

## Vital Earth Resources

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

# 2002 Crop Results

## Vitazyme on Roses

Researcher: Grace Vimos

Research Organization: Summer Zone, Quito, Ecuador

Research cooperator: Jorge Lopez

Location: Agroflora, Pichincha, Tabacundo, Ecuador

Variety: Peckcoubo

Soil type: clayey

Growth stage: mature

Experimental design: The products Vitazyme, Stimplex (seaweed), and Huma K (humic acid) were combined in a program to treat roses. An area in a greenhouse of 640 m<sup>2</sup> was divided into two parts of 340 m<sup>2</sup> (control) and 300 m<sup>2</sup> (treated). There were 10 beds of 34 m<sup>2</sup> each in the control area, and 10 beds of 30 m<sup>2</sup> in the treated area. Ten plants per bed were evaluated for growth parameters at both the initial date and 56 days later, while production was measure for the first four months after treatment.

### 1. Control

### 2. Vitazyme/Stimplex/Huma K

Vitazyme/Stimplex/Huma K applications: For each 10 beds for a treatment the following formula was used:

Water – 160 liters      Vitazyme – 15.5 ml      Stimplex – 160 ml      Huma K – 6.8 g

Fertilization: unknown

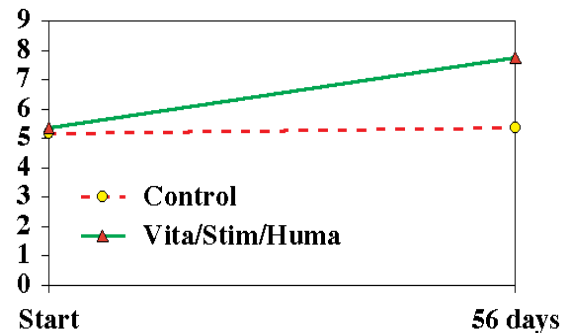
Growth results: The trial was initiated on February 13, 2002, at which time evaluations were made for basal stems, root growth, leaf area, plant health, bud length, and flower characteristics (stem length, and blossom length and width). Evaluations were again made 56 days later, on April 10, to note changes in these parameters. Basal stems showed no response, so that data is not included here.

### Root Growth

Treatment	At initiation*	At 56 days*	Change
----- Average root rating per plant -----			
Control	5.16	5.36	+0.20
Vita/Stim/Hum	5.38	7.74	+2.36

\*Root ratings: 1 to 10, 1 being worst and 10 being best; average of 50 plants.

**Increase in root rating: 2.16**



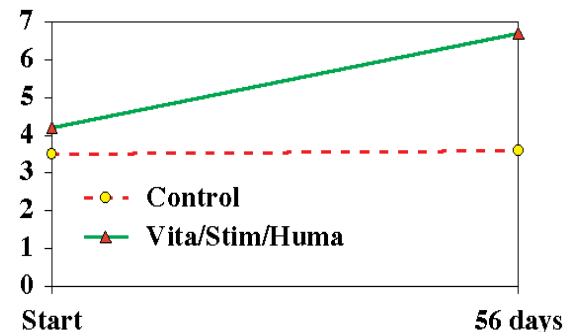
Despite less irrigation water for the treated portion of the test, root growth was considerably greater than the better watered control. **The treated roses also developed better secondary roots and root hairs.**

### Leaf Area

Treatment	At initiation*	At 56 days*	Change
----- Average leaf area rating per plant -----			
Control	3.5	3.6	+0.1
Vita/Stim/Hum	4.2	6.7	+2.5

\*Leaf area ratings: 1 to 10, 1 being worst and 10 being best; average of 50 plants.

**Increase in leaf rating: 2.4**



Vitazyme Treatment greatly increased leaf area of the roses, and caused them to be **noticeably greener and shinier.**

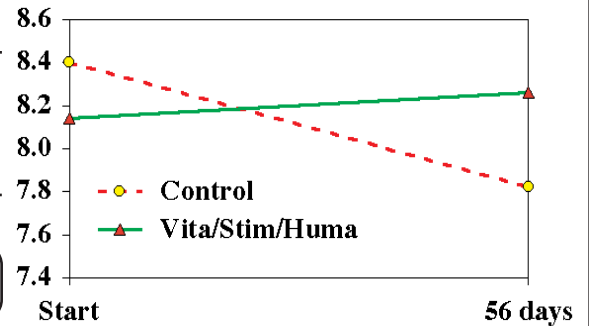
### Plant Health

Treatment	At initiation*	At 56 days*	Change
----- Average health rating per plant -----			
Control	8.40	7.82	- 0.58
Vita/Stim/Hum	8.14	8.26	+0.12

\*Plant health ratings: 1 to 10, 1 being worst and 10 being best; average of 50 plants.

**Increase in plant health rating: 0.70**

While the control roses decreased somewhat in health status, the Vitazyme treated plants were slightly healthier, showing less disease incidence than at the beginning of the test.



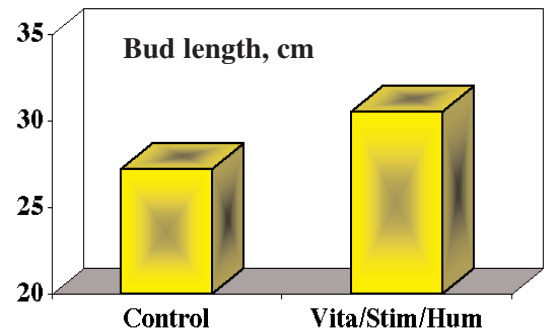
### Bud Length

Treatment	At initiation*	At 56 days	Change
----- cm -----			
Control	—	27.2	—
Vita/Stim/Hum	—	30.5	+3.3 (+12%)

\*No data were collected

**Increase in bud length: 12%**

Measurements of bud length were made only at 56 days after treatment. At this time the treated roses had longer buds than the control plants.



### Flower Stem Length

Treatment	At 56 days*	Change
----- cm -----		
Control	80	—
Vita/Stim/Hum	80	0

No changes in stem length were observed with Vitazyme treatment.

\*Average of 15 plants for each treatment

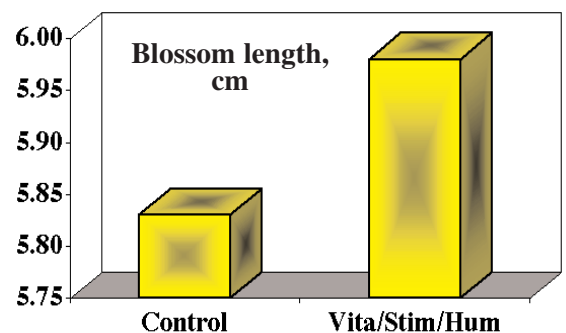
### Blossom Length

Treatment	At 56 days*	Change
----- cm -----		
Control	5.83	—
Vita/Stim/Hum	5.98	+0.15 (+3%)

\*Average of 15 plants for each treatment

**Increase in blossom length: 3%**

The blossom length was increased by 3% over the control with Vitazyme application.



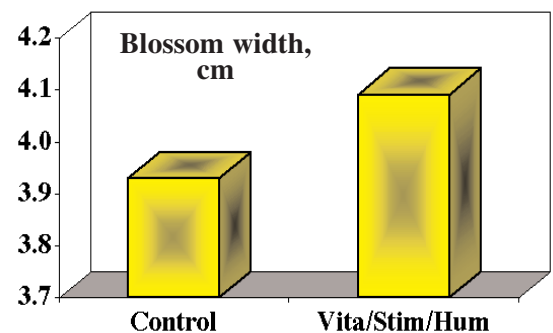
### Blossom Width

Treatment	At 56 days*	Change
----- cm -----		
Control	3.93	—
Vita/Stim/Hum	4.09	+0.16 (+4%)

\*Average of 15 plants for each treatment

**Increase in blossom width: 4%**

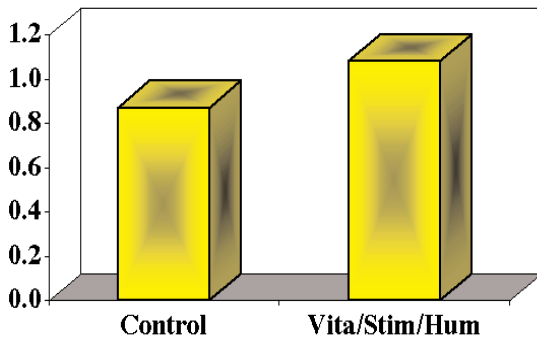
Vitazyme increased the width of the rose blossoms by 4%, about the same as for the blossom length.



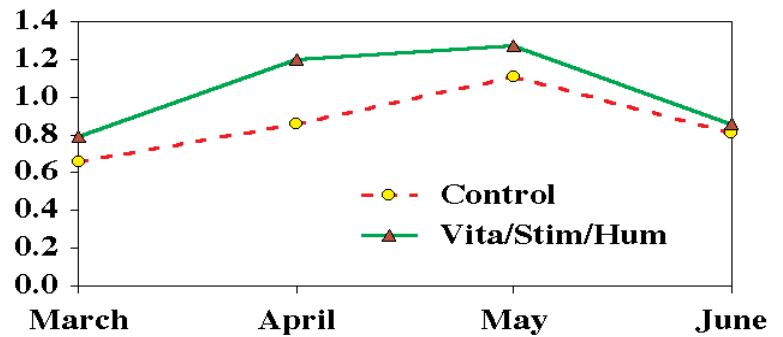
**Production results:** A record was made of the cut flowers harvested for a period of three months, starting in mid-March and continuing through mid-June. The harvested totals for the four months were divided by the number of plants for the two harvested areas: 354 plants for the treated area and 446 plants for the control area. These values were then divided by 4 to give the harvested flowers per month per plant.

Treatment	Flower production per plant				Total flowers for 3 months
	March	April	May	June	
	----- flower number/plant -----				flower number/plant/month
Control	0.66	0.86	1.11	0.81	0.87
Vita/Stim/Hum	0.79	1.20	1.27	0.86	1.08
Change	+0.13	+0.34	+0.16	+0.05	+0.21 (+24%)

**Average Flowers Per Plant Per Month**



**Flowers Per Plant Per Month**



**Increase in flowers per plant: 24%**

Vitazyme plus Stimplex and Huma K increased the production of flowers for each plant each month by 24% above the control over the three-month period of this trial.

**Income results:**

**Product Costs Per Application**

Item applied	Total cost
	U.S. \$/ha
Vitazyme (1.55 ml/cama 30 m)	7.37
Stimplex (1 ml/liter of water)	20.16
Huma K (227 g/ha)	4.35
<b>Total</b>	<b>31.88</b>

Rose stems per day increase: 0.21 more stems per month/30 days per month = 0.007 more stems per day x 354 plants per bed = 2.47 more stems per bed per day x 180 beds per hectare = 446 more flowers per day per hectare x 30 days per month = 13,381 more flowers per hectare per month.

Average flower price = \$0.25 (U.S.) x 13,381 flowers per hectare per month = \$3,345.25 per hectare per month.

Cost of 4 applications = \$31.88 per hectare x 4 applications per month = \$127.52 per hectare per month.

Net extra return from Vitazyme + Stimplex + Huma K = \$3,345.25 – \$127.52 = \$3,217.73.

**Increased flower income: \$3,217.73 per hectare per month**

**Conclusions:** In this Ecuadorian study, Vitazyme, Stimplex, and Huma K improved growth parameters such as root growth, leaf area, plant health, bud length, stem length, and blossom length and width such that overall production during that period was increased by 24%. This yield increase translates to added income of \$3,217.73 per hectare per month.