

## Weed Control in Specialty Crops

**Dry edible bean desiccation.** Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Hatton, ND, to evaluate dry edible bean desiccation from flumioxazin with adjuvants. Four rows of Navy 'Vista' bean per plot were planted on June 9, 2004. Weeds were controlled with two applications of bentazon&sethoxydim plus handweeding. Desiccation treatments were applied on September 17 at 11:30 am with 72 F air, 73 F soil surface, 63% relative humidity, 0% clouds, 2 to 5 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: 25 to 75% leaf drop, 0 to 10% vine senescence, 100% green to yellow colored pods, and 0% leathery pods. Treatments were applied to the center two rows of the 10 by 40 foot plots with a backpack-type plot sprayer delivering 34 gpa at 40 psi through 8004 TeeJet flat fan nozzles. The experiment had a randomized complete block design with three replicates per treatment.

Flumioxazin has shown activity as a dry bean desiccant and enhancement from primarily oil based adjuvants. Data shows speed and level of desiccation from various adjuvant types with flumioxazin applied at 0.048 lb/A. Treatments were included to compare blends of nonionic and organosilicone surfactants, petroleum oil, methylated seed oil (MSO), basic pH blend (BB), deposition aid, drift retardants, and fertilizer for herbicide specificity. MSO and MSO & BB adjuvants with flumioxazin gave the greatest and most rapid dry bean desiccation. Superb HC (high emulsifier concentration petroleum oil), which is used at half the rate of most petroleum oil adjuvants plus InterLock (deposition aid + drift retardant), also gave high and rapid bean desiccation. Organosilicone surfactants which reduce surface tension of spray droplets to increase canopy penetration did not improve desiccation. These data support previous research which indicated oil adjuvants improve dry bean desiccation with flumioxazin. (Dept. of Plant Sciences, North Dakota State University, Fargo).

Table. Dry edible bean desiccation (Zollinger and Ries).

Treatment <sup>1</sup>	Rate (lb/A)	3 DAT				7 DAT				14 DAT			
		leaf (%)	vine (%)	gr/ye <sup>2</sup> (%)	leather (%)	leaf (%)	vine (%)	gr/ye (%)	leather (%)	leaf (%)	vine (%)	gr/ye (%)	leather (%)
Flumioxazin+Herbimax	0.048+1.0 qt	74	22	76	24	82	49	48	52	69	48	46	54
Flmx+Soy-Stik	0.048+1.5 pt	82	31	76	27	86	52	42	58	98	87	11	89
Flmx+Base	0.048+1.5 pt	71	30	74	26	81	52	41	58	93	91	11	89
Flmx+Renegade	0.048+1.5 pt	71	22	79	21	80	48	48	52	93	84	25	75
Flmx+	0.048+												
Placement+Preference	2.0fl oz+0.25% v/v	70	16	84	20	74	41	56	47	80	68	36	64
Flmx+	0.048+												
Interlock+Preference	2.0fl oz+0.25% v/v	69	12	83	17	74	40	52	48	86	79	35	65
Flmx+	0.048+												
Interlock+ClassAct NG	2.0fl oz+0.25% v/v	67	17	84	16	71	33	56	44	87	75	32	68
Flmx+	0.048+												
Interlock+AG 03019	2.0fl oz+0.5% v/v	69	13	83	17	72	31	56	44	82	66	33	67
Flmx+	0.048+												
Interlock+Superb HC	2.0fl oz+0.5% v/v	73	31	75	25	84	46	43	57	92	83	10	90
Flmx+	0.048+												
AG 04020+Preference	2.0fl oz+0.25% v/v	69	14	84	16	73	32	51	49	77	65	38	62
Flmx+Rivet	0.048+0.5% v/v	70	24	74	26	79	33	54	46	87	55	35	65
Flmx+Syl-Tac	0.048+4.0fl oz	69	15	80	20	74	28	55	45	82	53	38	62
Untreated		62	11	85	16	64	16	62	38	69	53	38	62
LSD (0.05)		2	2	2	4	2	4	3	4	2	3	3	3

<sup>1</sup>Herbimax and Superb HC = petroleum oil concentrate; Soy-Stik = methylated seed oil (MSO); Base and Renegade = MSO basic pH blend; Placement = AMS + drift retardant; Preference = nonionic surfactant; InterLock = deposition + drift retardant; ClassAct NG (NextGeneration) = surfactants + fertilizer; AG 03019 and AG 04020 are proprietary adjuvants from Agrilience; Rivet = MSO + organosilicone surfactant; Syl-Tac = ethylated seed oil + organosilicone surfactant.

<sup>2</sup>gr/ye = green to yellow colored pods.