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

2010 Crop Results

Vitazyme on Canola, Winter

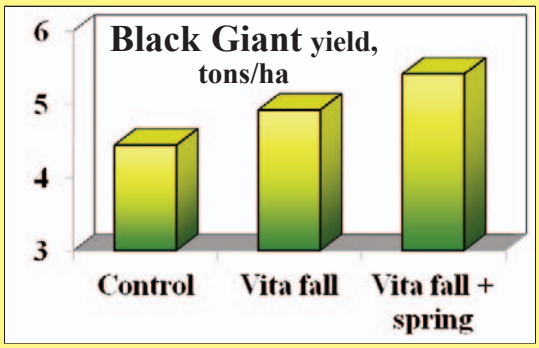
Ukrainian Test on Three Varieties

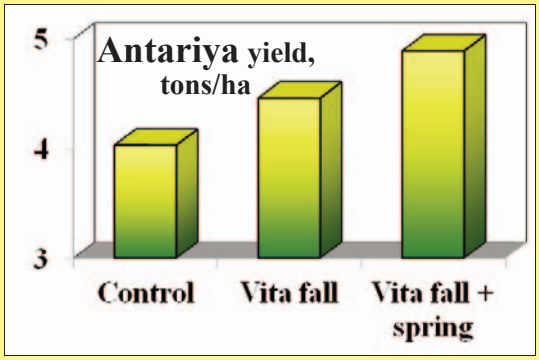
Researcher: V. V. Plotnikov *Location*: National Academy of Agrarian Sciences, Vinnytsia State Agricultural Research Station, Vinnytsia, Ukraine (Central Forest and Steppe Region)
Varieties: Black Giant, Antariya, Svitoch
Soil type: gray podzolic (organic matter = 2.2%, hydrolyzed N = 8.4 mg/100 g soil, P = 15.8 mg/100 g soil, exchangeable K = 12.4 mg/100 g soil, pH = 5.5)
Previous crop: tilled fallow *Planting date*: August 25, 2009 *Planting rate*: 7 kg/ha
Soil preparation: disking to 6 to 8 cm, tillage to 22 cm, and harrowing to 3 to 4 cm
Experimental design: An experimental area of 1 ha was divided into smaller plots to place three canola varieties into four replicates for each. Each variety received a control treatment and two Vitazyme treatments, with the objective of determining the effect of the product on canola yield.

1. Control **2. Vitazyme once** **3. Vitazyme twice**

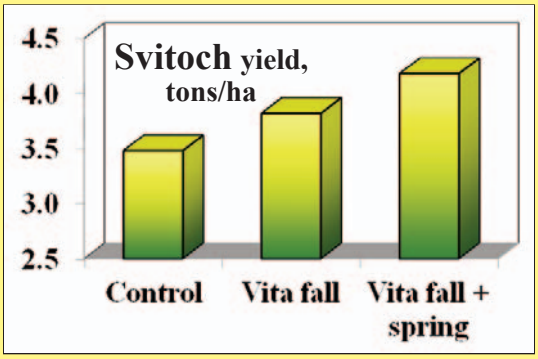
Fertilization: 30-60-90 kg/ha of N-P_2O_5-K_2O tilled in; spring, 90 kg/ha N.
Vitazyme application: 1 liter/ha for Treatments 2 and 3 on November 24, 2009 (5 to 6 leaves); 1 liter/ha in addition for Treatment 3 on April 30, 2010 (budding). Sprayer output: 200 liters of water delivered per ha. Vitazyme was applied with the pesticide.
Pesticide application: Condor 12 AM
Weather conditions: Generally favorable, but somewhat warmer and dryer than normal
Yield results:

Treatment	Yield	Yield change	Income increase
	t/ha	t/ha	hrn/ha
BLACK GIANT			
1. Control	4.44	---	---
2. Vita fall	4.92	0.48 (+11%)	1,720
3. Vita fall + spring	5.41	0.97 (+22%)	3,480
ANTARIYA			
1. Control	4.03	---	---
2. Vita fall	4.46	0.43 (+11%)	1,520
3. Vita fall + spring	4.89	0.86 (+21%)	3,040
SVITOCH			
1. Control	3.48	---	---
2. Vita fall	3.82	0.34 (+10%)	1,160
3. Vita fall + spring	4.18	0.70 (+20%)	2,400





Increase in Canola yield with Vitazyme		
	Fall only	Fall + Spring
Black Giant	11%	22%
Antariya	11%	21%
Svitoch	10%	20%



Conclusion: This Ukrainian replicated canola study proved that Vitazyme uniformly increased yields with a simple fall application of 1 liter/ha by 10 to 11%, while a fall plus a spring application about doubled that increase, to 20 to 22%. Income was also dramatically increased in all cases. These results show the great utility of the Vitazyme program to increase canola yields and profits in Ukraine.

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2009 Crop Results

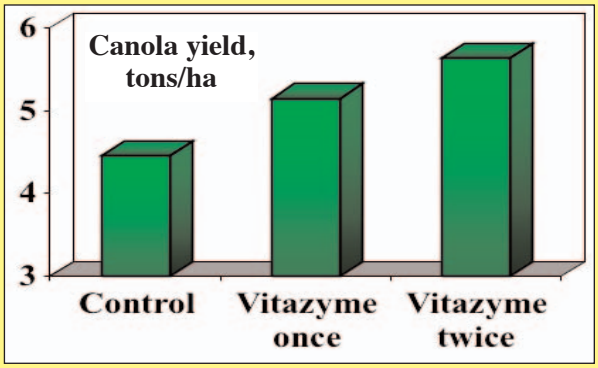
Vitazyme on Canola

Researcher: O.V. Kornijchuk, V.V. Plotnikov, and agronomic scientists
Organization: Vinnytsia State Agricultural Experiment Station, Ukraine Academy of Agrarian Sciences, Vinnytsia, Ukraine *Seeding rate*: 7 kg/ha *Seeding date*: August 30, 2008
Location: Ukraine central forest-steppe area near Vinnytsia *Previous crop*: spring barley
Variety: Black Giant, super elite *Tillage*: plowing, cultivation, and harrowing
Soil type: gray forest steppe soil; in the 0-30 cm layer, 2.2% organic matter, 8.4 mg/100 g of soil "hydrolyzed nitrogen", 15.8 mg/100g of soil phosphorus, 12.4 mg/100 g of soil exchangeable potassium, and pH=5.5.
Experimental design: A uniform field was divided into Vitayme treated and untreated plots of 1.0 ha, replicated four times, to discover the effect of the product on the canola yield.

1. Control **2. Vitazyme once** **3. Vitazyme twice**

Fertilization: in the fall of 2008, 30 kg/ha N, 60 kg/ha P_2O_5, and 90 kg/ha K_2O; in the spring of 2009, 90 kg/ha of N.
Vitazyme application: Treatment 1 received a fall application at 1.0 liter/ha on October 22, 2008, and Treatment 2 received this treatment plus another in the spring on April 30, 2009, at 1.0 liter/ha.
Yield results:

Treatment	Canola yield	Yield change
	tons/ha	tons/ha
1. Control	4.46	—
2. Vitazyme	5.15	0.69 (+15%)
3. Vitazyme, fall + spring application	5.64	1.18 (+26%)



Increase in canola yield with Vitazyme

Fall application 15%
Fall + Spring application 26%

Income results:

- **Income increase with fall Vitazyme: 1,663 hrn/ha**
- **Income increase with fall + spring Vitazyme: 2,786 hrn/ha**

Conclusions: This winter canola trial at Vinnytsia, Ukraine, revealed that a single Vitazyme application in the fall, at 1 liter/ha, gave a large yield increase of 15%. An additional spring application at 1 liter/ha provided nearly double the fall-only application: 26%. Both reatments resulted in substantial increases in income, of 1,663 and 2,786 hrn/ha. These results prove the great utility of this product to improve winter canola yields under Ukrainian soil and climatic conditions.

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2008 Crop Results

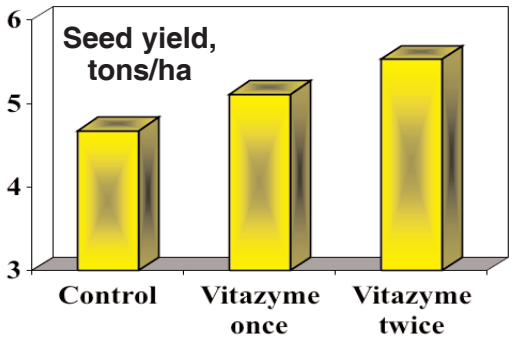
Vitazyme on Winter Canola

Researchers: O.V. Kornijchuk, V. V. Plotnikov, and agronomic scientists
Organization: Vinnytsia State Agricultural Experiment Station of Forage Institute, Ukraine Academy of Agrarian Sciences, Vinnytsia, Ukraine
Location: Ukraine central forest – steppe area of Ukraine near Vinnytsia
Variety: Black Giant Super – Elite *Seeding rate*: 6 kg/ha
Soil Type: gray forest steppe soil; in the 0-30 cm layer, 2.2% organic matter, 8.4 mg/100 g of soil "hydrolyzed nitrogen", 15.8 mg/100 g of soil phosphorus, 12.4 mg/100 g of soil exchangeable potasium, and pH = 5.5.
Planting date: August 18, 2007 *Previous crop*: winter wheat
Tillage: plowing to 22 cm, and cultivation to 3-4 cm
Experimental design: A uniform field area was selected to place 1.0 ha plots, replicated four times, over the test area. The objective was to determine if Vitazyme could favorably influence crop yields for this gray forest soil area of Ukraine.

1. Control 2. Vitazyme applied in the fall 3. Vitazyme applied both fall and spring

Fertilization: In the fall of 2007 a broadcast application of 30-60-90 kg/ha N-P_2O_5-K_2O was made. In the spring, 90 kg/ha of nitrogen was applied.
Vitazyme application: for Treatment 2, 1 liter/ha over the leaves and soil on October 5, 2007 (8 to 10 leaves), and for Treatment 3, 1 liter/ha on October 5, 2007, and also 1 liter/ha on May 15, 2008 (bloom).
Harvest date: unknown
Yield results:

Treatment	Seed yield	Change
	tons/ha	tons/ha
Control	4.67	—
Vitazyme 1x	5.11	0.44 (+9%)
Vitazyme 2x	5.53	0.86 (+18%)



Increase in yield with fall application: 9%
Increase in yield with fall and spring applications: 18%

Income results: Based on current canola prices, the increase in income from Vitazyme for the two treatments is as follows:

Fall application ..... 952 hrn/ha
Fall and spring application ..... 1,855 hrn/ha

Conclusions: A fall application of Vitazyme (1 liter/ha) after planting resulted in a sizeable 9% increase in canola yield in Ukraine. Applying a second 1 liter/ha application in the spring doubled this yield increase to 18%, showing how effective this fertility supplement is to improve yields and profits on canola in Eastern Europe. Income increases were substantial for the two treatments: 952 and 1,855 hrn/ha, respectively.

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1999 Crop Results

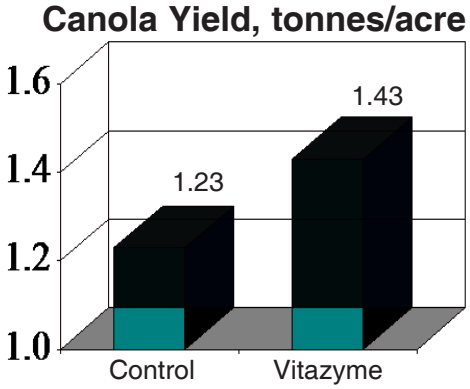
Vitazyme on Canola

Farmer: James Harrison
Location: North Yorkshire, England
Variety: Martina (a high uric acid industrial oil variety)
Planting date: unknown
Harvest date: unknown
Soil type: sandy clay loam
Experimental design: A canola field was divided into two parts, one treated with Vitazyme and the "Eco-Ag" System and the other left untreated.

1. Control **2. Vitazyme + Eco-Ag products**

Fertility treatments: no P_2O_5 or K_2O and reduced nitrogen fertilizer
Vitazyme applications: Vitazyme was applied at recommended rates with other Eco-Ag products.
Yield results:

	Control	Vitazyme	Increase
Yield, tonnes/acre	1.23	1.43	0.20 (+16%)



Yield increase: 16%

Income results: Canola price = $254.40/tonne.

	Control	Vitazyme
Income	$312.91/acre	$363.79/acre

Income increase: $50.88/acre

Comments: Using Vitazyme within the Eco-Ag program meant the crop required less fertilizer, especially nitrogen, than the conventional program. Even so, the Eco-Ag program still produced the highest yield and a sizeable income increase.