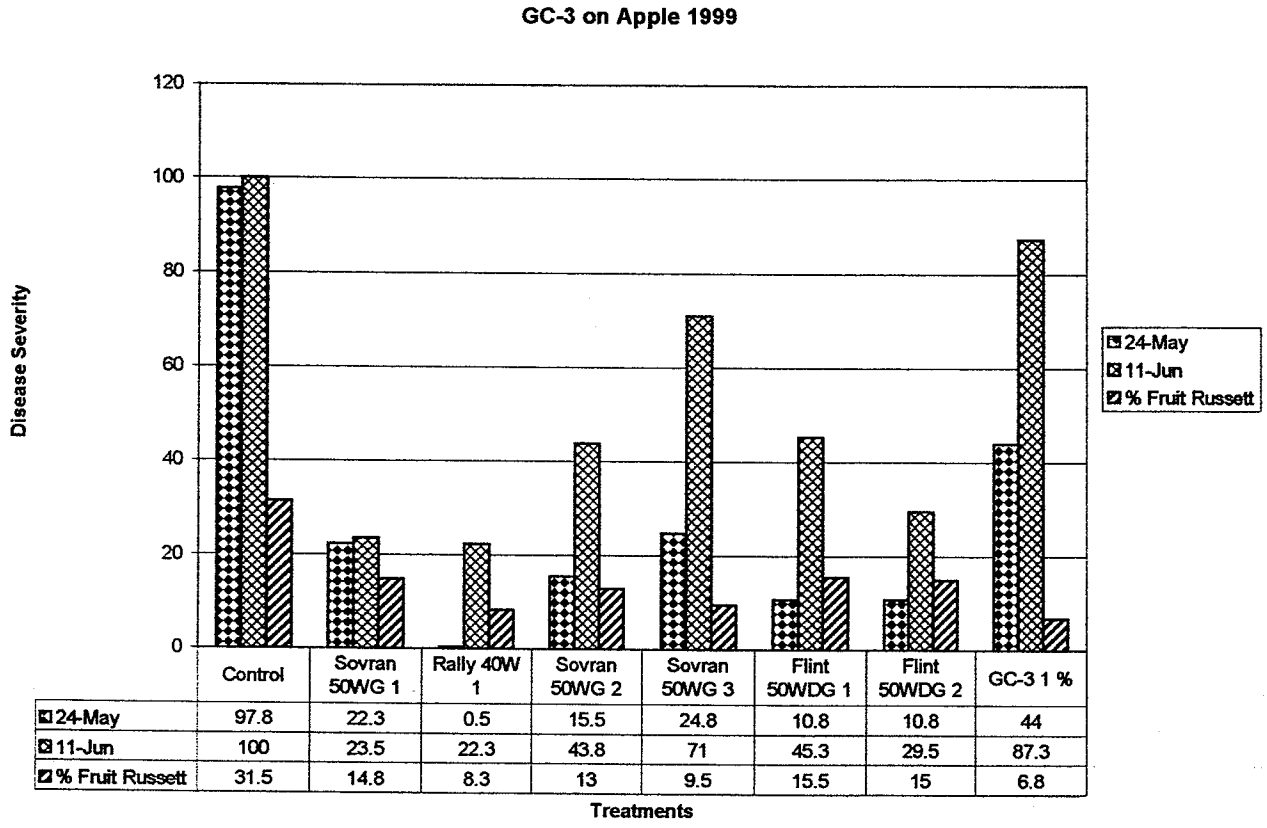
A. Apple: *Malus domestica* ('Rome') Powdery mildew: *Podosphaera leucotricha*
G. G. Grove, R.J. Boal, and L.H. Bennett, Washington State University

Control of powdery mildew on 'Rome' apples at Wenatchee, 1999: Fungicide sprays for powdery mildew control at the Tree Fruit Research and Extension Center, Wenatchee, WA, were applied to 48-year old Rome apple trees. Sprays were applied to runoff with a handgun sprayer operating at about 400 psi. Treatments consisted of 5 single-tree replications arranged in a randomized complete block design. Tight cluster, pink, petal fall, first cover, and second covers sprays were made.

Results: Foliar mildew incidence ratings were taken by selecting 100 terminal shoots on each tree and determining the percent of terminals infected. Mildew incidence data were subjected to analysis of variance and means separated according to Studen-Newman-Keuls Test at $P=0.05$. Foliar mildew incidence at the first and second ratings was 97.8% and 100.0% on the untreated control, respectively. Foliar mildew incidence at the first and second ratings was 44.0% and 87.3% on the GC-3 treated trees, respectively. Fruit Russett was 31.5% on the untreated control and 6.8% on the GC-3 treated trees. There was no observable phytotoxicity.



	Control	Sovran 50WG 1	Rally 40W 1	Sovran 50WG 2	Sovran 50WG 3	Flint 50WDG 1	Flint 50WDG 2	GC-3 1 %
24-May	97.8	22.3	0.5	15.5	24.8	10.8	10.8	44
11-Jun	100	23.5	22.3	43.8	71	45.3	29.5	87.3
% Fruit Russett	31.5	14.8	8.3	13	9.5	15.5	15	6.8

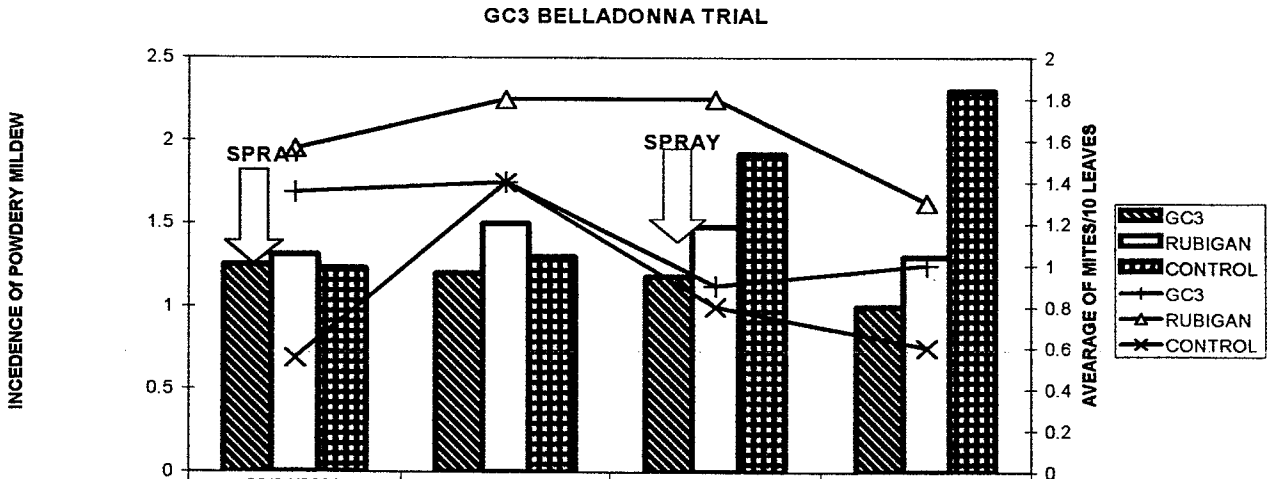
B. Belladonna flowers **Powdery mildew: *Sphaerotheca fuliginea***

JH Biotech, Inc., Agronomy Department

This trial was conducted at Pleasant Valley Nurseries fields at Oxnard, California to test the efficacy of GC-3 under field conditions compared to commercial product (Rubigan EC) for the control of powdery mildew. Three beds, each composed of two 100 foot long rows were used. A completely randomized design was employed with three treatments and six replicates of 100 plants. Twenty plants were examined for powdery mildew symptoms. Data was collected for pretreatment and post treatment infection levels using the University of California pathogenically rating scale (0-5) on a weekly basis.

Treatments included a control, GC-3 at 2 % and Rubigan EC at (5-oz./ 100 gallon of water) per acre, GC-3 at a 2 % solution. Applications were made with hand powered back sprayer and applied to the point of run-off, approximately 50 gallons per acre. Applications were applied in the morning when air temperatures were below 90° F biweekly for four consecutive weeks. Statistical analysis was performed and means separated using Duncan's Multiple Range test.

After four weeks, powdery mildew infection was relatively low in treatment blocks when compared to the control. Both of these treatments were significantly lower in infection percentage compared to the control. Ranking was as follows: GC–3 2 % > Rubigan EC > Control. No phytotoxicity was observed in any of the treatment blocks. Spider mite population was also affected by the treatment. GC-3 has a positive effect of suppressing the spider mite population. GC-3 exhibited significant levels of control at 2% level. GC-3 showed better control compared to Rubigan EC in this trial. These results are encouraging and further testing should be done to compare GC-3 to other chemical fungicides as well as interaction efficacy. Better results may be achieved with GC-3 using high pressure, high volume application equipment.



	02/04/2000	02/11/2000	02/18/2000	02/25/2000
GC3	1.25	1.2	1.18	1
RUBIGAN	1.31	1.5	1.48	1.3
CONTROL	1.23	1.3	1.92	2.3
GC3	1.35	1.4	0.9	1
RUBIGAN	1.56	1.8	1.8	1.3
CONTROL	0.55	1.4	0.8	0.6

Powdery Mildew

Spider Mites

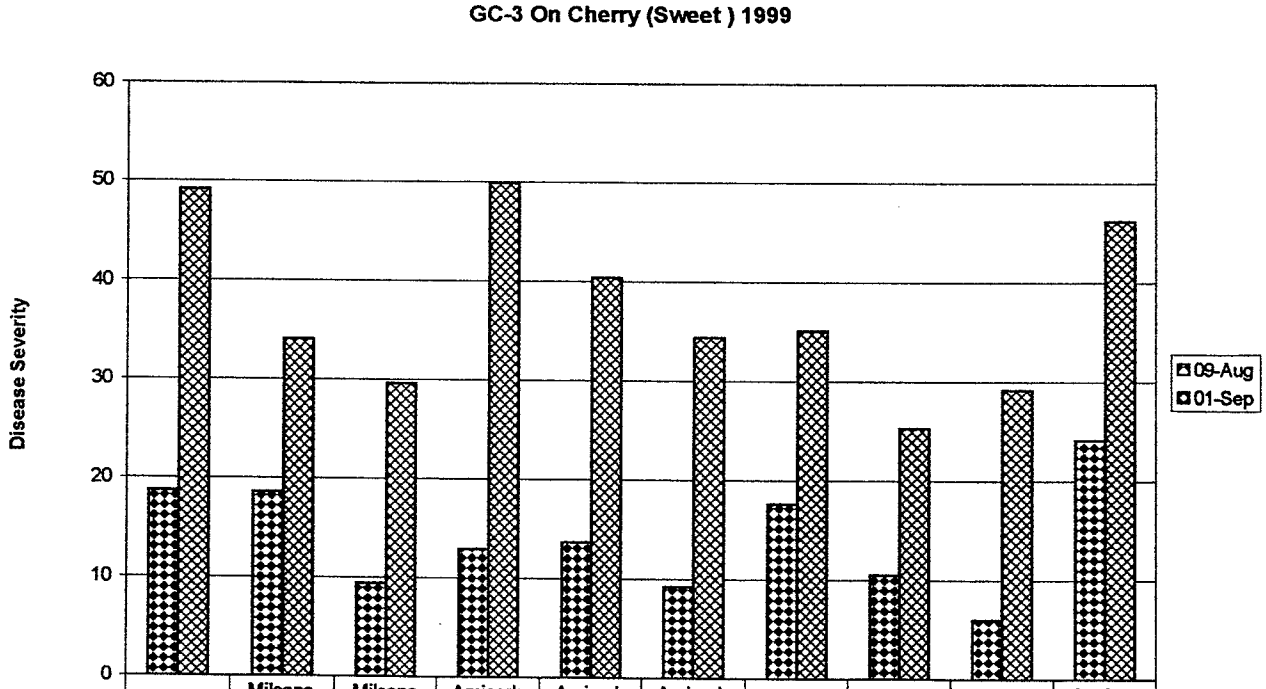
C. Cherry (Sweet): *Prunus avium* Powdery mildew: *Podosphaera clandestina*

G. G. Grove, R.J. Boal, and L.H. Bennett, Washington State University

Control of powdery mildew on Sweet Cherry nursery stock, 1999: Fungicide sprays for powdery mildew control at VanWell Nurseries, Quincy, WA, were applied to 'Bing' cherry trees. Sprays were applied to runoff with a Solo Backpack sprayer operating at about 30 psi. Individual plots were 5-6 feet in length and contained at least ten trees and each treatment was replicated four times in a randomized complete block design. Each treatment was applied four times at 14 day intervals.

Foliar mildew severity was determined by randomly selecting 5 terminal shoots from each plot and picking five leaves from each terminal, starting with the last fully open leaf and working down the shoot for a total of 25 leaves per plot. The percentage of the surface area of the underside of each leaf infected by mildew was estimated and recorded. Data were subjected to analysis of variance and means separated according to Studen-Newman-Keuls Test at $P=0.05$.

Percent of leaf area of controls infected with mildew was 18.7% and 49.2 % at first and second ratings respectively. Percent of leaf area of CG-3 treated plants infected with mildew was 10.5% and 25.3% at first and second ratings respectively.



	Control	Milsana 0.5	Milsana 1.0	Amicarb 2.5	Amicarb 5.0	Amicarb 10.0	GC-3 0.5	GC-3 1.0	Orchex 1.0	Auxigro WP 2.0
09-Aug	18.7	18.6	9.4	12.9	13.7	9.2	17.6	10.5	6	24.1
01-Sep	49.2	34.1	29.6	49.9	40.4	34.4	35.1	25.3	29.2	46.2

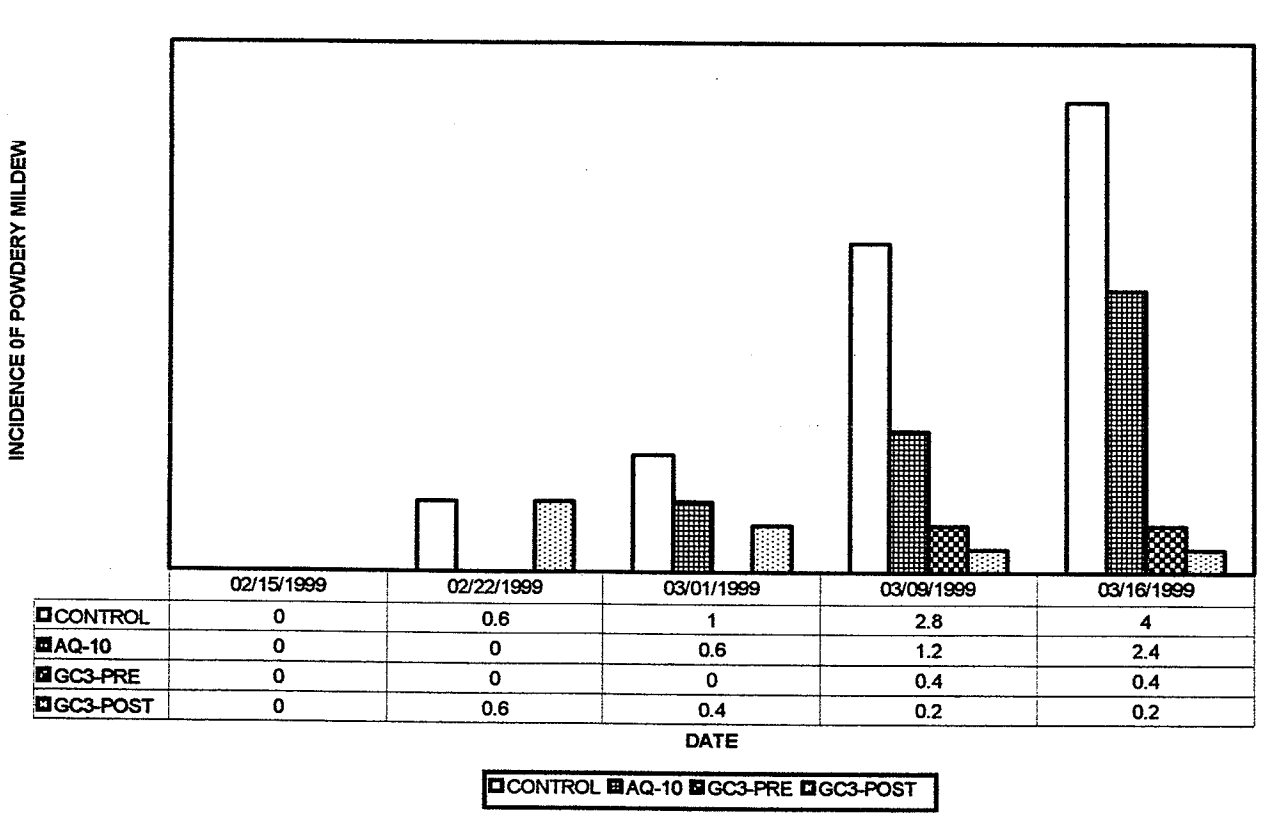
D. Cucumbers *(Susumis sativus)* Greenhouse **Powdery mildew *(Sphaerotheca fuligenea)***

JH Biotech, Inc., Agronomy Department

Control of powdery mildew on greenhouse cucumbers at Hollandia Nursery, Inc., Carpinteria, CA: Four 200 foot rows of six week old cucumber plants grown at 75-80 degrees Fahrenheit on rock wool blocks set onto coconut bark bags with automatic drip irrigation were used in the trial. Treatment plots were 20 feet long with a five-foot buffer zone between each plot. Complete randomized design was used with four treatments at seven day intervals for six weeks and five replications. The trial was replicated four times simultaneously.

Applications were made to the point of runoff using a handpowered backpack sprayer (50-60 gal/ac.) and left to dry. The GC-3 post infection treatment received only three applications. Data sampling method involved selecting five plants at random from each treatment plot and labeling one lower, healthy leaf from each. Percentage of infection was estimated by observing the underside of the selected leaves and applying the University of California Pathogenicity rating scale (0-5). Statistical analysis was performed using the ANOVA and Duncan's Multiple Range Test at the 5% level of significance.

Most of the plants in the control plots were completely infected with mildew by week four. The two GC-3 treatments showed excellent results for controlling mildew with less than 10% infection occurring on most of the plants in those plots. The AQ-10 showed significantly less mildew than the control, but did not exhibit control at the same level as GC-3. There was no significant difference among the GC-3 treatments. No greater control was observed for the pre-infection treatment as compared to the post infection treatment. A 1% solution of GC-3 at a rate of 50-60 gallons per acre showed excellent control of *S. fuligenea* on cucumbers. No phytotoxic effects were observed on plants treated with GC-3.



	02/15/1999	02/22/1999	03/01/1999	03/09/1999	03/16/1999
CONTROL	0	0.6	1	2.8	4
AQ-10	0	0	0.6	1.2	2.4
GC3-PRE	0	0	0	0.4	0.4
GC3-POST	0	0.6	0.4	0.2	0.2

F. Cucumber **Powdery Mildew**

Suburst Plant Disease Clinic

Introduction

The Powdery Mildews (*Ascomycotina*) represent a broad group of cosmopolitan, obligate plant parasites. The group comprises various species. The common name amply describes the primary symptoms on the host tissue surface. It is characterized by a mealy white fungal growth, to the naked eye appearing velvet-like or "powdery" in texture. This powdery appearance is imparted by sporulation and the presence of numerous tufts of clear to white asexual spores. Control of this formidable pathogen has beset growers and homeowners since domestication of flora. Common means of control have revolved about applications of sulfur, copper, various classes of fungicides or various combinations thereof. Recently, J.H. Biotech, Inc. (Ventura, CA) have introduced a new product, GC-3, with apparent efficacy against powdery mildews, applied as a spray. GC-3 represents a proprietary product derived originally as an extract of garlic (*Allium sativum*). This report summarizes a formal replicated greenhouse trial testing the merits of GC-3 against a model powdery mildew pathogen, host and standard fungicide.

Materials and Methods

The test plant used was the Oriental Cucumber (*Cucumis sativus var. Orientalis*). Three (3) seeds were planted directly into 8" diameter plastic pots. The planting media consisted of 75% standard (sterilized) potting soil + 10% perlite +10% river sand + 5% vermiculite. Moisture levels were maintained near 80% field capacity. When reaching the 3rd leaf stage all plants were rogued to a single plant. Plants were watered daily via an automatic delivery stystem irrigating with ½ strength Hoagland's Solution. All plants were trellised with nursery rope suspended from greehnouse rafters. On day 50 all plants were inoculated with the powdery mildew conidia of *Sphaerotheca fuligenea*. Infected leaves from melons were gently rubbed onto each leaf of the cucumber plants. Plants were set in a Completely Randomized Design with 8 replications and 4 treatments. The 4 treatments were as follows:

	Application				
Treatment	**1**	**2**	**3**	**4**	**Evaluation**
Control	-	-	-	-	Day 85
* Chlorothalonil (Chl)	Day 60	Day 67	Day 74	Day 81	Day 85
**GC-3 (G) day 60	Day 60	Day 67	Day 74	Day 81	Day 85
Chl + GC	Day 60 (G)	Day 67 (Chl)	Day 74 (G)	Day 81 (Chl)	Day 85

* Chlorothaloni @ 2 qt BRAVO 500 per 100 gallons mix.

**GC-3 @ 1 gal GC-3 per 100 gallons mix.

All plants were sprayed to run-off. Shields were set in place to obviate cross treatments. On day 85 all plants were evaluated utilizing the University of California Pathogenicity rating scale (0-5):

Scale	% Infection
0	0%
1	1-10%
2	10-30%
3	30-70%
4	70-90%
5	90-100%

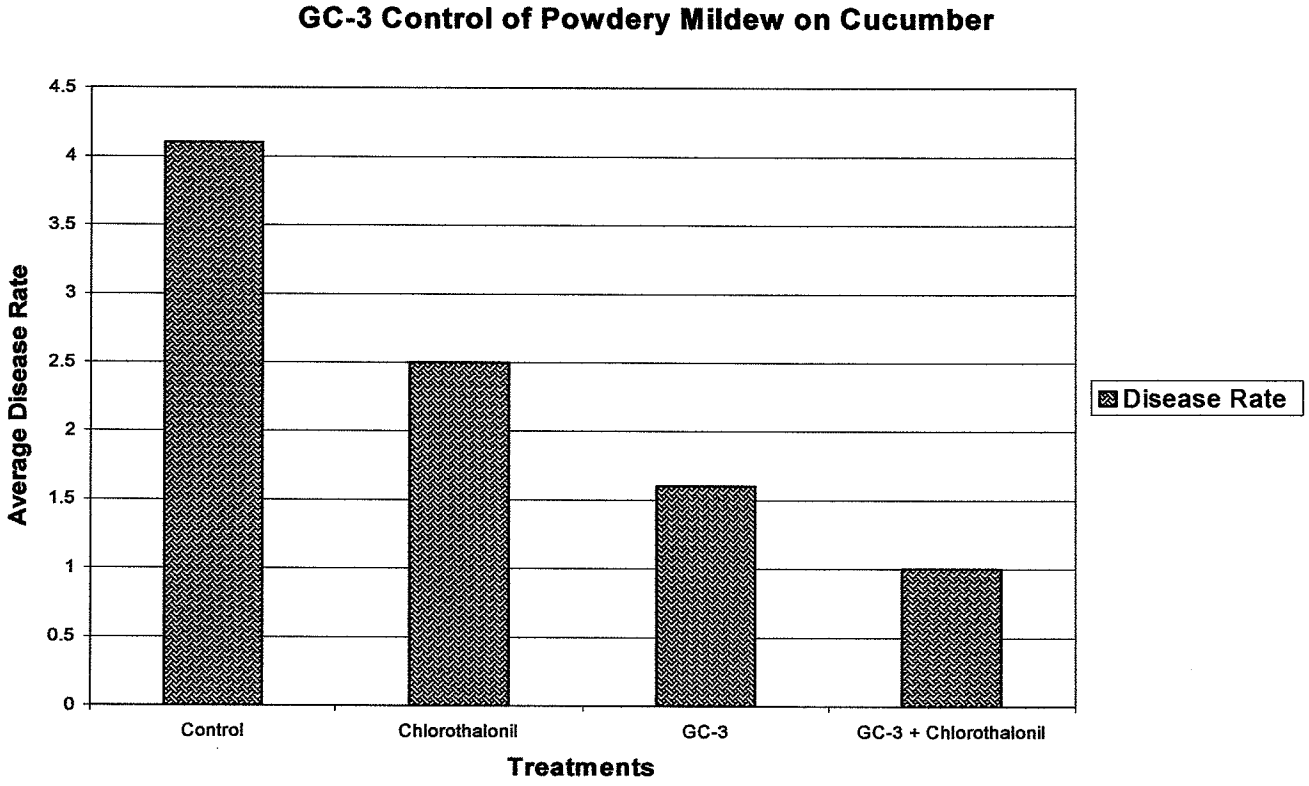
Statistical analyses were conducted using mean separation via Duncan's Multiple Range Test (5% level of Significance).

Results

Most of the untreated plants (Control) were completely overrun by powdery mildew. This was evident by days 17 following inoculation (day 50). Chlorothalonil treatments provided noticeable control but appeared to elicit a slight phytotoxic response as evidenced by degrees of leaf chlorosis. GC-3 performed in an exemplary manner but there appeared to be occasional, slight yellowing of foliage. Rated slightly above GC-3 treatments was the combination of GC-3 with Chlorothalonil alternating GC-3 sprays alone with Chlorothalonil sprays by itself (7-day intervals beginning with GC-3). All treatments were significantly superior to the control with the order of ranking as 1) GC-3 + Chlorothalonil, 2) GC-3 and 3) Chlorothalonil (see table).

REPLICATIONS

Treatment	1	2	3	4	5	6	7	8	Total	Mean
CONTROL	4	4	5	4	5	3	3	5	33.0	4.1 a
Chlorothaloni	2	3	2	2	2	3	3	3	20.0	2.5 b
GC-3	2	1	2	1	1	1	2	3	13.0	1.6 c
GC-3 + Chlorothalonil	1	0.1	0.1	2	0.1	2	1	2	8.3	1.0 d



Discussion

At the rate of 1 galloon per 100 gallons of mix the GC-3 performed well. Plants appeared to respond favorably to GC-3 approximating a nutrient response. Foliage was generally higher in green pigmentation and of higher vigor and size. When alternated with the fungicide, Chlorothalonil the GC-3 rendered a slight but significantly higher degree of powdery mildew control.

The efficacious performance of this product (GC-3) against *S. fuligenea* on cucumbers warrants that additional tests be documented spanning alternate crops and powdery mildew species.

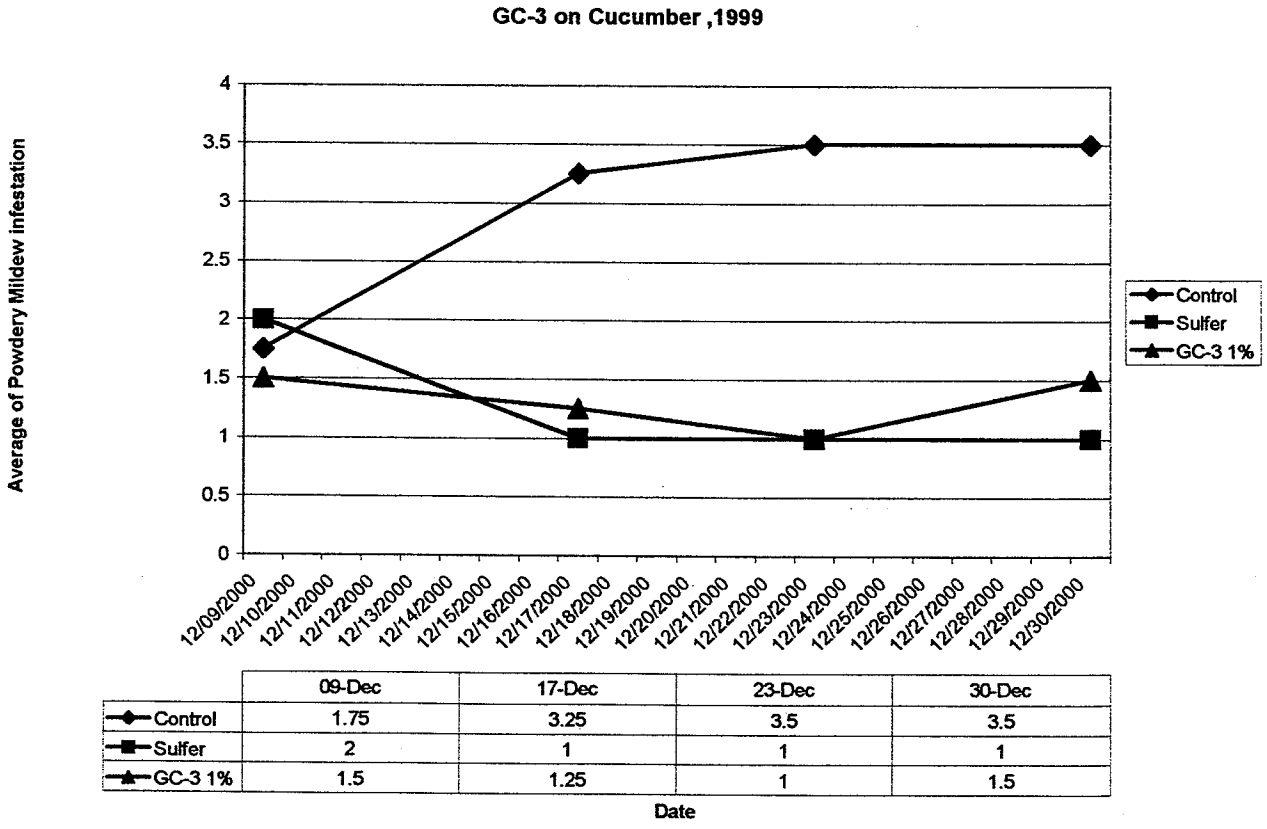
G. Cucumbers *(Susumis sativus)* Greenhouse **Powdery mildew *(Sphaerotheca fuligenea)***

JH Biotech, Inc., Agronomy Department

Control of powdery mildew on greenhouse cucumbers at Westfield Farms, Camarillo, CA: Two 50 foot rows of four week old cucumber plants grown at 75-80 degrees with automatic drip irrigation were used in the trial. Treatment plots were 10 feet long with a three-foot buffer zone between each plot. Complete randomized design was used with three treatments at seven day intervals for four weeks and four replications.

Applications were made to the point of runoff using a handpowered backpack sprayer (50-60 gal/ac.) and left to dry. Data sampling method involved selecting five plants at random from each treatment plot and labeling one lowest, healthy leaf from each. Percentage of infection was estimated by observing the topside of the selected leaves and applying the University of California Pathogenicity rating scale (0-5). Statistical analysis was performed using the ANOVA and Duncan's Multiple Range Test at the 5% level of significance.

A 1% solution of GC-3 at a rate of 50-60 gallons per acre showed excellent control of *S. fuligenea* on cucumbers. The occurrence of mildew was very low in the treated plants; there was a highly significant difference between GC-3 and the control. There was no phytotoxicity associated with the GC-3 treatment for the four weeks of the trial.



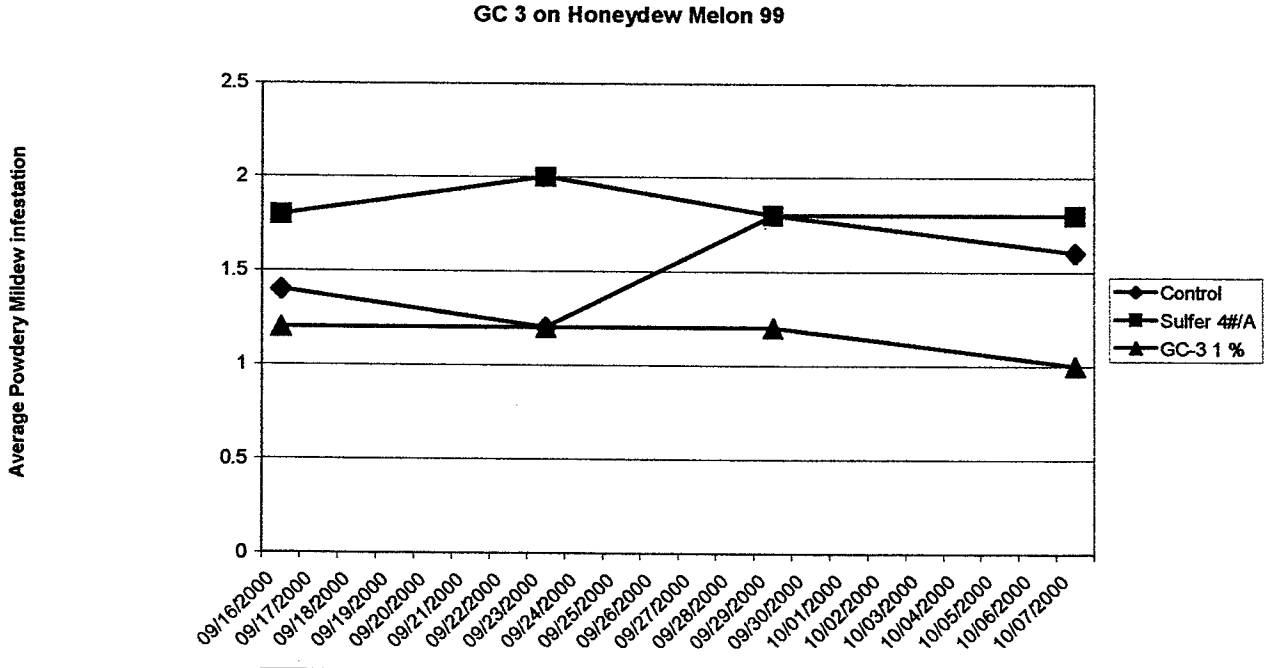
	09-Dec	17-Dec	23-Dec	30-Dec
Control	1.75	3.25	3.5	3.5
Sulfer	2	1	1	1
GC-3 1%	1.5	1.25	1	1.5

H. Melons (Honeydew) **Powdery mildew**
(*Cucumis melo*, Incorus group) ***(Sphaerotheca fuligenea)***
JH Biotech, Inc., Agronomy Department

Control of powdery mildew on Honeydew melons at Danna & Danna, Inc., Marysville, CA: A field approximately halfway to maturity was used in the trial. Treatment plots were 10 feet long by 5 feet across for a total area of 50 square feet per plot. Complete randomized design was used with four treatments at seven day intervals for four weeks and five replications. Temperatures in the field ranged from 45° F at night to 100° F during the day.

Applications were made to the point of runoff using a handpowered backpack sprayer (approx. 50 gal/ac.) in the afternoon when air temperatures were around 90° F. Data was gathered and recorded weekly using the University of California Pathogenicity rating scale (0-5). Statistical analysis was performed and means separated using the ANOVA and Duncan's Multiple Range Test.

The infection rate for the GC-3 treatment plots remained essentially unchanged over the course of the four weeks. All other treatment showed slight increases in infection levels. This indicates that GC-3 has good potential to control powdery mildew when environmental conditions favor the disease.



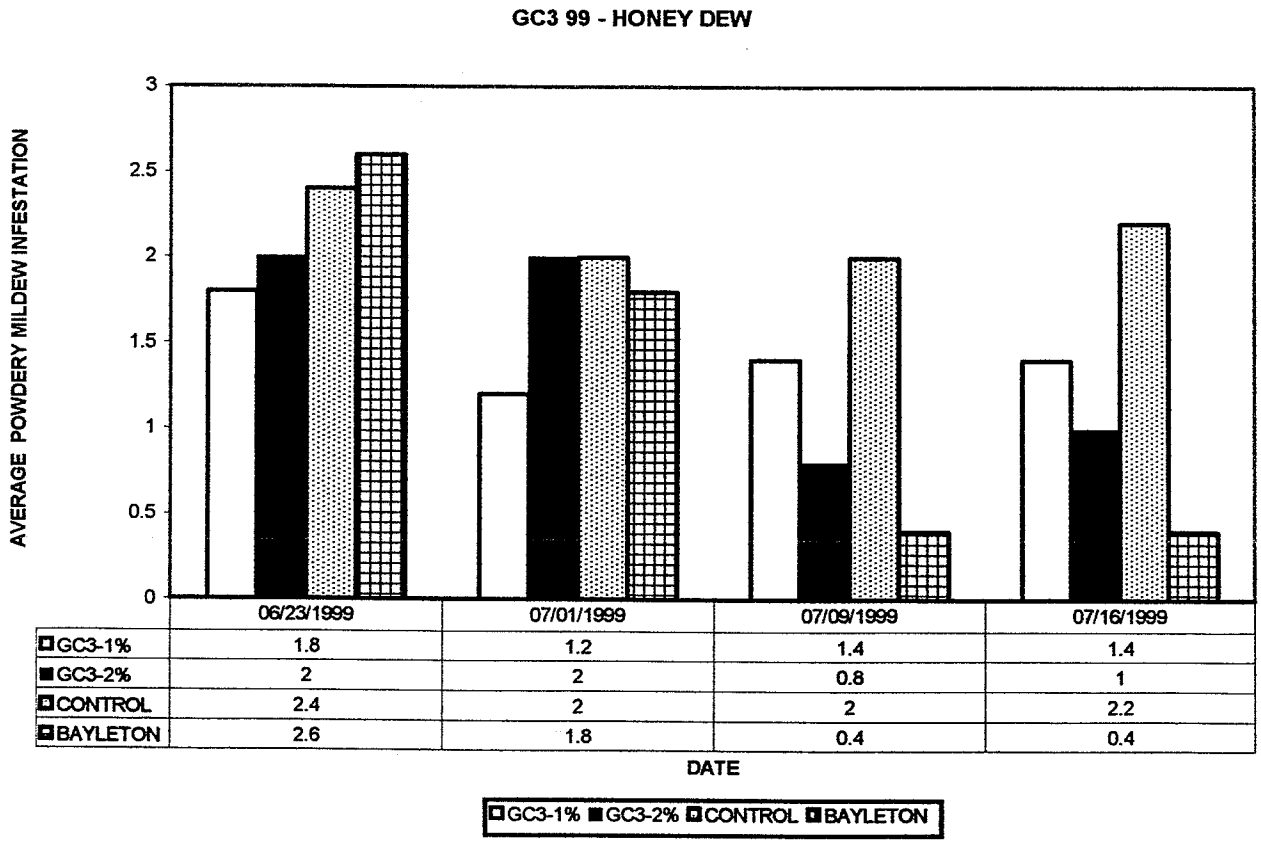
	16-Sep	23-Sep	29-Sep	07-Oct
Control	1.4	1.2	1.8	1.6
Sulfer 4#/A	1.8	2	1.8	1.8
GC-3 1 %	1.2	1.2	1.2	1

I. Melons (Honeydew) **Powdery mildew**
(*Cucumis melo*, Incorus group) ***(Sphaerotheca fuligenea)***
JH Biotech, Inc., Agronomy Department

Control of powdery mildew on Honeydew melons at Beylik Ranch, Fillmore, CA: A field approximately halfway to maturity was used in the trial. Plots were marked out in two rows approximately 100 feet long. Individual treatment plots were 10 feet long by 5 feet across for a total area of 50 square feet per plot. Complete randomized design was used with four treatments at seven day intervals for four weeks and five replications. Temperatures in the field ranged from 50° F at night to 90° F during the day. No rain occurred, but unusually high humidity did occur for this time of year for a period of two weeks during the trial.

Applications were made to the point of runoff using a handpowered backpack sprayer (approx. 50 gal/ac.) in the morning when air temperatures were below 90° F. Data was gathered and recorded weekly using the University of California Pathogenicity rating scale (0-5). Statistical analysis was performed and means separated using the ANOVA and Duncan's Multiple Range Test.

Both GC-3 at 2% and 1% performed very well in this trial. CG-3 at 2% showed a higher degree of control compared to the 1% solution. Note: It was noticed that adequate coverage of the foliage and other infected tissues was essential for good control with GC-3. No phytotoxicity was observed in any of the treatment plots throughout the trial.

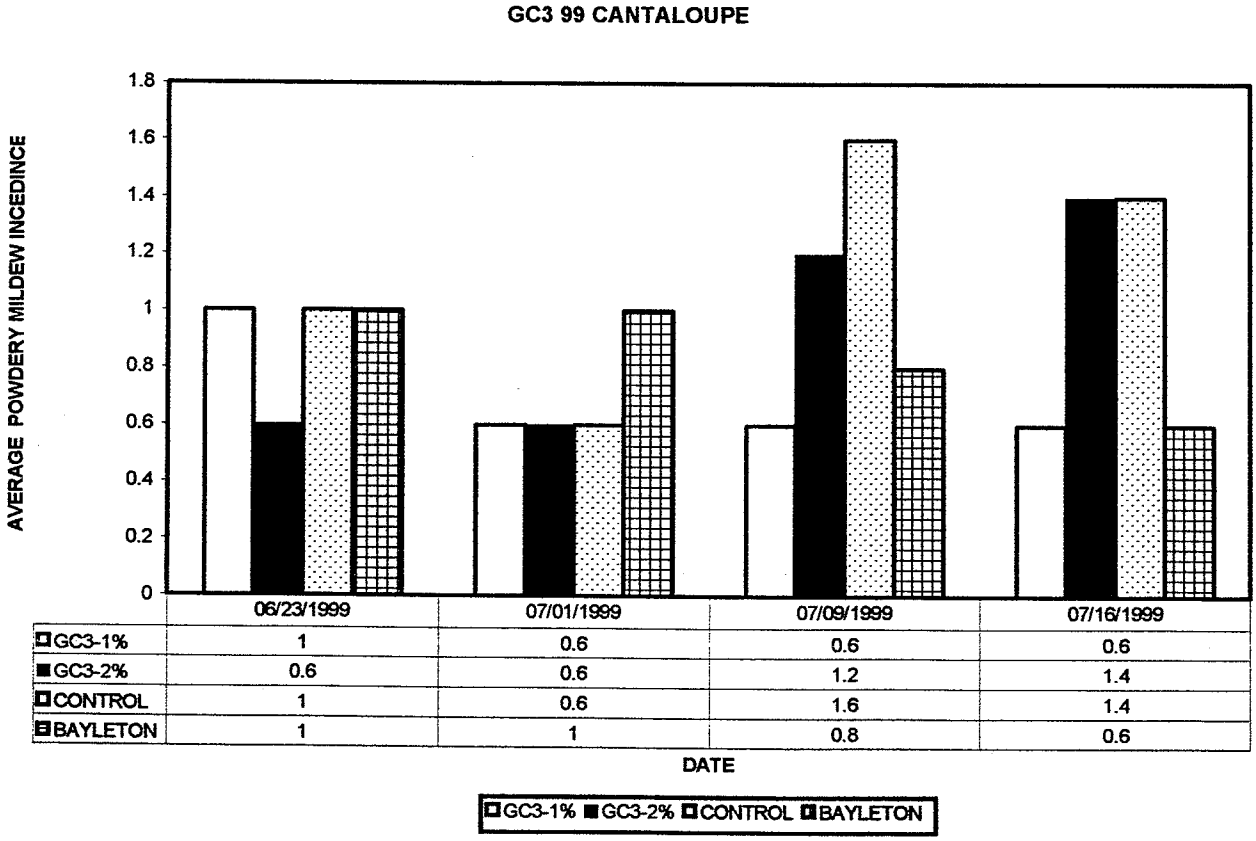


J. Melons (Muskmelon) **Powdery mildew**
(*Cucumis melo*, Reticulatus group) ***(Sphaerotheca fuligenea)***
JH Biotech, Inc., Agronomy Department

Control of powdery mildew on Muskmelons at Beylik Ranch, Fillmore, CA: A field approximately halfway to maturity was used in the trial. Plots were marked out in two rows approximately 100 feet long. Individual treatment plots were 10 feet long by 5 feet across for a total area of 50 square feet per plot. Complete randomized design was used with four treatments at seven day intervals for four weeks and five replications. Temperatures in the field ranged from 50° F at night to 90° F during the day. No rain occurred, but unusually high humidity did occur for this time of year for a period of two weeks during the trial.

Applications were made to the point of runoff using a handpowered backpack sprayer (approx. 50 gal/ac.) in the morning when air temperatures were below 90° F. Data was gathered and recorded weekly using the University of California Pathogenicity rating scale (0-5). Statistical analysis was performed and means separated using the ANOVA and Duncan's Multiple Range Test.

After four weeks, powdery mildew infections remained relatively low in all treatment plots. Note: Adequate coverage of the foliage and other infected tissues is essential for good control with GC-3.

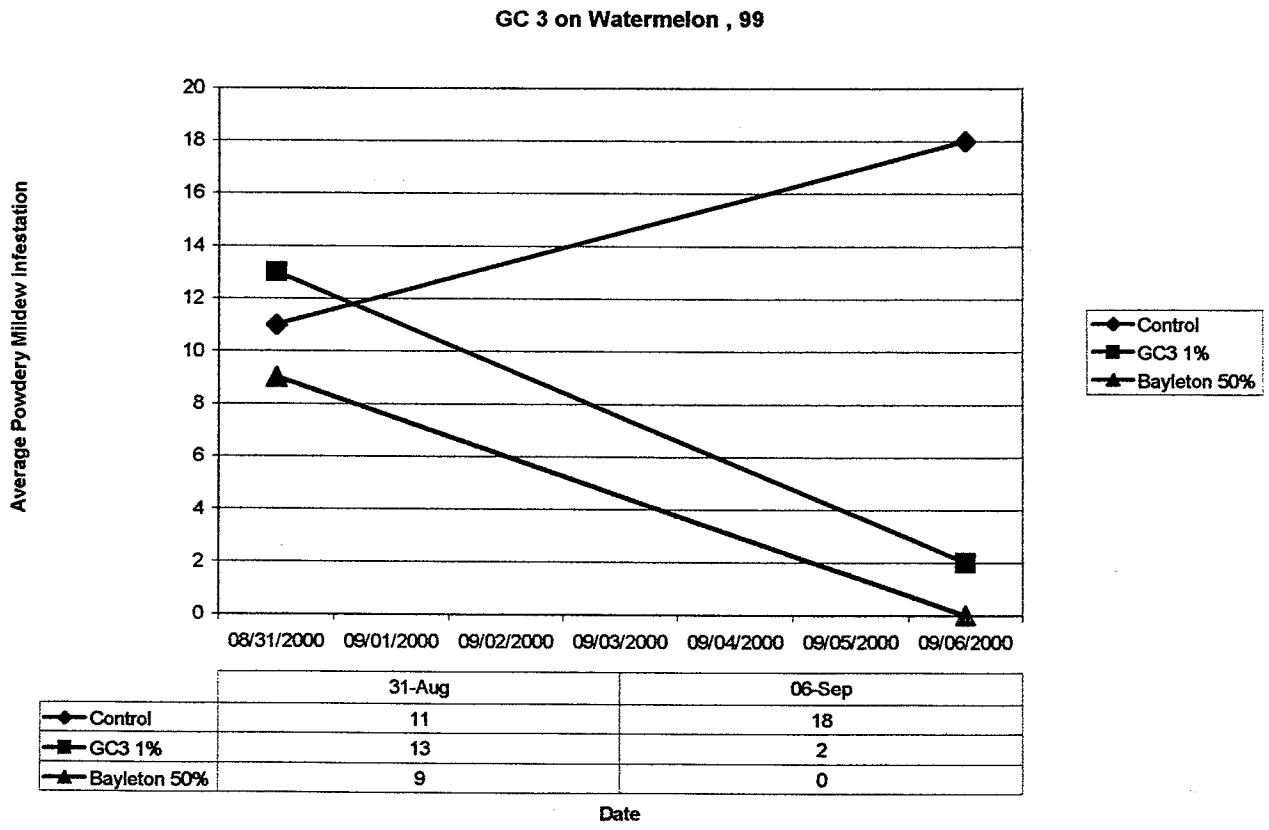


	06/23/1999	07/01/1999	07/09/1999	07/16/1999
GC3-1%	1	0.6	0.6	0.6
GC3-2%	0.6	0.6	1.2	1.4
CONTROL	1	0.6	1.6	1.4
BAYLETON	1	1	0.8	0.6

K. Melons (Watermelon) **Powdery mildew**
(Cucubitacea vulgaris) ***(Erisyphe chicoracearum)***
JH Biotech, Inc., Agronomy Department

Control of powdery mildew on Watermelons at H. Spitzer & Sons, Inc., Arvin, CA: A field in complete row closure with 6-8 inch fruit on the vine was used in the trial. The field was infected with powdery mildew at a moderate level with of 10-15% of the surface area of the underside of the leaves showing infection. Individual treatment plots were 10 feet long by 10 feet across for a total area of 100 square feet per block. Trial design was a CRD with four treatments and five replications. Temperatures in the field ranged in the mid 80's to mid 90's for the duration of the trial.

Applications were made to the point of runoff using a handpowered backpack sprayer (approx. 50 gal/ac.) after first applying water at the rate of 100 gal/ac (1qt./plot). The applications were made in the morning hours when temperature ranged from 75° F to 80° F. Data collection method used was to randomly sample five newly mature leaves per plot and count the number of active powdery mildew colonies present per one square inch in on the underside of each leaf near the tip. GC-3 performed very well in this trial. Complete coverage is essential for good control. Spots of untreated areas showed little control if GC-3 was not applied sufficiently to the entire leaf surface, top and bottom.



	31-Aug	06-Sep
Control	11	18
GC3 1%	13	2
Bayleton 50%	9	0

L. **Green Pepper & Squash: Powdery Mildew**

Metwally Aly Baraka, Prof. of Plant Pathology. Fac. of Agric. Suez Canal University

INTRODUCTION

Plants with powdery mildew are so conspicuous and striking that almost everybody notices them. Powdery mildew fungi occur all ever the world (**Freeman and Pepin (1977)** and **Mass (1984)**. On some crops, the disease occurs almost every year and causes great damage. These fungi attack important crops including legumes, cucuribits, solaniaces, fruits, flowers, ornamentals and field crops. At the same time, it was noticed that damage caused by powdery mildew has increased in the world. *Sphaerotheca fuliginea* (Schlecht.) Poll, *Erysiphe cichoracearum* Dc and *Leveillula taurica* (Lev.) Arrnaud. infect cucurbits across the world. *S. Fuligineaa* and *E. cichoracearum* are more commonly encountered on cucurbits than *L. taurica* **(Khan, (1989) and Sitterly (1978))**.

GC-3 is an organic fungicide recommended for the control of powdery mildew on various crops. The present study was planned to evaluate the product against powdery mildew on some vegetable crops under heavy disease pressure in Egypt.

MATERIALS AND METHODS

Effect of GC-3 on spore germination

GC-3 was tested to study its effect on conidial germination. GC-3 was applied at six-concentration i. e, 0, 100, 200, 400, 800, and 1600 ppm. Conidia of fungi causing powdery mildew of squash and pepper were harvested from fresh young legions and deposited at GC-3 concentrations on 2.5 X 7.5cm glass slides previously rinsed in ethyl alcohol and dried before use. Each slide was placed on a U- shaped glass rod in a chamber made simply from a sterile petri-dish with several layers of blotting paper on the bottom moistened with sterile water. Four replicates were used for each treatment. Petri-dishes were incubated for 24 hours before examination. The percentage of germination was calculated.

Effect of spraying GC-3 on some powdery mildew diseases:

A complete randomized block design with four replicates was used. Plot size was 1/100 of acre. Plants were left for natural infection. Thirty days after planting, squash and pepper plants were sprayed with GC-3 at 1, 2 and 4 % concentration. Control treatment was sprayed with water. Spraying was repeated every week for five weeks. Plants received a total of 5 sprays. Traditional agricultural practices were followed throughout the season.

Disease's severity was estimated, one week after the last application according to the technique of **Townsend and Heuberger (1943).** Mildewed leaves were categorized as follows:
0 = No mildewed, 1 = Quarter of blade mildewed, 2 = Half of blade mildewed, 3 = Three quarter of blade mildewed, 4 = More than three quarter of blade mildewed. Percentage of disease's severity was calculated according to the following formula:
P = sum of (n X v) / 4N X 100 where:
P = percentage of disease's severity, n = Number of leaves in each category,
v = numerical value of each category. N = Total number of leaves in sample.

RESULTS and DISCUSSION

1- Effect of GC-3 on spore germination:

Different concentrations of GC-3 were investigated on germination spores of powdery mildew pathogens (squash and pepper). As shown in table (1), all concentrations used reduced significantly the percentage of conidial germination. Increase of the concentration resulted in an obvious decrease in conidial germination. GC-3 (1600 ppm) completely inhibited the germination of the spores. GC-3 at 100, 200, 400 and 800 ppm. showed the germination rates of 23.4, 20, 13.3 and 8.3 %, respectively compared with the control 60.2 % in case of squash mildew. The same trend was observed for the germination of pepper powdery mildew.

Table (1): Effect of GC-3 on spore germination of squash and pepper powdery mildew pathogens

Concentration (ppm)	% germination spores of powdery mildew pathogens			
	Squash		Pepper	
	Percentage	Reduction index	Percentage	Reduction index
0	60.2	-	46.0	-
100	23.4	61.1	26.5	42.40
200	20.0	66.8	17.5	61.96
400	13.3	77.9	14.8	67.80
800	08.3	86.2	07.5	83.70
1600	00.0	100	00.0	100.0
L.S.D. at 5 %	7.14	-	3.83	-

2- Control of powdery mildew by GC-3

Effect of spraying with GC-3 on powdery mildew of squash and pepper was evaluated. Data presented in table (2) and fig. (1) indicated that all concentrations (1, 2 and 4 %) reduced significantly the severity of the infection compared with the control. The reduction of disease's severity decreased by increasing the concentration of GC-3.

Statistical analysis showed no significant difference between the two concentrations 2 and 4 % for the two diseases. Therefore, the concentration of 2 % is recommended for the control of the powdery mildew on squash and pepper.

Table (2): Effect of GC-3 on squash and pepper infection with powdery mildew.

Rate of use (%)	Squash		Pepper	
	% Disease severity	Disease reduction index	% Disease severity	Disease reduction index
0	66.3	-	77.6	-
1	06.8	89.7	51.2	34.02
2	04.1	93.8	08.2	89.2
4	01.3	98.0	07.2	90.30
L.S.D. at 5%	02.8	-	3.78	-

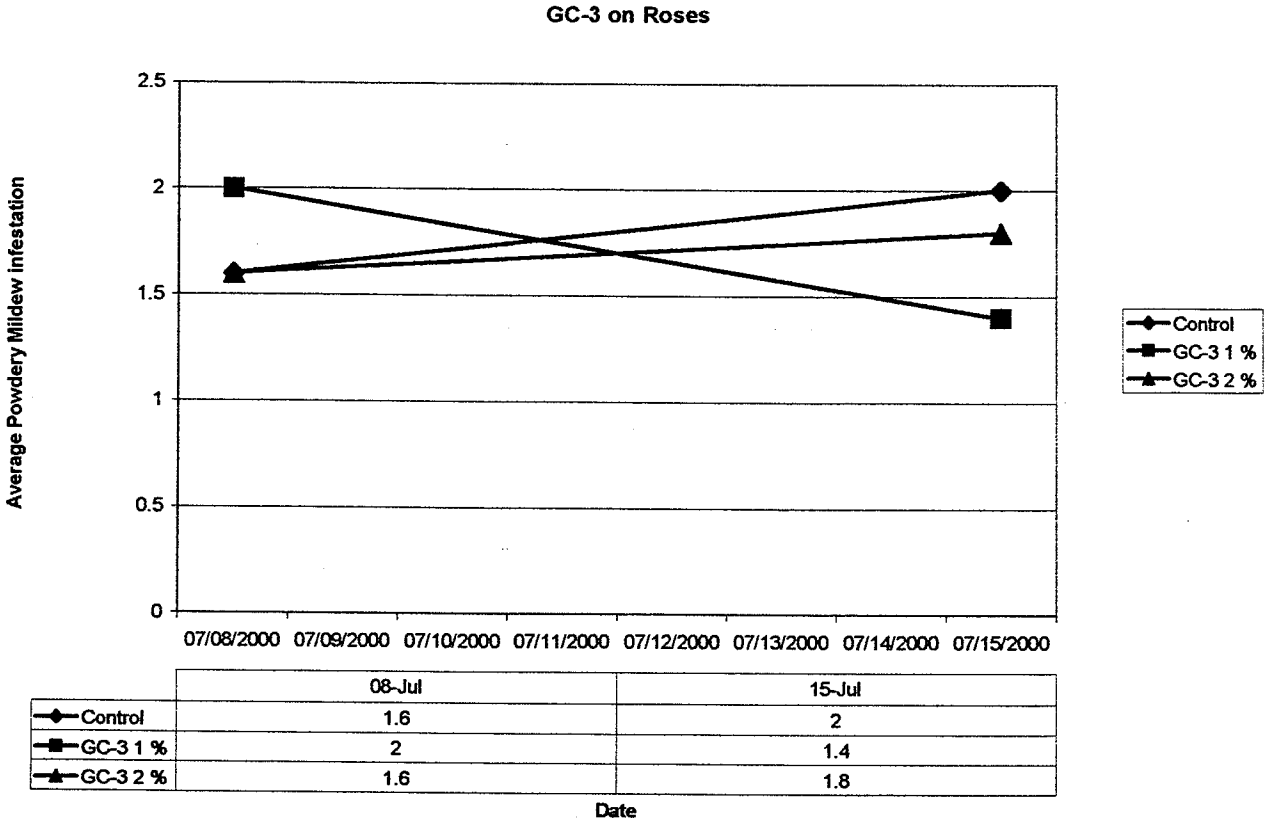
M. Roses (Greenhouse) **Powdery mildew**
(*R. dilecta var.* Delilah) ***(Sphaerotheca pannosa f. sp rosaea)***
JH Biotech, Inc., Agronomy Department

Control of powdery mildew on commercially grown roses at H & M Roses, Inc. of Carpinteria, CA: One row, 125 feet long of commercially grown roses in a 1 acre greenhouse was set aside for the trial. Temperature was maintained at 80° F, humidity was raised with the use of micromisters. Plants were grown in coconut bark filled bags and fed via microdrip irrigation with a custom fertilizer blend. The growth media was maintained at 79-80% field capacity.

Complete randomized design was used with three treatments at seven day intervals for four weeks and five replications. Three adjacent plants constituted a single plot. Fifteen plots were marked out, then randomly assigned to a treatment group and labeled. Data was collected for both pretreatment and post treatment infection levels using the University of California Pathogenicity rating scale (0-5).

Applications were made to the point of runoff using a handpowered backpack sprayer (20-25 gal/ac.) and left to dry and post treatment data was collected seven days later. Statistical analysis was performed for both pre-and post treatments using the ANOVA and Duncan's Multiple Range Test.

CG-3 at 2% solution showed a significantly lower rate of infection when compared to the control. A noticeable decrease in infection was observed in three of the five replications and no noticeable increase in infection was seen in the other two replications. GC-3 at 1% did not show control at a significant level. Infection within the control group did increase slightly over the seven days for two of the five treatments. No phytotoxicity was observed in any of the treatments.



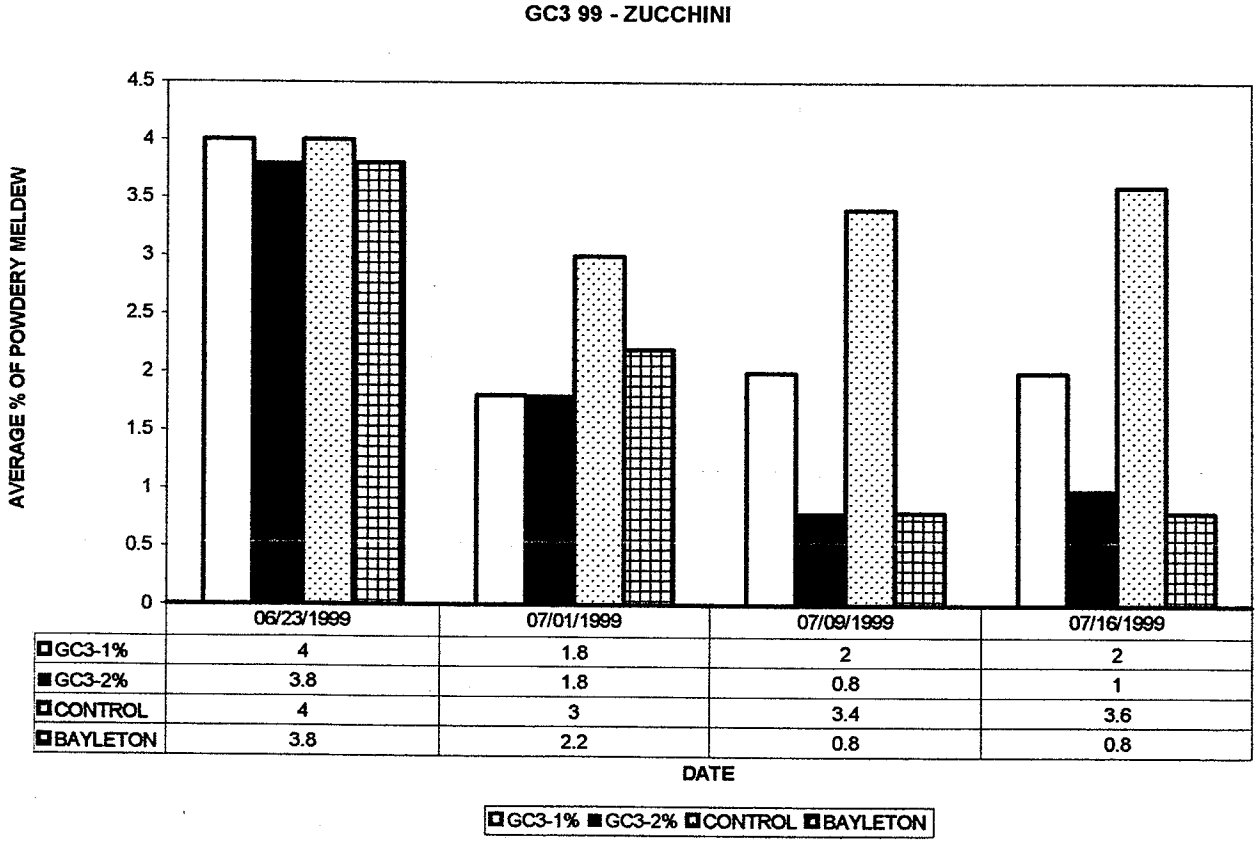
	08-Jul	15-Jul
Control	1.6	2
GC-3 1 %	2	1.4
GC-3 2 %	1.6	1.8

O. **Squash (Zucchini)** **Powdery mildew**
(Cucurbita pepo) ***(Sphaerotheca fuligenea)***
JH Biotech, Inc., Agronomy Department

Control of powdery mildew on zucchini at Beylik Ranch, Fillmore, CA: A field approximately three-quarters of the way to maturity was used in the trial. Temperatures ranged from 50° F at night to 90° F during the day. A completely randomized design was employed, using four treatments and five replications. Plots were marked out in two rows approximately 100 feet long. Individual treatment plots were 10 feet long by 5 feet across for a total area of 50 ft^2 per plot.

Treatments included a control with no treatment, the grower's standard practice of 2 oz. Bayleton per acre, GC-3 at a 1% solution and GC-3 at 2% solution. Applications were made with a hand powered backpack sprayer and applied to the point of run-off, approximately 50 gallons per acre. Applications were applied in the morning when air temperatures were below 90° F and were made weekly for four consecutive weeks.

Statistical analysis was performed and means separated using The University of California Pathogenicity rating scale (0-5). After four weeks, powdery mildew infection was relatively low in treatment blocks when compared to the control. Bayleton exhibited the most control followed closely by the GC-3 2% treatment. There was no phytotoxicity observed in any of the treatment blocks. GC-3 exhibited significant levels of control at both the 1% and 2% levels. GC-3 at 2% showed virtually the same level of control as Bayleton in this trial.



	06/23/1999	07/01/1999	07/09/1999	07/16/1999
GC3-1%	4	1.8	2	2
GC3-2%	3.8	1.8	0.8	1
CONTROL	4	3	3.4	3.6
BAYLETON	3.8	2.2	0.8	0.8