

Vital Earth Resources

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

2014 Crop Results

Vitazyme on Peanuts

Researcher: Rock Lubin

Research organization: Acra Industries, Haiti

Location: Boucan Carre, Haiti

Variety: unknown

Planting date: unknown

Experimental design: This experiment was part of a multi-crop testing program that was established in December of 2011, to evaluate the efficacy of Vitazyme for increasing crop yields in Haiti. The test area was 1 hectare (10,000 m²) for the treated and control plots.

1. Control

2. Vitazyme

Fertilization: unknown

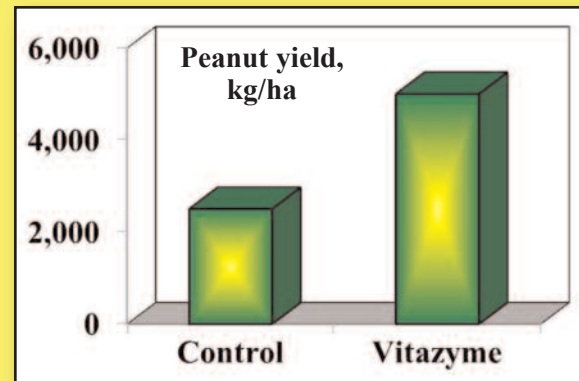
Vitazyme application: 1 liter/ha (13 oz/acre)

Harvest date: unknown

Yield results:

Treatment	Yield kg/ha	Yield change kg/ha
Control	2,500	—
Vitazyme	5,000	2,500 (+100%)

**Increase in peanut yield
with Vitazyme: 100%**



Conclusions: A peanut study in Haiti revealed a great increase in yield with Vitazyme application, a doubling of the yield versus the untreated control. This program is shown to hold great promise in helping to alleviate food production problems in this developing country.

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2010 Crop Results

Vitazyme on Peanuts

Researcher: unknown

Location: Phu Cat, Binh Dinh Province, Viet Nam

Variety: local variety

Planting date: December 20, 2009

Experimental design: A trial was set up with peanuts using three treatments in separate areas of a field. The purpose of the study was to evaluate the effect of Vitazyme and Rhizobium bacteria on peanut growth and yield.

1. Control

2. Rhizobium

3 Rhizobium + Vitazyme

Vitazyme application: 5% seed treatment before planting

Vitazyme + Rhizobium applications: 5% Vitazyme plus 1 kg/liter of water, on the seeds

Rhizobium application: 1 kg/ha of inoculant in 1 liter of water, on the seeds

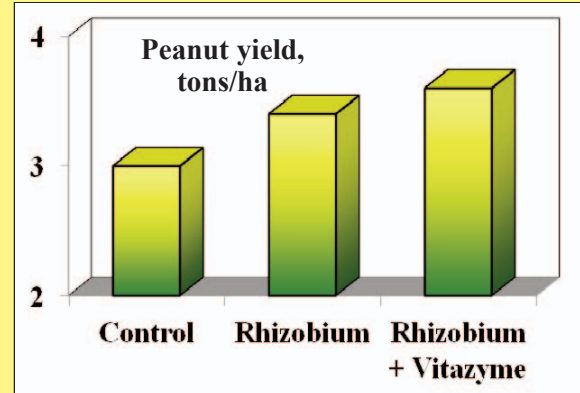
Germination results: Vitazyme accelerated germination by 1 to 2 days.

Improvement in time to germination with Vitazyme: 1 to 2 days

Yield results:

Treatment	Yield tons/ha	Yield change tons/ha
Control	3.0	---
Rhizobium	3.4	0.4 (+13%)
Rhizobium + Vitazyme	3.6	0.6 (+20%)

**Increase in yield with Vitazyme +
Rhizobium bacteria: 20%**



Conclusion: This peanut trial in Viet Nam, using Rhizobium bacterial inoculant with and without Vitazyme as a seed treatment, proved that Vitazyme + Rhizobium alone boosted yield by 13% above the control, while Vitazyme plus the Rhizobium increased yield by 20%, another 7% above the Rhizobium alone. These results prove not only the efficacy of Rhizobium bacteria to improve peanut yields, but of Vitazyme to further enhance Rhizobium activity. No treatment with Vitazyme alone was used in this study.

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2006 Crop Results

Vitazyme on Peanuts

Ministry of Sugar, Cuban Ministry of Agriculture

Researchers: Wilberto G. Marrero and Jorge G. Acosta

Location: Pedro Gonzalez Credit and Service Cooperative, Havana Province, Cuba

Soil type: red ferralitic (Eustrustox) of low fertility

Variety: unknown

Planting rate: unknown

Row spacing: unknown

Planting date: June 6, 2006

Watering: rain-fed

Experimental design: A field was split with one part treated with Vitazyme and the other portion left untreated. The objective of the study was to discover the effect of Vitazyme on peanut yield.

1. Control

2. Vitazyme

Fertilization: unknown

Vitazyme application: 1 liter/ha on June 21, 15 days after planting; 1 liter/ha on July 17, 31 days after planting

Growth observations:

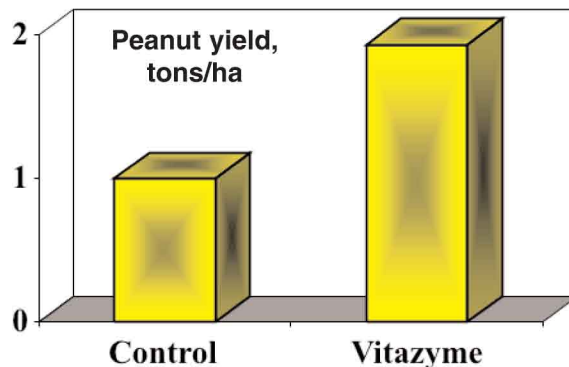
Parameter	Control	Vitazyme
Pod number	Fewer: 15 to 18/plant	Many more: 30 to 33/plant
Foliage development	Smaller leaves, slower growth	Larger leaves, faster growth
Flower development	Less	Greater
Canopy closure	Slower	Faster
Root growth	Smaller	Greater

Harvest date: September 20, 2006, after 104 days of growth

Yield results:

Treatment	Yield tons/ha	Increase tons/ha
Control	1.00	—
Vitazyme	1.93	0.93 (+93%)
Historical yield	1.00	

Increase in peanut yield: 93%



Conclusions: In this Cuban peanut study conducted on red ferralitic soils, two applications of Vitazyme at 1 liter/ha each time greatly increased the yield of peanuts (+93%) above the control and also over the historical yield average.

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2005 Crop Results

Vitazyme on Peanuts

Researcher/Farmer: George Nickelson **Location:** Whitheral, Texas **Variety:** TamSpan 90
Row spacing: 40 inches to middles, 8 inches on berm **Population:** 100 lb/acre
Soil type: medium sandy loam **Planting date:** May 15, 2004 **Previous crop:** cotton
Experimental design: A center-pivot field was divided into two 33.5-acre areas, with one part receiving Vitazyme and the other no product. All other treatments were the same for both areas.

1. Control

2. Vitazyme

Fertilizer: 11-52-0% N-P₂O₅-K₂O applied pre-plant, with some liquid calcium and nitrogen applied through the irrigation system

Vitazyme application: 13 oz/acre at planting, sprayed on the soil in a 10-inch band behind the planter; 13 oz/acre sprayed on the leaves and soil at early bloom

Irrigation: about one inch per week during the primary growing period

Weather: a fairly cool summer with good rainfall all year

Harvest date: dug in early October, and picked up November 1 to 6

Yield results: Results were affected by excessive weed growth from considerable rainfall, the Vitazyme area more so because it was on the outside of the circle. The Vitazyme area was also lower, on part of an old lake bottom.

Treatment	Peanut yield	Change
	lb/acre	lb/acre
Control	3,329	—
Vitazyme	3,521	192 (+6%)

Yield increase: 6%

Quality and income results: Based on payment reports, the average prices for the peanuts were as follows:

Control: \$0.1861/lb, or \$372.20/ton

Vitazyme: \$0.1869/lb, or \$373.80/ton

Treatment	Peanut yield	Peanut value*	Value change
	lb/acre	\$/acre	\$/acre
Control	3,329	619.53	—
Vitazyme*	3,521	658.07	38.54

*See the prices above.

Conclusions: This west Texas field-scale peanut study revealed that Vitazyme produced a small (6%) but highly profitable yield increase, which was of slightly higher quality and produced \$38.54/acre more income. This increase came despite the Vitazyme treatment having a more serious weed problem than the control, and being located on an old lake bed which, during this wet year, hindered maximum yields.

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2003 Crop Results

Vitazyme on Peanuts

Farmer: George Nickelson

Variety: TamSpan 90

Soil type: medium sandy loam

Previous crop: cotton

Experimental design: A center pivot field was divided into two 33.5-acre areas, one receiving Vitazyme and the other none. All other treatments were the same for both parcels.

Location: Whitheral, Texas

Row spacing: 40 inches to middles, 8 inches on berm

Population: 100 lb/acre

Planting date: May 15, 2003

1. Control

Fertilizers: 11-52-0 fertilizer applied preplant

Vitazyme application: 13 oz/acre at planting, 13 oz/acre about July 20 on the leaves and soil

Irrigation: as needed, but one period of about 2 weeks received none due to the loss of the irrigation rig from a tornado.

Weather: a hot , extremely dry summer; 8.5 inches of rain for the year, with no rain for August and September

Harvest date: November 18, 2003 (dug several weeks earlier)

Yield results:

2. Vitazyme

<u>Treatment</u>	<u>Yield</u>	<u>Change</u>
Control	lb/acre 3,515	lb/acre —
Vitazyme	3,582	67 (+2%)

Yield increase: 2%

Income results: The sale price of the peanuts was \$370/ton, or \$0.185/lb.

67 lb/acre x \$0.185/lb = \$12.40/acre more income from Vitazyme

Conclusions: This peanut trial in west Texas produced a small but profitable yield increase with Vitazyme application. The peanut grade was similar for both treatments (about 77). The yield difference would have been greater if the treated areas had not included low areas that produced less yield due to more weed competition and poorer water relations. In 2002, a similar test on this same farm with peanuts produced a 30% yield increase with Vitazyme.

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2002 Crop Results

Vitazyme on Peanuts

Farmer: George Nickelson, Jr.
double row with 8 in spacing

Location: Whitherral, Texas

Row spacing: 40 inches,

Variety: Spanish, "Tam-Span 90"

Planting date: May 18, 2002

Soil type: fine sandy loam

Harvest date: dug October 21, picked up about November 15

Experimental design: A center pivot area was divided into halves, one half treated with Vitazyme and the other half left untreated.

Fertilization: 20 lb/acre N preplant, 11-50-0 postplant

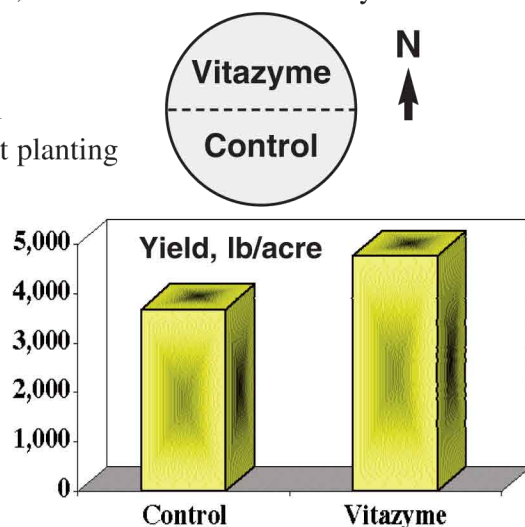
Vitazyme application: 13 oz/acre June 18, on the leaves and soil

Seed inoculation: all seeds inoculated with rhizobium bacteria at planting

Yield results:

Treatment	Total for 33 acres	Area yield	Yield change
	lb	lb/acre	lb/acre
Control	121,484	3,681	—
Vitazyme	157,398	4,770	+1,089 (+30%)

Yield increase: 30%



Quality results: All of the peanuts graded at 77, a very high grade.

Income results: A price of \$382/ton was received for the peanuts.

Increase in income with Vitazyme: \$208.00/acre

Cost:Benefit ratio of Vitazyme: 52:1

Quality observations: Peanuts that were collected from both treatments on August 21, and stored in plastic bags, revealed that the control peanuts developed a coating of white fungus over all pod surfaces; the Vitazyme treated peanuts developed very little fungus coating. This difference may imply the ability of Vitazyme to help the peanut plant deter fungal diseases.

Conclusions: One application of Vitazyme on the irrigated peanut field increased the yield by 30%, giving a very high return ratio of 52:1, which translated to an increase of \$208/acre. This great increase in yield and return with Vitazyme is likely due in part to the synergism of Vitazyme's active agents with the rhizobium bacteria in the rhizosphere to encourage natural symbiotic nitrogen fixation.

1998 Crop Results

Vitazyme on Peanuts Caribbean Agricultural Research and Development Institute (CARDI)

Researcher: Leslie Simpson, Ph.D.

Location: Ebini region, Guyana

Seeding date: unknown

Variety: AK62

Seeding rate: unknown

Row spacing: unknown

Experimental design: A randomized complete block design with four replications was established on a uniform soil area. Each plot was 2.7X10.0 meters (0.0027 ha). Treatments were as follows:

1. Control (no Vitazyme)
2. Vitazyme applied twice
3. Vitazyme applied once

Fertility treatments: unknown

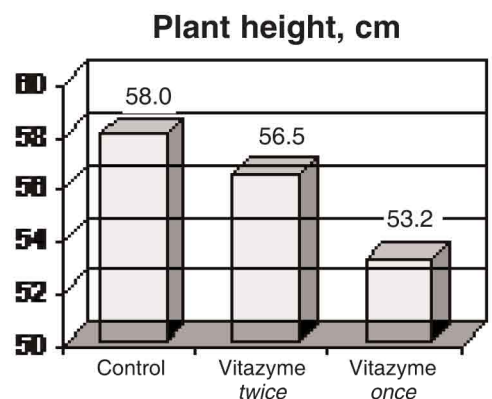
Vitazyme applications: For Treatment 2, Vitazyme was applied at 1 liter/ha (13 oz/acre) to the soil after planting but before emergence, and at the same rate at pegging. For Treatment 3, only the pegging treatment was applied.

Harvest date: unknown

Yield results: Several parameters were determined at harvest, as indicated below.

PLANT HEIGHT

Treatment	Plant height, cm	Decrease, cm
1. Control	58.0	--
2. Vitazyme twice	56.5	1.5 (-3 %)
3. Vitazyme once	53.2	4.8 (-8 %)

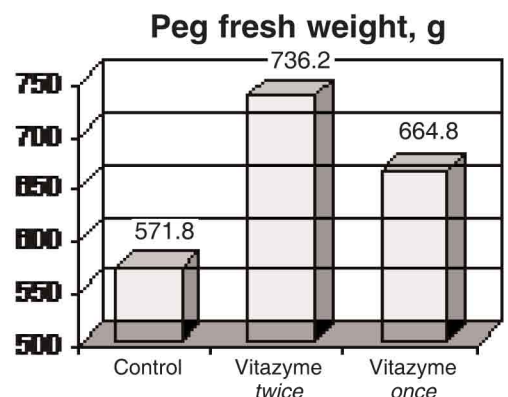


Dry weight decrease:
8% Vitazyme twice: + 8.5%

PEG FRESH WEIGHT

Treatment	Peg Fresh weight, g	Increase, g
1. Control	571.8	--
2. Vitazyme twice	736.2 *	164.4 (+29 %)
3. Vitazyme once	664.8	93.0 (+16 %)

*Significantly greater than the control at P=0.06. LSD_{0,05} =177.6.



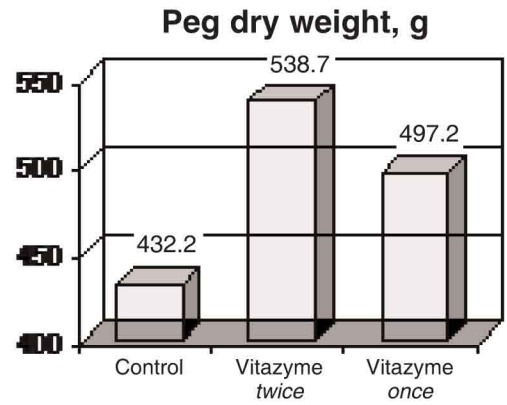
Peg fresh weight increase: 29%

PEG DRY WEIGHT

Treatment	Peg dry weight, g	Increase, g
1. Control	432.2	--
2. Vitazyme twice	538.7 *	106.5 (+25 %)
3. Vitazyme once	497.2	65.0 (+15 %)

*Significantly greater than the control at P=0.07. LSD_{0.05}=113.6.

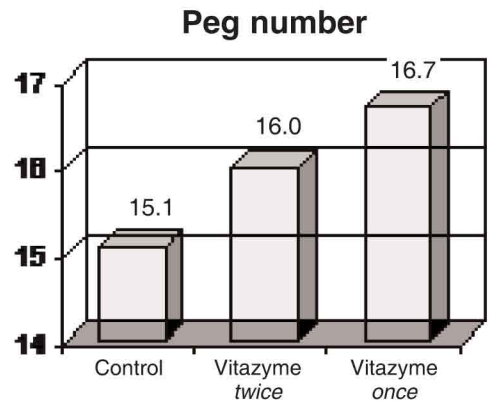
**Peg dry weight increase:
25%**



PEG NUMBER

Treatment	Peg number	Increase
1. Control	15.1	--
2. Vitazyme twice	16.0	0.9 (+6 %)
3. Vitazyme once	16.7	1.6 (+11 %)

**Peg number increase:
11%**

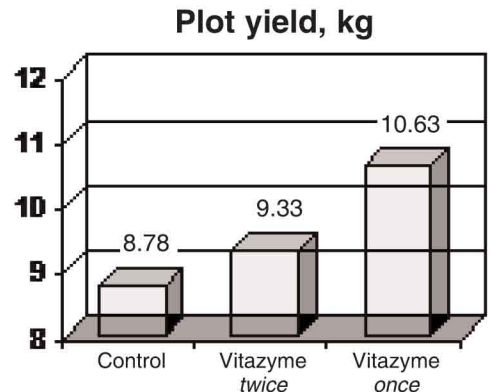


PLOT YIELD

Treatment	Plot yield, kg	Increase, kg
1. Control	8.78	--
2. Vitazyme twice	9.33 *	0.55 (+6 %)
3. Vitazyme once	10.63 **	1.85 (+21 %)

*Significantly greater than the control at P=0.14; **significantly greater than the control at P=0.01. LSD_{0.10}=0.74; LSD_{0.01}=1.29.

Yield increase: 21%



Comments: Vitazyme applied to peanuts at the initiation of pegging greatly and significantly stimulated peanut growth and yield (by 21%). Peg fresh and dry weights were improved by two applications of Vitazyme, but the yield effect showed through primarily with a single 1 liter/ha (13 oz/acre) application at pegging. Plant height was negatively correlated with yield. It appears that one application of Vitazyme at pegging may be sufficient in this tropical environment to elicit the maximum yield potential of peanuts.

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1997 Crop Results

Vitazyme on Organic Peanuts

— Irrigated —

Researcher: Cliff Bingham

Location: Brownfield, Texas

Seeding rate: 57 lb/acre

Variety: Valencia

Experimental design: A production field was divided into two sections: an untreated control and a Vitazyme treated area. A live *Rhizobium* seed inoculant was added on the seed along with Vitazyme.

Seeding date: May 6 (check) and May 8 and 12 (Vitazyme)

Row width: 40 inches

1. Control (no Vitazyme)

2. Vitazyme plus *Rhizobium*

Fertility treatments: manure at 10 tons/acre, applied in February of 1996

Vitazyme application: 13 oz/acre on the seed at planting, along with a live *Rhizobium* inoculant; 10 oz/acre sprayed on the foliage and soil at early bloom

Soil: Brownfield sandy loam

Weed control: cultivation

Harvest date: Vitazyme treatment: dug on September 18 and 19, and threshed September 25. Control treatment: dug on September 30, and threshed October 5

Yield results:

	<u>Control</u>	<u>Vitazyme</u>	<u>Increase with Vitazyme</u>
Peanut weights	2,981 lb/acre	3,155 lb/acre	174 lb/acre

Yield Increase:
6%

*Note: This yield increase should have been higher due to a breakdown of the irrigation system, resulting in less water delivered to the Vitazyme rows later in the season.

Income results: The price paid for the Vitazyme-treated peanuts was \$0.225/lb, and \$0.219/lb for the control peanuts. The reduced price for the control was in part due to greater shelling caused by excessive drying of the peanuts before threshing.

	<u>Control</u>	<u>Vitazyme</u>
Peanut income	\$652.84/acre	\$709.88/acre

Income Increase:
\$57.04/acre

Comments: The Vitazyme treated peanuts had much better growth and a darker green color than the control throughout the season. The Vitazyme and *Rhizobium* effects are unable to be determined individually by this test.