

Vital Earth Resources

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

2009 Crop Results

Vitazyme on Shallots

Researcher: Unknown

Variety: unknown

Soil type: unknown

Location: Kemukten Brebes, Central Java, Indonesia

Plant spacing: 10 cm x 15 cm

Seeds per hole: 1 to 2 seeds

Planting date: in 2009

Experimental design: An experiment with shallots was set up in a randomized complete block design, using three treatments and nine replications. Plots were 1.2 m x 5.0 m. The purpose of the trial was to evaluate Vitazyme's ability to improve shallot yield, quality, and profitability.

1. Control (normal fertilizer) 2. Normal fertilizer + Vitazyme 3. 50% fertilizer + Vitazyme

Fertilization: 300 kg/ha urea, 250 kg/ha 0-46-0% N-P₂O₅-K₂O, and 150 kg/ha 0-0-60% N-P₂O₅-K₂O; 50% of these amounts for Treatments 3

Vitazyme application: four applications at 1.0 liter/ha each time, starting 7 days after planting and every 2 weeks for three more times.

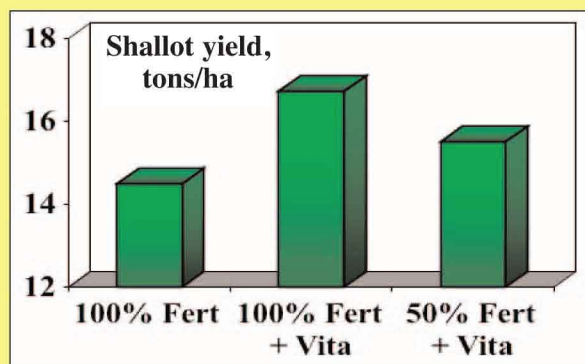
Quality results: Samples of shallots were selected were selected to analyze for four quality factors.

Factor	Improvement with Vitazyme vs. Control
Smell	Stronger (preferred by farmers)
Taste	Hottest (preferred by farmers)
Crispness	Greater
Texture	Same as control

Growth results: The number of leaves and plant height were measured six times during the growth cycle. None of the differences were significantly different at P=0.05 according to Duncan's Multiple Range Test.

Treatment	Yield*	Yield change
	tons/ha	tons/ha
1. 100% fertilizer	14.50 b	—
2. 100% fertilizer + Vitazyme	16.72 a	2.22 (+15%)
3. 50% fertilizer + Vitazyme,e	15.50 ab	1.00 (+7%)
*Means followed by the same letter are not significantly different at P=0.05 according to Duncan's Multiple Range Test.		

**Increase in yield with Vitazyme:
7 to 15%**



Conclusions: This shallot study in Indonesia showed how Vitazyme will improve both the yield and quality of this important food crop. The smell, taste, and crispness of the bulbs were enhanced by the treatment, and the yield was improved by 15% for the full fertilizer + Vitazyme treatment, and by 7% for the 50% fertilizer + Vitazyme treatment. These data show that this product can increase yield despite a 50% reduction in fertilizer application, an important point when saving on fertilizer costs has become so prominent nowadays.

Vital Earth Resources

706 East Broadway, Gladewater, Texas 75647

(903) 845-2163 FAX: (903) 845-2262

2003 Crop Results

Vitazyme on Amaranthus

Researcher: unknown

Research organization: Department of Agriculture, Ondo State, Nigeria

Location: Iju/itaogbolu, Akure North Local Government Area, Ondo State, Nigeria

Variety: *Amaranthus cruentus*

Planting date: late season of 2000

Soil type: unknown

Experimental design: A field was set up with six treatments and three replicates in plots that were 3 meters x 5 meters, the treatments being as follows:

Treatment	Vitazyme*	NPK Fertilizer
1	yes	0
2	yes	100 kg/ha
3	yes	200 kg/ha
4	no	100 kg/ha
5	no	200 kg/ha
6	no	0

*Seed treatment only

Fertility treatments: The NPK fertilizer was applied to the appropriate plots two weeks after planting.

Vitazyme treatments: a seed treatment only with 5% Vitazyme, air dried before planting

Weeding: The plots were weeded at 2 and 4 weeks after planting.

Growth results: The plants were analyzed for growth parameters at six weeks after planting. No data was sent with the report received, so only verbal conclusions are given here.

Plant Height

- Treatments 2,3,4, and 5 were significantly taller than those of Treatments 1 and 6. Thus, Vitazyme alone, and no fertilizer or Vitazyme, produced plants that were significantly shorter than those receiving Vitazyme with either 100 or 200 kg/ha NPK, or 100 or 200 kg/ha NPK only.
- **Vitazyme plus 100 kg/ha NPK yielded plants about as tall as did 200 kg/ha NPK alone.**

Leaf Number Per Plant

- There were significantly more leaves on Treatments 2,3,4, and 5 than on treatments 1 and 6; Vitazyme alone and no treatment produced significantly fewer leaves than did any of the Vitazyme plus NPK or NPK treatments alone.

Leaf Area Per Plant

- Results were about the same as for leaf number per plant.

Fresh Shoot Weight

- Vitazyme plus 200 kg/ha NPK produced plants that had significantly greater fresh shoot weight than did the other treatments, including Vitazyme plus 100 kg/ha NPK, any NPK treatments, and Vitazyme alone or the control.

Total Biomass Production

- **Vitazyme plus 100 kg/ha NPK produced a biomass similar to 200 kg/ha NPK alone.**
- The two treatments above were significantly greater than the others in terms of total plant biomass.

Conclusions: Vitazyme applied to the amaranthus seeds only before planting produced significant growth stimulation effects throughout the 6-week growing period. **Especially noticeable was the effect of Vitazyme to initiate more efficient fertilizer utilization, making plant height, leaf number, leaf area, shoot weight, and plant biomass as great with the 100 kg/ha NPK level as with the 200 kg/ha NPK treatment with no Vitazyme. This effect of encouraging more efficient nutrient use is especially important for countries such as Nigeria where nutrient applications, because of high costs, may be suboptimal, but where Vitazyme can increase fertilizer effectiveness so the farmer can approach optimum yields in spite of this reduced application rate.**

Vital Earth Resources

706 East Broadway, Gladewater, Texas 75647

(903) 845-2163 FAX: (903) 845-2262

2001 Crop Results

Vitazyme on Garlic

Research coordinator: H.W. Chung

Researcher: unknown

Variety: Eusung

Location: Kunwe-Kun, Kyungbuk, Korea

Soil type: cay loam

Transplanting date: unknown

Experimental design: A field area of established garlic was selected for this test. The area was divided into five areas having the following treatments:

1. Control 2. Vitazyme 3. Product A 4. Product B 5. Product C

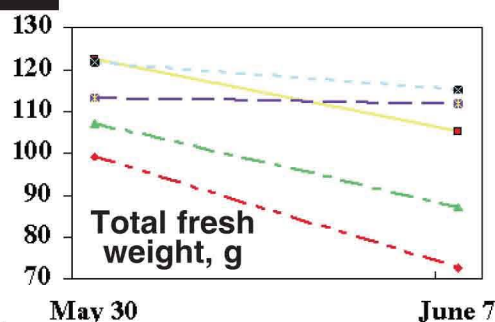
Vitazyme application: A 1:1,000 dilutions (0.1%) solution was sprayed on the leaves and soil of the garlic on April 19, April 26, and May 3, 2001.

Fertilization: unknown

Data collection: Results on growth and bulb weight were collected on May 30 and June 7, 2001.

Total plant weight

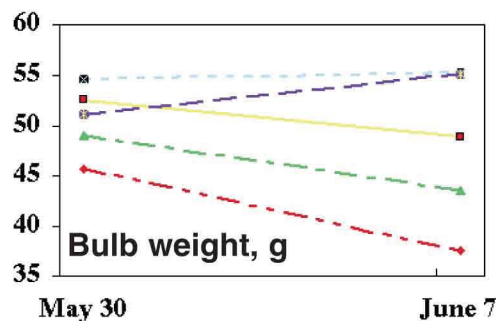
Treatment	Fresh weight, May 30	Change	Fresh weight, June 7	Change
	----- g -----			
1. (Control)	99.2	—	72.7	—
2. (Vitazyme)	122.5	+23.3 (+23%)	105.3	+32.6 (+45%)
3. (Product A)	107.1	+7.9 (+8%)	87.2	+14.5 (+20%)
4. (Product B)	121.7	+22.5 (+23%)	115.3	+42.6 (+59%)
5. (Product C)	113.3	+14.1 (+14%)	112.0	+39.3 (+54%)



Increase in total plant weight with Vitazyme:
First evaluation: 23% Second evaluation: 45%

Bulb weight

Treatment	Bulb weight, Change May 30		Bulb weight, Change June 7	
	----- g -----			
1. (Control)	45.7	—	37.5	—
2. (Vitazyme)	52.6	+6.9 (+15%)	48.9	+11.4 (+30%)
3. (Product A)	49.0	+3.3 (+7%)	43.5	+6.0 (+16%)
4. (Product B)	54.6	+8.9 (+19%)	55.2	+17.7 (+47%)
5. (Product C)	51.1	+5.4 (+12%)	55.1	+17.6 (+47%)



Increase in bulb weight with Vitazyme:
First evaluation: 15% Second evaluation: 30%

Conclusions: In this garlic test, all four products performed well in increasing both total plant and bulb weights. The values for the second evaluation are lower than the first, most likely because smaller plants were harvested the second time. All increases in total plant weight ranged from 8 to 23% for May 30, and from 20 to 59% for June 7. Bulb weights for the various products followed a similar pattern.

Vital Earth Resources

706 East Broadway, Gladewater, Texas 75647

(903) 845-2163 FAX: (903) 845-2262

2001 Crop Results

Vitazyme on Basil

Farmer: Eugene Batters, California Herb and Spice

Variety: Italian large leaf sweet basil

Soil type: San Joaquin silt loam

Experimental design: A large and uniform field of 40 acres of basil was divided into four 5-acre plots of about 30 rows each. The plot treatments were as follow:

1. Control
2. Awaken
3. Vitazyme + Awaken
4. Vitazyme

Location: Terra Bella, California

Planting date: Last week in June

Watering: sprinkler irrigated

Fertilization : 125 lb/acre of N and 75 lb/acre of P_2O_5 drilled in at planting

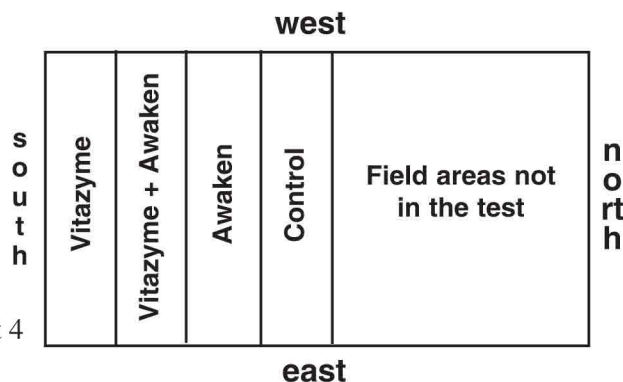
Vitazyme treatment: 13 oz/acre sprayed on the leaves and soil at 4 weeks after planting, about 15 days before the first cutting.

Awaken treatment: 32 oz/acre sprayed on the leaves and soil at 4 weeks after planting, about 15 days before the first cutting.

Vitazyme + Awaken treatment: 13 oz/acre and 32 oz/acre respectively of Vitazyme and Awaken combined

Harvest date: late August, 2001

Growth and yield results: On August 28, 2001, samples of the treatments were collected to evaluate dry matter weight per plant, overall appearance and size, and root growth. Chlorophyll levels were also determined using a Minolta SPAD Meter.



Leaf Chlorophyll

	Control	Awaken	Awaken + Vitazyme	Vitazyme
			\$/acre	
Leaf chlorophyll*	41.5	43.4	45.0	45.6

*Average of 30 representative leaves for the treatment.

Increase in leaf chlorophyll with Vitazyme: 4.1 SPAD units

Plant Dry Weight

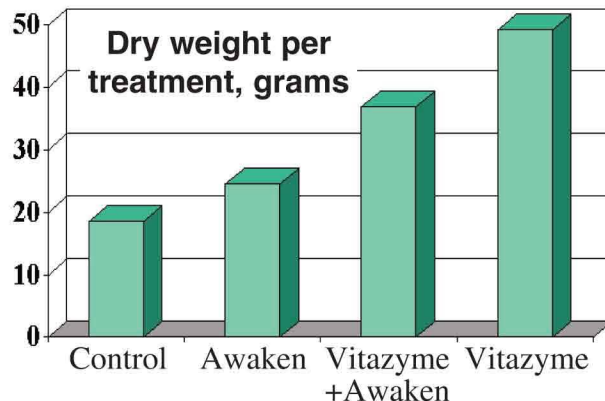
	Control	Awaken	Awaken + Vitazyme	Vitazyme
			\$/acre	
Dry weight*	18.5	24.5 (+32%)	36.9 (+99%)	49.1 (+165%)

*Seven average plants were collected from each treatment by sampling two areas to get 20 to 25 plants. To remove bias, small and large plants were discarded, and then normal plants were laid out and every other plant (up to 7 plants) were selected for the sample. Samples were dried and weighed at J.M. Lord, Inc., Fresno, California.

Dry weight increase with Vitazyme: 165%

Control	Awaken	Awaken + Vitazyme	Vitazyme
High	Medium	Medium	Medium

Note: All areas received a special anti-Fusarium soil treatment.



Actual cut yield values were not obtained in 2001, though they were in 2000 (see the Conclusions).

Fusarium Wilt Infection

Conclusions: Results using Vitazyme in this basil test were quite dramatic as leaf size and number were improved considerably, with only one application of vitazyme applied two weeks before cutting began. Both Awaken and Vitazyme markedly increased leave and root growth, but especially Vitazyme.

If Vitazyme had been applied at planting, and perhaps one more during the growing season, it is likely the Vitazyme treatments would have performed even better.

The results of this 2001 study are similar to results from 2000, when the yield increase from foliar vitazyme application was 21% (625 more dry lb/acre), which gave a \$2,187.50 income increase per acre

Comments from the grower (Eugene Batters):

- “The product is doing very well! I intend to use it on my entire acreage next year.”
- “I got double the production in terms of pounds per acre with the Vitazyme as I did with the normal program.”
- “The treated stems are large, and I have raised the cutter bar 2 to 3 inches so I will get the vigorous new growth.”
- “The plants are coming back faster where Vitazyme is applied.”
- “The roots of the treated plants are more massive than those of the control.”
- “Leaves on the Vitazyme treatment are so much bigger than the others. Two inches wide versus the usual 1 to 1¼ inches wide.”
- “Together with the new soil treatment I am getting good control of Fusarium wilt.”

Vital Earth Resources

706 East Broadway, Gladewater, Texas 75647

(903) 845-2163 FAX: (903) 845-2262

2000 Crop Results

Vitazyme on Parsley

Researcher: Paul W. Syltie, Ph.D.

Variety: Extra triple curled (Ferry-Morse)
and some compost

Pot size: 5-gallon (10.5 inch top diameter)

Experimental design: Four pots were filled with potting soil, and about 140 seeds were planted in each pot and covered. Two pots were treated with Vitazyme and two were left untreated.

1. Control

2. Vitazyme

Fertility treatments: Some "Colorscape" granular fertilizer was mixed with the soil of each pot. Analysis: 19-13-6% N-P₂O₅-K₂O plus Ca, Mg, S, B, Co, Cu, Fe, Mn, Mo, and Zn.

Vitazyme treatment: 100 ml of a 10% Vitazyme solution applied after planting.

Emergence date: On November 13 the first seedlings from the Vitazyme pots were seen to emerge. The first seedlings from the control pots emerged on November 16.

	Control	Vitazyme	Change
	days		
Days to emergence	17	14	3

Reduction in time to emergence: 3 days

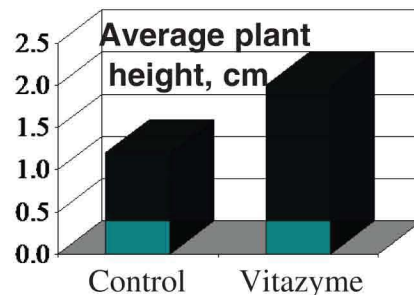
Parsley growth parameters: On November 28 (29 days after planting) three growth parameters were evaluated: plant height, plant number emerged, and growth stage.

Plant height

	Control*	Vitazyme*	Change
	cm		
Plant height	1.2	2.0	(+) 0.8 (+67%)

* Average of the plants over the two pots for each treatment

Plant height increase: 67%

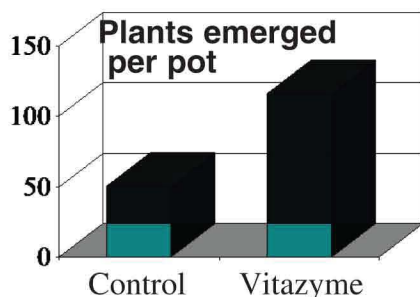


Plant number emerged

	Control*	Vitazyme*	Change
	cm		
Plants emerged per pot	50.5 b	116.0 a	(+) 65.5 (+130%)

* Means followed by the same letter are not significantly different at P = 0.06 according to Tukey's Honestly Significance Difference Test. LSD_{0.1} = 41.0

Plant emergence increase: 130%



Growth stage

Leaf stage	Control*	
Vitazyme*	———	% of plants
Primary leaves	90	39.5
Secondary leaves	10	70

* Leaf stages were estimated.

**Improvement in plant maturity:
70% vs. 10% secondary leaves**

Conclusions: Vitazyme applied to these parsley seeds in pots reduced the time to emergence by three days, increased plant height at 29 days after planting by 67%, increased plants emerged at 29 days by 130%, and hastened plant maturity markedly. This biostimulant should be able to stimulate germination and early plant growth for many seeded plants in greenhouse and seedbed situations.

Vital Earth Resources

706 East Broadway, Gladewater, Texas 75647

(903) 845-2163 FAX: (903) 845-2262

2000 Crop Results

Vitazyme on Basil

Grower: Gene Batters

Location: Terra Bella, California

Variety: Unknown

Experimental design: A 40-acre field of uniform soils was divided into four equal 10-acre sections. The four treatments were as follows:

1. Control 2. Lase biostimulant 3. Vitazyme (on leaves) 4. Vitazyme (in irrigation water)

Fertilization: proprietary (the same for all 40 acres)

Vitazyme application: 13 oz/acre one time, on the leaves by sprayer (Treatment 3) or through the irrigation system (Treatment 4)

Weed and disease control: proprietary (the same for all 40 acres)

Yield results: All yields are dry weight.

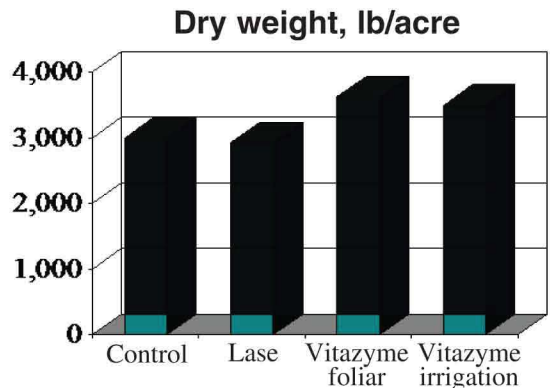
	Control	Lase	Vitazyme foliar	Vitazyme irrigation
	lb/acre dry			
Leaf weight	3,000	2,925	3,625	3,500

Yield increase, foliar: 21%

Yield increase, irrigation: 17%

Income results:

	Control	Lase	Vitazyme foliar	Vitazyme irrigation
	\$/acre			
Total	10,500.00	10,237.50	12,687.50	12,250.00



**Income increase,
foliar: \$2,187.50/acre**

**Income increase, irriga-
tion: \$1,750.00/acre**

Conclusions: Vitazyme at 13 oz/acre produced a return on investment of from 140:1 (irrigation applied) to 175:1 (foliar applied) for this basil crop. These increases translated to around \$2,000/acre extra income. A second application, applied 30 days after the first one, did not produce measurable yield increases. Fusarium wilt seriously affected all areas.

Vital Earth Resources

706 East Broadway, Gladewater, Texas 75647

(903) 845-2163 FAX: (903) 845-2262

2000 Crop Results

Vitazyme on Aloe Vera

Researcher: Paul Syltie, Ph.D.

Location: Vital Earth Research Greenhouse, Gladewater, Texas

Variety: Aloe vera L.

Plant size: 4 to 8 inches in height

Soil type: Ultra-blend (Canadian peat moss, compost, perlite, aged rice hulls, aged fine pine bark, wetting agent, some fertilizer)

Pot size: 1 gallon

Planting date: December 3, 1999

Experimental design: Sixty aloe vera plants were selected from a number of nurse plants in the greenhouse. These were selected to be of equal size for each pair, with each pair being a replicate. One of the pots of each pair received a Vitazyme treatment.

1. Control

2. Vitazyme

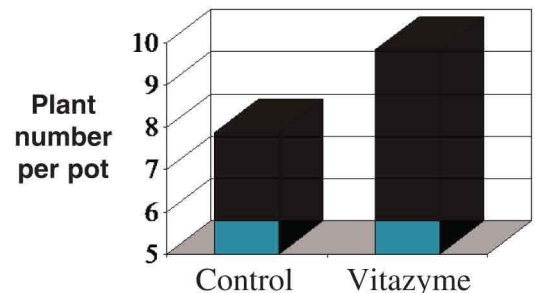
Vitazyme application: 100 ml/pot of a 0.05% solution on December 6, 1999; 100ml/pot of a 0.1% solution on January 18, 2000; 100 ml/pot of a 0.1% solution in June, 2000; 100 ml/pot of a 0.1% solution on September 27, 2000

Harvest results: On December 19, 2000, the plants were removed from the pots and the roots were washed free of potting mix. The plants were weighed as fresh, and the number of plants and plantlets were weighed for each pot. A statistical analysis was performed for the data on the 30 replicates.

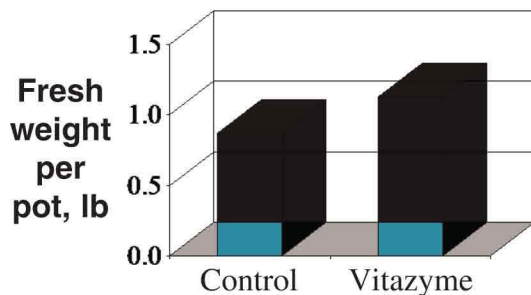
Plant Numbers

	Control	Vitazyme	Change
		number/pot	
Plants	7.87 b	9.83 a	(+) 1.96 (+25%)

* Means followed by the same letter are not significantly different at P = 0.01 according to Tukey's Honestly Significant Difference Test. LSD₀₅ = 1.43.



Increase in plant number: 25%



Plant Fresh Weight

	Control	Vitazyme	Change
		lb/pot	
Fresh weight	0.868 b	1.126 a	(+) 0.258 (+30%)

* Means followed by the same letter are not significantly different at P = 0.001 according to Tukey's Honestly Significant Difference Test. LSD₀₅ = 0.144.

Fresh weight increase: 30%

Conclusions: In spite of an erratic Vitazyme application schedule (four applications in one year), the aloe vera in this study responded very well in terms of fresh weight (+30%) and the number of total plants per pot (+25%). Had Vitazyme been applied regularly every one to two months the growth responses would very likely have been better.

Vital Earth Resources

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

1999 Crop Results

Vitazyme on Flax (Organic) -- Testimonial --

Farmer: Leon Roske

Location: Olivia, Minnesota

Variety: AC Emerson (brown)

Planting date: April 29, and 30, 1999

Seeding rate: 1.5 bu/acre

Previous crop: corn

Harvest date: August 15, 1999

Fertilization: molasses only after planting

The entire 112-acre field was treated with Vitazyme (13 oz/acre) plus molasses (3 gal/acre), sprayed on the soil after planting. Growth of the crop was excellent, although a minimal nitrogen deficiency was apparent during the growing season, most likely due to cool temperatures and slow residue breakdown early in the season, which resulted in a nitrogen tie-up.

In spite of this marginal nitrogen deficiency, the crop yielded 27.0 bu/acre, an excellent flax crop. At \$12.00/bu, this crop produced an excellent return.

Crop income: \$324.00/acre