Eggplant *with Vitazyme application*

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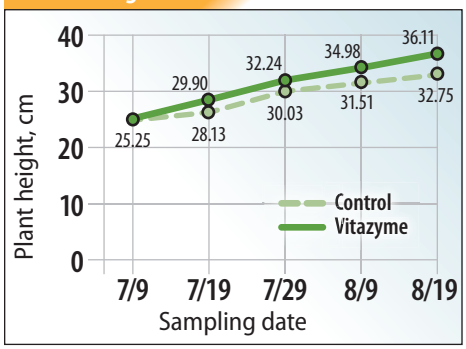
Research Organization: Vinnytsia State Pedagogical University, Ministry of Education and Science of Ukraine, Vinnytsia, Ukraine
Location: "Berzhan P. G.", Horbanovka Village, Vinnytsia District, Ukraine
Variety: Diamond
Planting rate: 33,000/ha
Planting date: March 3, 2015, in hot frames
Seedling planting date: May 12, 2015
Soil type: gray podzolic; humus = 2.2%, hydrolyzed N = 8.4 mg/100 g of soil, P = 15.8 mg/100 g of soil, exchangable K = 12.4 mg/100 g of soil, pH = 5.5
Replications: 5
Experimental design: An area of 33 m^2 per plot was selected from a uniform soil area to treat with Vitazyme one time, in order to evaluate the effect of this product on growth parameters and yield.
Fertilization: a mineral fertilizer giving 50, 40, and 30 kg/ha of N-$P_2 0_5$-$K_2 0$
Vitazyme application: 1 liter/ha with a backpack sprayer the morning of June 17, 2015; control plants were sprinkled with water only at the same time
Growth results:

Eggplant fruit treated with Vitazyme tend to be larger and of higher quality that their untreated counterparts.

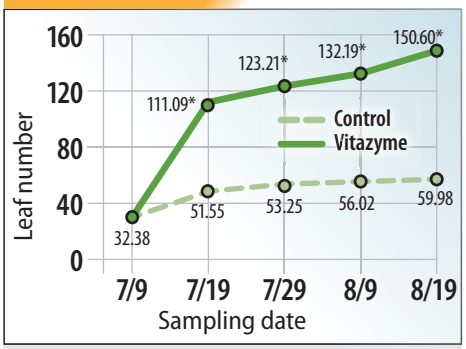
Plant Height



Increase in plant height with Vitazyme

7/19/15 .....+6%
7/29/15 .....+7%
8/9/15 .....+11%
8/19/15 .....+10%

Leaves Per Plant

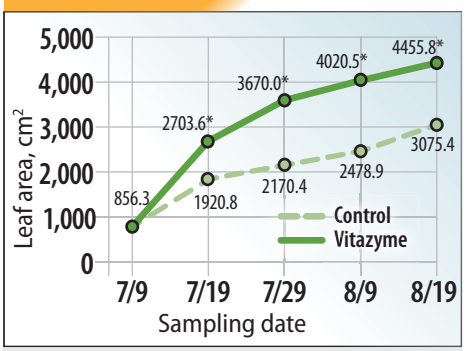


*Significantly greater than the control at P=0.05.

Increase in leaves/plant with Vitazyme

7/19/15.....+115%
7/29/15 .....+137%
8/9/15 .....+136%
8/19/15 .....+151%

Leaf Area Per Plant[1]

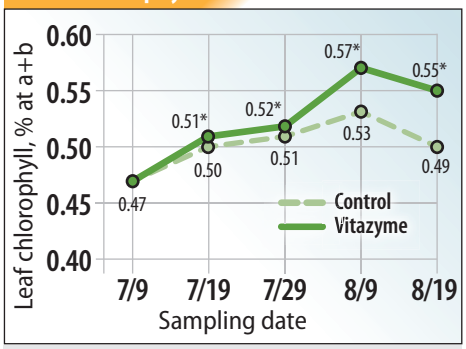


*Significantly greater than the control at P=0.05.
[1]Calculated as follows: $S=\frac{(n)(m_1)(S_v)}{m_2}$, and $S_v=\pi r^2$, where S= leaf area (cm^2), n= leaf number, m_1= leaf weight (g), m_2= cutting weight (g), S_v= cutting area (cm^2), π=3.14, and r= cutting radius (cm).

Increase in leaf area with Vitazyme

7/19/15.....+41%
7/29/15 .....+69%
8/9/15 .....+62%
8/19/15 .....+45%

Leaf chlorophyll



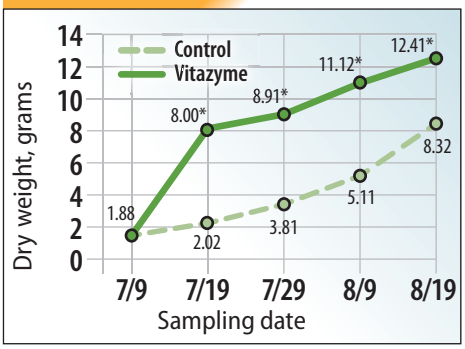
*Significantly greater than the control at P=0.05.
[1]Calculated as follows: $X=\frac{(C)\ (V)\ (100)}{(P)\ (1000)}$, where X=pigment content (% per leaf, net weight), C=pigment concentration (mg/liter), V=extract volume (ml), and P=weight of plant material (mg).

Increase in leaf chlorophyll with Vitazyme

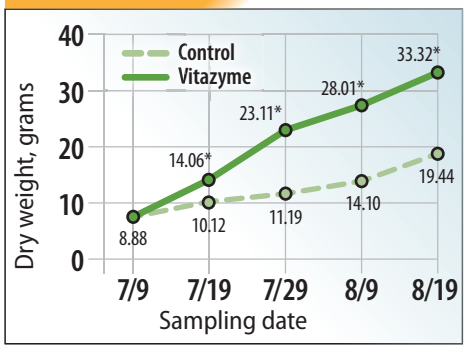
7/19/15.....+2%
7/29/15 .....+2%
8/9/15 .....+8%
8/19/15 .....+12%

Plant Organ Dry Weights

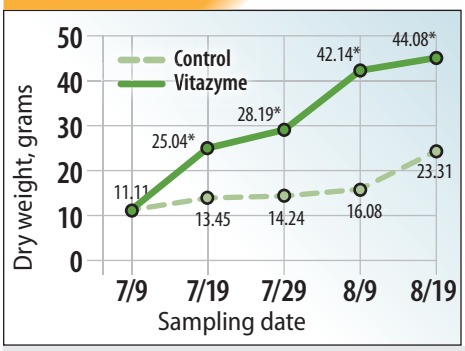
Roots



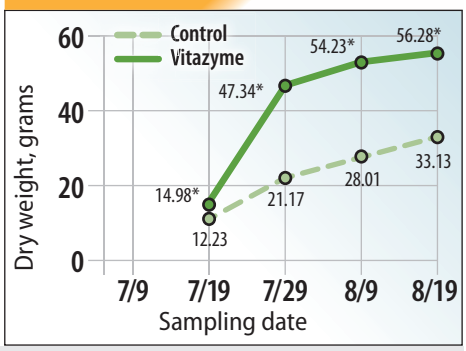
Stems



Leaves



Fruit



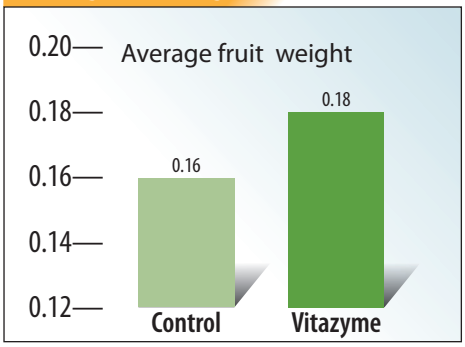
*Significantly greater than the control at P=0.05.

Economic results: An analysis of many factors was made to determine the profitability of the Vitazyme application. Costs included tillage, oil and fuel, harrowing, cultivation, fertilizers, planting, seedlings, rent, watering, product applications, trucking, and harvesting.

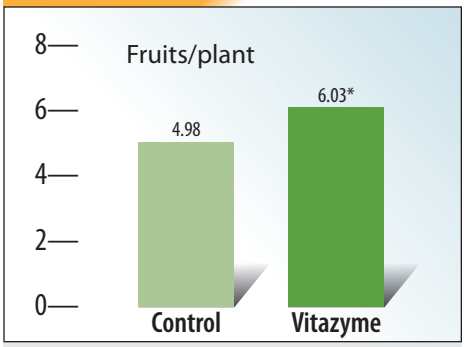
Conclusions: An eggplant experiment in Ukraine, using a single 1 liter/ha Vitazyme spray application, produced excellent yield responses. Yield increased by an excellent 40%, with profit rising by 47% as well. These great increases resulted from increased growth responses of total leaves (115 to 151%), leaf area per plant (41 to 69%), and leaf chlorophyll (2 to 12%). As a result, plant roots, stems, leaves, and fruit were uniformly and significantly improved above the untreated controls at all four evaluation dates. The resulting fruit weight, fruits per plant, and fruit weight per plant led to the increased yield and profitablity. This program shows great potential to improve eggplant productivity in Ukraine.

Yield results:

Average Fruit Weight

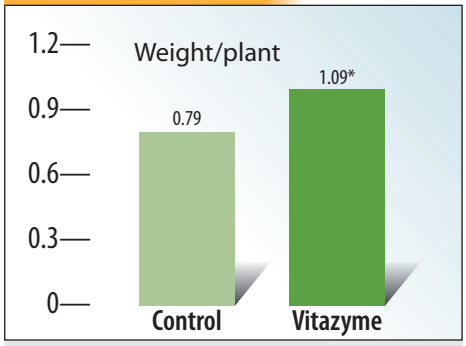


Fruits Per Plant



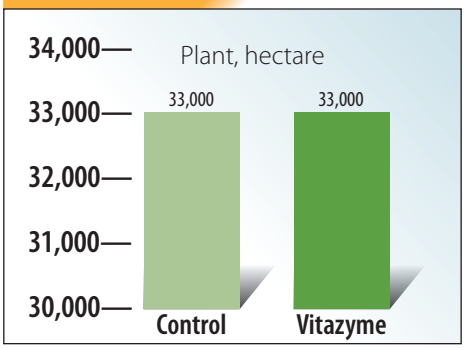
*Significantly greater than the control at P=0.05.

Fruit Weight Per Plant

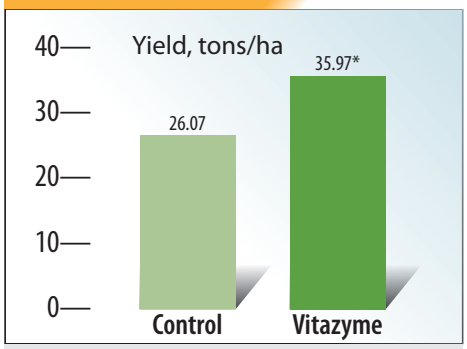


*Significantly greater than the control at P=0.05.

Plant Per Hectare



Fruit Yield



*Significantly greater than the control at P=0.05.

Treatment	Net profit	Profit increase
	UAH/ha	UAH/ha
Control	145,627.13	—
Vitazyme	214,447.13	68,820.00

Increase in net profit with Vitazyme: 47%

Increase with Vitazyme

Average fruit weight...+13%
Fruits/plant .....+21%
Fresh weight/plant.....+40%
Fruit yield .....+40%

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2004 Crop Results

Vitazyme on Eggplant

Researchers: Isel Creach Rodriguez, Ph.D.
Location: Santiago de Cuba Experiment Station, Dos Rios, Palma Soriana, Santiago de Cuba
Variety: unknown *Soil type*: Leptic haplustert *Planting date*: late 2003
Experimental design: An area of 10 m^2 for each treatment was used to evaluate the growth of eggplants, and then a yield estimate was made based on those growth parameters. Each plot had 50 plants. A Vitazyme and a control treatment were used.

1. Control **2. Vitazyme**

Fertilization: unknown, but based on soil tests and recommendations
Vitazyme application: 1 liter/ha (13 oz/acre) on December 22, 2003, and January 22, 2004
Growth results: Plants were evaluated on January 21, February 3, and February 9, 2004, for the various growth parameters that follow using random sampling of plants and leaves. The experimental design for this study is unknown, so only basic statistics have been calculated.

Plant Height

January 21, 2004

Sample	Control	Vitazyme
	cm	cm
1	29	37
2	28	34
3	27	35
4	28	34
5	29	35
6	30	36
7	29	34
8	34	35
9	31	37
10	29	36
Mean	29.4	35.3 (+20%)

Increase in plant height: 20%

February 9, 2004

Sample	Control	Vitazyme
	cm	cm
1	45	58
2	42	57
3	44	60
4	48	58
5	49	59
6	47	57
7	48	59
8	47	55
9	45	56
10	48	57
Mean	46.3	57.6 (+24%)

Increase in plant height: 24%

Leaf Area (February 3, 2004)

Control

Sample	Length	Width			Mean Leaf
		Lobe 1	Lobe 2	width	area
	cm				cm^2
1	15.5	11.5	12.0	11.8	182.1
2	18.0	14.5	12.0	13.3	238.5
3	19.5	16.0	10.5	13.3	258.4
4	16.5	14.0	11.5	12.8	210.4
5	17.4	12.0	13.5	12.8	221.8
6	19.0	16.0	15.4	15.7	298.3
7	17.0	14.7	13.0	13.9	235.4
8	17.0	10.0	12.5	11.3	191.2
9	19.0	14.0	15.0	14.5	275.5
10	20.0	9.5	11.5	10.5	126.0
Mean	17.9	13.2	12.7	13.0	223.8

Vitazyme

Sample	Length	Width		Mean width	Leaf area
		Lobe 1	Lobe 2		
	cm				cm^2
1	20.0	21.0	15.5	18.2	364.0
2	21.5	16.0	12.5	14.2	305.3
3	19.5	18.0	14.0	16.0	312.0
4	18.3	18.5	15.0	16.7	305.6
5	20.0	17.0	15.5	16.2	324.0
6	19.4	19.5	12.4	15.9	308.5
7	20.2	16.0	16.0	16.0	323.2
8	18.5	16.0	11.0	13.5	249.7
9	19.5	19.3	15.4	17.3	337.3
10	20.2	16.3	14.8	15.6	-
Mean	19.7	17.8	14.2	16.0	314.4

Increase in leaf area: 40%

Yield results (estimated): A formula was used to calculate estimated fruit weight and final yield of the eggplant crop, based upon previous field studies.

Parameter	Control	Vitazyme
Fruit weight	200g	400g
Fruit yield*	40kg/plot	80 kg/plot

*Based on 50 plants per plot and four fruits per plant

Conclusions: This eggplant study in Cuba proved that Vitazyme is an excellent stimulator of plant growth and development when applied twice during the growing season. Plant height was increased by 20 to 40%, and leaf area by 40%, with Vitazyme, leading to a doubling of estimated eggplant yield.