DuPONT VYDATE L VEGETABLE TRIAL
CROP YIELD AND PRODUCE QUALITY ENHANCEMENT ON CUCURBITS

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Introduction

Vydate L is currently labeled as a systemic insecticide and nematicide for use on various crops. This trial was conducted to evaluate whether applications of Vydate L can provide quality enhancement of fruiting vegetable crops and cucurbit crops and show a positive effect on produce yield .

Methods and Materials

This study was located at the Black Shank Farm, CPES- Tifton, Ga. in a field with a history of assorted vegetable production. Field plot areas were turned on 08 March and fertilized with an application of 10-10-10 on 19 March. Fertilizer was roto-tilled into soil after application. On 21 March, beds were shaped and covered with 1 mil black polyethylene mulch with drip tape in the center of the bed approximately 1 inch deep. Drip tape was brand AquaTraxx™ with a 12-inch emitter spacing and a flow rate of .45 gal/min with a 12- PSI regulator. Methyl bromide 67%, treatments #3 and #4 were applied at the time of bed shaping and covering. Plots were staked and set up in a randomized complete block design (RCBD) with five replications on 23 March. Each plot was 25 feet long, 30" wide beds with 5 foot alleys.

Yellow crook-neck squash variety 'Gemini' was transplanted into test plots on single rows 09 April. Plant spacing was 12". Individual treatments of Vydate L @ 2.0qts/A were applied through the drip tape on 10, 17, and 26 April post-transplant.

Vigor ratings were conducted on 17, 24 April, and 03 May. Plant vigor was rated on a scale of 1 to 10, with 10 representing live and healthy plants and 1 representing dead plants. Height measurements were taken on 17, 25 April, and 02 May. Height measurements were done in centimeters measuring plants from the base of plant to the tip of the longest leaf.

All squash fruit were hand harvested from all plants in each bed. Fruits were harvested when they were immature, approximately 6 inches long, with a light yellow color and soft flesh that could be easily pierced, and when flowers were desiccated and/ or abscised from fruit. Each harvest was separated into marketable and cull fruits per plot number, counted and weighed in pounds. Marketable fruits were then graded by commercial sizes. Grade standards were taken from the following publication and table:

U.S. Standards for Grades of Summer Squash 51.4050-51.4053
Table I (USDA).

Size Designations	Inches	
	Minimum Diameter	Maximum Diameter
Fancy	1 1/2	2
US #1	2	2 1/2
US #2	2 1/2	3
Large	3	

Each squash fruit was passed through one of four round openings of a designated diameter. Numbers of squash fruit in each size category was recorded for each plot number. There were a total of five harvests and grades done on 15, 21, 25 & 30 May and 08 June.

All plots were sprayed for insect control as follows: Asana 9.6oz/A on 30 May.. Lannate was applied on 08 June.

Squash roots were dug 16 July and a root gall evaluation was conducted on 17 July. Ten plants per plot were evaluated using a 0-10 scale whereby 0= no galls, 1= very few small galls, 2=numerous small galls, 3= numerous small galls of which some are grown together, 4= numerous small and some big galls, 5= 25% of roots severely, 6= 50% of roots severely galled, 7=75% of roots severely galled, 8= no healthy roots but plant is still green, 9= roots rotting and plants dying, 10= plant and roots dead.

Summary

Squash grew well and were very vigorous throughout the trial. The data indicated that MB and MB + Vydate traveled to increase grade and yield of squash and the low level of root knot damage way explain some of those differences. However with the root knot index as low as was detected, other factors that increase yield and Vigor may be in play with this system.

Dupont Vydate L Quality Trial on Cucurbits 2007

Table 1. Effect of Vydate L on Yield of 'Gemini' variety yellow crookneck summer squash

Treatment	Marketable Number	Marketable Weight (lbs)	Cull Number	Cull Weight (lbs.)	Total Number Cull & Marketable fruits	Total weight Cull & Marketable fruits (lbs.)
1. Untreated Control	171.6 a	132.8 b	11.4 a	1.56 a	183.0 a	134.4 b
2. Vydate L	177.0 a	134.3 b	14.8 a	5.6 a	191.8 a	140.0 ab
3. Methyl Bromide 67%	174.4 a	140.0 ab	11.6 a	2.0 a	186.0 a	142.0 ab
4. Vydate L + Methyl Bromide 67%	184.2 a	149.2 a	8.4 a	2.7 a	192.6 a	151.9 a

[1] Data are means of five replications. Means in the same column followed by the same letter are not different (P=0.05) ccording to Duncan's Multiple range test. No letters indicate non-significant difference.
[2] The fruit collected from each individual plot that was considered to be marketable and showed no symptoms of disease was seperated and counted on 21, 25, 27 June and 09 July.
[3] The fruit collected separately from each plot and considered marketable and non-diseased was weighed (in lbs.) on 15, 21, 25, and 30 May and 08 June.
[4] The fruit collected from each individual plot that was considered to be diseased and non-marketable was seperated and counted on 15, 21, 25, and 30 May and 08 June.
[5] The fruit collected separately from each plot and considered diseased and non-marketable was weighed (in lbs.) on 15, 21, 25, and 30 May and 08 June.
[6] Equals the total number of fruits harvested both marketable and culls.
[7] Equals total yield (in lbs.) Of fruits harvested both marketable and cull.

Dupont Vydate L Quality Trial on Cucurbits 2007

Table 2. Numbers of marketable fruit, yellow crookneck summer squash variety 'Gemini', per grade according to USDA commercial standards

	Grades[2]			
Treatment	**Fancy**	**US #1**	**US #2**	**Large**
1. Untreated Control	46.0 a	35.6 a	41.4 a	44.0 a
2. Vydate L	47.0 a	43.8 a	43.2 a	44.6 a
3. Methyl Bromide 67%	46.4 a	37.8 a	40.6 a	49.2 a
4. Vydate L + Methyl Bromide 67%	45.2 a	38.0 a	45.6 a	52.8 a

[1] Data are means of five replications. Means in the same column followed by the same letter are not different (P=0.05) according to Duncan's multiple range test.
No letters indicate non-significant difference.

[2] Marketable fruit were graded according to size standards set forth in the USDA publication **"United States Standards for Grades of Summer Squash", section 51.4050-4053.**
Grades of squash were determined by the separating squash according to minimum and maximum sizes in inches as follows: Fancy 1 ½"-2", US#1 2"-2 ½", US#2 2 ½"-3", Large 3" and larger. Marketable fruit were graded at the time of harvest on 15, 21, 25, and 30 May and 08 June.

Dupont Vydate L Quality Trial on Cucurbits 2007

Table 3. Effect of Vydate L on vigor, plant height and populations of plant parasitic nematodes on 'Gemini' yellow crookneck summer squash

Treatment	Vigor Rating (0-10)[2]				Height Measurement[3]				
	April 17	April 24	May 02	Average Vigor	April 17	April 25	May 02	Average height	Gall Rating
1. Untreated Control	8.0 c	7.4 c	6.6 c	7.7 c	8.76 a	16.3 a	40.0 c	15.9 b	0.26 a
2. Vydate L	8.2 bc	8.2 b	7.6 bc	8.2 b	8.63 a	16.0 a	43.3 ab	17.2 ab	0.80 a
3. Methyl Bromide 67%	8.8 b	9.6 a	8.0 b	9.2 a	8.58 a	16.4 a	42.4 b	17.3 ab	0.00 a
4. Vydate L + Methyl Bromide 67%	9.6 a	9.6 a	9.2 a	9.6 a	9.70 a	21.2 a	45.3 a	20.6 a	0.00 a

[1] Data are means of five replications. Means in the same column followed by the same letter are not different (P=0.05) according to Duncan's multiple range test.
No letters indicate non-significant difference.
[2] Vigor was done on a scale of 1-10 with 10= live and healthy plants and 1 = dead plants and an average was taken of vigor. Ratings were conducted on 17, 24 April and 03 May.
[3] Height measurements were conducted by measuring each plant from the base of the plant to the tip of the longest leaf. Measurements were taken in centimeters on 17, 24, April and
02 May.
[4] Root gall ratings were taken on July 17 using a scale of 0-10. 10= dead plants and roots and 0= no galls and a healthy plant. Root gall ratings were done after the last harvest.
Ten plants per plot were rated.