**Researcher:** V.V. Plotnikov  
**Location:** Biliaivka District, Odessa Region, Maiaky Village, LTD Maiaky, Ukraine  
**Variety:** Iordan  
**Planting date:** April 16, 2018  
**Previous crop:** winter wheat  
**Soil type:** typical chernozem (humus=4.1%)  
**Planting rate:** 600,00 seed/ha  
**Field preparation:** disk ing to 6-8 cm, plowing to 20-22 cm, cultivation to 4-5 cm  

**Experimental design:** A chickpea field trial was initiated in southern Ukraine by dividing a field into Vitazyme treated and untreated portions, to determine the effect of this product on chickpea yield.

**Fertilization:** 16-16-16 kg/ha N-P₂O₅-K₂O at planting  
**Vitazyme application:** 1 liter/ha sprayed on the soil on April 14, 2018

**Yield results:**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield</th>
<th>Yield change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>tonnes/ha</td>
<td>tonnes/ha</td>
</tr>
<tr>
<td>1. Control</td>
<td>1.34</td>
<td>—</td>
</tr>
<tr>
<td>2. Vitazyme</td>
<td>1.56</td>
<td>0.22 (+16%)</td>
</tr>
</tbody>
</table>

**Income results:** The 0.22 tonne/ha yield increase improved income by $199/ha.

**Conclusions:** A chickpea trial in southern Ukraine revealed a 16% yield increase with 1 liter/ha of Vitazyme applied on the soil before planting. This increase was highly profitable, giving the farmer $199/ha more income, showing the great value of this program.
Chickpeas with Vitazyme application

Researcher: Vadim Plotnikov
Location: Biliaivka District, Odessa Region, Maiaky Village, Ukraine
Variety: Iordan
Seeding rate: 0.6 million seeds/ha
Planting date: April 4, 2017
Previous crop: wheat
Soil type: typical Chernozem; humus = 4.1%
Soil preparation: diskng to 6-8 cm, plowing to 22-24 cm, harrowing to 4-5 cm
Experimental design: A chickpea field was divided into Vitazyme treated and untreated control areas to determine the efficacy of this product in promoting yield increases.

1. Control  2. Vitazyme

Fertilization: 16-16-16 kg/ha of N-P2O5-K2O as a starter at planting
Vitazyme application: 0.6 liter/ha sprayed on the leaves and soil at flowering
Growing season weather: dry

Yield results:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Pea yield</th>
<th>Yield change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>tons/ha</td>
<td>ton/ha</td>
</tr>
<tr>
<td>1. Control</td>
<td>1.84</td>
<td>—</td>
</tr>
<tr>
<td>2. Vitazyme</td>
<td>2.36</td>
<td>0.52 (+28%)</td>
</tr>
</tbody>
</table>

Increase in pea yield with Vitazyme: 28%

Income results: At a price of $875.00/ton of chickpeas, the added 0.52 ton/ha gave an additional $455/ha income.

Conclusions: A chickpea trial in southern Ukraine, during a drought-stricken year, using Vitazyme at 0.6 liter/ha sprayed on the leaves and soil at bloom, resulted in a 0.52 ton/ha (28%) yield increase. This increase resulted in an income increase of $455/ha. Such results illustrate the great utility of this program for chickpea production in Ukraine.