

## Maui Vegetable Notes

December 2, 1989

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### **TOMATO SPOTTED WILT VIRUS SCREENING TRIAL**

Seven varieties of tomato were evaluated on November 17 which showed promises of being resistant to the Tomato Spotted Wilt Virus (TSWV). These varieties were bred with the characteristics of Celebrity. Of the seven, two had shown to have the same physical characteristics of Celebrity. PetoSeed will increase the seeds of these two varieties for further testing in Hawaii. There was a great wealth of information presented at this field day on the behaviors of tomato. Much thanks go to both Drs. Cho and Mau and Drs. Watterson and Wyatt from PetoSeed Company for this informative session.

If you are interested in looking at the fruits of the varieties, please contact Roy Tanaka or Dr. Cho. Harvesting will be continued until the end of the month.

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### **WHITEFLY CONTROL WITH ULTRA FINE SPRAY OIL**

With information supplied to me by Randy Hamasaki, county agent at Kaneohe, that ultra fine spray oil gave good control of the greenhouse whitefly, I tested a product from Safer, Inc., call SunSpray Ultra-fine Spray Oil on tomato. The rate I used was 1 gallon of oil to 100 gallons of water. I was amazed to see the fast knock-down of the whitefly by this product. I had tried it with a surfactant with a slight

increase of the knock-down power. (My thanks to Mike of UAP for the sample of the oil.)

I understand that there are other ultra fine spray oils available. As soon as I can obtain these products, I will be testing them for the quick knock-down of the whitefly.

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### **VEGETABLE TRIALS FROM AROUND THE STATE**

Diakon Dwight Sato (county agent at Hilo) and Gaylen Maehira at the Volcano Experiment Station, Hawaii.

The following eight varieties were tried:

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|----------------|---------------------|
| 1. Mikura      | 5. Okura            |
| 2. Mino Summer | 6. Omny             |
| 3. Awa         | 7. Mino-wase Summer |
| 4. Tenpaku     | 8. Mino Early Long  |

White

Based on the estimated yield per acre of Hawaii No. 1, the following were the best cultivars:

1. Okura (32,000 lbs.)
2. Awa (29,000 lbs.)
3. Mino-wase Summer (28,000 lbs.)
4. Tenpaku (26,000 lbs.)

Sweet potato by Alton Arakaki, Glenn Teves (county agents) and Andrew Arce at Hoolehua, Molokai.

The data in the following table was obtained from a trial conducted by the above with a cooperator in Hoolehua. The crop was planted on August 10, 1988 and harvested on January 17, 1989. Plants were spaced 8 inches apart and rows spaced 40 inches apart.

VARIETY	YIELD PER ACRE (LBS)					COLOR
	NO.1	NO.2	OG	CULL	JUMBO	
	TOTAL	SIDN/FLESH				
83-5	14376	10456	11109	0	9149	
	45090	LR/W,P RONG				
71-3	0	1485	0	4158	0	
	5644	R/LY				
Mokuau Unk	32907	14703	5251	3501	29406	
	85769	W/W				
78-9	14563	8962	5041	1120	3921	
	33607	LB/LY				
Kona-B	4901	2178	3267	3267	0	
	13614	LR/LO				
83-4	6191	6707	7739	4127	2064	
	26828	LR/Y				
83-2	1089	5990	8713	7079	0	
	22872	Y,P TINT/Y				
Ueunten	19604	11436	11980	2178	2178	
	47376	R/W				
CES	19604	9189	9189	3063	4288	
	45335	?				
83-3	3921	3921	6535	3267	0	
	17644	W,Y/O				
HSPA	8084	6084	13520	5408	0	
	31096	LY/Y				
Mokuau RxP	12648	7589	11383	5059	1897	
	38576	R/P				
Hoolehua Red	20830	11640	7964	3676	1838	
	45947	LR/W				
83-7	653	0	2614	1960	0	
	5228	W/Y,P RING				
Rapoza	3676	4288	1838	1225	0	
	11027	W/P				
Hoolehua Gold(83-1)	40434	13478	9602	613	11640	
	75967	R/O				
71-5	7723	4158	5941	2376	0	
	20198	LR/YLB/OO				
71-7	1060	1080	0	2119	0	
	4239	LY/YR/O				
Jewell	3519	2513	8043	3016	0	
	17091	LB/O				
Contennial	0	0	0	0	0	
	0	R/O				
Waimanalo Red	7129	5941	5941	1188	0	
	20196	R/LY				

COLOR CODES USED IN TABLE

L=LIGHT                    Y=YELLOW  
R=RED                      O=ORANGE  
W=WHITE                  B=BROWN  
P=PURPLE

Cucumber by Randy Hamasaki (county agent at Kaneohe) at Waimanalo Experiment Station, Oahu.

The major objectives of this trial were to obtain yield data and information on mosaic resistance of 15 cucumber hybrids. Mosaic virus diseases can severely limit cucumber production. The most common mosaic diseases affecting cucumber crops on Oahu are watermelon mosaic-1, zucchini yellow mosaic virus and cucumber mosaic virus. Some research work have shown that certain Taiwanese cucumber hybrids many possibly carry resistance to the common mosaic diseases.

Location: Waimanalo Experiment Station  
Date Planted: June 1, 1989  
Harvest Period: July 6 to August 7, 1989  
Harvest Frequency: 3 times per week (M,W,F)  
Spacing: Rows: 6 feet Plants: 1 foot  
Plot size: 30-foot row of trellis. 4 replications  
Irrigation: Furrow 3 times per week (M,W,F)

Results: Average yieldper 30-foot row

Hybrid	No. 1	No. 2	Off-Grade	Culls
	Total			
BURPEE HYBRID	21.4 e 69.1 g	15.7 f	12.1 e	19.9 ab
DELIGHT GREEN	24.7 cde 102.5 ef	34.4 de	17.3 cde	26.2 ab
FOUNTAIN	44.1 b 138.1 abcd	48.9 bc	25.4 bcd	19.7 ab
GENUINE	68.5 a 154.7 ab	49.4 bc	14.5 de	22.3 ab

GREEN BOWL	36.2 bcd 133.8 abcde	44.1 bcd	24.6 bcd	28.9 a
JOY	36.3 bcd 141.1 abc	44.8 bcd	37.8 a	22.2 ab
LANI	30.1 bcde 110.1 cdef	40.2 bcde	19.0 cde	20.8 ab
MILO	22.1 de 90.9 fg	27.9 ef	15.6 de	25.3 ab
NEW MARK ET	44.8 b 133.1 abcde	46.2 cde	23.4 bcd	28.7 a
SOUTH SWALLOW	34.4 bcde 107.6 def	28.6 e	34.7 ab	10.1 c
SPRING SWALLOW	34.1 bcde 165.2 a	63.9 a	36.3 a	28.9 a
SWEET SALAD	35.8 bcde 137.2 abcd	48.7 bc	27.4 bc	25.3 ab
SWEET SLICE	34.5 bcde 125.2 bcde	44.4 bcd	24.7 bcd	21.6 ab
TASTY GEM	37.9 bc 138.0 abcd	51.9 ab	24.9 bcd	23.3 ab

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### **THE ROLE OF COPPER IN OUR DIET**

According to Phyllis E. Johnson, a chemist with the Agricultural Research Service, copper may play a significant role in maintaining healthy cholesterol and blood sugar levels and keeping the body's blood pressure in line.

(Agricultural Research, July 1989.)

Maybe the old wife's tale is true after all that onion has medicinal properties. Onion has a high demand for copper. Onion with dark colored scales have ample copper, while deficiency is noted by the light color scales.

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### **BORON IN LETTUCE PRODUCTION**

In a recent trial with boron in head lettuce production, it was noted that the maturity of the lettuces was uniform. The boron was applied as Solubor on the seedling of the lettuce prior

to transplanting. I will be conducting more trials to verify the above finding.

It was requested that a table be developed on the amount of Solubor needed for the seedling stage of growth of the lettuce. The table below is based on the number of trays. Use enough water to cover the amount of trays. Apply the solution up to the point of run-off.

Solubor per acre	<u>No. of Trays of Seedlings</u>						
	10	15	20	25	30	35	40
	Solubor in grams*						
4.9 lbs. (1 lbs B)	1.02	1.53	2.04	2.55	3.06	3.57	4.08
9.8 lbs. (2 lbs. B)	2.04	3.06	4.04	5.10	6.12	7.14	8.16
14.7 lbs. (3 lbs. B)	3.06	4.59	6.08	7.65	9.18	10.71	16.32
19.6 lbs. (4 lbs B)	4.08	6.12	8.08	10.20	12.24	14.28	16.32

\* 1 teaspoon - 1.5 grams  
1 Tablespoon - 5.5 grams

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### **CHEMIGATION EFFECTIVELY CONTROL PEANUT DISEASE AND INCREASE YIELDS**

Application of a fungicide through the overhead irrigation system control Rhizoctonia limb rot in Georgia. The trial was conducted by Drs. Brenneman and Sumner, Dept. of Plant Pathology, University of Georgia at the Coastal Plain Experiment Station. The control of the disease increased yield three folds over the check plot. (Plant Disease, Act. '89.)

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### ***EFFECT OF IRRIGATION MANAGEMENT ON ONION DISEASES***

Overhead irrigation had a greater incidence of Sour Skin of Onion than furrow irrigation. The disease is caused by pseudomonas cepacia. (Plant Disease, Oct. 1989)

Over irrigation through the drip system can induce disease incidence. During the cool season, the Pink Root Rot can become a problem when excessive water is present. The Pink Root Rot can predispose the onion to the Fusarium bulb rot while in storage. Pythium Root Rot can occur throughout the year with excessive moisture.

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### ***ARE YOU OVER IRRIGATING?***

Over irrigation is just as bad as under irrigation. As stated above, over irrigation can induce disease incidence of vegetable crops. In several irrigation studies conducted by Dr. I-pai Wu, he found that over irrigation can reduce yields.

I had assisted one of an onion grower to determine his input of water through his drip irrigation system. He is using the T-tape, Hi-flo (40 gal/100'/hr). The length of the lateral is 450 feet with an output of 180 gallons of water per hour. His irrigation time is 4 hours, therefore, the total gallonage of water per later is 720 gallons. He irrigates twice per week.

In using the evapo-transpiration pan (see Maui Vegetable Notes, April, 1988) to determine the water requirement, it was found that the

growers was over irrigating his crop. Assuming that the evapo-transpiration rate was 1" after three days, his input of water will be only 281.25 gallons with an irrigation time of 1 hour and 34 minutes. There is a saving of 438.75 gallons of water per irrigation or 877.50 gallons per week.

If you are interested monitoring your irrigation practice, please call me. Because of the possibility of ground water contamination by over irrigation, I am very interested in assisting anyone in developing a sound irrigation practice.

For the growers who have the evapo-transpiration pan and who are not using it, I would appreciate it very much if you would return it to me.

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### **LOSS OF MANCOZEB IN MANY CROPS**

Voluntary suspension by the companies of mancozeb removed many crops from the label of this product. Only the following crops are retained: asparagus, banana, cranberries, grapes, onions, peanuts, potatoes, sugarbeets, sweet corn, tomatoes and wheat. Therefore, the use of mancozeb on any crops other than above is illegal.

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### **SOMETHING OF THE FUTURE**

Potato Virus Y (PVY) maybe something of the past. Dr. Wyatt of PetoSeed Company commented that his company is looking in breeding a tomato variety with resistance to the PVY. He also mentioned that PetoSeed is developing an

American type cucumber variety with the same disease resistance and quality of Sweet Slice.

Researchers in University of Hawaii-Hilo obtained some isolation of antagonists from the anthurium plant to combat the Bacterial Blight of Anthurium, caused by Xanthomonas campestris pv. dieffenbachiae. Control of the blight by the antagonists lasted for 2 to 3 months. Can the same technique be used for the control of the Black Rot of Cabbage, caused by Xanthomonas campestris pv. campestris?

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Blue attract Western Flower Thrips better than yellow. (American vegetable growers, Aug. 1989.)

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Doctors and dietitians agree that the average healthy individuals should increase their fiber consumption to 25-35 grams a day. The average American consumes about 10 to 20 grams of fiber per day. (The Packer.) Can the Island Fresh promotion on vegetable use this info?

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### **COLD FACTS OF TOMATO**

Tomato does not like cold. It is recommended that tomato be kept in storage not less than 55 degrees F. Mature green tomato kept in storage below 50 degrees will not ripen. Tomato ripen in cold temperature develops whitish-ghost spots throughout the fruit.

Tomato should be wash in water with temperature equal or greater than the temperature of the tomato. Tomato will absorb

the wash water when then water is colder than  
the tomato.

cc: C. Nakamura  
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