**Carrots with Vitazyme application**

**Researcher:** Agronomist Palemon Ledesma  
**Research organization:** Quimica Lucava, Mexico  
**Farmer:** Eng. Juan Pablo Rendon Reina  
**Location:** El Trangenio Farm, Dolores, Hidalgo, Guanajuato, Mexico  
**Variety:** unknown  
**Experimental design:** A two-hectare portion of a carrot field was treated with Vitazyme to determine the effect of the product on plant growth and yield. This trial was conducted from June to August of 2012.

![Control](image1)  
**Control**  
Control carrots have much smaller roots than the treated carrots.

![Vitazyme](image2)  
**Vitazyme**  
The treated carrot roots are seen to be thriving, with much larger roots.

Note how the Vitazyme treated carrot tops are vigorous and dense, producing excellent roots as seen in the accompanying photo.

![Control](image3)  
**Control**  
Untreated carrot plants are not as vigorous and dense in leaf cover as the treated plants.

![Vitazyme](image4)  
**Vitazyme**  
The size of the Vitazyme treated carrots is noticeably greater than the untreated roots.

**Vitazyme application:** two foliar sprays: (1) 1 liter/ha 45 days after planting; (2) 1 liter/ha 75 days after planting  
**Yield results:** No yield data is available, but due to severe flooding the control area was severely damaged by *Altamaria dauci*, reducing the yield to only 50% of the Vitazyme treated area. The product produced larger, disease-free roots which doubled the yield of marketable carrots.

**Conclusions:** This carrot trial near Guanajuato, Mexico, proved that Vitazyme can greatly improve the top and root growth of carrots and reduce disease pressure, especially under oversaturated soil conditions, compared to untreated carrots. This program is shown to be a powerful addition to the agronomic program of carrot growers in Mexico.
**Carrots with Vitazyme application**

**Researcher:** Carina Rietema  
**Research organization:** SPNA Kollumerwaard, The Netherlands  
**Location:** SPNA Kollumerwaard, The Netherlands  
**Variety:** Nerac  
**Soil type:** clayey  
**Planting date:** May 9, 2017  
**Experimental design:** A carrot field was selected to test a number of seed and foliar products as to their effect on the yield and storability of carrot roots. Vitazyme was one of the products; data from other products was not obtainable.

1. **Control**  
2. **Vitazyme**

**Fertilization:** Unknown  
**Vitazyme application:** 1 liter/ha sprayed on the soil and foliage immediately after planting, and 6, 10, and 14 weeks after planting (May 9, June 22, July 21, and August 17 of 2017)

**Results during growth:** The visual appearance was compared on September 18.

**Yield results:**

**Appearance Scale**

<table>
<thead>
<tr>
<th>Appearance scale</th>
<th>Control</th>
<th>Vitazyme</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>3.8</td>
<td>5.5</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>0</td>
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</tbody>
</table>

**Carrot Yield**

<table>
<thead>
<tr>
<th>Yield, tonnes/ha</th>
<th>Control</th>
<th>Vitazyme</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>75.3</td>
<td>77.1</td>
</tr>
<tr>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>65</td>
<td></td>
<td></td>
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<tr>
<td>60</td>
<td></td>
<td></td>
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<tr>
<td>55</td>
<td></td>
<td></td>
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<tr>
<td>50</td>
<td></td>
<td></td>
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<tr>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
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</tr>
</tbody>
</table>

**Improvement in appearance with Vitazyme:** 1.7 points  

**Improvement in carrot yield with Vitazyme:** 1.8 tonnes/ha

**Storage results:** These results were determined in late 2017 and early 2018.

**Healthy Carrots**

<table>
<thead>
<tr>
<th>Percentage of healthy carrots</th>
<th>Control</th>
<th>Vitazyme</th>
</tr>
</thead>
<tbody>
<tr>
<td>November</td>
<td>86.4</td>
<td></td>
</tr>
<tr>
<td>January</td>
<td>79.5</td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>79.6</td>
<td></td>
</tr>
<tr>
<td>Date of evaluation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Phytophthora Incidence**

<table>
<thead>
<tr>
<th>Phytophthora infection, %</th>
<th>Control</th>
<th>Vitazyme</th>
</tr>
</thead>
<tbody>
<tr>
<td>November</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>January</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>Date of evaluation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Above:** The Vitazyme treated carrots on the right have endured storage conditions and appear to be quite clean and healthy, compared to the control on the left, and another treatment in the center.

**Below:** This study in the Netherlands, which began in 2017 and continued through early 2018 to evaluate storage parameters, proved that Vitazyme can substantially reduce carrot storage problems.

**Increase in healthy carrots with Vitazyme**

<table>
<thead>
<tr>
<th>Date of evaluation</th>
<th>Control</th>
<th>Vitazyme</th>
</tr>
</thead>
<tbody>
<tr>
<td>November</td>
<td>86.4</td>
<td>95.3</td>
</tr>
<tr>
<td>January</td>
<td>79.5</td>
<td>88.1</td>
</tr>
<tr>
<td>March</td>
<td>79.6</td>
<td>87.3</td>
</tr>
</tbody>
</table>

**November .....................19%**  
**January .....................28%**  
**March .....................15%**
Conclusions: This carrot yield and storage quality study in the Netherlands revealed that four 1 liter/ha applications of Vitazyme, applied from planting to 14 weeks later, improved early growth and resulted in a 1.8 tonne/ha yield increase. Storage parameters were improved with Vitazyme, with substantial increases (15 to 28%) in healthy carrots throughout the 4-month evaluation period. Likewise, phytophthora, carrot fly, carrot rot, and both light and heavy violet rot incidences were reduced, often greatly with Vitazyme. These results show that carrot growth, yield, and especially storability of carrots can be substantially improved with Vitazyme application, making it a good choice for farmers to use in carrot production.
Vital Earth Resources
706 East Broadway, Gladewater, Texas 75647
(903) 845-2163     FAX: (903) 845-2262

2011 Crop Results

Vitalyme on Carrots


Planting date: March 18, 2010

Experimental design: A field area was divided into an untreated control and a Vitazyme treated area to evaluate the effect of the product on crop yield.

1. Control        2. Vitazyme

Fertilization: unknown

Vitazyme application: (1) 1 liter/ha on the leaves and soil 28 days after planting; (2) 1 liter/ha on the leaves and soil 69 days after planting

Yield results: The carrots were sampled at harvest on August 4, 2010.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Weight</th>
<th>Weight change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>grams/carrot</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>98.1</td>
<td>—</td>
</tr>
<tr>
<td>Vitazyme</td>
<td>114.6</td>
<td>16.5 (+17%)</td>
</tr>
</tbody>
</table>

Increase in carrot weight with Vitazyme: 17%

Conclusion: A carrot study in Australia showed that two Vitazyme applications greatly increased average root weight (+17%) at harvest. The final yield was considerably greater for the Vitazyme treatment, showing the great value of this program on carrots for Australia.
Farmer: West Hills Farms  
Researcher: Steven David  
Research organization: Organic Farming Systems, Perth, Australia  
Variety: Stefano  
Soil type: sand

Planting date: April 28, 2010

Experimental design: A field area was divided into an untreated control and a Vitazyme treated area to evaluate the effect of the product on crop yield.

1. Control  
2. Vitazyme

Fertilization: unknown

Vitazyme application: (1) 1 liter/ha on the soil 5 days after planting; (2) 1 liter/ha on the leaves and soil 48 days after planting

Yield results: The carrots were sampled midway through the growth cycle on September 20, 2010, and weighed.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Weight</th>
<th>Weight change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>22.5</td>
<td>—</td>
</tr>
<tr>
<td>Vitazyme</td>
<td>30.0</td>
<td>7.5 (+33%)</td>
</tr>
</tbody>
</table>

Conclusion: A carrot study in Australia showed that two Vitazyme applications greatly increased average root weight (+33%), as measured at midseason. The final yield was not measured, but presumably was considerably greater for the Vitazyme treatment, showing the great value of this program on carrots for Australia.
2007 Crop Results

Vitazyme on Carrots, Organic

**Researchers:** Jorge Gonzalez Acosta and Wilberto Gonzalez Marrero  
**Organization:** Ministry of Sugar, Camilo Cienfuegos Agricultural Enterprise  
**Location:** Villena Farm, Havana Province, Cuba  
**Variety:** 100-day maturity  
**Watering:** rainfed  
**Experimental design:** A 0.02 ha area was selected to evaluate the effectiveness of Vitazyme in promoting carrot yields. The crop was treated twice, and observed carefully throughout the growing cycle.

1. **Control**  
2. **Vitazyme**

**Fertilization:** according to recommendations  
**Vitazyme application:** two treatments at 1 liter/ha each time  
**Growth observations:** The Vitazyme treated carrots showed greater vegetative and root growth during the growing season.  
**Harvest date:** December 30, 2006

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>140.4</td>
<td></td>
</tr>
<tr>
<td>Vitazyme</td>
<td>146.6</td>
<td>6.2 (+4%)</td>
</tr>
</tbody>
</table>

**Increase in carrot yield:** 4%

**Conclusions:** This Cuban carrot trial revealed how effective Vitazyme can be in enhancing carrot yield under organic growing conditions. This excellent response (11%) continues the excellent responses obtained with the product on vegetables throughout Cuba over the past several years.
2006 Crop Results

Vitazyme on Carrots

**Researcher:** unknown  
**Location:** Ukraine  
**Variety:** unknown  
**Planting date:** unknown  
**Planting rate:** unknown  
**Experimental design:** Two half-hectare carrot field areas of “Area 5” were selected, one parcel treated with Vitazyme and the other area left untreated. The objective of the trial was to evaluate Vitazyme’s ability to influence carrot yield.

1. **Control**

**Fertilization:** unknown  
**Vitazyme application:** 1 liter/ha on the leaves and soil, at unknown dates  
**Harvest date:** October 1, 2006

**Yield results:**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield, 0.5 ha</th>
<th>Yield, 1.0 ha</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>14.1 kg</td>
<td>28.2 kg/ha</td>
<td></td>
</tr>
<tr>
<td>Vitazyme</td>
<td>15.3 kg</td>
<td>30.6 kg/ha</td>
<td>2.4 kg/ha (+9%)</td>
</tr>
</tbody>
</table>

**Increase in carrot yield:** 9%

**Conclusions:** This carrot test in the Ukraine has shown that Vitazyme can substantially improve the yield of these roots under the temperate conditions of the fertile mollisols of that region of Eastern Europe.