

Vital Earth Resources

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2001 Crop Results

Vitazyme and Mycorrhizae on Roses

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Variety: Forever Young

Stage: Mature

Soil type: clayey

Trial initiation: March 1, 2001

Growth pattern: raised beds in a production greenhouse

Experimental design: Six treatments were selected, and each placed on four adjoining beds in the greenhouse. Each bed comprised 41.7 m², so each treatment was 167 m². For the five Vitazyme and mycorrhiza treatments the total area was 835 m²; the control treatment comprised the area on either side of the five treatments.

| Treatment | Fertilizer ^a | Vitazyme ^b ml/bed/week | Mycorrhiza ^c |
|-----------|-------------------------|--------------------------------------|-------------------------|
| 1 | X | 0 | 0 |
| 2 | X | 0 | X |
| 3 | X | 1.55 | X |
| 4 | 0 | 1.55 | X |
| 5 | X | 1.55 | 0 |
| 6 | X | 10 | X |

^a Nitrofoska Perfect (15-5-20-2-20-2% N, P, K, Mg, S, and Ca) was applied at 2 kg/bed at the start of the experiment.

^b The 1.55 ml/bed/week rate is equivalent to 1.5 l/ha/month, applied as a spray on the leaves and soil surface; the 10 ml application for treatment 6 was 6.5 times the normal rate.

^c Mycorrhizal fungi were applied at 2.25 kg/bed at the beginning of the crop cycle.

Fertilization : Nitrofoska at 2 kg/bed at the start of the experiment

Vitazyme application: 1.5 l/ha/month every week (1.55 ml/bed/wk) for Treatments 3, 4, and 5, and 9.75 ml/ha/month (10 ml/ha/week) for Treatment 6, applied by a sprayer

Mycorrhiza application: applied to the beds at 2.25 kg/bed at the start of the experiment

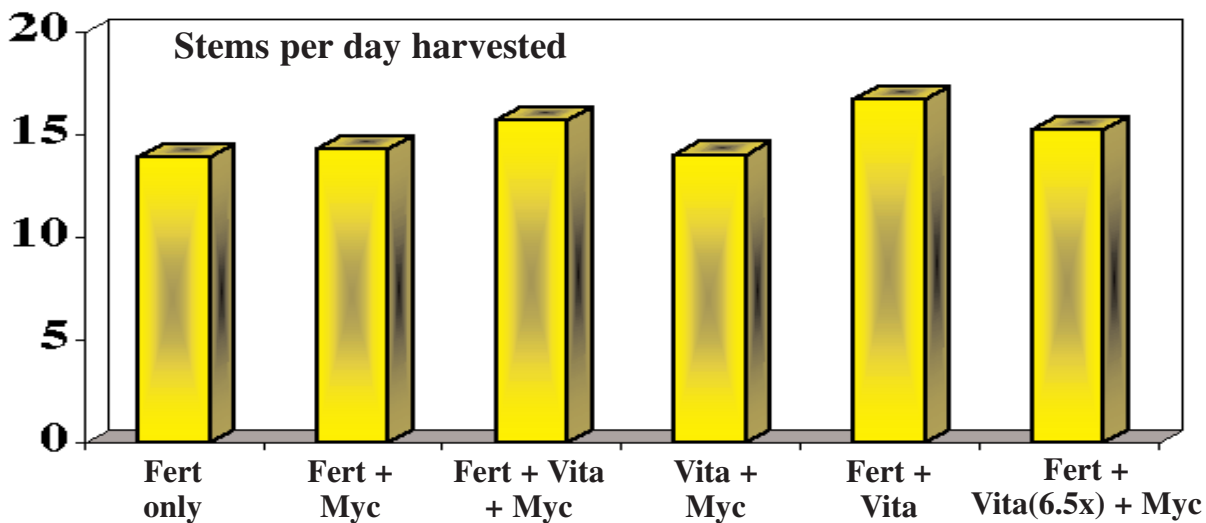
Growth results: Root growth, blossoms, basal stems, leaf area, and leaf color were reported previously.

Production results: Data were collected on rose stems harvested at about 80 days and 171 days after the last Vitazyme application. The total number of stems harvested was recorded for each block of four beds each (167 m²) for the six treatments. The stems harvested per day for each treatment and the stems harvested per plant per month (with 1,248 plants per treatment) were calculated along with treatment differences.

Flower production for 78 to 81 days after the last Vitazyme application

| Treatment | Days of harvest since the last application | Stems harvested | Stems/Day harvested | Stems/Plant/ Month | Stems/Plant/ Month increase |
|-----------------------------|--------------------------------------------|-----------------|---------------------|--------------------|-----------------------------|
| 1. Fert only | 78 | 1,084 | 13.90 | 0.33 | — |
| 2. Fert + Myc | 79 | 1,128 | 14.28 (+3%) | 0.34 | 0.01 |
| 3. Fert + Vita + Myc | 81 | 1,271 | 15.69 (+13%) | 0.38 | 0.05 |
| 4. Vita + Myc | 78 | 1,093 | 14.01 (+1%) | 0.34 | 0.01 |
| 5. Fert + Vita | 78 | 1,304 | 16.72 (+20%) | 0.40 | 0.07 |
| 6. Fert + Vita (6.5x) + Myc | 78 | 1,189 | 15.24 (+10%) | 0.37 | 0.04 |

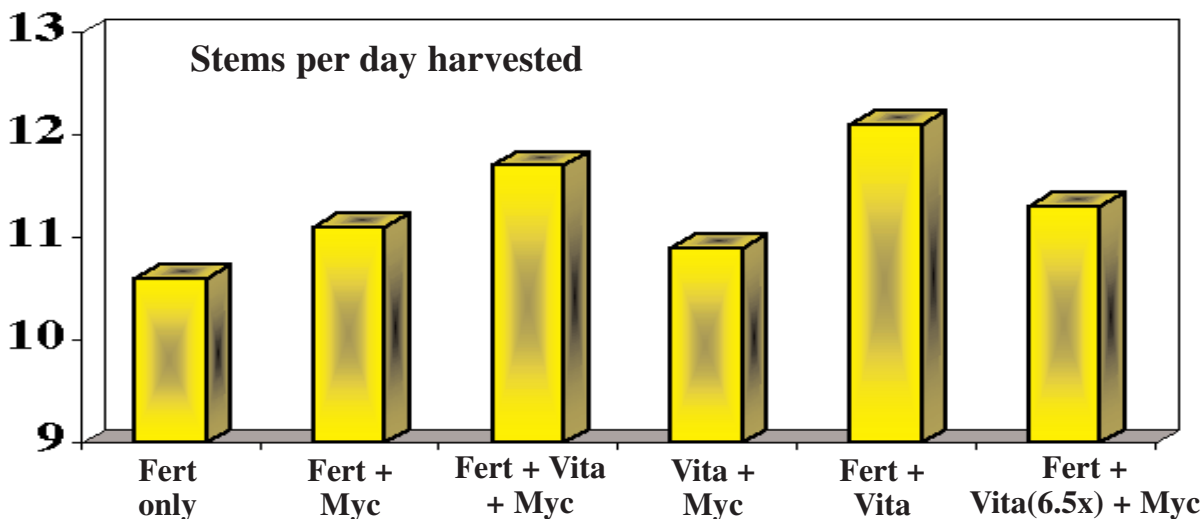
Increased harvest with Vitazyme + Fertilizer: 20%



Flower production for 170 to 173 days after the last Vitazyme application

| Treatment | Days of harvest since the last application | Stems harvested | Stems/Day harvested | Stems/Plant/ Month | Stems/Plant/ Month increase |
|-----------------------------|--------------------------------------------|-----------------|---------------------|--------------------|-----------------------------|
| 1. Fert only | 170 | 1,808 | 10.6 | 0.26 | — |
| 2. Fert + Myc | 172 | 1,911 | 11.1 (+5%) | 0.27 | 0.01 |
| 3. Fert + Vita + Myc | 173 | 2,018 | 11.7 (+10%) | 0.28 | 0.02 |
| 4. Vita + Myc | 171 | 1,868 | 10.9 (+3%) | 0.26 | 0 |
| 5. Fert + Vita | 171 | 2,069 | 12.1 (+14%) | 0.29 | 0.03 |
| 6. Fert + Vita (6.5x) + Myc | 172 | 1,941 | 11.3 (+7%) | 0.27 | 0.01 |

Increased harvest with Vitazyme + Fertilizer: 14%



Conclusions: It is apparent from this rose production study that Vitazyme and fertilizer alone produced the highest number of harvested flower stems of all treatments at both 2.6 and 5.7 months after the last Vitazyme treatment. These increases were 20% and 14% above the control values, respectively. Other treatments also increased flower production. The second-best treatment was Vitazyme plus both fertilizer and mycorrhizae, which gave 13% and 10% yield increases for the first and second harvest periods, respectively, whereas the high Vitazyme application with fertilizer and mycorrhizae gave respective 10% and 7% yield increases. The least responsive treatments were fertilizer plus mycorrhizae and Vitazyme plus mycorrhizae.

These studies show that Vitazyme alone with the basal fertilizer treatment can improve rose yields best over a long time period, even several months after cessation of Vitazyme applications. It is a highly effective rose production supplement.