

Dry bean desiccation with carfentrazone. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Thompson, ND, to evaluate carfentrazone treatments applied as a desiccant to navy bean. Rogers '331' navy bean was planted on May 30, 2005 and maintained by the cooperator until the time of treatment. Early desiccation treatments were applied September 7 at 12:45 pm with 73 F air, 86 F soil surface, 31% relative humidity, 50% clouds, 1 to 4 mph S wind, moist soil surface and subsoil and no dew present to naturally senescent dry bean. Dry bean senescence at application was quantified in the following manner: 60% green pods, 40% yellow pods, 0% leather pods, and 40% leaf drop. Late applied desiccation treatments were applied September 14 at 1:45 pm with 73 F air, 79 F soil surface, 30% relative humidity, 10% clouds, 3 to 5 mph NW wind, dry soil surface, damp subsoil and no dew present to naturally senescent dry bean quantified as: 40% green pods, 55% yellow pods, 5% leather pods, and 50% leaf drop. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plots with a backpack-type plot sprayer delivering 30 gpa at 40 psi through 11004 Turbo TeeJet flat-fan nozzles. The experiment had a randomized complete block design with three replicates per treatment.

Carfentrazone was recently registered at a recommended rate of 0.031 lb/A as a crop desiccant for dry edible beans. Desiccants were applied at the beginning of crop senescence where leaf drop had not occurred and vines were green, which is earlier than grower practice. At 3 (data not shown) and 5 DAT, differences among carfentrazone rates within adjuvant type were not visible. However, methylated seed oil (MSO) adjuvant enhanced carfentrazone more than petroleum oil (PO). All treatments with carfentrazone increased speed of desiccation more than paraquat. At 7 DAT, carfentrazone treatments caused pod color change and leaf desiccation similar to treatments at 5 DAT, although all herbicide treatments enhanced dry bean desiccation. Lack of leaf desiccation in the lower canopy was a result of poor canopy penetration. Carfentrazone rates greater than 0.031 lb/A plus MSO were needed to achieve greater than 80% leaf desiccation. Dry bean desiccation was incomplete at 14 DAT. Stem desiccation was 5 to 15% at 5 to 7 DAT and 15 to 20% at 14 DAT (date not shown). (Dept. of Plant Sciences, North Dakota State University, Fargo).

Table. Dry bean desiccation with carfentrazone (Zollinger and Ries).

Treatment ¹	Rate (lb/A)	5 DAT				7 DAT				14 DAT			
		green ² (%)	yellow ³ (%)	leather ⁴ (%)	leaf ⁵ (%)	green (%)	yellow (%)	leather (%)	leaf (%)	green (%)	yellow (%)	leather (%)	leaf (%)
Carfentrazone+PO	0.016	40	60	0	60	35	60	5	62	22	27	52	72
Carf+PO	0.023	38	58	0	65	33	60	5	63	17	28	55	75
Carf+PO	0.031	38	58	0	66	38	63	5	64	17	23	60	73
Carf+PO	0.039	37	57	0	63	27	70	5	68	15	33	50	73
Carf+PO	0.052	35	65	0	70	25	70	5	71	12	25	63	78
Carf+PO/ Carf+PO	0.016/ 0.016	37	63	0	61	33	62	5	63	17	33	53	71
Carf+MSO	0.016	37	63	0	65	33	57	10	67	15	30	55	85
Carf+MSO	0.023	35	65	0	71	27	63	10	71	17	28	53	75
Carf+MSO	0.031	35	65	0	73	23	65	10	74	10	35	55	75
Carf+MSO	0.039	32	68	0	75	20	71	10	76	12	40	55	80
Carf+MSO	0.052	32	68	0	77	20	65	15	79	10	30	60	83
Carf+MSO/ Carf+MSO	0.016/ 0.016	37	63	0	65	30	65	5	67	15	35	55	85
Paraquat+NIS	0.375	40	60	0	50	28	67	5	62	25	45	30	70
Untreated		50	50	0	35	45	55	0	37	30	55	15	55
LSD (0.05)		4	3	0	2	9	3	2	4	3	3	3	2

¹PO = petroleum oil = Herbimax at 1 qt/A; MSO = methylated seed oil = Scoil at 1qt/A; NIS = nonionic surfactant = R-11.

²Green = % green colored pods.

³Yellow = % yellow colored pods.

⁴Leather = % brown/dry pods.

⁵Leaf = % dry leaf and leaf drop.