STRAWBERRY YIELD AND WEED CONTROL WITH SHANK AND DRIP APPLIED MIDAS

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The objective of this work was to evaluate strawberry yield and weed control under two Midas formulations applied by shank injection and drip fumigation.

Methods

Two field trials were conducted in Salinas and Watsonville, CA. Two formulations of Midas, a mixture of iodomethane and chloropicrin (Pic) (Midas 33/67 and 50/50), were drip applied and shank injected to raised beds at 200 lbs/ac on Oct. 8 in Watsonvile and on Oct. 20 in Salinas. Methyl bromide/Pic (MbPic EC) and Pic EC were drip applied at 200 lbs/ac. Fumigants were drip applied in two inches of water through two drip tapes under tarp. Midas was shank injected at 8 to 10 inches with two chisels spaced 14 inches apart into soil beds that were immediately covered with standard polyethylene tarp. Beds were 50 feet long and 54-inches (center-to-center) wide. Treatments were replicated four times at both sites. Clear tarp was installed at the fumigation time. Strawberry 'Diamante' was transplanted on 11/13/04 in Watsonville and on 11/22/04 in Salinas. Weed densities on 25-inch wide bed tops were measured during the strawberry growing season. At least four weeks after fumigation, plant holes were cut in the plastic mulch at 30 cm spacing and strawberries were planted. The fruit was harvested once every week throughout the production season (early April to September) and graded into marketable and culls.

Results and discussion

Fumigation with Midas, Pic, and MB/Pic significantly increased total and marketable yields compared to the non-fumigated control (Table 1). In Salinas, all fumigant treatments were significantly different than the untreated control. In Watsonville, all Midas treatments were significantly different than the untreated control. Yields from all Midas treatments were higher than yields from MB/Pic. The drip-applied MB/Pic was not significantly different than the untreated control. The soil at the Watsonville location was heavily infested with *Verticillium dahliae*. Our results indicate that drip application of MB/Pic at 200 lbs/ac is not sufficient to control *Verticillium* wilt.

All fumigants provided effective control of resident weeds. The Salinas site was heavily infested with weeds compared to the Watsonville site. Except for the shank-applied Midas formulation that contained the least iodomethane amount, all Midas treatments provided excellent weed control. The drip applied Pic did not provide weed control as well as the other treatments.

Table 1: Strawberry yield at Watsonville and Salinas, CA.

Treatment	Method	Salinas		Watsonville	
		Marketable	Total	Marketable	Total
		----------1000's-lb /Acre----------			
MbPic 67:33	Drip	24.6	37.3	21.0	39.6
Midas 50:50	Drip	22.9	34.7	25.5	46.9
Midas 33:67	Drip	22.2	39.4	22.8	42.9
Midas 50:50	Shank	21.8	33.5	24.0	45.3
Midas 33:67	Shank	26.5	33.2	23.8	46.5
Pic	Drip	21.5	33.3	22.7	41.7
Untreated	---	14.2	23.3	18.0	32.3
LSD		6.8	90.0	4.5	7.6

Table 2: Season cumulative weed densities at Salinas and Watsonville, CA.

Treatment	Method	Salinas	Watsonville
		Total weeds	Total weeds
		----------1000's /Acre----------	
MbPic 67:33	Drip	8.6	46.5
Midas 50:50	Drip	13.2	24.9
Midas 33:67	Drip	29.5	62.1
Midas 50:50	Shank	24.4	50.8
Midas 33:67	Shank	12.9	172.1
Pic	Drip	20.5	250.9
Untreated	---	84.0	1024.8
LSD		50.0	448.4