



# Cucumbers with Organic Vitazyme application

**Researchers:** Bence Kiraly, Natalia Simon, and Jenó Simon

**Research organization:** Biotek Agriculture Hungary Kft., 6636 Martely, hrsz. : 013818, Hungary; Vital Earth Resources, Inc. Gladewater, Texas, USA

**Location:** Martely, Csongrad- Csanad State, Hungary

**Farm cooperators:** Jenó Simon, Hodmezovasarhely, Hungary **Variety:** Mohikan F1 (*Cucumis sativus*)

**Planting date:** June 1, 2021 **Planting depth:** 3 cm **Row spacing:** 100 cm **In-row spacing:** 50 cm

**Soil traits:** clay loam (Chernozem), 9.8% organic matter, 6.3 pH, 25.13 meq/100g, good fertility, good drainage

**Tillage:** conventional

**Experimental design:** A small-plot cucumber trial was designed in a randomized complete block design with six replications, using plots 2 x 5 meters. The objective of the trial was to determine the effectiveness of two biostimulants on the yield and growth parameters of cucumbers.

Treatment	Product applications		
	June 1	July 8	July 15
1. Control	0	0	0
2. Amalgerol	4 liters/ha	4 liters/ha	4 liters/ha
3. Organic Vitazyme	0.5 liter/ha	0.5 liter/ha	0.5 liter/ha
4. Organic Vitazyme	1 liter/ha	1 liter/ha	1 liter/ha
5. Organic Vitazyme	2 liters/ha	2 liters/ha	2 liters/ha
Crop stage, BBCH scale	00:100	66:50	82:50
Interval from previous appl.	0	37 days	7 days
Method of treatment	soil drench	foliar days	foliar days
Application amount	10,000 liters/ha	300 liters/ha	300 liters/ha

**Fertilization:** unknown

**Organic Vitazyme application:** See the rates and timing in the table.

**Amalgerol application:** See the rates and timing in the table. Amalgerol is a mixture of seaweed extracts, mineral oil, essential oils, and herbal extracts, and is "Qualified Organic" according to EC regulation number 834/2007, for organic use. It is produced by Hechenbichler, Innsbruck, Austria.

**Pest control:** July 5- Kupfer Fusilan fungicide at 2.5 kg/ha, and Sumi Alfa 5 EC insecticide at 0.3 liter/ha; July 20-Kupfer Fusilan fungicide at 2.5 kg/ha

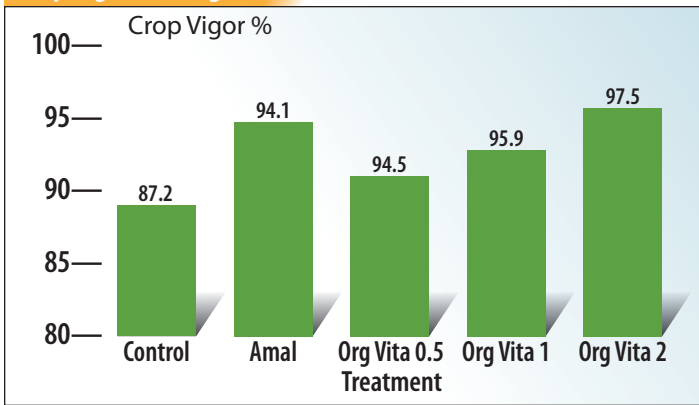
**Phytotoxicity results:** No phytotoxicity was detected for any treatments.

## Crop vigor results:

Treatment	Rate	Assessment date*			Average
		July 14	July 19	July 27	
	L/ha	%	%	%	%
1. Control	0	86.7 d	88.3 b	86.7 c	87.2
2. Amalgerol	4	90.8 c	95.2 a	96.3 ab	94.1
3. Organic Vita	0.5	94.2 b	94.7 a	94.7 b	94.5
4. Organic Vita	1	95.8 ab	96.0 a	96.0 ab	95.9
5. Organic Vit	2	97.5 a	97.7 a	97.2 a	97.5
LSD (P=0.10)		2.7	3.5	2.2	
CV		2.88	3.75	2.34	
Treatment F		0.0001	0.0023	0.0001	

\*Means followed by the same letter are not significantly different at P=0.10 according to the Student-Newman-Keuls Test.

### Crop Vigor, Average



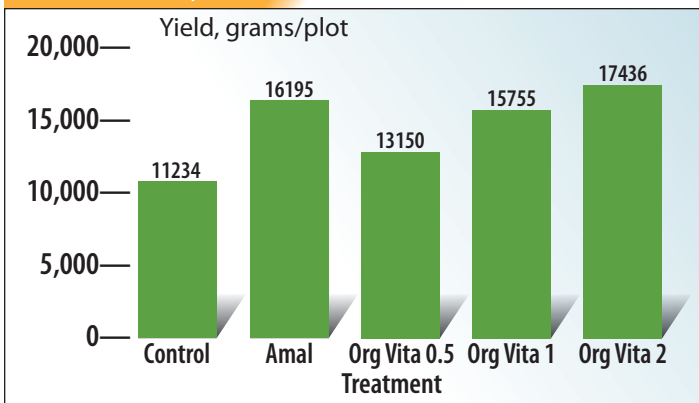
Organic Vitazyme at 2 liters/ha produced the most vigorous plants, at 97.5% vigor, versus 87.2% for the control. All other treatments also significantly exceeded the control in every case for the three dates.

**Crop yield results:** Three pickings were made, and the fruit weighed for each plot.

Treatment	Rate	Yield at Picking Date*			
		July 14	July 19	July 27	Total
	L/ha	g/plot	g/plot	g/plot	g/plot
1. Control	0	2895 e	3843 c	4497 e	11234 e
2. Amalgerol	4	3914 b	5005 b	7274 b	16193 b (+44%)
3. Organic Vita	0.5	3070 d	4074 c	6006 d	13150 d (+17%)
4. Organic Vita	1	3737 c	4992 b	7025 c	15755 c (+40%)
5. Organic Vita	2	4151 a	5521 a	7764 a	17436 a (+55%)
LSD (P=0.10)		147	283	187	299
CV		4.14	5.08	2.88	2.03
Treatment F		0.0001	0.0001	0.0001	0.0001

\*Means followed by the same letter are not significantly different at P=0.10 according to the Student-Newman-Keuls Test.

### Cucumber Yield, Total



All yield increases were significantly greater than the control, with the following percentages.

Yield Increase Above the Control	
Amalgerol .....	+44%
Organic Vitazyme, 0.5 .....	+17%
Organic Vitazyme, 1 .....	+40%
Organic Vitazyme, 2 .....	+55%

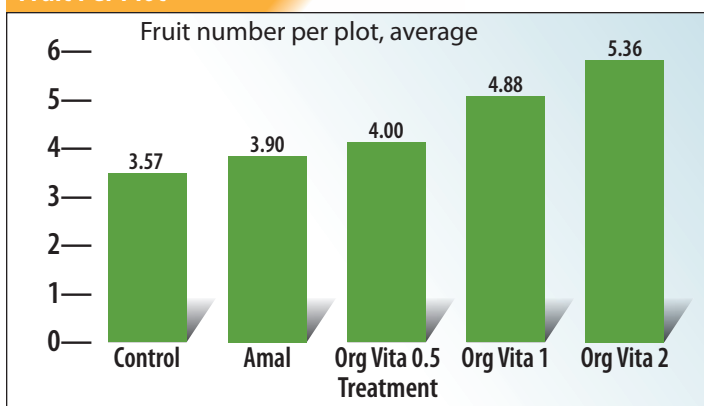
The 2 liter/ha Organic Vitazyme application produced the highest yields, which were significantly greater than any other treatment. Amalgerol and Organic Vitazyme at 1 liter/ha produced similar significant yield increases.

**Fruit per plant results:** Twenty plants were counted, and number/plant was averaged.

Treatment	Rate	Number at Picking Date*			
		July 14	July 19	July 27	Average
	L/ha	number	number	number	number
1. Control	0	3.08 c	3.83 ab	3.81 e	3.57
2. Amalgerol	4	2.88 c	3.77 ab	5.05 d	3.90 (+9%)
3. Organic Vita	0.5	3.09 c	3.30 b	5.61 c	4.00 (+12%)
4. Organic Vita	1	3.77 b	3.73 ab	7.14 b	4.88 (+37%)
5. Organic Vita	2	4.33 a	4.15 a	7.59 a	5.36 (+50%)
LSD (P=0.10)		0.37	0.54	0.30	
CV		10.72	14.36	5.19	
Treatment F		0.0001	0.1488	0.0001	

\*Means followed by the same letter are not significantly different at P=0.10 according to the Student-Newman-Keuls Test.

### Fruit Per Plot



All biostimulant treatments increased the number of fruit, especially the 2 and 1 liter/ha Organic Vitazyme treatments that gave marked increases.

### Increase in Fruit Number Above the Control

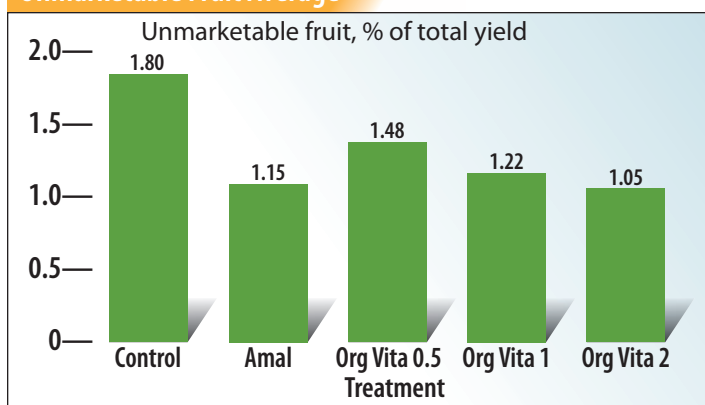
Amalgerol .....	+7%
Organic Vitazyme, 0.5 .....	+12%
Organic Vitazyme, 1 .....	+37%
Organic Vitazyme, 2 .....	+50%

### Unmarketable fruit yield results:

Treatment	Rate	Picking Date*			
		July 14	July 19	July 27	Average
	L/ha	%	%	%	%
1. Control	0	2.06 a	1.72 a	1.62 a	1.80
2. Amalgerol	4	1.30 c	1.21 c	0.94 c	1.15
3. Organic Vita	0.5	1.77 b	1.51 b	1.17 b	1.48
4. Organic Vita	1	1.41 c	1.26 c	0.98 c	1.22
5. Organic Vita	2	1.16 c	1.12 c	0.87 c	1.05
LSD (P=0.10)		0.20	0.19	0.09	
CV		13.22	13.73	8.23	
Treatment F		0.0001	0.0001	0.0001	

\*Means followed by the same letter are not significantly different at P=0.10 according to the Student-Newman-Keuls Test.

## Unmarketable Fruit Average



The unmarketable fruit was least with Organic Vitazyme at 2 liters/ha, followed closely by Amalgerol and Organic Vitazyme at 1 liter/ha; all were significantly greater than the control and lowest Organic Vitazyme rate.

**Plant height results:** Measurements were made for 20 plants from each plot, and averaged.

Treatment	Rate	Height*	
	L/ha	cm	
1. Control	0	138.7 d	
2. Amalgerol	4	142.8 b	(+3%)
3. Organic Vita	0.5	141.3 c	(+2%)
4. Organic Vita	1	143.3 ab	(+3%)
5. Organic Vita	2	144.4 a	(+4%)
LSD (P=0.10)		1.2	
CV		0.82	
Treatment F		0.0001	

\*Means followed by the same letter are not significantly different at P=0.10, according to the Student-Newman-Keuls Test.

While height differences were not great, they were significantly higher than the control for all four biostimulant treatments, especially for Vitazyme at 2 liters/ha, which was significantly greater than all other treatments.

**Leaf chlorophyll results:** Twenty leaves for each plot were measured for chlorophyll with a Minolta SPAD meter, and averaged.

Treatment	Rate	Leaf chlorophyll*	
	L/ha	SPAD units	
1. Control	0	55.42 b	
2. Amalgerol	4	58.05 a	(+5%)
3. Organic Vita	0.5	57.73 a	(+4%)
4. Organic Vita	1	58.07 a	(+5%)
5. Organic Vita	2	58.15 a	(+5%)
LSD (P=0.10)		0.77	
CV		1.34	
Treatment F		0.0001	

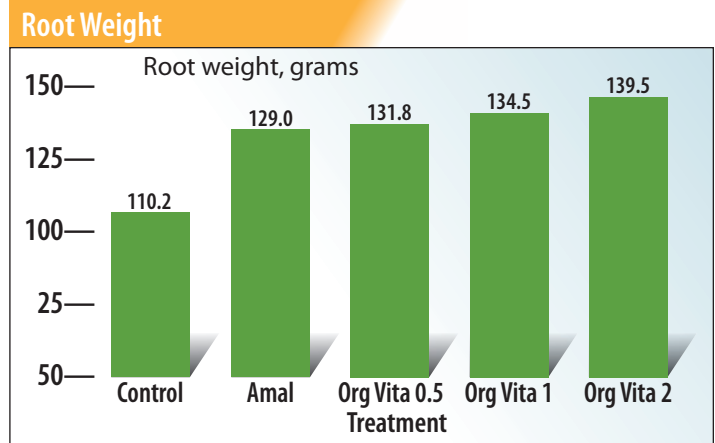
\*Means followed by the same letter are not significantly different at P=0.10, according to the Student-Newman-Keuls Test.

All of the biostimulant treatments increased the leaf chlorophyll level above the control, by 4 to 5%. All of the increases were statistically equal, though Organic Vitazyme at 2 liters/ha gave the greatest increase.

**Root mas results:** The roots from 20 plants of each plot were dug at harvest, and cleaned, weighed, and averaged.

Treatment	Rate	Root Weight*	
	L/ha	grams	
1. Control	0	110.2 b	
2. Amalgerol	4	129.0 a	(+17%)
3. Organic Vita	0.5	131.8 a	(+20%)
4. Organic Vita	1	134.5 a	(+22%)
5. Organic Vita	2	139.5 a	(+27%)
LSD (P=0.10)		11.2	
CV		8.71	
Treatment F		0.0025	

\*Means followed by the same letter are not significantly different at P=0.10, according to the Student-Newman-Keuls Test.



**Increase in root mass with Organic Vitazyme at 2 liters/ha: 27%**

All four treatments were statistically the same in increasing root mass above the control, but the Organic Vitazyme treatment at 2 liters/ha produced the most roots, a 27% increase.

**Conclusions:** A cucumber small-plot study in Hungary, using five treatments and six replications in a randomized complete block design, showed that both Organic Vitazyme at all rates and Amalgerol significantly improved the growth and yield of cucumber plants. The most effective treatment was Organic Vitazyme at 2 liters/ha, which produced the highest levels of crop vigor (+97.5%), crop yield (55%), fruit per plant (50%), height (4%), leaf chlorophyll (5%), root mass (+27%), and the least unmarketable fruit (1.05%). Other Vitazyme treatments also in many cases gave significant increases above the untreated control. Amalgerol at 4 liter/ha was usually the second highest responding treatment across the several parameters measured. Neither product displayed any phytotoxicity to the cucumber leaves.



# Cucumbers with Vitazyme application

**Researchers:** Dr. Alberto M. Garcia Munguia **Research Organization:** University of Aguascalientes, Agricultural Sciences Center, Phytotechniques Department, Jesus Maria, Aguascalientes, 20131, Mexico

**Location:** Municipality of Guasave, Sinaloa State, Mexico **Variety:** Feisty **Planting date:** December 8, 2020

**Experimental design:** A randomized complete block design of cucumbers, using four replications, was situated in a pattern of plots having three beds, each separated by 1.5 meters, the beds being 4.5 meters wide and 5 meters long, giving a total of 22.5 m<sup>2</sup> per plot and 90 m<sup>2</sup> per treatment .

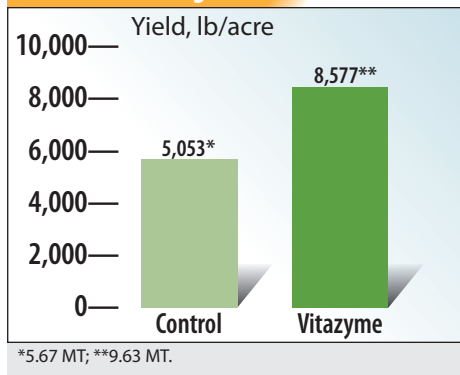
## 1 Control 2 Vitazyme

**Vitazyme application:** Three treatments: (1) 1 liter/ha (13 oz/acre) as a root dip by submerging trays of young plants, until air was released, in 200 liters of water per ha (20 gallons/acre) just before transplanting; (2) 1 liter/ha (13 oz/acre) using 400 liters of water per ha (40 gallons/acre) at three weeks after transplanting and first application; (3) 1 liter/ha (13 oz/acre) as in the second application, three weeks later.

**Fertilization:** unknown but uniform over all areas

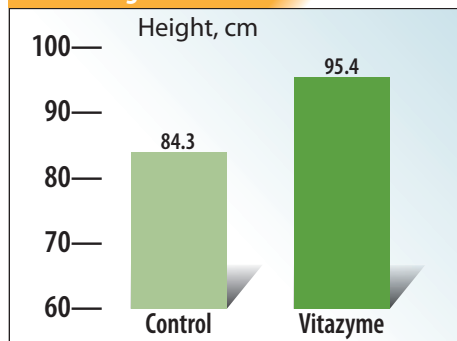
**Results:** All data was compiled by February 2, 2021, 56 days after the first application.

### Yield Per Picking



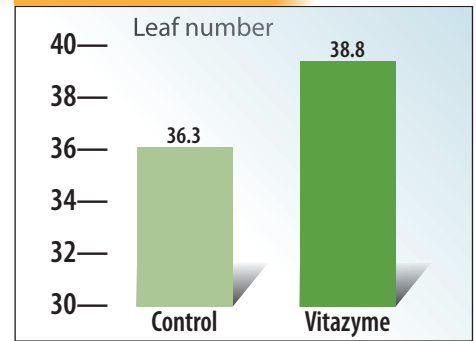
*Yield increase with Vitazyme: 70%*

### Plant Height



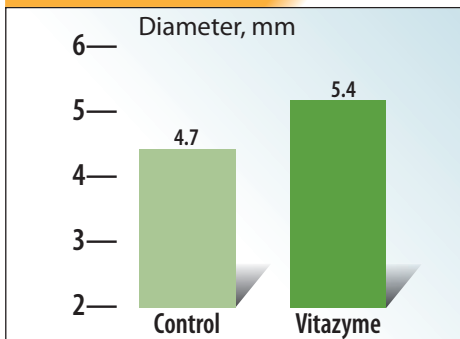
*Height increase with Vitazyme: 13%*

### Leaf Number



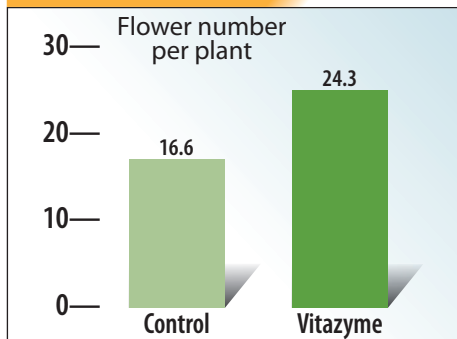
*Leaf number increase with Vitazyme: 7%*

### Stem Diameter



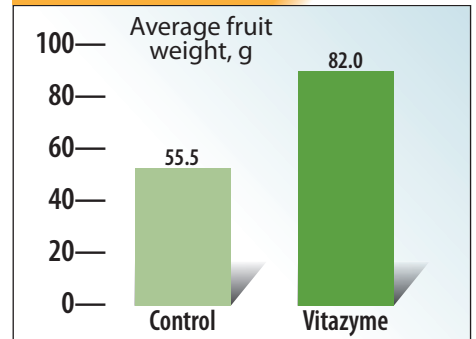
*Stem diameter increase with Vitazyme: 15%*

### Flowers Per Plant

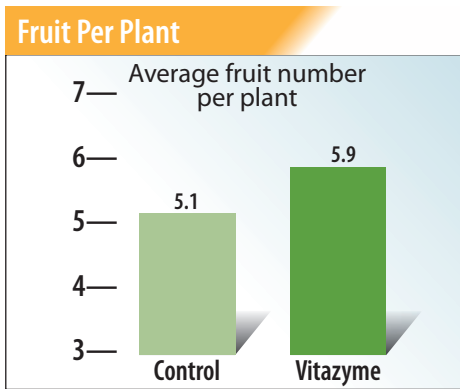


*Flower number increase with Vitazyme: 46%*

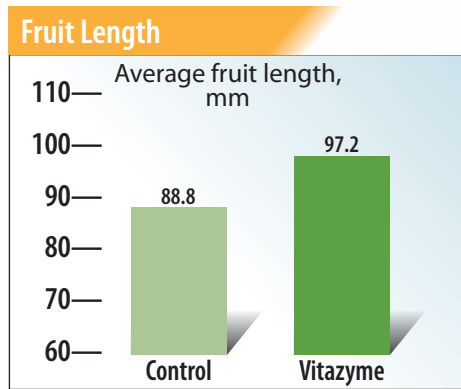
### Fruit Weight



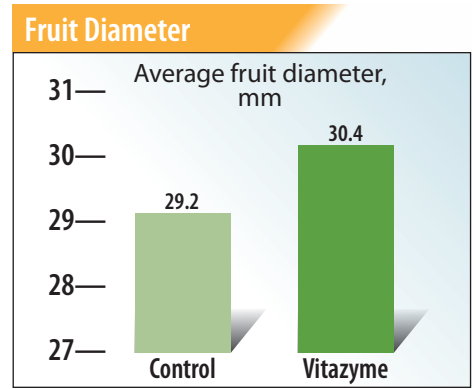
*Fruit weight increase with Vitazyme: 48%*



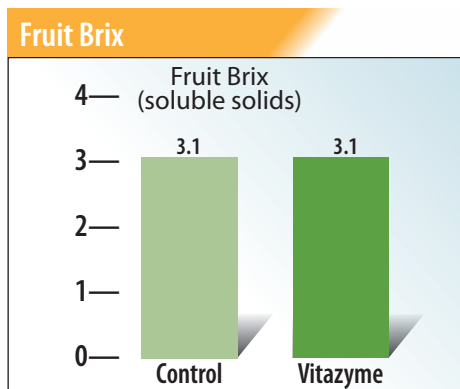
*Fruit number/plant increase with Vitazyme: 16%*



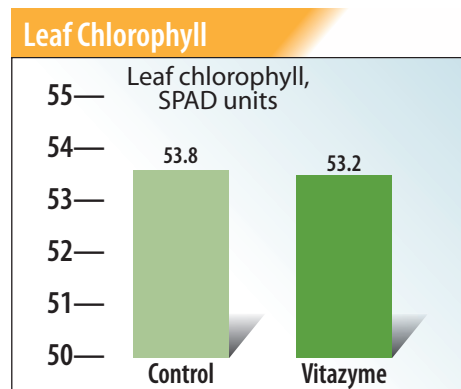
*Fruit length increase with Vitazyme: 9%*



*Fruit diameter increase with Vitazyme: 4%*



*No change*



*Leaf chlorophyll decrease with Vitazyme: 1%*

**Conclusions:** This replicated cucumber study in Sinaloa State, Mexico, proved that Vitazyme applied at transplanting as a tray dip, and soil/foliar twice more during the season at 1 liter/ha (13 oz/acre), had a great impact on plant growth, fruit size, and final yield. The yield was improved by 3,524 lb/acre (3.96 metric tons/ha), or 70%, by Vitazyme, while plant height, leaf number, stem diameter, and flowers per plant were all increased. Fruit parameters such as average weight, fruits per plant, length and diameter were all improved, with fruit weight being a marked 48% greater than the untreated control fruit. Fruit Brix and leaf chlorophyll did not have any significant change between treatments. These results illustrated the great efficacy of Vitazyme for cucumber production in Sinaloa State, Mexico.

## Vital Earth Resources

706 East Broadway, Gladewater, Texas 75647  
(903) 845-2163 FAX: (903) 845-2262

# 2013 Crop Results

## Vitazyme on Cucumbers

Researcher: Alejandro Reyes

Farmer: Victorino Pacheco

Location: Yecapixtla, Mexico

Variety: unknown

Experimental design: A greenhouse cucumber trial compared a Vitazyme treated area with an untreated area to evaluate effects on crop growth and yield.

### 1. Control

### 2. Vitazyme

Fertilization: unknown

Vitazyme application: (1) Seedling trays were dipped in a 1% solution, (2) 20 days after (1), established transplants received a foliar spray; (3) at flowering a third spray was made; (4) a final spray was made after the first picking.

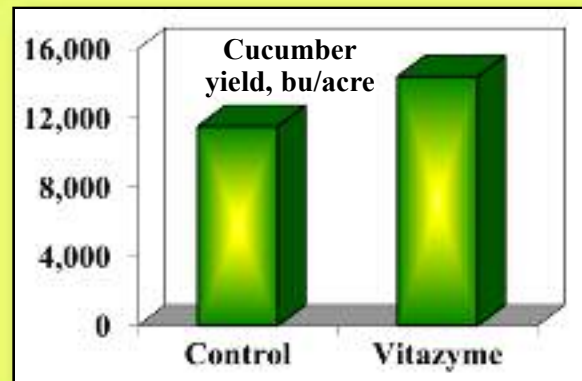
Growth results: An evaluation made in November, 2012, revealed improvements with Vitazyme.

- **Faster overall growth**
- **Better flowering and fruit set**
- **Longer lasting fruit**

Yield results: The Vitazyme treated area yielded 2,880 kg more cucumbers than did the untreated control, a 25% yield increase.

Treatment	Yield kg	Yield change kg
Control	11,520	—
Vitazyme	14,400	2,880 (+25%)

**Increase in yield with  
Vitazyme: 25%**



Conclusions: A Mexican greenhouse cucumber study produced 25% greater yield with Vitazyme applied four times, with the first at the seedling stage and the last after the first picking. Such an excellent response proves the great utility of this product for use in cucumber production in Mexico.



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# 2013 Crop Results

## Vitazyme on Cucumbers

Researcher: Hermilo Sanchez Sanchez, Ph.D.  
of Puebla, San Juan Acateno, Teziutlan, Puebla, Mexico  
Tepalcingo, Morelos, Mexico

Soil type: Pellic vertisol (clayey, dark, high fertility)

Row spacing: 1.0 meter

Experimental design: A cucumber field was selected for a plot area, in a Latin Square design, having four treatments and four replications. Each plot was five row wide and 5 meters long (25 m<sup>2</sup>). The total plot area was 400 m<sup>2</sup> for 16 plots. The purpose of the trial was to determine the effect of a transplant and two foliar Vitazyme treatments on the growth and yield of cucumbers under field conditions.

University location: Autonomous University

Trial location: commercial field at

Variety: Centaur

Planting date: August 13, 2013

Seeding rate: unknown

Treatment	Transplant treatment <sup>1</sup>	Foliar treatment 1 <sup>2</sup>	Foliar treatment 2 <sup>3</sup>
	%	liters/ha	liters/ha
1. Control	0	0	0
2. Vitazyme 1	0.50	0.75	0.75
3. Vitazyme 2	0.75	1.00	1.00
4. Vitazyme 3	1.00	1.25	1.25

<sup>1</sup>Roots were dipped in Vitazyme solutions of these percentages.

<sup>2</sup>Applied 20 to 30 days after transplanting.

<sup>3</sup>Applied at early flowering.

Fertilization: unknown

Vitazyme application: (1) Transplants were dipped in the appropriate Vitazyme dilution just before planting; (2) leaves and soil were sprayed at 1 liter/ha with a backpack sprayer 20 to 30 days after transplanting; (3) leaves were sprayed at 1 liter/ha with a backpack sprayer at early bloom.

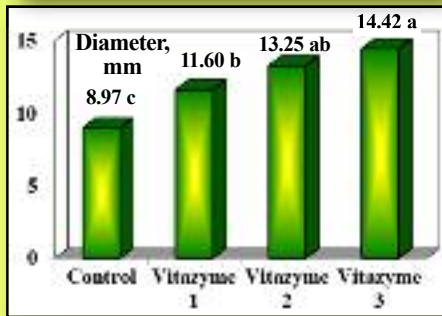
White fly control: Confidor 350 SC

Fungi control: *Pseudoperonospora cubensis* was controlled with Manzate 200.

Statistical evaluations: The Statistical Analysis System (SAS) was used, along with Tukey's Test, to evaluate differences among treatment means, at P = 0.05.

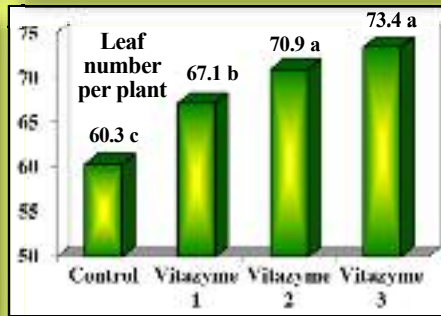
*Growth and flowering results:*

**Stem Diameter<sup>1</sup>**



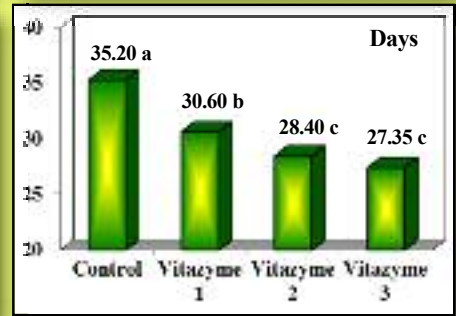
<sup>1</sup>Measured at ground level 45 days after transplanting for 10 random plants per plot; results are averaged.

**Leaves Per Plant<sup>1</sup>**



<sup>1</sup>Leaves of five typical plants were counted for each plot, and averaged.

**Days to Flowering<sup>1</sup>**



<sup>1</sup>Days from emergence to flowering of 10% of the plants.

**Increase in Stem Diameter**

**Vitazyme 1 ..... +29%**  
**Vitazyme 2 ..... +48%**  
**Vitazyme 3 ..... +61%**

The diameter of the stems increased a remarkable 61% with the highest Vitazyme rate, and all increases were significant.

**Increase in Leaves/Plant**

**Vitazyme 1 ..... +11%**  
**Vitazyme 2 ..... +18%**  
**Vitazyme 3 ..... +22%**

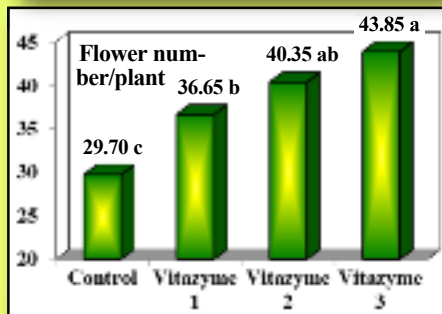
Leaves per plant progressively increased as Vitazyme applications increased, up to 22%.

**Decrease in Days to Flowering**

**Vitazyme 1 ... 4.60 days**  
**Vitazyme 2 ... 6.80 days**  
**Vitazyme 3 ... 7.85 days**

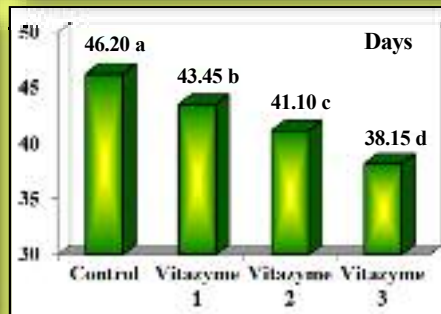
Days to flowering decreased significantly by nearly 8 days with the highest rate of Vitazyme.

**Flowers Per Plant<sup>1</sup>**



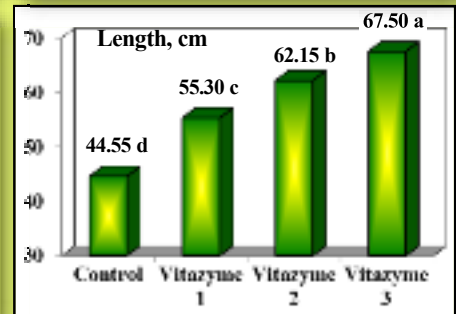
<sup>1</sup>The average of 10 random plants per plot, at 20% of total flowering for 10 randomly selected plants.

**Days to Fruit Set<sup>1</sup>**



<sup>1</sup>Number of days from emergence to the set of 10% of the crop.

**Root Length<sup>1</sup>**



<sup>1</sup>Five random plants were dug per plot after yield evaluations, and the root lengths were averaged.

**Increase in Flowers/Plant**

**Vitazyme 1 ..... +23%**  
**Vitazyme 2 ..... +36%**  
**Vitazyme 3 ..... +48%**

Flowers per plant at 20% bloom increased significantly with the rate of application, reaching up to 48%.

**Decrease in Days to Fruit Set**

**Vitazyme 1 ... 2.75 days**  
**Vitazyme 2 ... 5.10 days**  
**Vitazyme 3 ... 8.05 days**

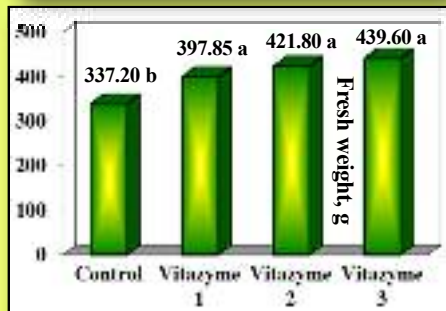
Vitazyme improved the rate of maturity, the highest rate significantly reducing the time to fruit set by over 8 days!

**Increase in Root Length**

**Vitazyme 1 ..... +24%**  
**Vitazyme 2 ..... +40%**  
**Vitazyme 3 ..... +52%**

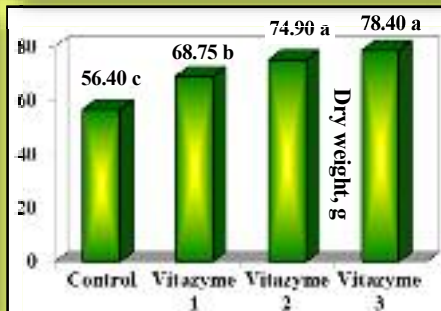
Root length increased proportionally and significantly with increasing Vitazyme rate, reaching 52% greater root length.

### Plant Fresh Weight<sup>1</sup>



<sup>1</sup>Five typical plants were selected for each plot, cut off at the base, and weighed, then averaged.

### Plant Dry Weight<sup>1</sup>



<sup>1</sup>The five plants for each plot were dried in a drying oven, and the plants were then weighed and averaged.

### Increase in Fresh Weight

**Vitazyme 1 ..... +18%**  
**Vitazyme 2 ..... +25%**  
**Vitazyme 3 ..... +30%**

With increasing Vitazyme rate, the plant fresh weight increased significantly, reaching 30% more mass at the high rate.

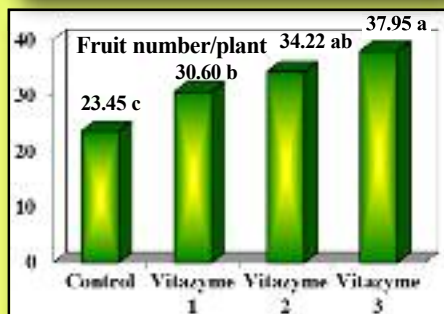
### Increase in Dry Weight

**Vitazyme 1 ..... +22%**  
**Vitazyme 2 ..... +33%**  
**Vitazyme 3 ..... +39%**

Plant dry weight reflected the fresh weight, the highest Vitazyme rate increasing dry mass by 39%.

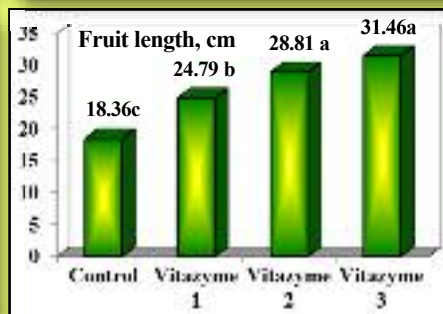
### Fruit results:

#### Fruits Per Plant<sup>1</sup>



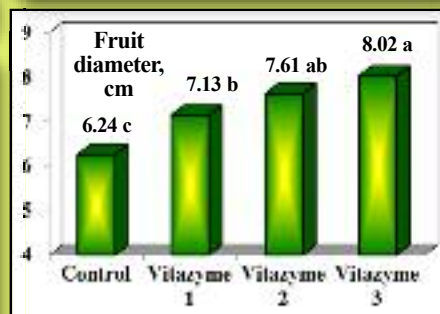
<sup>1</sup>The total fruit number of five randomly selected plants from each plot were counted, and then averaged.

#### Fruit Length<sup>1</sup>



<sup>1</sup>Five fruits of the first floral internodes of five plants were selected, and the lengths were measured and averaged.

#### Fruit Diameter<sup>1</sup>



<sup>1</sup>The same five fruits from the first floral internodes of five plants were measured for diameter, and the results were averaged.

### Increase in Fruits/Plant

**Vitazyme 1 ..... +30%**  
**Vitazyme 2 ..... +46%**  
**Vitazyme 3 ..... +62%**

There was a great and significant increase in fruits per plant, the highest Vitazyme rate increasing the number by an amazing 62%.

### Increase in Fruit Length

**Vitazyme 1 ..... +35%**  
**Vitazyme 2 ..... +60%**  
**Vitazyme 3 ..... +71%**

Fruit length was improved proportionally and significantly as the Vitazyme rate increased, the length improved by 35 to 71%

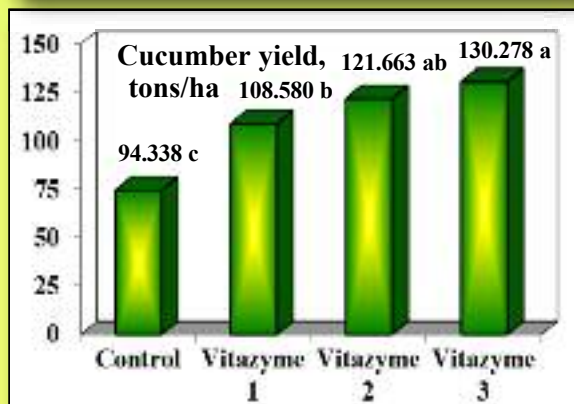
### Increase in Fruit Diameter

**Vitazyme 1 ..... +14%**  
**Vitazyme 2 ..... +22%**  
**Vitazyme 3 ..... +29%**

Fruit diameter increased significantly at all levels of Vitazyme application, but not as greatly as the length. The highest level improved the diameter by 29%.

*Cucumber yield results:* Yields were compiled 20 days after the first ripe fruits were detected, by counting fruit numbers and weights. Values were converted to yields per hectare.

### Cucumber Yield



### Yield Increase with Vitazyme

<b>Vitazyme 1</b>	<b>15%</b>
<b>Vitazyme 2</b>	<b>29%</b>
<b>Vitazyme 3</b>	<b>38%</b>

All yield increases were significant at  $P = 0.05$ , with the yield increasing from 15% of the control at the low Vitazyme rate to 38% above the control at the high rate.

### Fruit quality results:

Treatment	Soluble solids	N	P	K	Ca	Mg	Mn	Zn	S
	Brix	%	%	%	%	%	ppm	ppm	ppm
Control	2.75 c	3.75 c	0.27 c	1.70 c	0.33 c	0.16 c	25.5 b	44.75 c	275.5 b
Vitazyme 1	3.36 b	4.62 b	0.34 b	2.22 b	0.42 b	0.25 b	29.7 ab	56.25 b	323.7 ab
Vitazyme 2	3.72 a	5.02 ab	0.38 ab	2.62 ab	0.49 ab	0.29 ab	33.0 ab	62.00 ab	367.2 ab
Vitazyme 3	2.94 a	5.30 a	0.40 a	2.95 a	0.56 a	0.31 a	36.0 a	65.25 a	394.5 a

In all cases, the quality parameters were significantly increased with Vitazyme application at the highest level (Vitazyme 3). Sugars increased up to 43%, and the increases were significant at all three application levels. Manganese and sulfur increased the least, but even they showed substantial improvements. Crop quality was markedly enhanced by Vitazyme application.

*Conclusions:* The following conclusions are from the original Mexican report.

1. After applying Vitazyme at rates of 0.5, 0.75, and 1.0% as a pre-transplanting root dip, and 0.75, 1.0, and 1.25 L/ha, respectively, as two foliar sprays, treated cucumber plants showed significant effects on variables of growth and development. It positively influences the number of flowers per plant, there is shortening in the number of days to flowering and to fruit set, as well as higher yields.
2. With regards to the variables of quality of fruits, the rates of Vitazyme at 0.5, 0.75, and 1.0% in pre-transplanting root dip and 0.75, 1.0, and 1.25 L/ha, respectively, in two foliar sprays produced in treated plants a larger size of fruits, as well as an increase in the total concentration of soluble solids.
3. Likewise, when Vitazyme is applied, a greater concentration of macro and micronutrients is detected both in the plant and in the fruit, registering a greater effect with higher dosages of Vitazyme.
4. The evaluated dosages of Vitazyme demonstrated significant statistical differences in comparison with the untreated control, in the variables evaluated in this study.
5. There were no toxic effects to the crop of cucumber, after applying rates of Vitazyme of 0.5, 0.75, and 1.0% as a pre-transplant root dip, and 0.75, 1.0, and 1.25 L/ha as foliar sprays, respectively.

## Vital Earth Resources

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# 2006 Crop Results

## Vitazyme on Cucumbers

Researcher: unknown

Location: Ukraine

Variety: unknown

Planting date: unknown

Planting rate: unknown

Experimental design: A cucumber area ("Area 10") was divided into two parts, each 1 hectare, one treated with Vitazyme and the other left untreated. The objective was to evaluate the effects of the product on cucumber yield.

### 1. Control

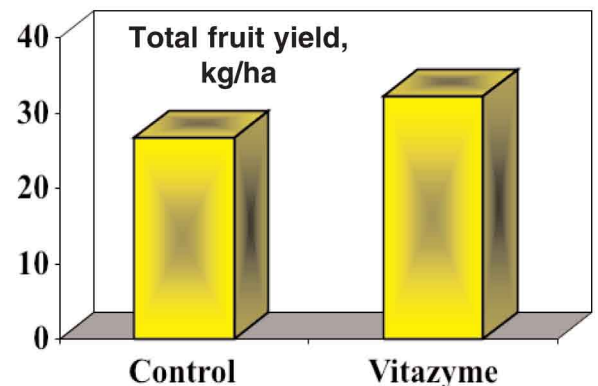
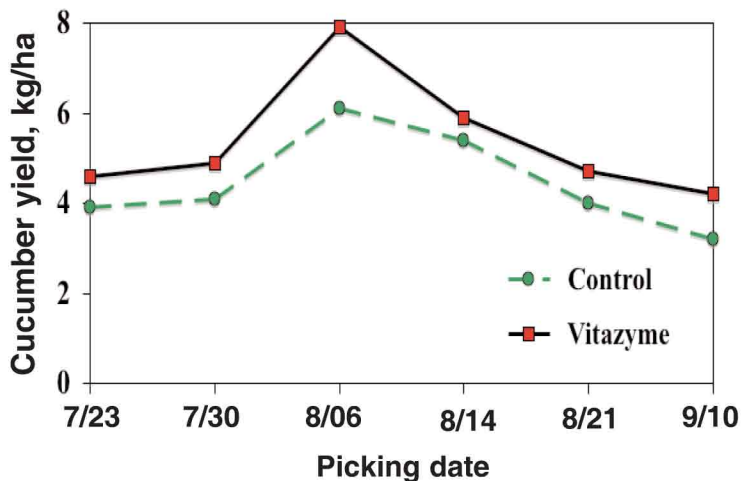
### 2. Vitazyme

Fertilization: unknown

Vitazyme application: 1 liter/ha on the leaves and soil, at unknown dates

Yield results:

Treatment	7/23	7/30	8/06	8/14	8/21	9/10	Total	Change	
	----- kg/ha -----								
Control	3.9	4.1	6.1	5.4	4.0	3.2	26.7	—	
Vitazyme	4.6	4.9	7.9	5.9	4.7	4.2	32.2	5.5 (+21%)	



**increase in cucumber yield with Vitazyme: 21%**

Conclusions: In this Vitazyme test in the Ukraine, cucumber yield was improved uniformly throughout the 48-day harvest period, to give a total yield enhancement of 21%.

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# 2006 Crop Results

## Vitazyme on Cucumbers

Researchers: Eng. Wilberto Gonzalez, and Eng. Jorge Gonzalez, Camilo Cienfuegos, Agricultural Enterprise

Location: Villena Farm of Camilo Cienfuegos Agricultural Enterprise, Havana Province, Cuba

Variety: unknown

Soil type: red ferralitic

Planting date: late 2005 to early 2006

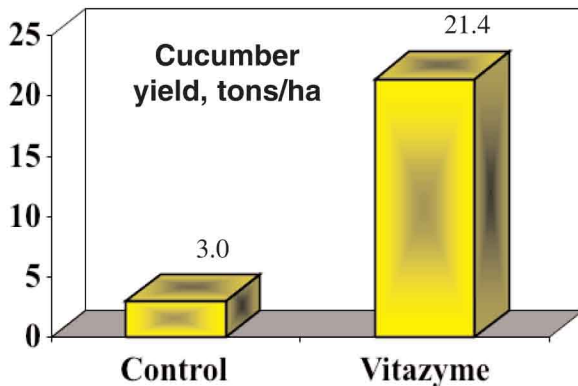
Experimental design: A commercial production trial involved a split field area of 0.013 ha treated and 1.0 ha untreated with Vitazyme at Villena Farm.

### 1. Control

### 2. Vitazyme

Fertilization: unknown

Vitazyme applications: 1.0 liter/ha on the leaves and soil twice, separated by 30 days



**Increase in cucumber  
yield: 613%**

Conclusions: This commercial cucumber trial in Cuba revealed the great ability of Vitazyme to increase cucumber production, with a more than six-fold yield increase.

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# 2000 Crop Results

# Vitazyme on Cucumbers

## Caribbean Chemicals International

Agronomist: Fayaz Shah

Location: Aranguez, Trinidad, West Indies

Variety: Atlantis

Planting date: February 15, 2000

Harvest date: March 21, 2000

Experimental design: Two plots were prepared for this study, each 100 x 20 feet, one untreated and the other Vitazyme treated.

### 1. Control

### 2. Vitazyme

Fertility treatments: unknown

Vitazyme treatments: Three treatments were applied, at 30 ml/gallon (1%, or 3.22 liters/ha), spaced 2 to 3 weeks apart.

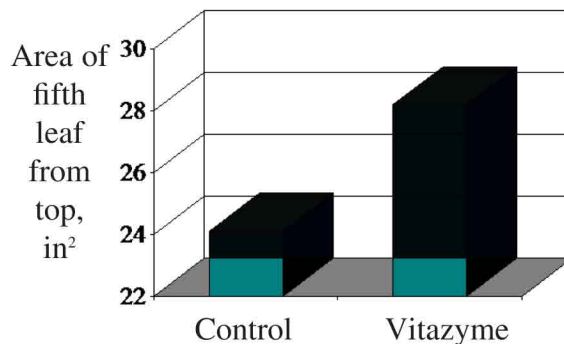
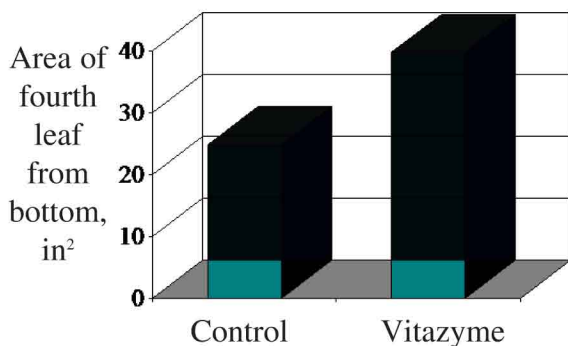
Growth results: Two sets of leaves were chosen from each treatment, one set from 10 randomly selected plants which was the fourth leaf from the root, and another set which was the fifth leaf from the growing point. Then the area of each leaf was calculated.

Treatment	Leaf area, fourth from bottom -----in <sup>2</sup> /leaf-----	Increase
Control	24.8 b	--
Vitazyme	39.8 a	15.0 (+60%)

Means followed by the same letters are not significantly different at P = 0.05. LSD<sub>0.05</sub> = 9.7.

Treatment	Leaf area, fifth from top -----in <sup>2</sup> /leaf-----	Increase
Control	24.1 b	--
Vitazyme	28.2 a	4.1 (+17%)

Means followed by the same letter are not different at P = 0.07. LSD<sub>0.05</sub> = 5.1.

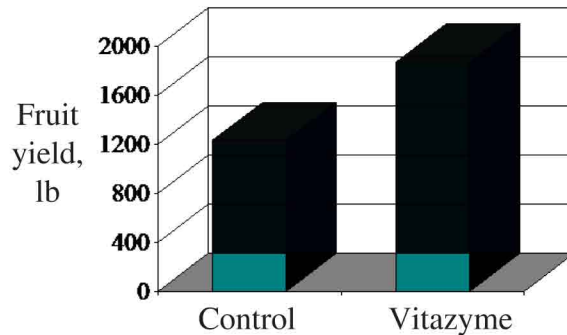


Yield results: Cucumbers were harvested and tabulated from the respective plots on March 21, 23, 25, 27, 29, and 31, and April 2 and 4, 2000. **The treated cucumbers ...**

- (a) ... were more uniform in size than the untreated ones.
- (b) ... had less rejected fruit than the untreated plot.

<u>Treatment</u>	<u>Cucumber yield, lb</u>	<u>Increase, lb</u>
Control	1,232	--
Vitazyme	1,868	636 (+52%)

***Yield increase: 52%***



***Conclusions:*** Vitazyme produced much greater leaf size (60%) in this cucumber test than did the control treatment. This larger leaf size translated into greater yield later during this study, when Vitazyme displayed a 52% increase of higher quality fruit.