

Response of cauliflower to several postemergence herbicides. Timothy W. Miller. Washington State University, Mount Vernon, WA 98273. Two weeds of considerable importance to cauliflower producers in northwestern Washington are common groundsel and shepherd's-purse. In addition to competing with the crop, seeds of these species frequently stick to the surface of the curd, detracting from cauliflower appearance and reducing its value. Trifluralin is used on nearly all commercial cauliflower fields in Washington state, but control of these two weed species by that product is nearly always incomplete, forcing producers to use expensive hand labor to achieve adequate weed control. To improve control of common groundsel and shepherd's-purse, four postemergence herbicides were tested for selectivity to cauliflower and efficacy on these two species. The study was conducted during 1998 in a commercial production cauliflower field near LaConner, Washington. Preplant incorporated trifluralin was applied to the field at 1.0 lb/A by the cooperator. Plots were established June 18 in 'Rivella' cauliflower. Plots were 10 by 15 ft and included two cauliflower rows. Treatments were applied on June 19 using a CO₂-pressurized backpack sprayer delivering 31.3 gpa at 43 psi (Table 1). Cauliflower injury was visually estimated June 25, and control of shepherd's-purse and common groundsel was visually estimated July 16. The experimental design was a randomized complete block with three replicates. A general linear models procedure was used to analyze the data. Means were separated using Fisher's Protected LSD.

Table 1. Application data.

6:00 p.m., June 19, 1998
 Broadcast, postemergence
 Crop 3- to 5-leaf
 Weeds 2 to 5 in. tall
 35% cloud cover
 Winds 1 to 3 mph from SW
 Air temp. = 18 C
 Soil temp (6") = 12 C
 Relative humidity = 45%
 No dew; soil surface dry

Cauliflower injury at six days after treatment ranged from 17% with pyridate, to 5% with sulfentrazone, to none with clopyralid and dimethenamid (Table 2). Pyridate leaf injury was typified by yellowish mottling, and sulfentrazone injury by necrotic spots on the leaves. In both cases, treated plants appeared normal by the commercial harvest date. Clopyralid at 0.28 lb/A and both rates of sulfentrazone controlled greater than 90% of common groundsel by 27 days after treatment. None of these herbicides adequately controlled shepherd's-purse, although pyridate did suppress that species (68 to 78 % control).

Table 2. Weed control and cauliflower injury as affected by postemergence herbicide treatment.

Treatment ^a	Rate lb/A	Crop injury %	Weed control	
			Shepherd's-purse %	Common groundsel %
Clopyralid	0.14	0	20	57
Clopyralid	0.28	0	7	100
Pyridate	0.5	17	68	23
Pyridate	1.0	17	78	53
Sulfentrazone	0.125	5	35	93
Sulfentrazone	0.25	5	55	98
Dimethenamid	0.5	0	15	3
Untreated check	---	0	0	0
LSD _{0.05}	---	4	42	21

^aTrifluralin at 1.0 lb/A trifluralin was applied to all plots (including the check).