at 0.25% v/v. Carfentrazone, lactofen, and flumioxazin were applied with COC at 1% v/v. Glufosinate and glyphosate were applied with AMS at 8.5 lb and 17 lb per 100 gallons of water, respectively.