Imperial County Agricultural Briefs

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Comparison of Fungicides for Control of Onion Downy Mildew, 2005

Thomas A. Turini and Ronald Cardoza

The efficacy of novel and registered materials applied as tank mixes and chemical rotations were compared in a trial conducted at the Imperial Valley Conservation Research Center in Brawly, CA. On 18 Oct 04, White Creole onion seed was sown into 6 rows per bed and irrigated. Each plot consisted of four 40-in. beds 25-ft long. The experimental design was a six replication randomized complete block. Treatments are listed in the table. On 16, 25 Feb and 9 Mar 05, materials were applied in 30 gal of water per acre with a CO_2 pressurized backpack sprayer at 30 psi. A 4-nozzle spray boom with Teejet 8002 flat fan nozzles spaced 18-in. apart was used for all applications. Monthly min and max temperatures (^{o}F) were 34/76 in Jan, 40/76 in Feb, 39/93 in Mar and 44/93 in Apr. Rainfall (in.) was 0.95, 1.52, 0.02 and 0.00 for these months, respectively. On 24 Feb, 9, 18 and 30 Mar, on each of 10 plants per plot, downy mildew severity was rated on a scale of 0 to 10 based on the percentage of the plants that were covered with downy mildew sporulation.

Disease pressure was high over all treatments; however, a few materials consistently provided greater control levels compared to the majority of the entries. Treatments that provided the best control when observed disease severity was highest, on 9 and 18 Mar, included Ridomil Gold Bravo, Reason 500SC, and Acrobat 50WP with Orosorb. On the first evaluation date, disease was not uniform through the field and there were no differences among treatments. On 30 Mar, disease was less obvious due to a prolonged dry period and senescence of older leaves. No phytotoxicity symptoms were observed.

Effect of fungicide treatments on onion mildew severity in 'White Creole' onion at Brawley, CA, 2005

Treatment/rate formulated product per acre[z]	Plant covered with sporulation (%)[y]		
	9 Mar	18 Mar	30 Mar
Ridomil Gold Bravo @ 2.0 lbs	30.8	26.2	24.2
Reason 500SC @ 5.5 fl oz + Induce 0.25 %v/v	19.7	17.0	24.7
Fosphite @ 3 qts	55.0	45.7	26.8
Orosorb @ 00.4% + Acrobat 50WP @ 6.4oz	30.2	35.0	28.2
Fosphite @ 3 qts **alternated** with Ridomil Gold Bravo @ 2.0 lbs	40.8	42.7	29.2
Reason 500SC @ 5.5 fl oz + Induce 0.25 %v/v **alternated** with Maneb 75DF @ 2.0 lbs	50.2	38.7	31.3
Tanos 50WP @ 8oz	56.5	55.0	32.0
Forum 500SC @ 6.1 fl oz	51.5	48.8	32.7
Acrobat 50WP @ 6.4oz + Penetrator @ 0.25%	51.8	46.3	33.5
Acrobat 50WP @ 6.4 oz + Penetrator @ 0.25% + Sonata @ 2 qts	50.3	46.0	33.7
Forum 500 SC @ 6.1 fl oz + Maneb 75DF @ 2.0 lbs	49.0	43.3	33.7
Tanos 50WP @ 8oz + Maneb 75DF @ 2lbs **alternated** with Maneb 75DF @ 2.0 lbs	49.5	43.8	33.7
Forum 500SC @ 6.1 fl oz + Penetrator @ 0.25%v/v	53.3	45.7	34.5
Maneb 75DF @ 2lbs/A	49.3	43.5	34.8
BAS 536F @ 1.65 lb/a	52.7	47.8	37.7
Untreated control	61.7	56.3	40.0
LSD (P=0.05)	8.18	7.80	5.16

[z] Materials were applied in the equivalent of 30 gallons of water per acre with a CO_2-pressurized backpack sprayer at 30 psi on 16, 25 Feb and 9 Mar 2005 to onions receiving first irrigation on 18 Oct 2004.
[y] In a 6 replication, 17 treatment experiment, each of 10 plants per 2 rowx25ft plot were rated on a scale of 0 to 10 based on percentage of plants that were covered with downy mildew sporulation. Means are presented as a percentage

Evaluation of Insecticides for Control of Aphids in Alfalfa

Eric T. Natwick

A field study was conducted in the spring of 2005 at the Desert Research and Extension Center on a stand of CUF 101 alfalfa using a randomized complete block design with four replications. Nine insecticide treatments were included along with an untreated control. Insecticide treatments and rates are listed in Table 1 and 2. Plots measured 35 feet by 50 feet and insecticide treatments were applied March 14, 2005, using a broadcast application with a tractor mounted boom.

Blue alfalfa aphid and pea aphid populations were measured in each plot with a standard 15-inch diameter insect net consisting of ten, 180° sweeps. Plots were sampled on March 11, 16, 21, & 28, 2005; 3-day pre-treatment (DPT), 2-days after treatment (DAT), 7-DAT, and 14-DAT.

No differences were found among the treatments for either aphid species in the pre-treatment samples, (*P*>0.05), Tables 1and 2. All of the insecticide treatments had means for both species of aphids that were significantly lower (P#0.05) than the untreated control means 2-DAT. All insecticide treatments had blue alfalfa aphid means that were significantly lower than the untreated control means 7-DAT. None of the insecticide treatments had means that were significantly different than the untreated control 14-DAT. The post treatment means for all insecticide treatments were significantly lower than the untreated control means for both blue alfalfa aphid and pea aphid.

The insecticides that provided the best control of blue alfalfa aphid and pea aphid were Mustang + Furadan, Mustang Max, Warrior and Furadan.

Table 1. Mean Numbers[v] of Blue Alfalfa Aphid per Ten Sweeps, Holtville, CA, 2005.

Treatment	oz/acre	PT[w]	2 DAT[xy]	7 DAT	14 DAT	PTM[yz]
Untreated	--------	2164.00 a	42.25 a	8.25 a	3.25 a	17.92 a
Mustang 1.5 EW + COC	4.3 fl + 1% v/v	1505.25 a	4.50 bc	0.75 b	0.50 a	1.92 b
Mustang 1.5 EW + Furadan 4F + COC	4.3 fl+ 4.0 fl 1% v/v	1680.25 a	1.50 c	0.00 b	1.00 a	0.83 b
MustangMax 0.8 EW	4.0 fl	1493.00 a	1.50 bc	1.25 b	1.00 a	1.25 b
Warrior 1 EC + COC	3.2 fl + 1% v/v	1951.50 a	2.75 bc	2.25 b	1.50 a	2.17 b
Warrior 1 EC + COC	3.5 fl + 1% v/v	1849.50 a	3.75 bc	0.50 b	1.25 a	1.83 b
Proaxis 0.497 CS + COC	3.2 fl + 1% v/v	1736.75 a	4.25 bc	3.50 b	0.75 a	2.83 b
Steward 1.25 SC + Lorsban 4E	4.6 fl + 4.0 fl	1947.25 a	7.75 bc	3.25 b	1.00 a	4.00 b
Imidan 70W + Dimethoate 267E	16.0 dry + 18.0 fl	1816.50 a	5.75 b	3.25 b	0.25 a	3.08 b
Furadan 4F	16.0 fl	1610.25 a	4.00 bc	1.25 b	0.75 a	2.00 b

[v] Mean separations within columns by $LSD_{0.05}$.
[w] Pre-treatment.
[x] Days after treatment.
[y] Log transformed data used for analysis; true means reported.
[z] Post treatment means.

Table 2. Mean Numbers[v] of Pea Aphid per Ten Sweeps, Holtville, CA, 2005.

Treatment	oz/acre	PT[w]	2 DAT[xy]	7 DAT	14 DAT	PTM[yz]
Untreated	--------	539.75 a	12.50 a	1.75 a	1.00 a	5.08 a
Mustang 1.5 EW + COC	4.3 fl + 1% v/v	247.25 a	0.25 b	0.00 a	0.75 a	0.33 bc
Mustang 1.5 EW + Furadan 4F + COC	4.3 fl+ 4.0 fl 1% v/v	367.75 a	0.50 b	0.25 a	0.00 a	0.25 bc
MustangMax 0.8 EW	4.0 fl	425.25 a	0.25 b	0.00 a	0.00 a	0.08 c
Warrior 1 EC + COC	3.2 fl + 1% v/v	365.50 a	0.75 b	0.25 a	0.25 a	0.42 bc
Warrior 1 EC + COC	3.5 fl + 1% v/v	473.25 a	0.75 b	0.75 a	0.00 a	0.50 bc
Proaxis 0.497 CS + COC	3.2 fl + 1% v/v	379.00 a	1.25 b	0.75 a	1.00 a	1.00 b
Steward 1.25 SC + Lorsban 4E	4.6 fl + 4.0 fl	496.50 a	1.50 b	1.50 a	1.00 a	1.33 b
Imidan 70W + Dimethoate 267E	16.0 dry + 18.0 fl	371.75 a	2.00 b	0.75 a	0.00 a	0.92 bc
Furadan 4F	16.0 fl	469.00 a	1.00 b	0.25 a	0.00 a	0.42 bc

[v] Mean separations within columns by $LSD_{0.05}$.
[w] Pre-treatment.
[x] Days after treatment.
[y] Log transformed data used for analysis; true means reported.
[z] Post treatment means.

Relative Susceptibility of Muskmelon Varieties to Monosporascus Vine Decline, 2005 trial results

Thomas A. Turini and Ronald Cardoza

Relative susceptibility of muskmelon varieties and breeding lines to Monosporascus vine decline were compared in a trial conducted at Desert Research and Extension Center in Holtville, CA. Seed of 24 cantaloupe entries were sown on Meloland clay loam soil on 80 in beds. The first irrigation was on 12 April 2005 with buried drip. The experimental design was a 4 replication randomized complete block. Each plot consisted of 25 ft of one bed. Disease incidence was analyzed using ANOVA and Least Significant Difference was calculated.

On 11 July, the state of decline of each melon variety was rated on a scale of 0 to 10 based on the percentage of the vine that had collapsed. A plot rated 0 would appear healthy with no collapsed vines and no foliar lesions. A plot rated 10 would be completely collapsed.

On 16 July, 3 root systems from each plot were carefully dug with shovels. These roots were rated for disease severity on a scale of 0 to 10. This scale was based on the percentage of the root system that was covered with dry reddish-brown lesions with perithecia, which characterize this disease.

To assess the yield of the entries under severe vine decline pressure, melons were harvested from 13ft 1in (1/500 acre) of each plot. Melons were harvested at full slip. The harvest dates were 29 Jun, 5, 8, 11 and 15 Jul. Fruit size was recorded based on the number of fruit that would be packed in a standard cantaloupe carton (9, 12, 15, 18 and 23). Fruit quality was assessed for three fruit per plot per harvest. Shape, presence of vein tracts, net characteristics, stem cracks, and soluble solids were evaluated.

Differences in *Monosporascus* root rot and vine decline, and yield was observed. Vine decline ratings were numerically lowest on HMX 8586, HMX 9598, Western Express, which was not different from, Western Gold, El Camino, Esteem, Expedition, Gold Express, Montagua, or Navagator ($P \leq 0.05$). Yields were numerically highest for Expedition, which was not different from El Camino, Esteem, Gold Express, HMX4602, HMX9598, Joaquin Gold, Laredo, Mission, Montagua, Navigator or Western Gold ($P \leq 0.05$). Although root rot severity differed among entries, the perithecia were detected on roots of all entries. Western Express had the numerically highest carton/acre yield at the first harvest, which did not differ from Esteem, El Camino, Expedition, HMX 9598 and Sol Dorado: P≤0.05.

All entries produced western shipper type melons with the exception of HMX 9598, which had vein tracts. The levels of soluble solids were not significantly different among entries P≤0.05 (data not shown). Although Esteem was among the entries that did not decline, and was among the earliest and highest yielding entries, it produced very few cartons of 9's. HMX4602, Gold Express, Laredo and Mission were other high yielding varieties that produced relatively few large fruit under the conditions of this study.

In 2004 and 2005 trials, El Camino, Esteem and Gold Express consistently had lower decline ratings than most other commercial varieties and had higher yields under conditions favoring vine decline. Other entries that were promising in the 2005 trial were not included in 2004.

Monosporascus vine decline severity on cantaloupe varieties at Desert Research and Extension Center 2005.

	Jul/11/05 decline	Jul/16/05 root rot	carton/acre
Expedition	5.3 defg	4.2 ijkl	863.2 a
Esteem	5.0 efg	6.4 defgh	827.7 ab
El Camino	5.3 def	4.6 ijkl	786.1 abc
GoldExpress	5.3 defg	5.9 efghij	744.2 abcd
Laredo	6.8 bcde	5.2 ghijk	707.7 abcd
HMX 9598	3.5 g	3.0 l	633.3 abcd
HMX 4602	3.5 g	5.1 ghijk	621.9 abcd
Navigator	5.5 defg	5.5 fghij	619.4 abcd
Mission	7.3 abcd	8.5 abc	576.8 abcd
Montagua	5.3 defg	4.1 jkl	545.8 abcd
Zeus	8.3 abc	7.0 cdefg	527.8 abcd
Joaquin Gold	8.3 abc	4.3 ijkl	511.6 abcd
Western Gold	4.3 fg	5.4 ghijk	484.7 abcd
Sol Real	8.5 abc	9.0 ab	437.7 bcd
Western Express	3.5 g	3.2 l	427.7 cd
Magellan	9.0 ab	8.9 ab	426.3 bcd
Sol Dorado	5.3 def	3.9 kl	410.5 cd
Rocket	8.5 abc	8.1 abcd	405.6 cd
Gold Rush	9.3 a	7.4 abcde	402.1 cd
Cabrillo	6.5 cdef	7.0 cdefg	395.7 cd
Caravelle	7.3 abcd	6.9 cdefgh	387.3 cd
Oro Rico	7.5 abcd	7.2 bcdef	370.9 d
RML 009	9.5 a	9.1 a	352.8 d
HMX 1594	9.5 a	7.7 abcde	337.5 d

[z] Means followed by same letter do not significantly differ (P=.05, LSD)

Winter Grass Pastures for Cattle

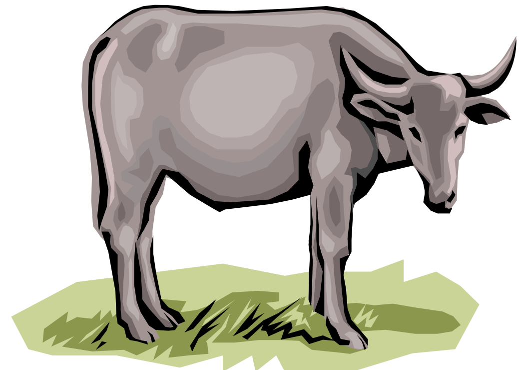
Juan N. Guerrero

During the winter in the irrigated Sonoran Desert, cattle producers have two options for grazing grass, ryegrass or wheat pasture. Ryegrass has been pastured in the Imperial Valley for years; wheat pasture (while not done locally) has been pastured in the High Plains for many decades.

For ryegrass, we recommend 100 lb of N at planting, but that amount may be reduced depending upon the N carry-over from the previous crop. During the growing season, an additional application of N (250 lb split into 4 applications and water-run) is required for maximum growth. Depending when the ryegrass is planted and when the following summer starts, ryegrass may be pastured 5 or more times during the year. Ryegrass grows best when the soil has plenty of moisture; do not delay irrigation after grazing or the crop will suffer. As soon as cattle leave a grazed area, follow up with irrigation.

On ryegrass, from planting to first grazing takes about 60-90 days depending upon the weather and water management, about 80 days is the norm. Ryegrass has to be grazed on a rotation. The usual carrying capacity of ryegrass is 3-5 steers per acre for the entire pasture; however, when the pasture is grazed rotationally, ALL the animals graze smaller subsections (paddocks) of the field, each paddock being about 1/5 of the total pasture, for 7-10 days. Ryegrass needs at least 28 days of re-growth between grazing periods. During the 7-10 day grazing period, growers should insist that the watering location be moved at least once so that severe overgrazing and soil compaction problems do not result near the watering areas.

Wheat grazing is a little different. For grazing, wheat should be fertilized as for grain. When the grazing option is considered, planting should probably take place about mid-November and about 10% more seed should be planted. The grazing principles (division of the field into smaller paddocks) for ryegrass also apply to wheat. Wheat should be grazed when it is about 4 leaves or about 4 to 5 inches tall. Graze wheat once. After grazing, add about 20 Lb N to boost re-growth. The most important thing to know about wheat grazing is to know when to stop. When 5 to 10% of the plants in the ***next*** paddock are in the *jointing stage*, **STOP GRAZING**. After the jointing stage, there will be no more re-growth. The jointing stage is when a nodule or bump is felt at the stem base. This nodule indicates a developing seed head. On wheat pasture it is especially important to place the drinkers at the extreme edges of the field because livestock congregate around the drinkers and may cause soil compaction problems. During rainy weather, if the steer footprint is visible on the soil surface, remove the cattle until the soil dries. In other parts of the country, wheat grazing is a way to increase income for growers and still have a viable grain crop.



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