Imperial County Agricultural Briefs

Features

From your Farm Advisors

January, 2007

Comparison of Fungicides for Control of Powdery Mildew on Iceberg Lettuce, 2006.

Thomas Turini and Ronald Cardoza

Fungicide efficacy against downy and powdery mildew on lettuce, caused by *Golovinomyces cichoracearum* (formerly *Erysiphe cichoracearum*), was compared in a study conducted at the University of California Desert Research and Extension Center in Holtville, CA. On 21 Nov 2005, 'Coyote' iceberg lettuce was sown in two seed lines per 40 in bed and sprinkler irrigated. Treatments are listed in the table. Each was applied over 25 ft of two beds with a 5 ft buffer between treatments within rows and one planted untreated buffer bed between treated beds. Materials were applied on 10, 22 Feb and 9 Mar.

All materials were applied in 30 gallons of water per acre with a CO_2 pressurized backpack sprayer at 30 psi. A 3-nozzle spray boom was used with Teejet 8002 flat fan nozzles spaced 6.5-in apart. On 16 Feb, 8, 17 and 24 Mar, powdery mildew severity was rated according to the following scale on each of 10 plants per plot: 1 = no powdery mildew observed; 2 = powdery mildew on lower wrapper leaves only; 3 = powdery mildew on upper wrapper leaves; 4 = powdery mildew on cap leaf; 5 = extensive powdery mildew on the entire plant. Disease severity was analyzed with ANOVA. Means were separated with Student (P=0.05) is presented.

All materials provided some control of powdery mildew. On 16 Feb, powdery mildew severity was very low and there were no significant differences among treatments (data not shown). On 17 Mar (8 days after treatment, Procure 480SC at 8 fl oz/acre numerically had the lowest disease severity, which was not different from Microthiol Dispress at 10 lbs/acre alternated with Procure at 6 fl oz/acre, Microthiol Dispress at 10 lbs/acre, Quintec, at 6 fl oz/acre or Quadris 15.4 oz + Latron 0.06% alt/w Procure 6 oz. The levels of powdery mildew on lettuce treated with the best performing materials on 17 Mar had low levels of mildew when evaluated on 24 Mar (15 days after treatment). Flint 2.0 oz/acre was among the best performing materials on 24 Mar evaluation. No evidence of phytotoxicity was observed, but lettuce treated with Microthiol had a residue on the outer leaves.

Note that of the fungicides tested, only Cabrio, Endura, Sonata, Microthiol and Quadris are currently registered for use on lettuce. Carefully read the label before writing any pesticide recommendation.

Treatment formulated product rate/acre[z]	Powdery mildew severity rating[y]		
	8 Mar	17 Mar	24 Mar
Procure 480SC 8 fl oz	0.0 d[x]	0.1 e	0.1 d
Microthiol 10 lbs (1,3) alt/w Procure 480SC 6 fl oz (2)	0.0 d	0.2 de	0.1 d
Microthiol 10 lbs	0.1 d	0.2 de	0.2 cd
Quintec 6 oz	0.3 d	0.4 de	0.3 cd
Quadris 15.4 oz + Latron 0.06% (1,3) alt/w Procure 480SC 6 fl oz (2)	0.4 cd	0.2 de	0.4 cd
Flint 2 oz	0.5 cd	0.4 d	0.4 cd
Cabrio 16 oz + Endura 4 oz + Kinetic 16 oz	0.7 bc	0.8 c	0.6 c
Endura 4 oz + Kinetic 16 oz	1.0 b[x]	1.2 b	1.1 b
Quadris 15.4 oz + Latron 0.06%	1.0 b	1.1 b	1.3 b
Cabrio 16 oz + Latron 0.06%	0.9 b	0.9 bc	1.1 b
Quadris 15.4 oz + Exit 8 oz	1.0 b	1.0 bc	1.3 b
Sonata 2 qts + Quadris 15.4 oz + Latron 0.06%	1.0 b	1.2 b	1.4 b
Untreated	1.5 a	1.6 a	2.6 a

[z] On 10, 22 Feb and 9 Mar, materials were applied in 30 gallons of water per acre with a CO_2 pressurized backpack sprayer at 30 psi.

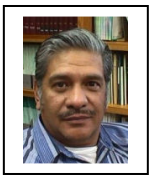
[y] On 25 Mar, powdery mildew severity was rated according to the following scale on each of 10 plants per plot: 1 = no powdery mildew observed; 2= powdery mildew on lower wrapper leaves only; 3 = powdery mildew on upper wrapper leaves; 4 = powdery mildew on cap leaf; 5 = extensive powdery mildew on the entire plant.

[x] Means followed by same letter do not significantly differ (P=0.05, Student-Newman-Keuls)

[w] Numbers in parenthesis refer to application dates: 1=10 Feb, 2=22 Feb and 3=9 Mar.

[v] Materials separated by "+" were tank mixed

Adding Water to Dry Hay



Juan N. Guerrero

Often, during the winter, fresh hay is not available. The only available hay may be hay stored roadside for 4 to 5 months, hay that during the winter is very dry and brittle. Livestock do not like to eat dry, brittle hay. Hay stored all summer or year old hay often is fed to livestock. This type of hay is extremely dry, often having 5% moisture or less. This kind of dry, brittle hay can cut the inside of a horse's or steer's mouth. Many persons feed this type of hay because it is inexpensive. Besides the fact that this hay is less nutritious, it is also unpalatable to livestock as well.

Can this kind of hay be used at all? Yes, it can, with some care. Livestock prefer to eat soft, green hay. The preferred hay moisture range for livestock is 18 to 22%. Over 20% moisture, hay may mold and at 22% moisture, it is very likely that the hay will mold. At about 12% , hay starts to be brittle. Hay stored roadside in May at 18% moisture, by October dries to about 5% or less. How do you make dry, brittle hay soft? The answer is, add water.

Water may be added in two ways. You may add the water directly to the bale, then let the bale equilibrate (let the moisture spread throughout the bale) for about 4 to 6 hours. This softened bale may then be broken and fed as "flakes" or ground (preferable). Water may be added to ground hay, mixed, equilibrated, and then fed. Once water has been added to hay, feed all the rewetted hay during the same day, ***do not store rewetted hay***.

Below is a table that you might use in adding water to dry hay. Do not rewet to more than 24% moisture. Less than 10% moisture is too dry. Again, the optimal moisture range for hay palatability is about 18-22%.

Table 1. Gallons of water to add to one ton of dry hay.

Actual Hay Moisture , %	Desired Hay moisture percentage 20	18	16	14	12	10
12	24	18	11	6		
11	27	20	14	8		
10	30	23	17	11	5	
9	33	26	20	14	8	
8	36	29	23	17	11	5
7	46	39	32	26	14	8
6	49	42	35	29	16	11
5	45	38	31	25	19	13
4	48	41	34	29	22	16

Spring 2006 Whitefly Insecticide Efficacy Trial in Cantaloupe Melon

Eric T. Natwick

A stand of cantaloupe melon (var. Esteem) was established at UC Desert Research & Extension Center on March 20, 2006. Twelve insecticide treatments and an untreated control were replicated four times in a randomized complete design experiment. Insecticide treatments, rates as fluid or dry ounces per acre and treatment dates are listed in Table 1. Silverleaf whitefly adults were counted on the fifth leaf from cane tip on 10 plants per plot at random in each plot via the leaf turn method on the dates indicated in Table 2. Silverleaf whitefly eggs and nymphs were counted on 1.65 cm leaf disks from ten crown leaves extracted from randomly selected melon plants in each plot on the sampling dates indicated in Tables 3 and 4.

There were no differences (P# 0.05) among the treatments for whitefly adults on April 13, 28, or May 17 (Table 2). On May 24, the mean for whitefly adults for the untreated control was significantly greater than the means for Venom 70 SG, Platinum 2 SC at 8.0 fl oz/acre, Admire Pro followed by (f/b) Oberon, Actara 25 WG at 3.0 and 4.0 dry oz/acre, Capture 2E + Endosulfan 3 EC f/b Oberon 2 SC, EcoTrol and Ecotrol plus Oberon. On May 24 all insecticide treatments had significantly fewer whitefly adults than the untreated control except Venom 75 SG, Platinum 2 SC at 11.0 fl oz/acre, and Actara at 3.0 and 5.5 dry oz/acre. On May 31, all insecticide treatments had fewer whitefly adults than the untreated control and on June 8, all insecticide treatments had fewer whitefly adults than the untreated control except Capture 2E + Endosulfan 3 EC f/b Oberon 2 SC f/b Venom 20 SG. Only Venom 70 SG, Admire Pro f/b Oberon, Capture 2E + Endosulfan 3 EC f/b Oberon 2 SC f/b Venom 20 SG, and EcoTrol plus Oberon had significantly fewer whitefly adults than the untreated control.

On May 1, the mean for whitefly eggs for the untreated control was significantly greater (P# 0.05) than the means for Venom 70 SG, Actara 25 WG at 3.0 dry oz/acre, EcoTrol and Ecotrol plus Oberon on the May 1 (Table 3). All insecticide treatments had significantly fewer whitefly eggs than the untreated control on May 8, but only Venom 70 SG, Platinum 2SC at 11.0 fl oz/acre, Admire Pro f/b Oberon, Capture 2E + Endosulfan 3 EC f/b Oberon 2 SC, and EcoTrol plus Oberon had fewer whitefly eggs than the control on May 17. All insecticide treatments had significantly fewer whitefly eggs than the untreated control except Diamond at 8.0 fl oz/acre, Platinum 2 SC at 11.0 fl oz/acre, and Actara 25 WG at 4.0 and 5.5 dry oz/acre on May 24. Only Venom 70 SG, Admire Pro f/b Oberon, Actara 25 WG at 3.0, Capture 2E + Endosulfan 3 EC f/b Oberon 2 SC, EcoTrol, and EcoTrol plus Oberon had fwewer whitefly eggs than the control on May 31. All insecticide treatments had significantly fewer whitefly eggs than the untreated control except Actara 25 WG at 5.5 dry oz/acre on June 8 and all insecticide treatments had fewer whitefly eggs than the control on June 14.

On May 1, the mean for whitefly nymphs for the untreated control was significantly greater (P# 0.05) than the means for Diamond at 8.0 fl oz/acre,Venom 70 SG, Admire Pro f/b Oberon, Actara 25 WG at 3.0 dry oz/acre, and EcoTrol on the May 1 (Table 4). All insecticide treatments had significantly fewer whitefly nymphs than the untreated control on May 8 and all but EcoTrol on May 17. Only Actara 25 WG at 4.0 and 5.5 dry oz/acre and EcoTrol did not have fewer whitefly nymphs than the control on May 24. All insecticide treatments had significantly fewer whitefly nymphs than the untreated control on May 31, except Diamond at 8.0 fl oz/acre, Platinum 2 SC at 8.0 and 11.0 fl oz/acre and Actara 25 WG at 4.0 and 5.5 dry oz/acre. Only Platinum 2 SC at 11.0 fl oz/acre did not have fewer whitefly nymphs than the control on June 8. All insecticide treatments had significantly fewer whitefly nymphs than the untreated control on June 14, except Platinum 2 SC at 8.0 and 11.0 fl oz/acre and Acrata 25 WG at 4.0 and 5.5 dry oz/acre.

Venom 70 SG, a neonicotinoid insecticide, applied at planting provided long lasting whitefly control. Admire Pro f/b Oberon, Capture 2E + Endosulfan 3 EC f/b Oberon 2 SC, EcoTrol, and EcoTrol plus Oberon provided the best whitefly control through the season.

Table 1. Treatments and Dates for Whitefly Control In Melons, Holtville, CA, 2006.

Treatment	Ounces per Acre	Treatment Dates
Untreated	---	---
**Diamond 0.83 EC[z]	8.0 fl	2, 9, 22 May, 7 June
**Diamond 0.83 EC[z]	12.0 fl	2, 9, 22 May, 7 June
*Venom 70 SG	6.0 dry	30 March
*Platinum 2 SC[z]	8.0 fl	30 March
*Platinum 2 SC[z]	11.0 fl	30 March
*Admire Pro f/b **Oberon 2 SC	7.0 fl 8.5 fl	30 March 2, 9, 22 May, 7 June
**Actara 25 WG[z]	3.0 dry	2, 9, 22 May, 7 June
**Actara 25 WG[z]	4.0 dry	2, 9, 22 May, 7 June
**Actara 25 WG[z]	5.5 dry	2, 9, 22 May, 7 June
**Capture 2E + Endosulfan 3 EC f/b **Oberon 2 SC f/b **Venom 20 SG	5.12 fl + 42.7 fl 8.5 fl 20.8 dry	2 May 9. 22 May 7 June
**EcoTrol EC	64.0 fl	2, 9, 22 May, 7 June
**EcoTrol EC + Oberon 2 SC	64.0 fl + 8.5 fl	2, 9, 22 May, 7 June

*** At-planting drip irrigation injection. ** Foliar spray including Natural Wet @ 1 pt/100 gallons. [z]Not registered for this use at time of publication.**

Table 2. Silverleaf Whitefly Adults per Melon Leaf Following Various Insecticides, Holtville, CA, 2006.

Treatment	oz/acre	13 April	28 April	8 May	17 May	24 May	31 May	8 June	14 June	SM [y]
Untreated	----------	4.98	12.63	9.38 a	18.83	24.88 a	23.78 a	17.38 a	24.98 ab	17.10 a
**Diamond 0.83 EC [z]	8.0 fl	4.38	12.83	8.30 ab	11.78	13.28 de	13.55 cd	7.90 f	23.33 abc	11.92 e
**Diamond 0.83 EC [z]	12.0 fl	5.13	15.40	6.30 abcd	13.68	12.53 de	12.03 d	11.00 def	22.68 abc	12.34 de
*Venom 70 SG	6.0 dry	2.75	13.05	3.25 d	12.15	24.40 ab	16.20 bc	12.15 cde	18.30 bcd	12.78 cde
*Platinum 2 SC [z]	8.0 fl	6.83	15.45	5.25 bcd	16.13	16.13 cd	16.23 bc	8.85 ef	24.58 ab	13.68 bcd
*Platinum 2 SC [z]	11.0 fl	3.48	15.78	7.25 abc	18.70	23.13 ab	18.10 b	10.33 def	21.65 abc	14.80 b
*Admire Pro f/b **Oberon 2 SC	7.0 fl 8.5 fl	6.15	14.93	4.10 cd	12.05	20.15 bc	15.55 bc	12.85 bcd	13.58 d	12.42 de
**Actara 25 WG [z]	3.0 dry	4.08	15.05	4.00 cd	10.80	20.53 abc	15.05 bcd	11.20 def	22.83 abc	12.94 cde
**Actara 25 WG [z]	4.0 dry	5.48	12.85	4.75 bcd	14.93	15.10 de	13.45 cd	10.48 def	24.08 ab	12.64 cde
**Actara 25 WG [z]	5.5 dry	6.10	15.83	6.53 abcd	15.63	21.10 ab	14.13 cd	11.35 de	21.95 abc	14.08 bc
**Capture 2E + Endosulfan 3 EC f/b **Oberon 2 SC f/b **Venom 20 SG	5.12 fl + 42.7 fl 8.5 fl 20.8 dry	6.08	15.68	3.38 d	12.50	14.80 de	14.88 bcd	15.68 ab	13.95 d	12.12 de
**EcoTrol EC	64.0 fl	4.55	12.48	5.23 bcd	12.33	11.38 e	14.58 cd	11.73 de	25.90 a	12.27 de
**EcoTrol EC + Oberon 2 SC	64.0 fl + 8.5 fl	3.98	16.90	5.43 bcd	13.25	13.60 de	13.88 cd	15.30 abc	15.80 cd	12.27 de

[y] SM = Seasonal mean. [z] Not registered for this use at time of publication. Mean separations within columns by $LSD_{0.05}$.

Table 3. Silverleaf Whitefly Eggs per cm^2 of Melon Leaf Following Various Insecticides, Holtville, CA, 2006.

Treatment	oz/acre	1 May [x]	8 May	17 May	24 May [x]	31 May [x]	8 June [x]	14 June	SM [x y]
Untreated	----------	4.17 a	8.73 a	3.56 a	6.50 a	7.58 a	24.01 a	4.32 a	8.78 a
**Diamond 0.83 EC [z]	8.0 fl	3.07 abc	1.67 d	3.02 ab	2.98 ab	4.60 ab	6.87 def	2.08 bc	3.53 def
**Diamond 0.83 EC [z]	12.0 fl	2.26 bcd	3.61 bcd	2.79 abc	2.09 bcd	5.23 ab	4.68 f	1.58 bc	3.43 defg
*Venom 70 SG	6.0 dry	1.45 d	4.33 bcd	1.41 bcd	1.12 cde	2.86 bcd	5.74 ef	2.79 b	2.88 fg
*Platinum 2 SC [z]	8.0 fl	4.30 a	2.77 bcd	2.85 abc	2.24 bc	4.09 abc	13.56 bc	2.33 bc	4.71 bc
*Platinum 2 SC [z]	11.0 fl	3.29 ab	3.95 bcd	1.67 bcd	3.53 ab	4.07 abc	10.38 cd	1.17 c	4.24 cde
*Admire Pro f/b **Oberon 2 SC	7.0 fl 8.5 fl	2.50 abcd	4.58 bc	1.21 cd	0.92 de	2.03 cd	5.04 f	2.08 bc	2.81 fg
**Actara 25 WG [z]	3.0 dry	2.22 bcd	5.27 b	2.71 abcd	1.64 bcde	3.58 bc	9.74 cde	2.11 bc	4.17 cde
**Actara 25 WG [z]	4.0 dry	2.55 abcd	4.62 bc	2.50 abcd	3.58 ab	5.43 ab	9.43 cde	1.92 bc	4.35 cd
**Actara 25 WG [z]	5.5 dry	2.56 abcd	2.80 bcd	2.02 abcd	3.42 ab	4.71 ab	22.62 ab	1.68 bc	5.97 b
**Capture 2E + Endosulfan 3 EC f/b **Oberon 2 SC f/b **Venom 20 SG	5.12 fl + 42.7 fl 8.5 fl 20.8 dry	2.74 abc	2.21 cd	1.05 d	0.78 e	1.34 d	7.53 def	1.71 bc	2.69 g
**EcoTrol EC	64.0 fl	2.03 bcd	4.30 bcd	2.61 abcd	2.43 bc	2.02 cd	5.82 ef	2.03 bc	3.36 efg
**EcoTrol EC + Oberon 2 SC	64.0 fl + 8.5 fl	1.72 cd	2.67 bcd	1.29 cd	1.06 cde	1.40 d	6.22 def	2.52 bc	2.79 fg

[x] Log transformed data used for analysis and reverse transformed means reported. [y] SM = Seasonal mean. [z] Not registered for this use at time of publication. Mean separations within columns by $LSD_{0.05}$.

Table 4. Silverleaf Whitefly Nymphs per cm^2 of Melon Leaf Following Various Insecticides, Holtville, CA, 2006.

Treatment	oz/acre	1 May [x]	8 May	17 May	24 May	31 May [x]	8 June [x]	14 June	SM [y]
Untreated	----------	7.84 a	31.47 a	28.86 a	27.88 a	30.82 a	71.61 ab	43.85 a	35.47 a
**Diamond 0.83 EC [z]	8.0 fl	4.42 bcd	24.44 b	15.29 cde	20.50 bc	18.25 abc	48.39 bc	25.92 bcde	23.49 c
**Diamond 0.83 EC [z]	12.0 fl	5.61 abc	19.35 b	14.15 de	13.73 cde	17.76 bc	40.18 cde	28.68 bcde	20.37 cd
*Venom 70 SG	6.0 dry	3.31 d	20.23 b	7.68 fg	8.77 ef	14.32 bc	26.90 def	30.35 bcde	16.30 de
*Platinum 2 SC [z]	8.0 fl	6.39 ab	22.08 b	16.65 cde	17.52 bcd	21.28 ab	46.35 bc	33.03 abc	23.86 bc
*Platinum 2 SC [z]	11.0 fl	5.46 ab	20.06 b	18.38 bcd	16.83 bcd	18.55 abc	80.44 a	33.47 abc	28.41 b
*Admire Pro f/b **Oberon 2 SC	7.0 fl 8.5 fl	4.61 bcd	19.45 b	11.29 ef	7.61 ef	5.90 d	23.08 f	19.05 e	13.26 ef
**Actara 25 WG [z]	3.0 dry	3.50 cd	24.47 b	20.48 bc	11.92 de	17.14 bc	45.00 bc	24.92 bcde	22.92 c
**Actara 25 WG [z]	4.0 dry	6.23 ab	19.97 b	15.91 cde	21.59 ab	21.64 ab	44.57 bcd	36.97 ab	24.81 bc
**Actara 25 WG [z]	5.5 dry	4.63 bcd	21.89 b	15.38 cde	22.44 ab	20.03 ab	44.13 bcd	32.62 abcd	23.30 c
**Capture 2E + Endosulfan 3 EC f/b **Oberon 2 SC f/b **Venom 20 SG	5.12 fl + 42.7 fl 8.5 fl 20.8 dry	5.04 abcd	12.62 c	4.27 g	2.89 f	4.13 d	25.29 ef	20.39 de	11.03 f
**EcoTrol EC	64.0 fl	4.51 bcd	20.36 b	23.32 ab	21.95 ab	11.37 c	44.83 bc	25.97 bcde	23.24 c
**EcoTrol EC + Oberon 2 SC	64.0 fl + 8.5 fl	5.01 abcd	13.52 c	5.88 fg	3.14 f	6.62 d	26.33 ef	24.52 cde	13.95 ef

[x] Log transformed data used for analysis and reverse transformed means reported. [y] SM = Seasonal mean. [z] Not registered for this use at time of publication. Mean separations within columns by $LSD_{0.05}$.

MEETING NOTICE

THE DESERT VEGETABLE CROPS FIELD DAY

For Growers, PCA's, CCA's, Industry Representatives

When: **January 24th** Where: **UC-Desert Research & Extension Center**
Holton Rd & Meloland
El Centro, CA.

Time: **7:30 am – 1:30 pm**

Registration & **Refreshments 7:30 am**
Tours & **Presentations** leave at **8:00 am** – Sharp
Lunch – **Steak BBQ** & the trimmings

CEU's Available
PCA's & CCA's

5 CEU's applied for

Sponsored by your local **Agriculture Industry**
University of California
University of Arizona

Tour Presentation Topics:

1) Understanding Why Horticultural Crops in the Desert Rarely Respond to K Fertilization
2) Management tools for powdery mildew on lettuce.
3) Food Safety Issues in the Field
4) Robotic cultivation – machine vision to guide a cultivator
5) Weed Control in Vegetables
6) Solarization for Desert Vegetable Production
7) Purpose of the National Carrot Germplasm Winter Nursery at DREC
8) Insect Management in Spring Produce Crops
9) Getting the most out of lettuce herbicides
10) Insecticide Resistance in Beet Armyworm
11) Rodents and Crop Contamination
12) Insect Pest Management on Lettuce: In the Southern California Deserts is Integrated Pest Management Fact or Fiction?
13) New Herbicide for Desert Vegetables
14) Herbicide resistance
15) Insect Control on Cole Crops
16) New Growth Regulators for Desert Raised Cucurbits
17) Protected Agriculture In Sinaloa Vegetable Production
18) Managing Wide Row Vegetables
19) Herbicide Control of Nutsedge and Nightshade in Tomatoes
20) Drip Fumigation for Vegetable Crops
21) Comparison of Sprayer Application in Desert Crops
22) Control of lettuce drop with fungicides and biological control agents

2006-2007 FIELD CROPS PREVAILING RATES IMPERIAL COUNTY

Many Imperial Valley Vegetable Crop Growers hire some custom work as an economic alternative to their farming business. The problem continually encountered in this arena is often expressed as "What is a fair charge?" or "How much should I pay?" for the item in question. Information in this publication can help provide some answers to these questions.

Custom rates are a fair assessment of cultural practices across farms. This usually includes the machine, operator, fuel, and repairs required to keep the machine operating. Hiring custom work services enables farmers who have limited time, skills, investment capital, and/or land base to employ modern machine technology. For the owner of the custom service, performing such services can provide supplemental income in situations where excess labor and machinery capacity are available.

Because there is no standardized market structure for machine services, determining a fair price for custom work continues to be difficult. The values below are rates expected to be charged or paid, in-farm business, or perform custom work for others including fuel and labor based on numerous consultations with farm service providers. This rate schedule is intended only as rent of machinery or performing such services. The information provided is a guide. Actual custom rates may vary according to availability. Economics suggests that the price should be a function of the demand for and the supply of the custom work services available. Because the transportation cost of the machine service is high, relative to the potential income earned, the geographical market area for many machine services may vary. Additionally fuel market fluctuations need to be considered in determining actual custom rates applied.

HEAVY TRACTOR WORK AND LAND PREPARATION

Plow	$34.60/Acre	Break border	$8.00/Acre
Subsoil 2nd gear	$52.90/Acre	Stubble disc	$25.70/Acre
Subsoil 3rd gear	$43.50/Acre	Stubble disc with cultipak	$27.40/Acre
Landplane	$16.00/Acre	Regular disc	$15.60/Acre
Tri-plane	$14.20/Acre	Regular disc with cultipak	$18.00/Acre
Chisel 15"	$32.00/Acre	List 30" 12-row/40" 8-row w/fert. (GPS)	$19.50/Acre
Wil-Rich chisel	$18.10/Acre	List 30" 12-row/40" 8-row	$18.30/Acre
Big Ox	$29.70/Acre	List 30" 12-row/40" 8-row (GPS)	$18.50/Acre
Slip plow	$52.00/Acre	Float	$13.10/Acre
Mark/disc borders	$10.90/Acre	Dump (scraper) borders	$21.80/Acre
Make cross checks (taps)	$7.70Acre	Corrugate	$15.80/Acre

LIGHT TRACTOR WORK

Power mulch dry	$29.50/Acre	Spike and furrow out 30" 4-row	$15.50/Acre
Power mulch with herbicide	$34.20/Acre	Spike and furrow out 40" 4-row	$12.40/Acre
Shape 30" 6-row	$14.00/Acre	Furrow out 30" beds 4-row	$14.50/Acre
Shape 40" 4-row	$14.00/Acre	Furrow out 40" beds 4-row	$12.70/Acre
Plant sugar beets & cotton 30"	$21.00/Acre	Lilliston 30" 6-row	$15.90/Acre
Plant sugar beets & cotton 40"	$17.90/Acre	Lilliston 40" 4-row	$15.90/Acre
Mulch plant wheat	$21.70/Acre	Lilliston 30" 6-row/herb	$17.30/Acre
Plant alfalfa (corrugated)	$21.60/Acre	Lilliston 40" 4-row/herb	$18.00/Acre

LIGHT TRACTOR WORK (Continued)

Plant alfalfa (flat)	$19.00/Acre
Plant alfalfa (beds)	$20.00/Acre
Plant bermuda grass	$14.50/Acre
Plant with drill (sudan grass, wheat)	$17.10/Acre
Plant No-till	$25.80/Acre
Plant corn slope	$18.20/Acre
Cultivate 30" beds 4-row	$18.60/Acre
Cultivate 40" beds 4-row	$16.60/Acre
Spike 30" beds 4-row	$14.20/Acre
Spike 40" beds 4-row	$12.20/Acre

Inj. fertilizer & furrow out 30" beds 4-row	$18.00/Acre
Inj. fertilizer & furrow out 40" beds 4-row	$16.20/Acre
Fertilize dry & furrow out 30" 4-row	$17.60/Acre
Fertilize dry & furrow out 40" 4-row	$15.90/Acre
Inject fertilizer flat	$16.60/Acre
Broadcast dry fertilizer	$9.40/Acre
Ground Spray 30" / 40" 8-row	$13.60/Acre
Chop cotton stalks 30" beds	$17.80/Acre
Chop cotton stalks 40" beds	$15.80/Acre

HARVEST COSTS

Windrow alfalfa seed	$20.80/Acre
Combine alfalfa seed	$42.90/Acre
Swath bermuda grass	$14.10/Acre
Rake bermuda grass	$5.90/Acre
Rake borders (before combine)	$4.00/Acre
Dump rake	$9.20/Acre
Cleanup (after dump rake)	$4.60/Acre
Swath sudan grass	$12.50/Acre
Rake sudan grass	$6.40/Acre
Swath alfalfa	$10.00/Acre
Rake alfalfa	$5.80/Acre
Bale (all types of hay - small bale)	$0.70/Bale

Haul & stack hay - small bale	$0.30/Bale
Bale (large bale 4X4)	$10.00/Bale
Haul & stack big bale	$4.20/Bale
Load with hay squeeze	$68.80/Load
Dig sugar beets	$2.90/Clean Ton
Haul sugar beets	$2.60/Clean Ton
Combine wheat	$17.90/Acre + 0.63/cwt Over 1 Ton
Haul wheat	$5.40/Ton
Combine bermuda grass seed 1st time	$46.00/Acre
Combine bermuda grass seed 2nd time	$31.70/Acre
Haul bermuda grass seed (local)	$179.00/Load
Pick cotton 1st/2nd time	.03 cts/lb /$35.00/Acre

PREVAILING RATES BY THE HOUR

Motor grader	$64.80/Hour
Backhoe	$59.60/Hour
Water truck	$48.90/Hour
Wheel tractor	$40.90/Hour
Scraper	$41.30/Hour
Versatile	$60.60/Hour

D-6	$59.80/Hour
D-8	$76.00/Hour
Buck ends of field	$38.80/Hour
Pipe setting (2 men)	$40.40/Hour
Laser level	$107.70/Hour
Work ends (disc out rotobucks)	$42.80/Hour

MISCELLANEOUS

E.C. (G.P.S.) Mapping	$25.00/Acre

Prepared by
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Acknowledgments:
Kathy Morris
Jose Quiroz

2006-2007 FIELD CROPS PREVAILING RATES IMPERIAL COUNTY

Many Imperial Valley Vegetable Crop Growers hire some custom work as an economic alternative to their farming business. The problem continually encountered in this arena is often expressed as "What is a fair charge?" or "How much should I pay?" for the item in question. Information in this publication can help provide some answers to these questions.

Custom rates are a fair assessment of cultural practices across farms. This usually includes the machine, operator, fuel, and repairs required to keep the machine operating. Hiring custom work services enables farmers who have limited time, skills, investment capital, and/or land base to employ modern machine technology. For the owner of the custom service, performing such services can provide supplemental income in situations where excess labor and machinery capacity are available.

Because there is no standardized market structure for machine services, determining a fair price for custom work continues to be difficult. The values below are rates expected to be charged or paid, in-farm business, or perform custom work for others including fuel and labor based on numerous consultations with farm service providers. This rate schedule is intended only as rent of machinery or performing such services. The information provided is a guide. Actual custom rates may vary according to availability. Economics suggests that the price should be a function of the demand for and the supply of the custom work services available. Because the transportation cost of the machine service is high, relative to the potential income earned, the geographical market area for many machine services may vary. Additionally fuel market fluctuations need to be considered in determining actual custom rates applied.

HEAVY TRACTOR WORK AND LAND PREPARATION

Plow	$34.60/Acre	Break border	$8.00/Acre
Subsoil 2nd gear	$52.90/Acre	Stubble disc	$25.70/Acre
Subsoil 3rd gear	$43.50/Acre	Stubble disc with cultipak	$27.40/Acre
Landplane	$16.00/Acre	Regular disc	$15.60/Acre
Tri-plane	$14.20/Acre	Regular disc with cultipak	$18.00/Acre
Chisel 15"	$32.00/Acre	List 30" 12-row/40" 8-row w/fert. (GPS)	$19.50/Acre
Wil-Rich chisel	$18.10/Acre	List 30" 12-row/40" 8-row	$18.30/Acre
Big Ox	$29.70/Acre	List 30" 12-row/40" 8-row (GPS)	$18.50/Acre
Slip plow	$52.00/Acre	Float	$13.10/Acre
Mark/disc borders	$10.90/Acre	Dump (scraper) borders	$21.80/Acre
Make cross checks (taps)	$7.70Acre	Corrugate	$15.80/Acre

LIGHT TRACTOR WORK

Power mulch dry	$29.50/Acre	Spike and furrow out 30" 4-row	$15.50/Acre
Power mulch with herbicide	$34.20/Acre	Spike and furrow out 40" 4-row	$12.40/Acre
Shape 30" 6-row	$14.00/Acre	Furrow out 30" beds 4-row	$14.50/Acre
Shape 40" 4-row	$14.00/Acre	Furrow out 40" beds 4-row	$12.70/Acre
Plant sugar beets & cotton 30"	$21.00/Acre	Lilliston 30" 6-row	$15.90/Acre
Plant sugar beets & cotton 40"	$17.90/Acre	Lilliston 40" 4-row	$15.90/Acre
Mulch plant wheat	$21.70/Acre	Lilliston 30" 6-row/herb	$17.30/Acre
Plant alfalfa (corrugated)	$21.60/Acre	Lilliston 40" 4-row/herb	$18.00/Acre

LIGHT TRACTOR WORK (Continued)

Plant alfalfa (flat)	$19.00/Acre
Plant alfalfa (beds)	$20.00/Acre
Plant bermuda grass	$14.50/Acre
Plant with drill (sudan grass, wheat)	$17.10/Acre
Plant No-till	$25.80/Acre
Plant corn slope	$18.20/Acre
Cultivate 30" beds 4-row	$18.60/Acre
Cultivate 40" beds 4-row	$16.60/Acre
Spike 30" beds 4-row	$14.20/Acre
Spike 40" beds 4-row	$12.20/Acre

Inj. fertilizer & furrow out 30" beds 4-row	$18.00/Acre
Inj. fertilizer & furrow out 40" beds 4-row	$16.20/Acre
Fertilize dry & furrow out 30" 4-row	$17.60/Acre
Fertilize dry & furrow out 40" 4-row	$15.90/Acre
Inject fertilizer flat	$16.60/Acre
Broadcast dry fertilizer	$9.40/Acre
Ground Spray 30" / 40" 8-row	$13.60/Acre
Chop cotton stalks 30" beds	$17.80/Acre
Chop cotton stalks 40" beds	$15.80/Acre

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Combine alfalfa seed	$42.90/Acre
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Acknowledgments:
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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 January 1 to March 31 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	January		February		March	
	1-15	16-31	1-15	15-28	1-15	16-31
Calipatria	0.08	0.09	0.12	0.15	0.18	0.22
El Centro (Seeley)	0.08	0.09	0.12	0.14	0.16	0.20
Holtville (Meloland)	0.08	0.09	0.12	0.14	0.17	0.21

* Irrigation Management Unit, Imperial Irrigation District.