Imperial County Agricultural Briefs

Features

From your Farm Advisors

September, 2008

Evaluation of Insecticides for Whitefly Control in Cauliflower During the Fall of 2007

Eric T. Natwick

A cauliflower, variety Minuteman, field trial at the University of California Desert Research and Extension Center near Holtville, CA was planted September 5, 2007 to evaluate insecticide treatments for efficacy against silverleaf whitefly. The experimental design was a randomized complete block with four replicates. Plots measured 50 ft by 13.33 ft; 4 beds per plot no 40" centers. Insecticide treatments are listed in Table 1. Foliar spray treatments were applied using a Spider Trac Sprayer with three TJ-60 11003VS nozzles per bed delivering 51 gpa at 40 psi on the dates listed in Table 1. Evaluations were made by counting the numbers of whitefly adults on basal leaves of ten plants in each plot on dates listed in Tables 2. Whitefly nymphs within 1.65 cm^2 leaf disks from ten basal leaves from each plot and counted using a binocular microscope on date listed in Tables 3.

All insecticide treatments had significantly ($P < 0.05$) fewer silverleaf whitefly adults compared to the untreated control on sampling dates for October 11, and from November 2 through December 6 and all but Oberon at 8.5 fl oz/acre had significantly fewer adults than the control on October 18 (Table 2). All insecticide treatments had significantly fewer whitefly nymphs compared to the untreated control on October 18, November 27 and December 7. On November 15, among the insecticide treatments, only Oberon 2 SC at 7 fl oz/acre did not have significantly fewer nymphs compared to the untreated control. The insecticide treatments Assail 30 SG, both rates of Movento, and Provado Pro all had means for whitefly nymphs that were significantly lower than the untreated control. All insecticide treatments in the experiment provided control of silverleaf whitefly adults and nymphs, but the highest level of control was from Movento at 5 fl oz/acre.

Table 1. Whitefly Control Insecticides on Cauliflower, Holtville, CA, 2007

Treatment	lb(AI)/acre	oz/acre	Applications Date
1. Untreated	**------**	**-------**	**----------**
2. Assail 30 SG	**0.075**	**4.0**	**12 Oct, 6 & 22 Nov**
3. Movento	**0.047**	**3.0**	**12 Oct, 6 & 22 Nov**
4. Movento	**0.078**	**5.0**	**12 Oct, 6 & 22 Nov**
5. Provado Pro 192	**0.047**	**3.75**	**12 Oct, 6 & 22 Nov**
6. Oberon 2SC	**0.110**	**7.0**	**12 Oct, 6 & 22 Nov**
7. Oberon 2SC	**0.133**	**8.5**	**12 Oct, 6 & 22 Nov**

Penetrator Plus @ 0.25% v/v added to each spray mixture.

Table 2. Whitefly Adults per Leaf Following Various Insecticide Treatments In Cauliflower, Holtville, CA, 2007.

Treatment	Oz/acre	11 Oct	18 Oct	23 Oct	2 Nov	5 Nov	15 Nov	21 Nov	27 Nov	6 Dec
Untreated	------	38.50 a	18.08 a	24.88	60.63 a	53.25 a	42.83 a	54.50 a	50.95 a	35.35 a
Assail 30 SG	4.0	27.68 c	5.48 d	12.35	21.48 b	25.33 bc	10.83 c	28.08 bc	8.83 c	4.50 cd
Movento	3.0	29.35 bc	10.10 bcd	18.65	13.13 b	23.65 bc	11.48 bc	14.43 d	7.78 c	7.68 b
Movento	5.0	31.45 bc	9.50 cd	14.43	13.25 b	18.25 c	11.05 b	13.10 d	17.35 b	3.78 d
Provado Pro 192	3.75	30.85 bc	9.95 bcd	19.90	24.08 b	33.18 b	25.35 b	11.88 d	13.60 bc	7.48 b
Oberon 2SC	7.0	32.48 b	10.83 bc	20.18	29.53 b	23.38 bc	17.70 bc	34.72 b	11.40 bc	6.58 bc
Oberon 2SC	8.5	31.10 bc	14.98 ab	21.40	13.28 b	21.25 c	19.70 bc	25.13 c	8.95 c	7.98 b
LSD @ P = 0.05		*4.53*	*5.28*	*ns*	*20.85*	*11.23*	*14.30*	*8.23*	*7.28*	*2.60*

Table 3. Whitefly Nymphs per cm^2 of Cauliflower Leaf Following Various Insecticide Treatments, Holtville, CA, 2007.

Treatment	Oz/acre	11 Oct	18 Oct	23 Oct	5 Nov	15 Nov	21 Nov	27 Nov	7 Dec
Untreated	------	24.8	43.7 a	29.9	28.9	34.1 a	19.2 a	26.6 a	26.2 a
Assail 30 SG	4.0	21.4	19.0 b	14.0	18.3	16.1 c	15.8 ab	5.1 b	6.1 bcd
Movento	3.0	22.4	25.5 b	17.8	18.5	20.7 bc	3.9 d	4.6 b	6.2 bcd
Movento	5.0	19.2	23.9 b	17.7	21.7	14.4 c	6.3 cd	2.9 b	0.6 d
Provado Pro 192	3.75	20.8	21.3 b	17.5	19.9	19.1 bc	11.3 bc	9.6 b	7.9 bc
Oberon 2SC	7.0	19.6	20.8 b	16.0	19.2	26.6 ab	13.1 abc	8.9 b	12.3 b
Oberon 2SC	8.5	18.8	21.9 b	15.2	22.9	17.0 bc	8.9 bcd	6.6 b	5.7 cd
LSD @ P = 0.05		*ns*	*11.9*	*ns*	*ns*	*9.8*	*7.1*	*9.8*	*6.6*

Preseason Weed Management Considerations for Cole Crop Production in the Imperial Valley

Mark A. Trent

Major cole crops produced in the Imperial Valley include broccoli, cauliflower, and cabbage. Cole crops are either direct seeded or transplanted in the field. While most broccoli and cabbage crops are direct seeded, cauliflower is commonly transplanted, which simplifies weed control. The use of transplants allows for earlier crop maturity, a more uniform stand, and increased weed management options. Although more challenging, weed control is particularly important in direct-seeded crops where loss of seedlings to competition from weeds can significantly reduce vigor and consistency of the overall stand.

Inadequate weed control can adversely affect cole crops in many ways other than stand reduction. Weeds compete with the crop for sunlight, nutrients, and water. Preseason weeds in and around the field can sometimes harbor pathogens, nematodes, insects, or vertebrates that can invade or spread to the crop soon after planting. In addition, uncontrolled weeds can impede harvest efforts. The first 30 days may be the most important for weed control. As the crop grows older, most cole crops shade and compete well with weeds.

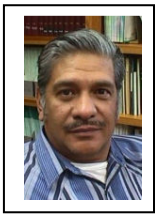
Choice of an herbicide depends largely on the weed species to be controlled, but it is also influenced by soil type, irrigation method, and crop rotation. Planting date can have an impact on the severity of weed problems and type of weed species encountered. Early-planted crops must compete with weed species that germinate under the warm to hot conditions of late summer and early fall. Later fall plantings compete with winter annual weeds. Fields planted between October 1st and October 15th has been observed to have reduced weed pressure.

Careful water management is also important in weed control. Poorly maintained furrows may cause water to collect in parts of the furrows, favoring the growth of water-loving weeds, as well as soilborne disease organisms.

When planning a weed management program, it can be very helpful to know which weeds are present and at what level. To determine the species and number of weed that may be encountered in the upcoming season, a survey of each field before the first cultivation and at harvest (for use in subsequent crops) can be very useful. If possible, conduct the first survey while the previous crop is still in the ground. Make a record of weeds that are mature and producing seed; these weeds will be the sources of weed problems in succeeding crops. Most herbicides used in cole crops are effective only on germinating weeds, so it is essential to know what the target weeds are before they grow. To conduct a weed survey, walk through the field in a regular grid pattern and rate the degree of infestation for each weed species. Use a numerical scale or rate infestations as light, medium, or heavy. Check the area surrounding the field as well as the field itself. It can also be useful to mark areas of the field where perennial weeds are found on a field map or GPS. A file on each field can be maintained to track long-term trends in weed species and density.

For more information on weed management in cole crops go to:
http://www.ipm.ucdavis.edu/PMG/r108700111.html#BEFORE

Alfalfa Varieties 2008



Juan N. Guerrero

For those growers contemplating a 2008 planting of alfalfa next October, a variety evaluation would be helpful. Every year the agronomy department at UC Davis, trials conducted by Dan Putnam; conducts alfalfa variety trials at the University of California Desert Research and Extension Center. The latest results may be found in Table 1.

TABLE 1. 2006-2007 YIELDS, UC IMPERIAL VALLEY ALFALFA CULTIVAR TRIAL. TRIAL PLANTED 11/30/05

		2006 Yield	2007 Yield	Average		% of CUF101
	FD	Dry t/a				%
Released Varieties						
Impalo	9	7.8 (2)	7.4 (5)	7.6 (1)	A	115.3
Highline	9	7.5 (5)	7.6 (1)	7.5 (2)	A	114.4
Royal 10	10	7.8 (1)	7.2 (8)	7.5 (4)	A	114.0
59N49	9	7.5 (6)	7.4 (6)	7.5 (6)	A	113.1
El Camino 1010	10	7.3 (13)	7.1 (10)	7.2 (10)	A B C	108.6
WL 625 HQ	9	7.4 (7)	6.8 (15)	7.1 (11)	A B C D	107.9
CW 909	9	7.3 (11)	6.8 (13)	7.1 (12)	A B C D E	107.2
El Camino 999	9	7.2 (14)	6.8 (14)	7.0 (13)	A B C D E	106.3
HB8900 (91T403)	9	7.0 (19)	7.0 (12)	7.0 (15)	A B C D E	106.2
El Camino 888	8	7.4 (9)	6.5 (20)	7.0 (16)	A B C D E	106.1
El Camino 999 M/L	9	6.9 (20)	7.0 (11)	7.0 (17)	A B C D E	105.7
Max Royal	9	7.2 (15)	6.7 (17)	6.9 (18)	A B C D E	105.2
AL999	9	7.1 (16)	6.5 (21)	6.8 (19)	A B C D E F	103.7
TriplePlay	9	7.1 (17)	6.5 (22)	6.8 (20)	A B C D E F	103.4
CUF101	9	6.6 (27)	6.6 (19)	6.6 (22)	B C D E F	100.0
Belleza Verde	10	6.9 (21)	6.0 (25)	6.4 (24)	C D E F	97.3
MEAN		7.14	6.80	6.97		
CV		9.0	11.9	9.6		
LSD (0.1)		0.77	0.98	0.81		

Trial planted at 25 lb/acre viable seed in Imperial clay loam soil at the UC Desert Research and Extension Center, Holtville, CA.
Entries followed by the same letter are not significantly different at the 10% probability level according to Fisher's (protected) LSD.
FD = Fall Dormancy reported by seed companies.

CIMIS REPORT

Khaled Bali and Steve Burch*

California Irrigation Management Information System (CIMIS) is a statewide network operated by California Department of Water Resources. Estimates of the daily reference evapotranspiration (ET_o) for the period of September 1 to November 30 for three locations in the Imperial County are presented in Table 1. ET of a particular crop can be estimated by multiplying ET_o by crop coefficients. For more information about ET and crop coefficients, contact the UC Imperial County Cooperative Extension Office (352-9474) or the IID, Irrigation Management Unit (339-9082). Please feel free to call us if you need additional weather information, or check the latest weather data on the worldwide web (visit http://tmdl.ucdavis.edu and click on the CIMIS link).

Table 1. Estimates of daily Evapotranspiration (ET_o) in inches per day

Station	September		October		November	
	1-15	16-30	1-15	15-31	1-15	16-30
Calipatria	0.30	0.27	0.23	0.19	0.14	0.10
El Centro (Seeley)	0.29	0.26	0.23	0.17	0.13	0.09
Holtville (Meloland)	0.30	0.27	0.22	0.18	0.13	0.10

* Irrigation Management Unit, Imperial Irrigation District.