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

2014 Crop Results

Vitazyme on Cherries

Researcher: Jacob Hesseltine, Vital Grow Distribution LLC, Waterville, Washington
Farmer: Zirkle Fruit Company *Location*: Pasco, Washington *Variety*: Rainier
Rootstock: Mazard *Tree age*: 27 years

Experimental design: A Ranier cherry block of 15.2 acres (41.23 full rows) was treated with Vitazyme four times, except for six full rows that were left untreated to serve as a control. The objective of the study was to evaluate the effect of the product on fruit yield and quality.

1. Control **2. Vitazyme**

Fertilization: standard nutrient program

Vitazyme application: (1) 16 oz/acre at white (March 17); (2) 16 oz/acre at petal fall (March 26); (3) 16 oz/acre at first cover (April 14); 16 oz/acre a month later (May 13). A Power-Blast sprayer was used to treat the cherries, at 200 gal/acre and 2.75 mph.

Growing season weather: favorable, except for some frost damage from 18° F temperatures in the low-lying Vitazyme treated areas

Quality results: On June 9, 50 random and average cherries were collected from both treatments for quality analyses, shown below.

Fruit Size

Treatment	Fruit diameter[1]	Diameter change
	mm	mm
Control	30.19	—
Vitazyme	32.28	2.09 (+7%)

[1]Determined using a Cranston fruit sizer.

Increase in fruit size with Vitazyme: 7%

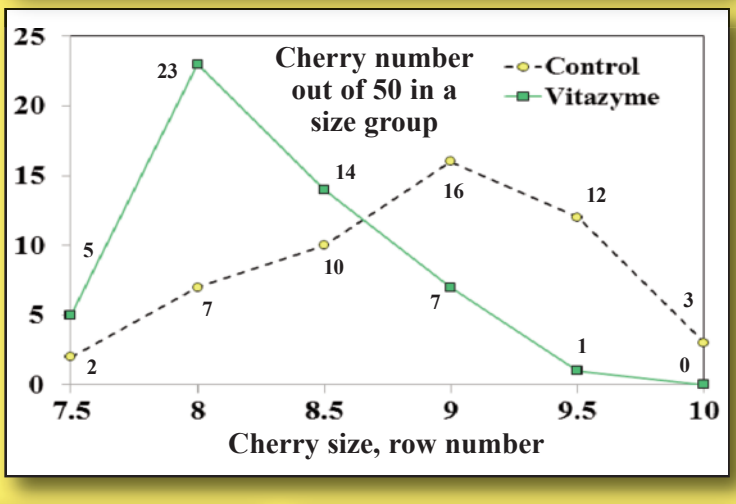
Cherries in Size Groupings (50 fruit each)

Size, row number[1]	Vitazyme Cherry number	Vitazyme %	Control Cherry number	Control %
7.5	5	10	2	4
8	23	46	7	14
8.5	14	28	10	20
9	7	14	16	32
9.5	1	2	12	24
10	0	0	3	6

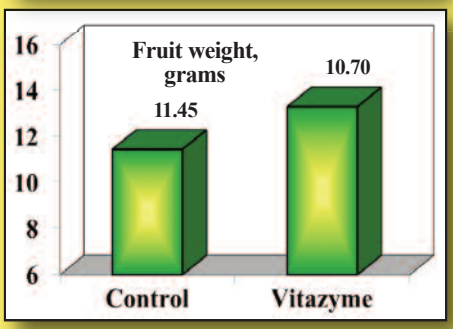
[1]Cherry sizes are designated by "row", which originated when the size was determined by the number of fruit what would fit acrosss the top of a cherry box. The smaller the number, the larger the cherry. An industry standard cherry sizer card was used.

Cherry Size Review

The size groups for Vitazyme treated cherries are obviously larger than for the untreated control fruit. The 8.5-row and larger fruit treated with Vitazyme comprise 84% of the total, while the same size groups for the control are only 38% of the total.



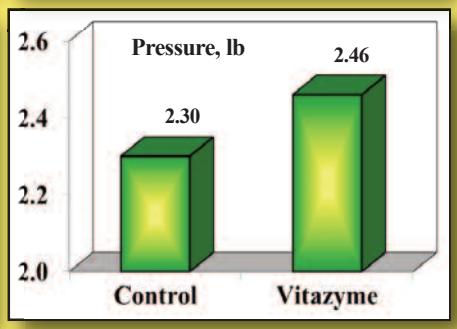
Fruit Weight[1]



[1]Determined by a Matrix-500 digital scale.

Increase in fruit weight with Vitazyme: 16%

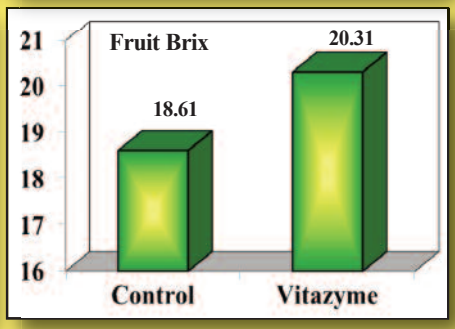
Fruit Pressure[1]



[1]Determined by a QA Supplies penetrometer.

Increase in fruit pressure with Vitazyme: 7%

Fruit Brix[1]



[1]Determined by an Atago PAL-1 refractometer.

Increase in fruit Brix with Vitazyme: 1.70 %-points

Fruit yield results: The first two pickings were recorded, on June 9 and 10, and June 12 and 13.

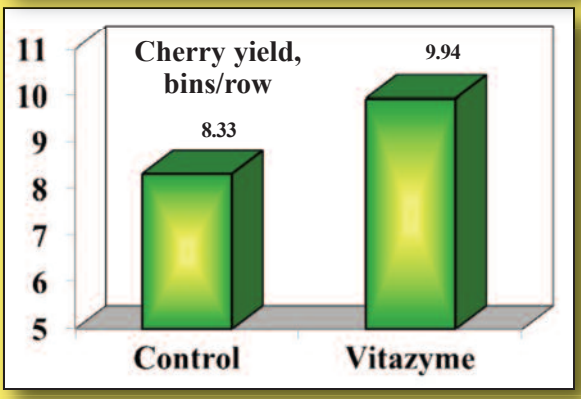
Cherry Yield

	Picking 1			Picking 2			Total	
Treatment	Total bins	Yield/Row[1]	Difference	Total bins	Yield/Row[1]	Difference	Yield/Row[1]	Difference
	bins	bins/row	bins/row	bins	bins/row	bins/row	bins/row	bins/row
Control	22.0	3.67	—	28.00	4.67	—	8.33	—
Vitazyme	182.62	4.43	0.76(+21%)	227.38	5.51	0.84 (+18%)	9.94	1.61 (+19%)

[1]Vitazyme treated rows = 41.23; control rows = 6.00.

Conclusions: A Rainier cherry trial in central Washington revealed considerable improvements in fruit yield and quality with four applications of Vitazyme. Fruit size was increased by 7% on average, with 84% of the treated cherries being 8.5-row or larger; the control cherries had only 38% of the total fruit in these sizes. Fruit weight rose by 16%, fruit pressure by 7%, and fruit Brix by 1.70 percentage points, on top of a yield increase of 19%. This excellent management tool is shown to be a great asset to cherry quality and yield; larger, firmer, and sweater cherries. These improvements were made in spite of early frost damage to the lower-lying Vitazyme portions of the experimental block.

Cherry Yield



Increase in cherry yield with Vitazyme: 19%

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2014 Crop Results

Vitazyme on Cherries

Researcher: Jacob Hesseltine, Vital Grow Distribution LLC, Waterville, Washington
Farmer: Zirkle Fruit Company *Location*: Pasco, Washington *Variety*: Bing
Rootstock: Mazard *Tree age*: 27 years
Tree density: 20 feet between rows and 18 feet in-row (0.008264 acre/tree), or 121 trees/acre
Experimental design: A 16.7-acre area of Bing cherries, the equivalent of 84 full rows in this orchard, was sprayed with Vitazyme four times to evaluate the effect of the product on fruit yield and quality. Twelve full tows were left untreated as the control.

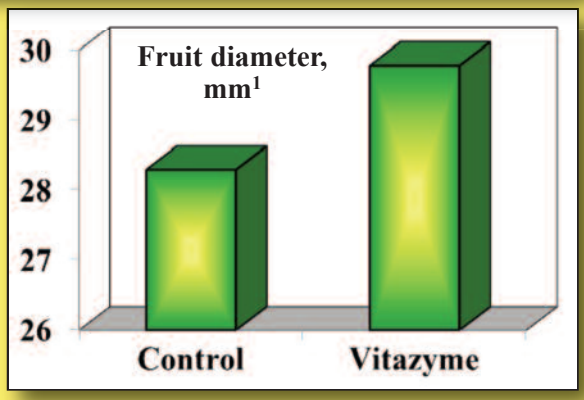
1. Control **2. Vitazyme**

Fertilization: standard nutrient program
Vitazyme application: (1) 16 oz/acre at white (March 17); (2) 16 oz/acre at petal fall (March 26); (3) 16 oz/acre at first cover (April 14); (4) 16 oz/acre a month later (May 13). A Power-Blast sprayer, using 200 gal/acre, driven at 2.75 mph, was used to apply the product.
Growing season weather: favorable except for freezing temperatures (down to 18° F) in some low lying areas of the Vitazyme-treated areas, resulting in fruit damage
Harvest date: June 12 to 14, 2014. On June 12, 50 random cherry samples were collected from both treatments to evaluate weight and quality parameters.
Fruit quality results:

Fruit Size

Treatment	Fruit diameter	Diameter change
	mm	mm
Control	28.29	—
Vitazyme	29.78	1.49 (+5%)

Increase in fruit size with Vitazyme: 5%



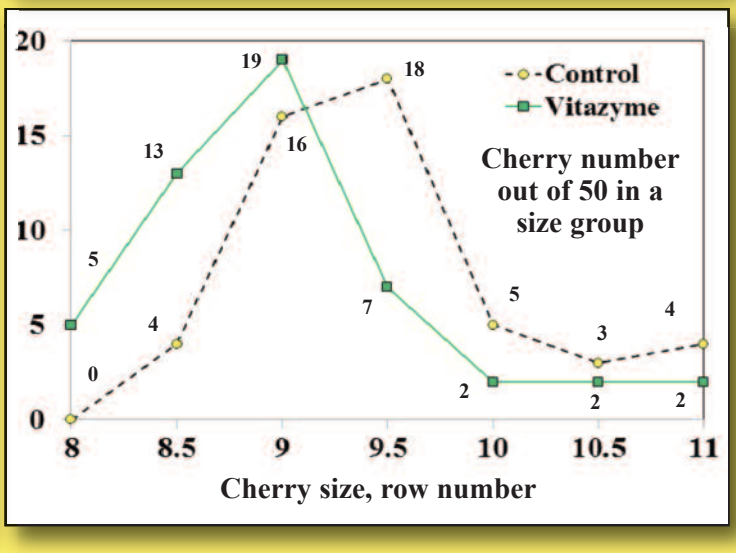
[1]Determined using a Cranston fruit sizer.

Cherries in Size Groupings

Size, row number[1]	Vitazyme Cherry number	Vitazyme %	Control Cherry number	Control %
8	5	10	0	0
8.5	13	26	4	8
9	19	38	16	32
9.5	7	14	18	36
10	2	4	5	10
10.5	2	4	3	6
11	2	4	4	8

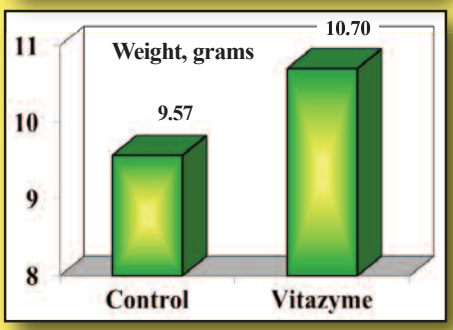
[1]Cherry sizes are designated by "row", which originated when the size was determined by the number of fruit what would fit acrosss the top of a cherry box. The smaller the number, the larger the cherry. An industry standard cherry sizer card was used.

Cherry Size Review



The average cherry size was improved by 5%, and this size improvement is revealed in the size review, where the entire size spectrum is moved towards larger sizes with Vitazyme; 9-row and larger cherries with Vitazyme comprised 74% of the total, but only 40% of the control treatment.

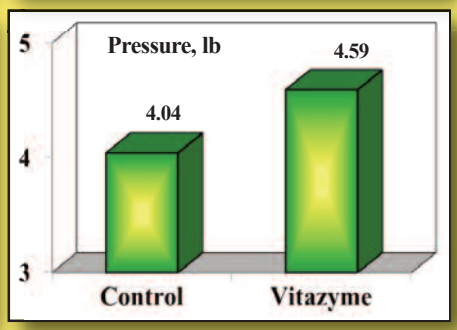
Fruit Weight[1]



[1]Determined by a Matrix-500 digital scale.

Increase in fruit weight with Vitazyme: 12%

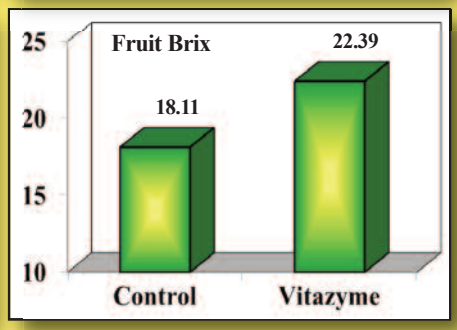
Fruit Pressure[1]



[1]Determined by a QA Supplies penetrometer.

Increase in fruit pressure with Vitazyme: 14%

Fruit Brix[1]



[1]Determined by an Atago PAL-1 refractometer.

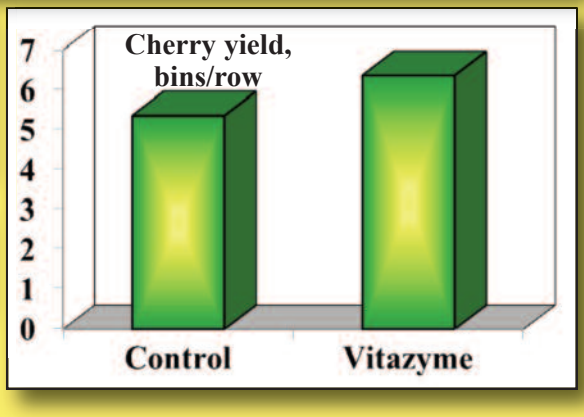
Increase in fruit Brix with Vitazyme: 4.28 %-points

Fruit yield results: The bins from the Vitazyme treated rows were totaled, as were the bins for the untreated rows, to determine harvested yield.

Cherry Yield

Treatment	Total bins	Rows	Yield/Row	Yield change
			bins/row	bins/row
Control	64.25	12	5.35	—
Vitazyme	534.5	84	6.36	1.01 (+19%)

Increase in cherry yield with Vitazyme: 19%



Conclusions: A Bing cherry trial in central Washington, wherein Vitazyme was applied four times, revealed that Vitazyme increased all important fruit quality parameters: weight by 12%, pressure by 14%, Brix by 4.28 percentage points, and grade by moving the size towards the larger row-number ratings; 9-row and larger cherries with Vitazyme comprised 74% of the total, whereas for the control these sizes made up only 40% of the total. A detailed yield analysis based on bin counts produced a 19% yield advantage for Vitazyme, which exceeded the estimated fruit weight increase of 12%, indicating that there was less fruit droppage and abortion with Vitazyme application. Moreover, serious frost damage from 18° F spring temperatures during early development, being more prevalent in the treated areas of the test, did not greatly limit the yield improvement from the product, although the yield increase may have been even greater had not the low temperatures occurred. The Vitazyme program is shown to be an excellent and highly profitable management tool for cherry growers in Washington.

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2014 Crop Results

Vitazyme on Cherries

Synergism with Simplot Seaweed

Researchers: Cameron Nystrom, Stemilt Quality Control Porch Analyst, andJacob Hesseltine, Vital Grow Distribution LLC, Waterville, Washington
Farmer: Kyle Mathison Orchards
Location: Stemilt Hill, Wenatchee, Washington
Variety: Sweetheart
Rootstock: Mazard
Tree age: 8 years
Tree density: 17 feet between rows, 11 feet in-row (0.004293 acre/tree), or 233 trees/acre
Experimental design: A Sweetheart cherry block of 25 acres was divided into two equal parts, one half treated with Simspray seaweed extract five times, and the other half treated with Simspray three times followed by Vitazyme twice. The purpose of the trial was to discover the effects of the two products on cherry quality.

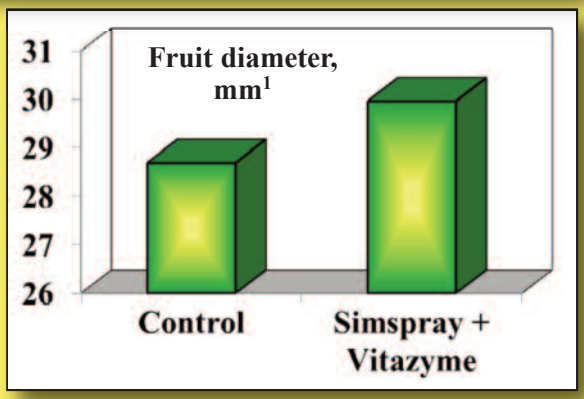
	Fruit development stage				
Treatment	**First white**	**20% bloom**	**Petal fall**	**Shuck fall**	**10 days later**
	oz/acre				
1. Simspray only	16	16	16	16	16
2. Simspray	16	16	16	0	0
Vitazyme	0	0	0	16	16

Fertilization: 8 tons/acre of compost the fall of 2013; 2 lb/tree of Ca $(NO_3)_2$ on the soil at petal fall; 2 lb/tree of $(NH_4)_2SO_4$ in the fall of 2013
Vitazyme application: See the table above. An air-blast sprayer was used which delivered 200 gal/acre, at 2 mph.
Simspray Seaweed Extract: See the table above.
Weather during the growing season: favorable
Harvest date: August 7, 2014
Fruit quality results: Fifty random samples of fruit were collected twice from each treatment to evaluate quality parameters. Data were obtained by Cameron Nystrom.

Fruit Size

Treatment	Fruit diameter	Diameter change
	mm	mm
Simspray	28.69	—
Simspray + Vitazyme	29.96	1.27 (+4%)

Increase in fruit size with Vitazyme: 4%



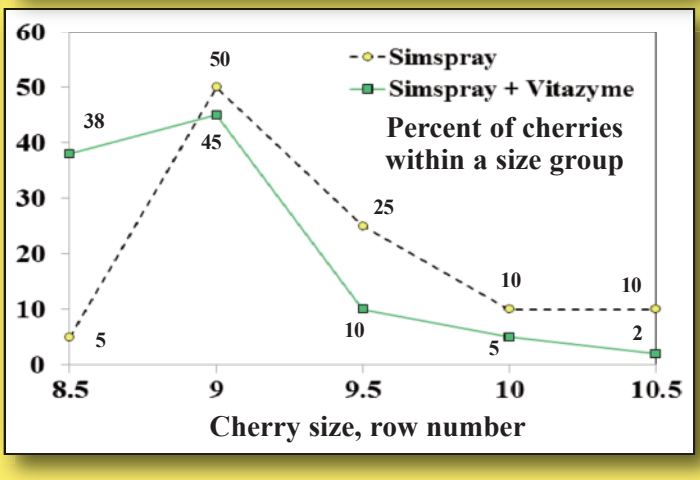
[1]Determined using a Cranston fruit sizer.

Cherries in Size Groupings (100 fruit each)

Size, row number[1]	Simspray	Simspray + Vita
	% in a size	
8.5	5	38
9	50	45
9.5	25	10
10	10	5
10.5	10	2

[1]Cherry sizes are designated by "row", which originated when the size was determined by the number of fruit what would fit acrosss the top of a cherry box. The smaller the number, the larger the cherry. An industry standard cherry sizer card was used.

Cherry Size Review

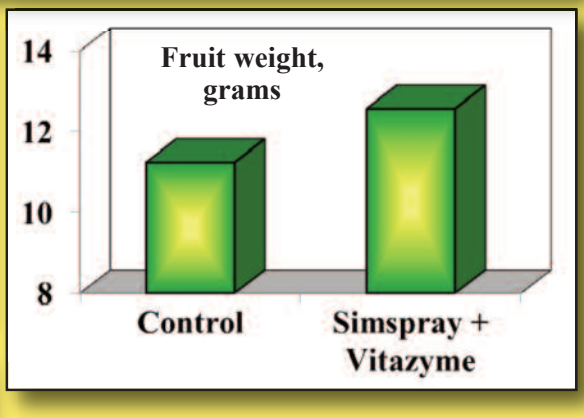


Note that when Vitazyme was added to Simspray the cherry size increased, so that 83% of the fruit were 9-row or larger, versus only 55% for the Simspray alone.

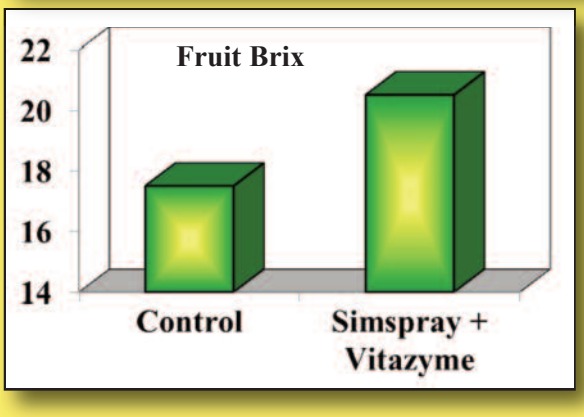
Fruit Weight

Treatment	Cherry weight	Weight change
	grams	grams
Set 1: Simspray	11.28	—
Simspray + Vitazyme	12.52	1.24 (+11%)
Set 2: Simspray	11.20	—
Simspray + Vitazyme	12.62	1.42 (+13%)
Average: Simspray	11.24	—
Simspray + Vitazyme	12.57	1.33 (+12%)

Increase in fruit weight with Vitazyme: 12%



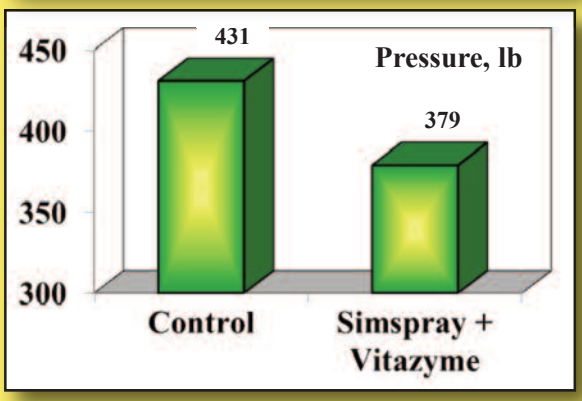
Fruit Brix



Treatment	Fruit Brix	Brix change
	Brix	Brix
Set 1: Simspray	18.0	—
Simspray + Vitazyme	21.0	3.0 %-points
Set 2: Simspray	17.0	—
Simspray + Vitazyme	20.0	3.0 %-points
Average: Simspray	17.5	—
Simspray + Vitazyme	20.5	3.0 %-points

Increase in fruit Brix with Vitazyme: 3.0 %-points

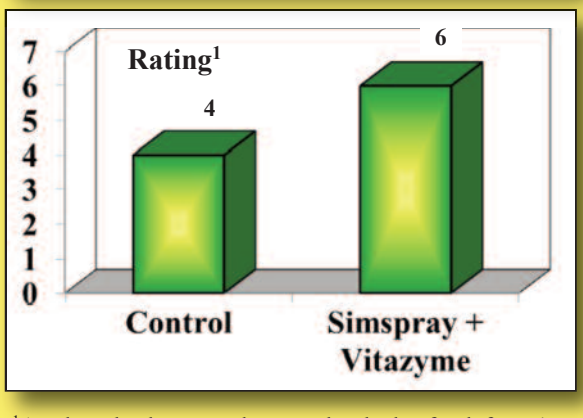
Fruit Pressure



The pressure of the Simspray was greater due to the lack of maturity for many of these cherries treated with Simspray only (i.e., they were still hard.)

Decrease in fruit pressure with Vitazyme: 12%

Color Rating



[1]A color wheel was used to rate the shade of red, from 1 to 7, 7 being the darkest.

Increase in dark red color with Vitazyme: 2 points

Conclusions: A Sweetheart cherry study in central Washington, using Vitazyme for the last two of five applications after three Simspray seaweed applications, as compared to cherries treated five times with Simspray only, revealed that Vitazyme greatly improved fruit development and quality. Average cherry size was increased (83% 8.5 and 9-mm cherries vs. 55% for Simspray), fruit weight was improved (12%), fruit Brix was dramatically raised (3.0 percentage points), and fruit color was greatly darkened at harvest. A reduction in fruit pressure was caused by hard, immature fruit for the Simspray-only treatment.

According to the researchers, the Vitazyme treated fruit was larger, heavier, better colored, and sweeter than the Simspray-only treated fruit. Vitazyme is shown to be an excellent complement to seaweed sprays in Washington cherry production. The yield improvement realized from the product would likely be around 12%, the same as the fruit weight increase, assuming fruit set for both treatments was similar.

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2014 Crop Results

Vitazyme on Cherries

A Comparison with Stimplex Seaweed

Researcher: Jacob Hesseltine, Vital Grow Distribution LLC, Waterville, Washington
Farmer: KS Orchards, Silver Hawk *Location*: Royal City, Washington *Variety*: Skeena
Rootstock: Mazard *Tree age*: 5 years
Tree density: 16 feet between rows, 8 feet in-row (0.002938 acre/tree), or 340 trees/acre
Soil type: Adkins very fine sandy loam and Taunton very fine sandy loam
Experimental design: An 8-acre cherry block was divided into two equal halves, one half treated with Stimplex and the other half treated with Vitazyme four times. The purpose of the trial was to determine the effect of the product on cherry quality.

1. Stimplex **2. Vitazyme**

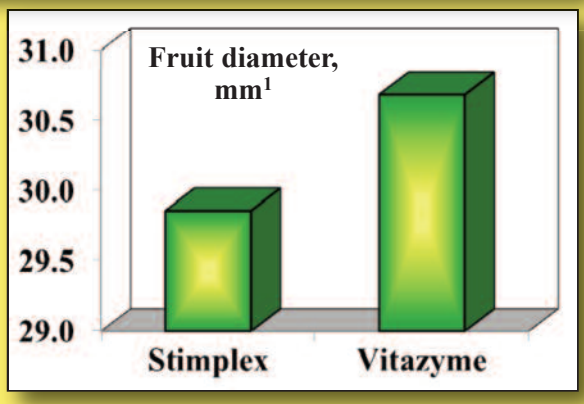
Fertilization: 50 lb/acre of N the fall of 2013, and 35 lb/acre of N in April of 2014
Vitazyme application: (1) 16 oz/acre on April 16; (2) 16 oz/acre on April 23; (3) 16 oz/acre on April 30; (4) 16 oz/acre on May 7. An air-blast sprayer (Rears Powerblast TTN 400) was used to apply the product, at 200 gal/acre and 3 mph.
Stimplex application: 48 oz/acre at the same times as Vitazyme (above)
Growing season weather: favorable: low springtime temperatures but little frost, and high temperatures during fruit maturation and harvest
Harvest date: Samples were taken July 8, which was about harvest time.
Fruit quality results: Data were collected from 50 randomly selected cherries from the two treatments. Values were averaged from the 50 fruit except for the size breakdown.

Fruit Size

Treatment	Fruit diameter	Diameter change
	mm	mm
Stimplex	29.856	—
Vitazyme	30.681	0.825 (+3%)

Increase in fruit size with Vitazyme: 3%

A 3% fruit diameter improvement was realized with Vitazyme versus the Stimplex treatment.



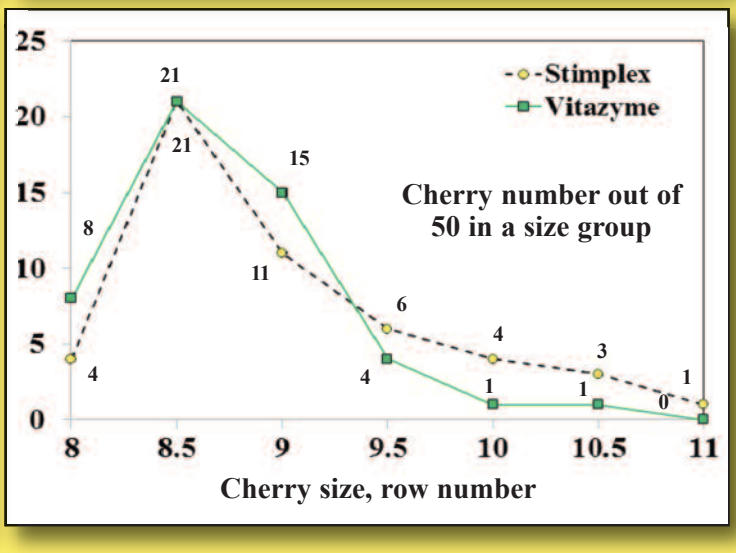
[1]Determined using a Cranston fruit sizer.

Cherries in Size Groupings (50 fruit each)

Size, row number[1]	Stimplex Cherry number	Stimplex %	Vitazyme Cherry number	Vitazyme %
8	4	8	8	16
8.5	21	42	21	42
9	11	22	15	30
9.5	6	12	4	8
10	4	8	1	2
10.5	3	6	1	2
11	1	2	0	0

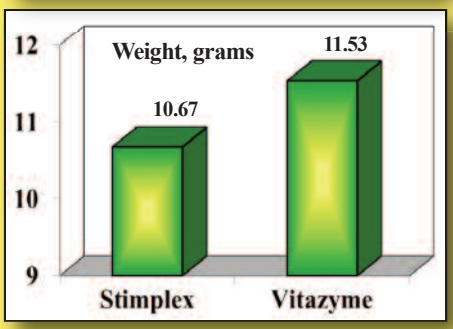
[1]Cherry sizes are designated by "row", which originated when the size was determined by the number of fruit what would fit acrosss the top of a cherry box. The smaller the number, the larger the cherry. An industry standard cherry sizer card was used.

Cherry Size Review



Vitazyme moved cherry size toward the larger diameter versus Stimplex.

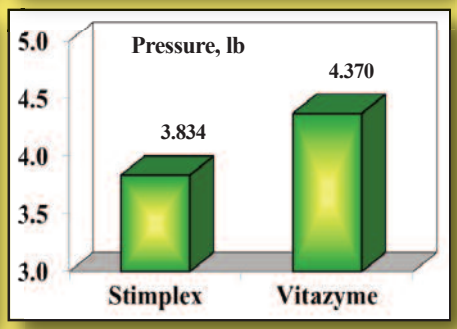
Fruit Weight[1]



[1]Determined by a Matrix-500 digital scale.

Increase in fruit weight with Vitazyme: 8%

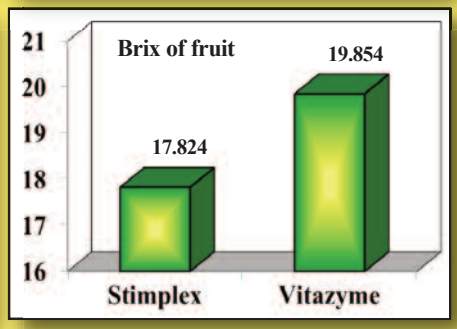
Fruit Pressure[1]



[1]Determined by a QA Supplies penetrometer.

Increase in fruit pressure with Vitazyme: 14%

Fruit Brix[1]



[1]Determined by an Atago PAL-1 refractometer.

Increase in fruit Brix with Vitazyme: 2.030 %-points

Conclusions: This Skeene cherry study in central Washington revealed that four applications of Vitazyme improved the quality of the fruit substantially compared to four applications of Stimplex seaweed extract. Fruit size was improved by 3%, with size groupings moved toward the larger diameter fruit, as evaluated by "row number" designations. Average cherry weight was increased above Stimplex by 8%, fruit pressure by 14%, and fruit Brix by a full 2.03 percentage points. Though yield was not measured, if the fruit set was similar for both treatments there would be a decided advantage for the Vitazyme treatment. These results prove that Vitazyme is a superior agronomic tool for improving cherry size, grade, storability and less transport damage, and sweetness than is Stimplex seaweed. Moreover, Vitazyme sells for about $60.00/gal, and is used at 16 oz/acre for four applications, or 64 oz/acre a season, costing about $30.00/acre. Stimplex, on the other hand, is applied at 48 oz/acre each time, requiring 192 oz/acre for a season, at a cost of about $50.00/gal; the seasonal cost is around $75.00/acre. Thus, product cost for Stimplex is 250% higher than for Vitazyme, and the response with the crop is much less. Cherry farmers in Washington would do well to incorporate Vitazyme into their production programs.

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2014 Crop Results

Vitazyme on Cherries

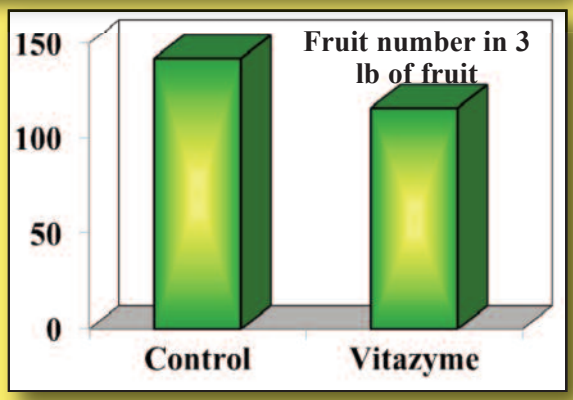
Researcher: Casimir Lorentz, Quincy Farm Chemicals, and Jacob Hesseltine, Vital Grow Distribution LLC, Waterville, Washington *Farmer*: Weber Orchards, Sylvestre Evangelista, farm manager
Location: Quincy, Washington *Variety*: Bing *Rootstock*: Mazard
Tree density: 22 feet between rows, 20 feet in-row (0.010101 acre/tree), or 99 trees/acre
Tree age: 32 years *Soil type*: sandy loam
Experimental design: Three blocks (13 acres each) of Bing cherries, seven rows in each of these blocks, were treated with Vitazyme, while the other rows served as untreated controls. The objective of the study was to determine the efficacy of this product to improve the yield of fruit.

1. Control **2. Vitazyme**

Fertilization: standard orchard practice
Vitazyme application: (1) 16 oz/acre at first white; (2) 16 oz/acre at petal fall; (3) 16 oz/acre at first cover; (4) 16 oz/acre 7 days after first cover. An air-blast sprayer was used, giving 80 gallons/acre, driven at a speed of 3.5 mph.
Growing season observations: The researcher noted that the Vitazyme treated cherries were larger than the untreated fruit, and they were also sweeter.
Growing season weather: favorable for crop development
Harvest date: June 20, 2014
Yield results: To determine yield, three pounds of cherries were picked randomly for each treatment, and the number of fruit were counted in these samples.

Change in Fruit Size and Weight

Treatment	Fruit number in three lb	Fruit number change
Control	142	—
Vitazyme	116	(-) 26 (-18%)



There was a great increase in fruit size with Vitazyme treatment, such that only 116 cherries were needed to total three pounds of fruit, whereas the control treatment required 142 cherries for the same weight. This difference indicates a 16% increase in fruit weight per cherry. If one assumes an equal fruit load on both the control and Vitazyme treated trees, then this difference should indicated a 16% yield increase with Vitazyme.

Likely increase in cherry yield with Vitazyme: 18%

Conclusions: A Bing cherry study in central Washington, applied four times starting at first white, caused considerably larger fruit, which produced a yield increase that most likely approached 18%, if fruit set was the same for both treatments. this program is shown to be highly efficacious for cherry production in the Pacific Northwest.

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2014 Crop Results

Vitazyme on Cherries

Researcher: Jacob Hesseltine, Vital Grow Distribution LLC, Waterville, Washington
Farmer: Martinez Livestock, Inc. *Location*: China Bar, near Mattawa, Washington
Variety: Rainier *Rootstock*: Mazard *Tree age*: 23 years
Tree density: 16 feet between rows, 10 feet in-row (0.00367 acre/tree), or 272 trees/acre
Experimental design: A 19-acre block of Rainier cherries, interspersed with Bing cherries, was divided into two equal parts, with Vitazyme applied four times to one half, and the other half was left as an untreated control. The purpose of the study was to determine the effect of the product on cherry quality.

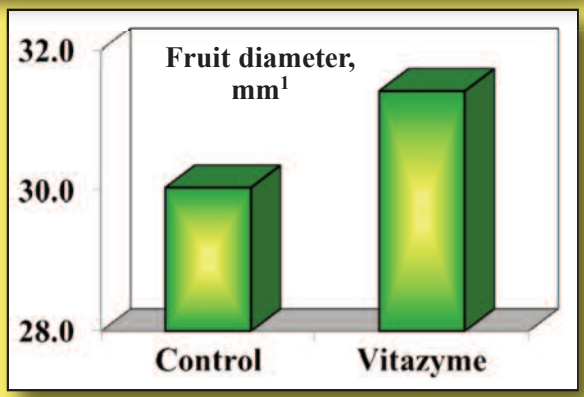
1. Control **2. Vitazyme**

Fertilization: 4 lb/acre of dry nitrogen
Vitazyme application: (1) 16 oz/acre at petal fall; (2) 16 oz/acre 15 days after petal fall; (3) 16 oz/acre 30 days after petal fall; (4) 16 oz/acre 45 days after petal fall. An air-blast sprayer was used giving 100 to 200 gal/acre, with a driving speed of 2.1 to 2.2 mph.
Growing season weather: The weather during the growing season was good for cherry production.
Appearance during the growing season: The researcher and the farmer both noted that the treated cherries were larger than the control cherries, and there was less disease in the treated trees as well.
Harvest date: June 16, 2014
Fruit quality results: Fifty random samples of fruit were collected from each treatment on harvest day for the following evaluations.

Fruit Size

Treatment	Fruit diameter	Diameter change
	mm	mm
Control	30.039	—
Vitazyme	31.413	1.374 (+5%)

Increase in fruit size with Vitazyme: 5%



Vitazyme produced a greater fruit diameter than the control by 5%.

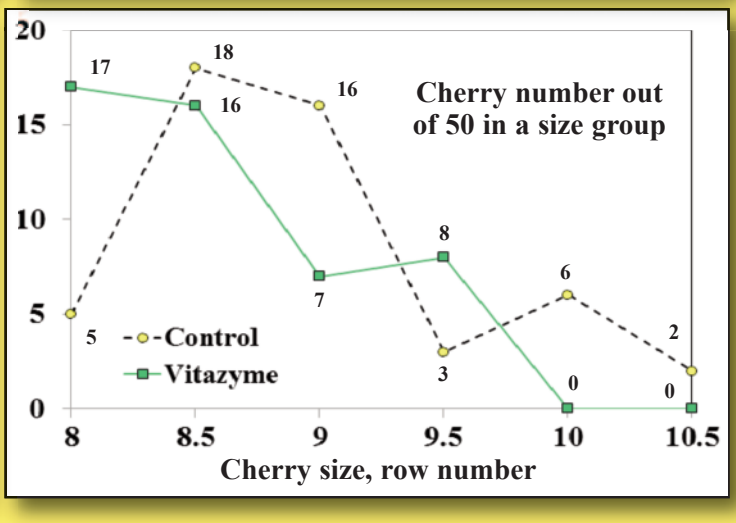
[1]Determined using a Cranston fruit sizer.

Cherries in Size Groupings (50 fruit each)

Size, row number[1]	Vitazyme Cherry number	Vitazyme %	Control Cherry number	Control %
8	17	34	5	10
8.5	16	32	18	36
9	7	14	16	32
9.5	8	16	3	6
10	0	0	6	12
10.5	0	0	2	2

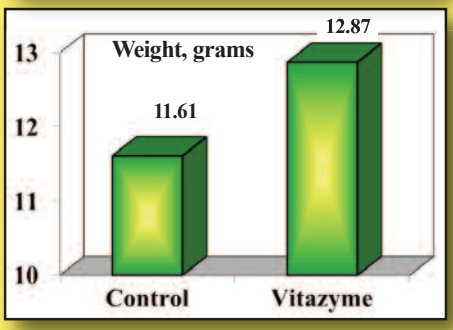
[1]Cherry sizes are designated by "row", which originated when the size was determined by the number of fruit what would fit acrosss the top of a cherry box. The smaller the number, the larger the cherry. An industry standard cherry sizer card was used.

Cherry Size Review



Vitazyme moved the cherries into the larger size group; especially at 8-row.

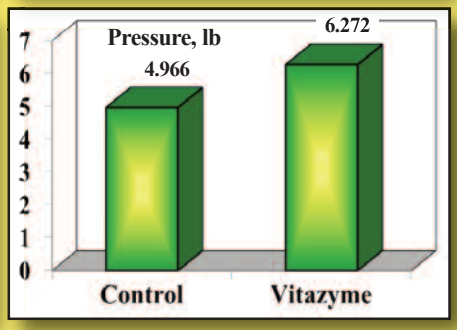
Fruit Weight[1]



[1]Determined by a Matrix-500 digital scale.

Increase in fruit weight with Vitazyme: 11%

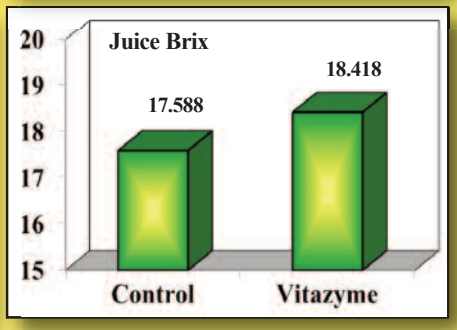
Fruit Pressure[1]



[1]Determined by a QA Supplies penetrometer.

Increase in fruit pressure with Vitazyme: 26%

Fruit Brix[1]



[1]Determined by an Atago PAL-1 refractometer.

Increase in fruit Brix with Vitazyme: 0.83 %-point

Conclusions: A Rainier cherry split-orchard trial in central Washington revealed that four 16-ounce applications of Vitazyme, beginning at petal fall, greatly enhanced the quality of the fruit. Fruit diameter was improved by 5%, with 34% of the cherries in the Vitazyme treatment being 8 row, compared to only 10% in the control treatment. Size was moved substantially towards the larger diameter with Vitazyme. Likewise, fruit weight was increased by 11%, fruit pressure by an amazing 26%, and fruit Brix by 0.83 percentage-point compared to the untreated control cherries. The firmer fruit means better transportability and less bruising during marketing, leading to longer shelf life and a better appearance for the consumer. No yield determinations were made, but had they been the Vitazyme treatment would have shown a substantial yield increase versus the control. This simple program is shown to be an excellent complement to successful cherry production in Washington, and due to its low cost a very profitable one.

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2014 Crop Results

Vitazyme on Cherries

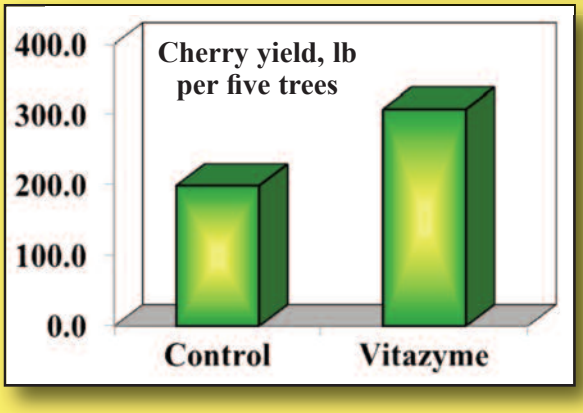
Researcher: Jacob Hesseltine, Vital Grow Distribution LLC, Waterville, Washington
Farmer: Martinez Livestock, Inc. *Location*: China Bar, near Mattawa, Washington
Variety: Bing *Rootstock*: Bing on Mazard *Tree age*: 23 years
Tree density: 16 feet between rows, 10 feet in-row (0.00367 acre/tree), or 272 trees/acre
Experimental design: A 19-acre block of cherry trees was divided into two equal portions, a Vitazyme treated area (four applications) and an untreated control area. The purpose of the study was to evaluate the effect of this product on cherry yield and quality.

1. Control **2. Vitazyme**

Fertilization: 4 lb/acre of dry nitrogen
Vitazyme application: (1) 16 oz/acre at petal fall; (2) 16 oz/acre 15 days after petal fall; (3) 16 oz/acre 30 days after petal fall; (4) 16 oz/acre 45 days after petal fall. An air-blast sprayer was used giving 100 to 200 gal/acre, with a driving speed of 2.1 to 2.2 mph.
Growing season weather: The weather during the growing season was good for cherry production.
Appearance during the growing season: Both the researcher and the farmer noted that the treated cherries looked larger and healthier than the control cherries during the growing season.
Harvest date: June 16, 2014
Yield results: Five trees in the Vitazyme treated side were picked and yielded 308 lb, while five trees a few rows away in the untreated side yielded 199 lb. A similar fruit set was selected for the trees from the two sides.

Treatment	Yield, 5 trees	Yield, 1 tree	Yield per acre*	Yield increase
	lb	lb	lb	lb
Control	199	39.8	10,826	—
Vitazyme	308	61.6	16,755	5,929 (+55%)

*Based on 272 trees/acre



It is clear that the Vitazyme treated cherry yield was remarkedly higher (+55%) than the control treatment. As shown below, this yield improvement was due not just to more fruit, but larger fruit as well.

Increase in fruit yield with Vitazyme: 55%

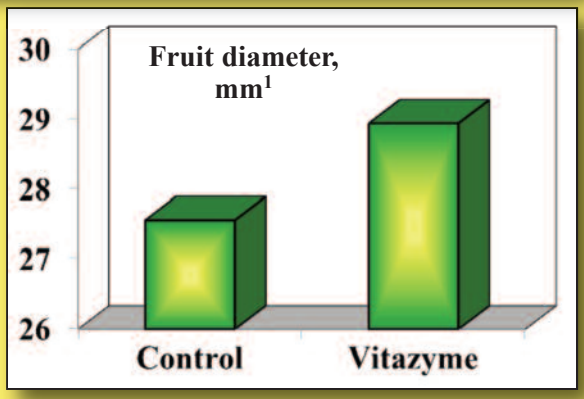
Fruit quality results: Fifty random samples of fruit were collected from each treatment on harvest day for the following evaluations.

Fruit Size

Treatment	Fruit diameter	Diameter change
	mm	mm
Control	27.554	—
Vitazyme	28.942	1.388 (+5%)

Increase in fruit size with Vitazyme: 5%

Vitazyme produced a greater fruit diameter than the control by 5%.



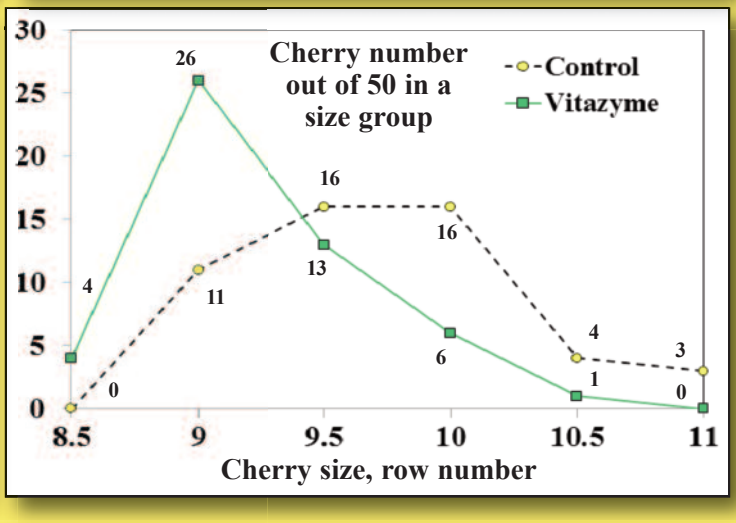
[1]Determined using a Cranston fruit sizer.

Cherries in Size Groupings (50 fruit each)

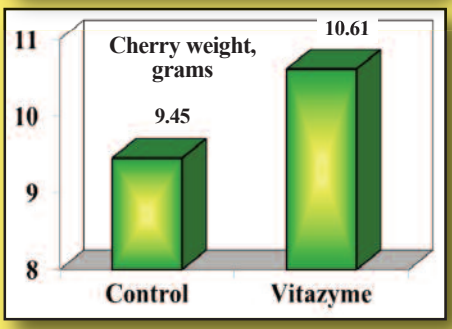
Size, row number[1]	Vitazyme Cherry number	Vitazyme %	Control Cherry number	Control %
8.5	4	8	0	0
9	26	52	11	22
9.5	13	26	16	32
10	6	12	16	32
10.5	1	2	4	8
11	0	0	3	6

[1]Cherry sizes are designated by "row", which originated when the size was determined by the number of fruit what would fit acrosss the top of a cherry box. The smaller the number, the larger the cherry. An industry standard cherry sizer card was used.

Cherry Size Review



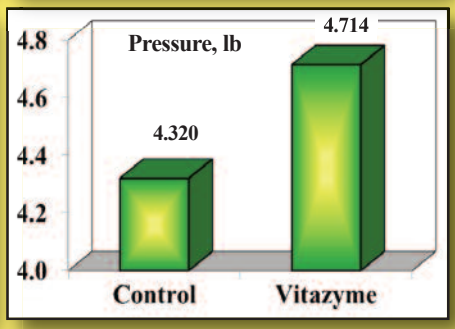
Fruit Weight[1]



[1]Determined by a Matrix-500 digital scale.

Increase in fruit weight with Vitazyme: 12%

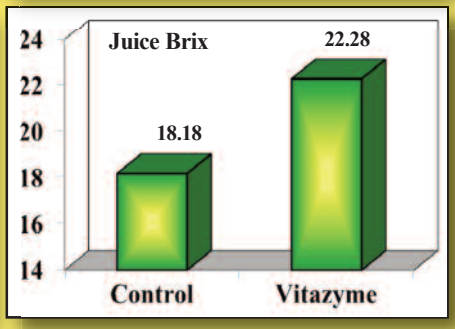
Fruit Pressure[1]



[1]Determined by a QA Supplies penetrometer.

Increase in fruit pressure with Vitazyme: 9%

Fruit Brix[1]



[1]Determined by an Atago PAL-1 refractometer.

Increase in fruit Brix with Vitazyme: 4.10 %-points

Color results: The color of the cherries was deeper red with Vitazyme treatments, as can be clearly seen in photos of the fruit.

Conclusions: A Bing cherry split-field study in central Washington, using four 16-oz Vitazyme sprays compared to an untreated control, revealed that cherry yield was markedly enhanced (55%) with Vitazyme. The size of the treated cherries was improved by 5%, and the weight per fruit by 12%, accounting for this great yield difference. Cherry size was moved significantly towards the small row number, giving a larger size for packing. Fruit pressure was increased by 9% with Vitazyme, meaning shipping and spoilage damage would be less, while the Brix level of the fruit was raised by 4.10 percentage points. The higher Brix would further reduce spoilage over time. The gain in income from these four applications would be very high from both a total yield and a quality standpoint. Together with excellent results with cherries in 2013, Vitazyme is shown to be an excellent enhancer of cherry production in Washington.

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2013 Crop Results

Vitazyme on Cherries

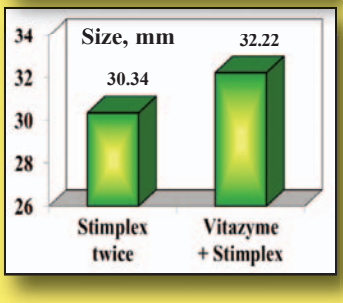
Researcher: Jacob Hesseltine
Location: Crane and Crane Orchards, Brewster, Washington
Sprayer: Turbo Mist, 200 gal/acre, 1.5 to 1.8 mph
Soil type: sandy loam
Tree density: 16 x 12 feet (227/acre)
Farmer: Dylan Gamble
Variety: Sweetheart
Rootstock: Mazard
Tree age: 20 years

Experimental design: Two neighboring, very similar 6-acre blocks of cherries were selected to compare the effects of Vitazyme with Stimplex liquid seaweed extract. Yield and fruit characteristics were evaluated.

1. Vitazyme + Stimplex **2. Stimplex twice**

Fertilization: standard for the crop
Vitazyme application: 20 oz/acre (1.5 liters/ha) at first cover; Stimplex was applied at green tip as a first application (Vitazyme was not yet available).
Stimplex application: 48 oz/acre (3.7 liters/ha) at green tip, and again at first cover
Crop load: medium
Weather for 2013: favorable for cherry production
Harvest date: July 16, 2013
Fruit quality results: On the harvest date, 50 randomly selected, average cherries were picked from several harvested bins from the outer row of both blocks. The following parameters were evaluated for each group of cherries.

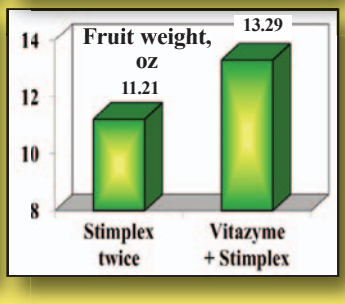
Fruit Size[1]



[1]Determined using a Cranston fruit sizer.

Increase with Vitazyme: 6%

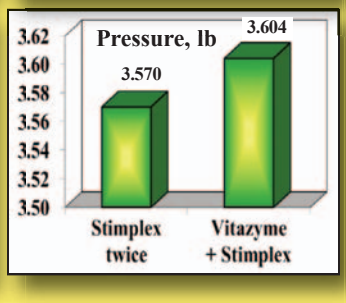
Fruit Weight[1]



[1]Determined with a Matrix-500 digital scale.

Increase with Vitazyme: 19%

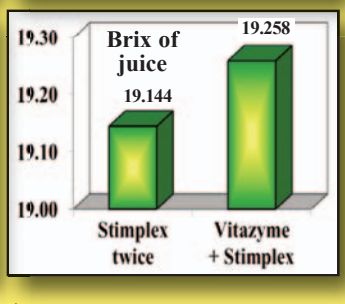
Fruit Pressure[1]



[1]Determined with a QA Supplies penetrometer.

Increase with Vitazyme: 1%

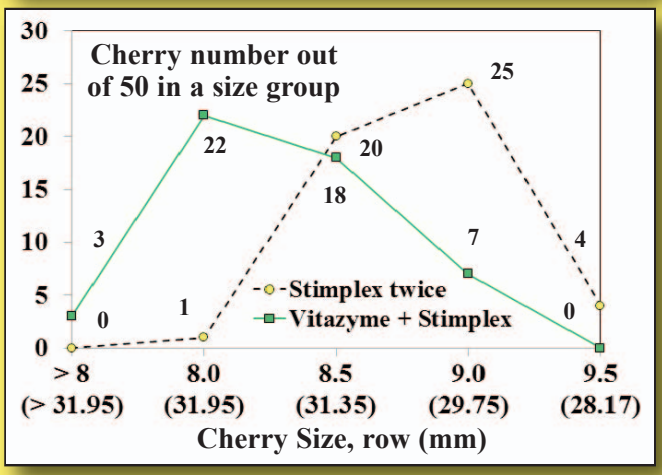
Fruit Brix[1]



[1]Determined using an Atago PAL-1 refractometer.

Increase with Vitazyme: 1%

Cherry Size Review



Note: Cherry Sizes are designated by "row", which originated when the size was determined by the number of fruit that would fit across the top row of a cherry box. The smaller the number, the larger the cherries.

Vitazyme plus Stimplex early gave by far the largest cherries. They tended to be of the 8.0 to 8.5 row size, while Stimplex alone gave an 8.5 to 9.0 row size.

Percentage of Cherries in Size Groups

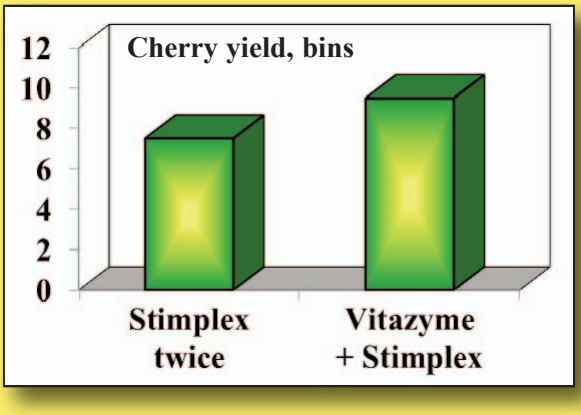
Size	Stimplex	Vitazyme/ Stimplex
> 8	0%	6%
8.0	2%	44%
8.5	40%	36%
9.0	50%	14%
9.5	8%	0%

Color results: Both the researcher and pickers noted the Vitazyme treated cherries had better color, on average, than did the Stimplex treatment.

Yield results: On July 16, 2013, one outer row of each block was picked clean. The yields of these rows are indicated below. A per acre yield determination was not made.

Treatment	Cherry yield	Yield change
	bins	bins
Stimplex twice	7.5	—
Vitazyme + Stimplex	9.5	2.0 (+27%)

Increase in yield with Vitazyme: 27%



Income results: Besides yielding much greater income from 27% more yield with Vitazyme, the product cost was less with Vitazyme. This product costs around $60/gallon, while Stimplex retails for around $50/gallon. With recommended rates of 16 to 20 oz/acre for Vitazyme, and 48 to 56 oz/acre for Stimplex, then the cost of Stimplex is about twice that of Vitazyme.

Conclusions: This cherry study in Washington, comparing Vitazyme after a Stimplex application with Stimplex applied twice, revealed that Vitazyme in the program improved the yield by 27% while improving cherry color and overall quality and size. The very important size was increased by 6%, with most cherries in the 8.0 to 8.5 row range, compared to the 8.5 to 9.0 row range for Stimplex only. Fruit weight, pressure, and Brix were all increased by Vitazyme as well, and income was markedly improved by the program. These results prove how effective a cherry growing program, using Vitazyme as an integral input, will increase yield, quality, and profits.

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2013 Crop Results

Vitazyme on Cherries

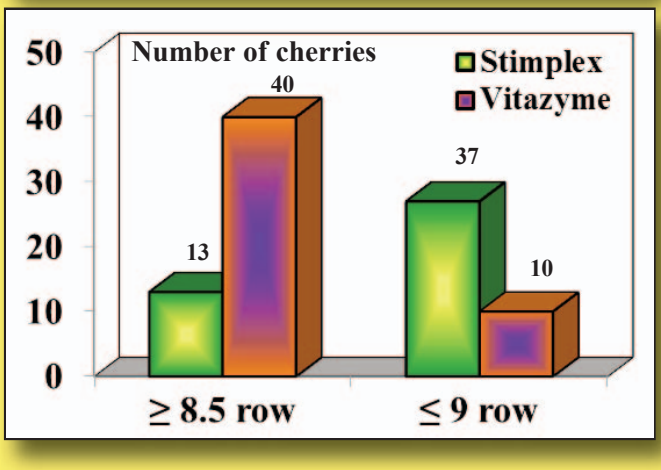
Researcher: Jacob Hesseltine
Location: Gebbers Farms, Brewster, Washington
Sprayer: Turbo Mist, 200 gal/acre, 1.5 mph
Tree density: 6 x 8 feet
Growers: Mac and Cass Gebbers
Variety: Sweetheart
Tree age: 7 years
Rootstock: Mazard

Experimental design: A 10-acre block of cherries was selected for this study to evaluate the relative effectiveness of Vitazyme and Stimplex kelp extract in affecting the yield and quality of cherries. Ten rows in the middle of each block were treated five times during the growing season with each product, and at the same times.

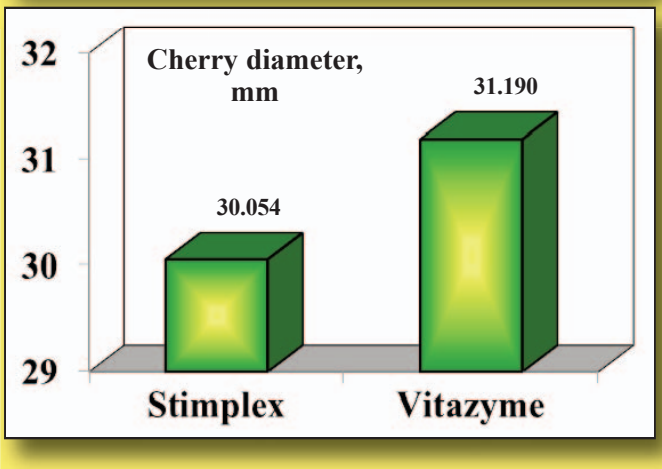
1. Stimplex **2. Vitazyme**

Fertilization: The standard nutrient program for the orchard.
Vitazyme application: 16 oz/acre at white, petal fall, shuck fall, one week after shuck fall, and two weeks after shuck fall
Stimplex application: 48 oz/acre at the same dates as Vitazyme was applied.
Weather for 2013: favorable for cherry growth
Quality results: On July 18, two rows of cherry trees within both treatments were picked clean to evaluate quality and yield parameters. Fifty average cherries from each treatment were selected for quality determinations.

Cherry Size



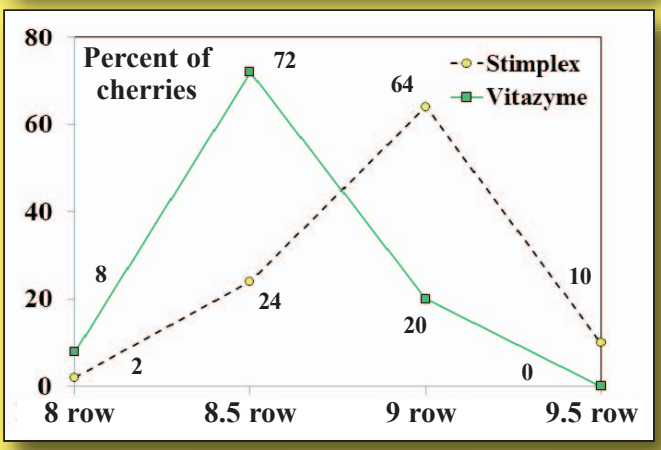
Average Cherry Size



It is clear that Vitazyme produced larger cherries, on average, than did Stimplex. While the average diameter was improved by 3.8%, the number of 8.5 row or greater fruit rose by 208%, while the smaller size of 9 row or less fell by 73% with Vitazyme.

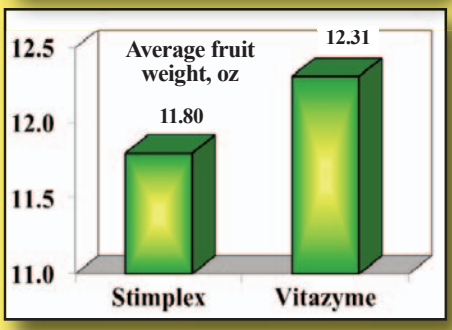
Increase in cherry diameter with Vitazyme: 3.8%

Cherry Size Breakdown



Here we see a more detailed breakdown of cherry size in terms of percentage of the total. The total size profile was shifted towards larger fruit with Vitazyme treatment compared to Stimplex.

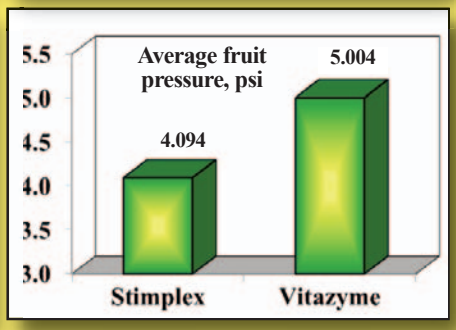
Fruit Weight[1]



[1]Measured with a Matrix-500 digital scale.

Increase in fruit weight with Vitazyme: 4.3%

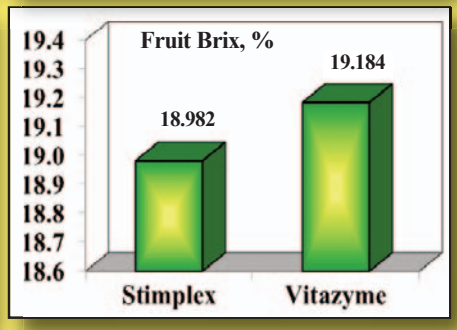
Fruit Pressure[1]



[1]Measured with a QA Supplies penetrometer.

Increase in fruit pressure with Vitazyme: 22%

Fruit Brix[1]



[1]Measured with an Atago PAL-1 refractometer.

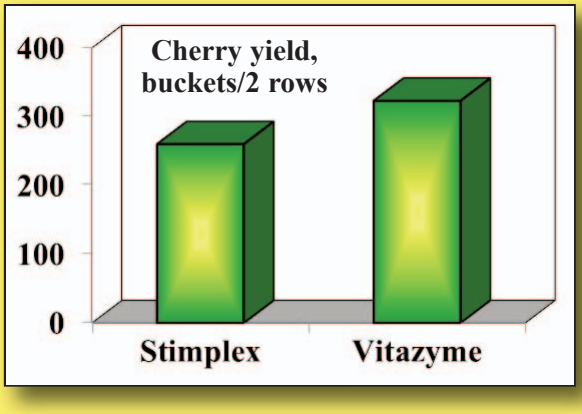
Increase in fruit Brix with Vitazyme: 0.20%-point

Vitazyme improved fruit weight, fruit Brix, and especially fruit pressure by an amazing 22%. This improvement is very important for safety in shipping and storage. Thus, all internal fruit qualities were enhanced with Vitazyme compared to Stimplex.

Yield results: Results are from two rows of each treatment.

Treatment	Yield	Yield change	Yield, 2 rows[1]	Yield per acre[2]	Value of crop[3]
	buckets	buckets	pounds/2 rows	pounds/acre	dollars/acre
Stimplex	260	—	3,900	15,982.2	18,379.53
Vitazyme	323	63 (+24%)	4,845	19,854.8	22,833.02

[1]1 bucket = 15 lb.
[2]Assuming an area of 0.244 acre for two rows.
[3]Price = $1.15/lb.



Increase in yield with Vitazyme: 24%

Income results: The extra income from cherry sales is $4,453.49/acre. Product cost is as follows:

Product	Cost	Amount applied[1]	Total cost	Cost difference
	$/gal	gal/acre	$/acre	$/acre
Stimplex	50	1.875	93.75	+56.25
Vitazyme	60	0.625	37.50	—

[1]Stimplex: 48 oz/acre x 5 applications = 240 oz, or 1.875 gal.; Vitazyme: 16 oz/acre x 5 applications = 80 oz/acre, or 0.625 gal.

Stimplex cost $56.25/acre more to apply than Vitazyme.

Cost : Benefit ratio with Vitazyme: 118.76 : 1

Conclusions: This in-orchard cherry study in Washington proved that Vitazyme performed much better than did Stimplex seaweed extract in terms of yield (24%), added income ($4,453.49/acre), cost:benefit ratio (118.76 : 1), and quality parameters such as fruit size (3.8% larger diameter), fruit weight (4.3%), fruit pressure (22%), and fruit Brix (0.2%-point). The fruit was sweet, firmer for storage and transport, and larger for customer preference. Also, the researcher noted that there was **much better and consistent fruit set in the Vitazyme treated trees, especially in the interior of the trees where less fruit was concentrated**. The Vitazyme program is shown to be an excellent product for cherry growers in Washington.

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2013 Crop Results

Vitazyme on Cherries

Researcher: Jacob Hesseltine
Growers: Mac Gebbers and Franco Lucas
Location: Gebbers Farms, Brewster, Washington
Variety: Skeena
Tree age: 8 years
Sprayer: Turbo Mist (200 gal/acre, 1.5 mph)
Tree density: 6 x 8 feet
Rootstock: Mazard

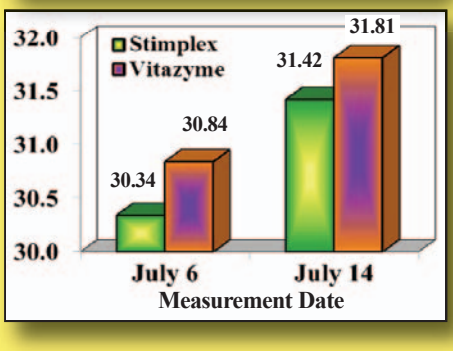
Experimental design: The 10 center rows of a 20-acre block of cherries were treated with Vitazyme five times, while the remainder of the block was treated five times with Stimplex seaweed extract. The objective of the study was to compare the relative merits of the two products in terms of affecting cherry quality.

1. Stimplex **2. Vitazyme**

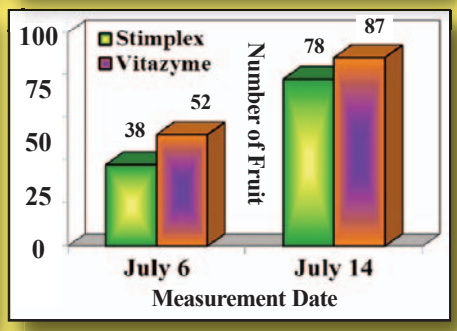
Fertilization: the standard nutrient program for the farm
Vitazyme application: 16 oz/acre applied at white, petal fall, shuck fall, one week later, and one week after that
Stimplex application: 48 oz/acre applied at the same times as Vitazyme
Weather for 2013: favorable for cherry production
Quality results: On July 6, two sets of samples were taken from two different areas of the Vitazyme treated rows, and two sets of samples were likewise taken from the Stimplex treated areas. This exercise of sampling fruit from two areas of each treatment was repeated on July 14. The data for each date were then averaged. Forty cherries were harvested for one comparison, and 50 cherries for the other three.

July 6 and July 14 Quality Results

Fruit Diameter, mm

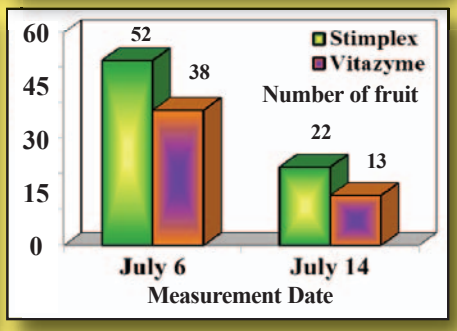


Fruit Size, ≤ 8.5 Row[1]



[1]Measured with a Cranston fruit sizer.

Fruit Size, ≥ 9 Row[1]



[1]Measured with a Cranston fruit sizer.

Increase in fruit diameter with Vitazyme: 1.6 to 1.2%

Though not a great increase, the fruit diameter increase at both dates was significant with Vitazyme.

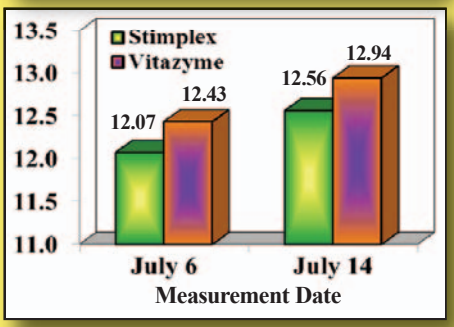
Increase in fruit size (≤ 8.5 row) with Vitazyme: 37 to 13%

Vitazyme greatly increased the larger grade of fruit at both dates.

Decrease in fruit size (≥ 9 row) with Vitazyme: 27 to 36%

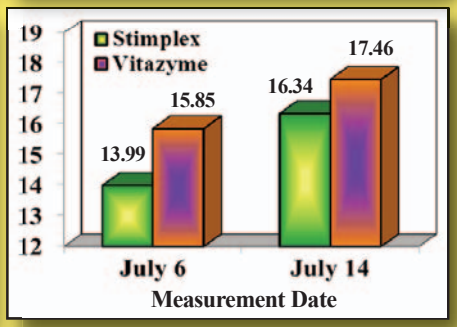
The percentage of smaller fruit was significantly reduced on both dates with Vitazyme.

Fruit Weight[1], g



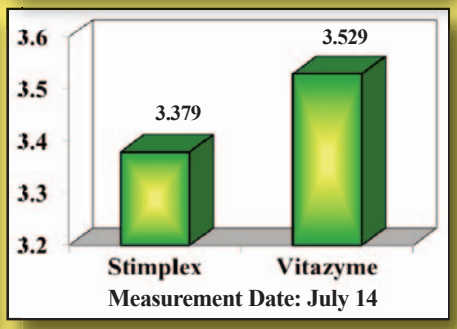
[1]Measured with a Matrix-500 digital scale.

Fruit Brix[1], %



[1]Measured with an Atago PAL-1 refractometer.

Fruit Pressure[1], psi



[1]Measured with a QA Supplies penetrometer.

Increase in fruit weight with Vitazyme: 4 to 3%

The weight of the fruit was consistently increased with Vitazyme compared to the Stimplex treatment.

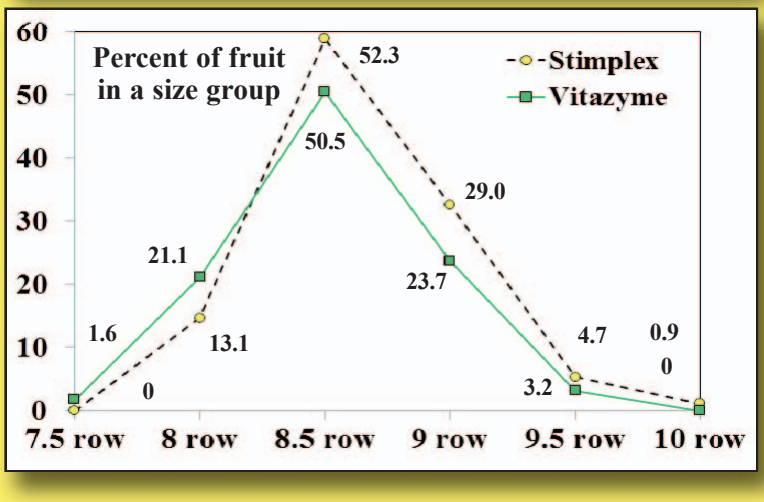
Increase in fruit Brix with Vitazyme: 1.86 to 1.12%-points

Sugars in the fruit were improved greatly at both measuring times by Vitazyme.

Increase in fruit pressure with Vitazyme: 4.4%

Fruit pressure improved with Vitazyme application, to improve shipping and storage qualities of the cherries.

Average Fruit Sizes (for four samplings)



Vitazyme moved the fruit size toward the larger fruit compared to Stimplex.

Conclusions: This cherry trial in Washington, comparing five applications of Vitazyme and Stimplex seaweed extract in their respective treatments, revealed that all quality parameters were improved with Vitazyme; fruit diameter (up to 1.6%), fruit weight (up to 4%), fruit Brix (up to 1.86%-points), fruit pressure (4.4%), and the size spectrum. The sizes were moved toward the larger 8 and 8.5 row grade with Vitazyme. Also, the researcher noted **much improved fruit set throughout the entire Vitazyme treated area, whereas the Stimplex areas had much more missing fruit, especially in the interiors of the trees**. Vitazyme has been shown in this trial to be a superior agent for improving cherry production. No yield data were taken.

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2011 Crop Results

Vitazyme on Cherries

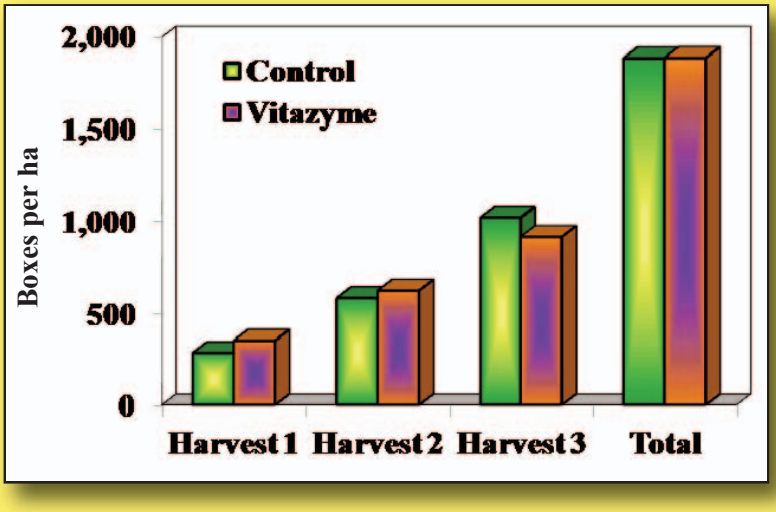
Researcher: Claudia Lorena Muñoz
Research organization: Syngenta, Santiago, Chile
Research technician: Raul Osorio
Location: Hacienda Achondo, Chimbarongo, Chile
Variety: Lapins
Experimental design: A cherry orchard was divided into two parts to evaluate the effects of Vitazyme on the yield, maturity, and quality of Lapins cherries for export.

1. Control **2. Vitazyme twice**

Fertilization: unknown
Vitazyme application: 2 liters/ha at straw-colored fruit on October 30, 2010, and again seven days later on November 6, 2010, applied through a sprayer delivering 1,500 liters/ha
Yield results: Three harvests were completed, on November 12, November 18, and November 22, 2010.

Treatment	Harvest 1	Harvest 2	Harvest 3	Total
	9 kg boxes/ha			
Control	283	582	1,020 (+10%)	1,885
Vitazyme	350 (+24%)	623 (+7%)	914	1,887

Vitazyme was applied only 1 to 2 weeks before harvest, so no yield enhancement could be expected.



Increased fruit harvested with Vitazyme

Harvest 1 ..... 24% greater
Harvest 2 ..... 7% greater

Color results:

Treatment	FC	Red	Red mohag.	Dark mohag.	Black
	% in color category				
Control	0	14.5	66.3	18.3	0
Vitazyme	0	12.0	67.3	18.9	0.5

Because these values are taken on the mature fruit at harvest, no detectable differences were noted between the two treatments.

Conclusion: This cherry study in Chile revealed that Vitazyme, applied at 2 liters/ha twice within two weeks of the commencement of harvest, improved the speed of fruit coloration, thus enabling more fruit to be picked comer to achieve a higher market value. Because of the late application time, there was no improvement in yield with Vitazyme as would be achieved with applications early during the growth cycle. There also was no change in the color of harvested fruit, since at harvest all of the fruit was mature. The study reveals the efficacy of this product to advance fruit coloration and promote early marketability.

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2011 Crop Results

Vitazyme on Cherries

Researcher: Claudia Lorena Muñoz
Research organization: Syngenta, Santiago, Chile
Planting date: 2004 *Variety*: Rainier
Farmer: Pablo Garés
Location: San Francisco de Mostazal, Chile
Plant spacing: 5.0 x 2.5 meters

Experimental design: A Rainier cherry orchard was divided into a Vitazyme treated area and an area treated with the "standard" MT 1375, to determine the effect of the product on color development and harvest criteria over two pickings.

1. Vitazyme **2. MT 1375**

Fertilization: unknown

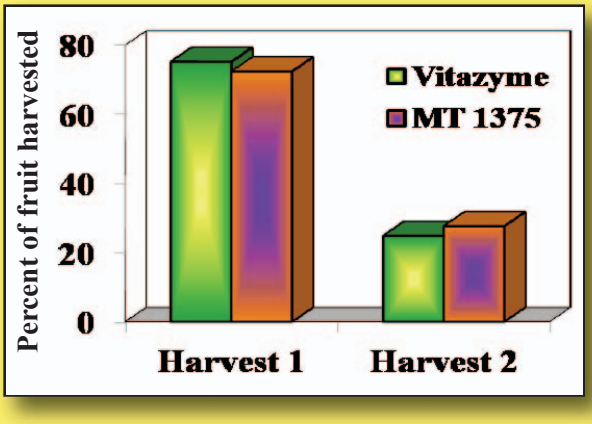
Vitazyme application: 2 liters/ha on November 16, 2010, at straw-color, and 2 liters/ha 8 days later on November 24, 2010

MT 1375 application: 5 liters/ha applied on November 16, 2010, and again on November 24, 2010

Yield results: Actual yield data was not reported since the yield would not be affected by such a late application. However, coloration was affected and then time to harvest, so this data is reported in terms of percentage of total containers per picking.

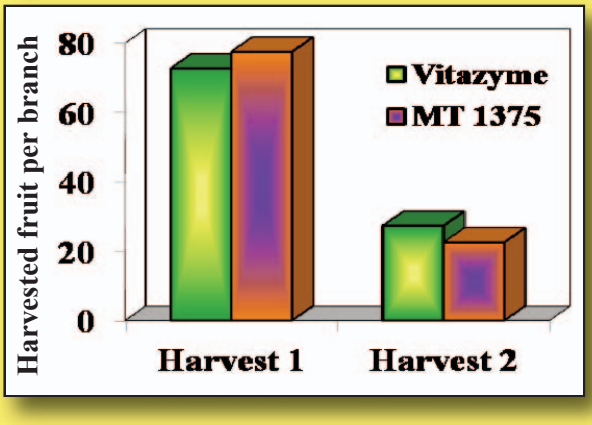
Treatment	Percent of total harvest	
	Harvest 1	Harvest 2
	--- % of total harvest ---	
Vitazyme	75.2	24.8
MT 1375	72.4	27.6

Increase in earlier harvested fruit with Vitazyme: 2.8%-points



Treatment	Fruit harvested per branch	
	Harvest 1	Harvest 2
	--- fruit/branch ---	
Vitazyme	72.7	27.3
MT 1375	77.5	22.5

Increase in earlier harvested cherries per branch with Vitazyme: 4.8 cherries



Conclusion: A Rainier cherry trial in Chile revealed that Vitazyme, applied at 2 liters/ha twice at fruit coloration, improved the rate of fruit coloration to enable more fruit to be harvested earlier as compared to the farm standard program, MT 1375. The percent of harvest was advanced by 2.8%-points, and there were 4.8 more cherries/branch harvested the first harvest with Vitazyme. No yield data were reported in this trial, since only color development and maturation rate were being evaluated. Also, there was no absolute control having neither of the two products. Vitazyme is shown to be the superior of the two products for producing early maturation and coloring of cherries.

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2011 Crop Results

Vitazyme on Cherries

Researcher: Claudia Lorena Muñoz
Organization: Syngenta, Santiago, Chile
Variety: Bing
Farmer: Victor Gallardo
Location: Tinguiririca, Chile
Planting date: 2005
Plant spacing: 4.75 x 2.00 meters

Experimental design: A cherry orchard was divided into three portions for evaluating Vitazyme and the standard MT 1375 treatment, in terms of the enhancement of coloration and harvest time, as well as fruit quality for export.

1. **Vitazyme, 2 liters/ha twice, early and late**
2. **Vitazyme, 2 liters/ha twice, middle and late**
3. **MT 1375, 5 liters/ha twice, middle and late**

Fertilization: unknown

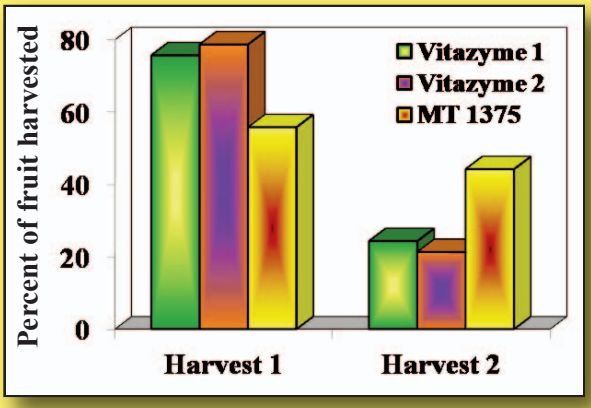
Vitazyme application: Treatment 1: 2 liters/ha applied November 12, 2010, and November 25, 2010. Treatment 2: 2 liters/ha applied November 18, 2010, and November 25, 2010. All sprays were made at 1,500 liters/ha.

MT 1375 application: 5 liters/ha applied November 18, 2010, and November 25, 2010

Yield results: Two harvests were made. The MT 1375 treatment was divided into two parts, and these harvest results have been averaged.

Treatment	Harvest 1*	Harvest 2**
	% harvested	
Vitazyme, twice (1)	75.7	24.3
Vitazyme, twice (2)	78.7	21.3
MT 1375, twice	55.8	44.2

*Vitazyme, December 14; MT 1375, 15 to 18 December and 20 to 23 December.
**Vitazyme, December 27; MT 1375, 23 December and 27 to 30 December.



No total yields were evaluated, since the treatments were applied late and were not designed to affect yield, only coloration.

Increase in first-harvested fruit with Vitazyme

Vitazyme twice, early and late ..... +19.9%-points
Vitazyme twice, middle and late ..... +22.9%-points

The percentage of early-harvested cherries was markedly increased with Vitazyme.

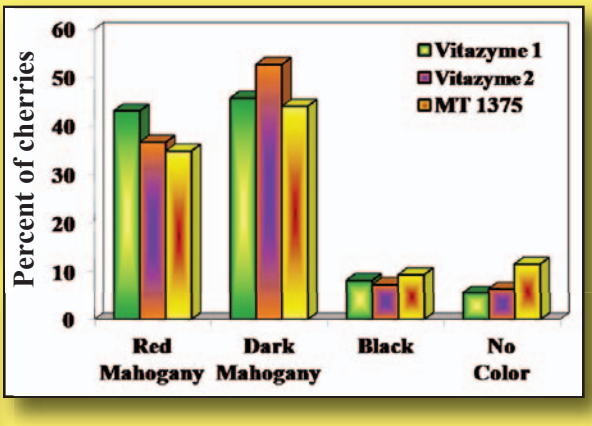
Color results:

Treatment	Red mahogany	Dark mahogany	Black	No Color
	----------	percent of fruit	----------	
Vitazyme, twice (1)	43.16	45.78	8.26	5.60
Vitazyme, twice (2)	36.70	52.71	7.37	6.45
MT 1375, twice	34.90	44.13	9.39	11.59

Enhancement of cherry color with Vitazyme*

Red mahogany ..... +5.03%-points
Dark mahogany ..... +5.12%-points
Black ..... -1.58%-points
No color ..... -5.57%-points

***Both Vitazyme treatments are averaged.**



The percentage of red and dark mahogany cherries was improved significantly with Vitazyme, while the black-colored cherries were changed little; the fruit lacking color was greatly reduced.

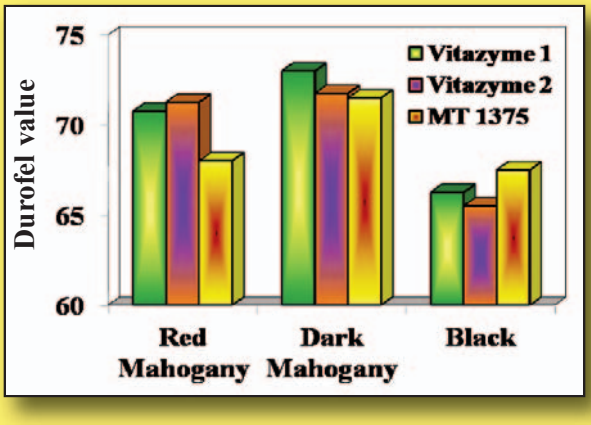
Fruit firmness results:

Treatment	Red mahogany	Dark mahogany	Black
	----------	durofel value	----------
Vitazyme, twice (1)	70.75	73.00	66.25
Vitazyme, twice (2)	71.25	71.75	65.50
MT 1375, twice	68.00	71.50	67.50

Enhancement of fruit firmness with Vitazyme*

Red mahogany ..... +3.00 units
Dark mahogany ..... +0.88 units

***Both Vitazyme treatments are averaged.**



Vitazyme improved fruit firmness for the red and dark mahogany cherries.

Fruit brix results: There were no differences in fruit sugar for two of the treatments. All values were from 15.37 to 15.97 for the red mahogany fruit, and from 18.04 to 18.54 for the black cherries. However, for the dark mahogany cherries the MT 1375 treated cherries were 15.62 brix, while the average of the two Vitazyme treatments was 17.24 brix, 1.62 units higher than the control.

Increase in brix with Vitazyme for dark mahogany fruit: +1.62

Conclusion: A Bing cherry study in Chile revealed that Vitazyme, applied at 2 liters/ha twice shortly before fruit coloration, improved the coloration and maturity considerably over the MT 1375 treatment, enabling 20 to 23% more fruit to be harvested the first harvest. Fruit color was enhanced in both the red and dark mahogany categories, and the fruit without coloration were reduced significantly with Vitazyme. In addition, fruit firmness was enhanced by the product for these same two red categories, and sugar was maintained or increased, by up to 1.62 brix, with Vitazyme. The use of this product for cherries in Chile is seen to be a highly viable option. Because this was a study on fruit maturation and coloration, there was no yield data reported. Also, there was no absolute control having neither product applied.

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2006 Crop Results

Vitazyme on Cherries

A Two-Year Study

Researcher: Randy Paddock, Paddock Agricultural Services
Farm cooperator: Jim Bittner
Location: Appleton, New York (Singer Farms)
Variety: tart cherries
Soil type: gravely loam
Orchard age: 25 years

Experimental design: A tart cherry orchard was divided into a Vitazyme treated portion (10 acres) and a normally treated portion (balance of the area). The Vitazyme treated acres were from a portion of the field that always yielded less than the other side. The first treatments were made in 2005, and this same area was treated in 2006. Average cherry size was calculated both years, as was harvested yield.

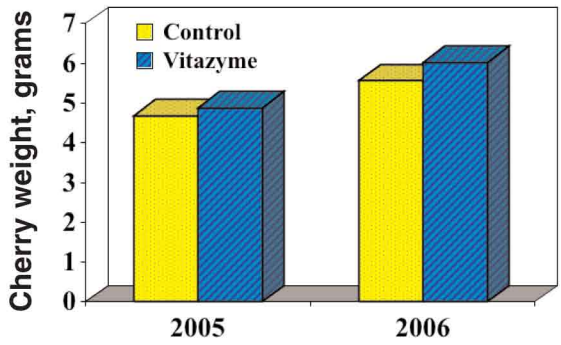
Fertilization: 2,000 lb/acre chicken compost in early spring (5-4-4% N-P_2O_5-K_2O)

Vitazyme application: 24 oz/acre on May 27 (petal fall), June 6 (shuck split), and June 23 (second cover)

Cherry size results: In 2005, two 300-cherry samples were collected from healthy, well-bearing trees from each treatment. In 2006, 25 average bearing trees were selected from each treatment, and 10 cherries were picked from each. The average cherry size was then calculated for both treatments.

	2005		2006	
Treatment	**Total wt.**	**Average wt.**	**Total wt.**	**Average wt.**
	grams/600	grams/cherry	grams/250	grams/cherry
Control	2,810	4.68	1,389	5.56
Vitazyme	2,924	4.87 (+4%)	1,503	6.01 (+8%)

For both years, the researcher observed that the Vitazyme treated fruit was a bit larger than the control fruit, and was a bit redder in color in 2005. The untreated fruit was smaller but appeared to be greater in number.

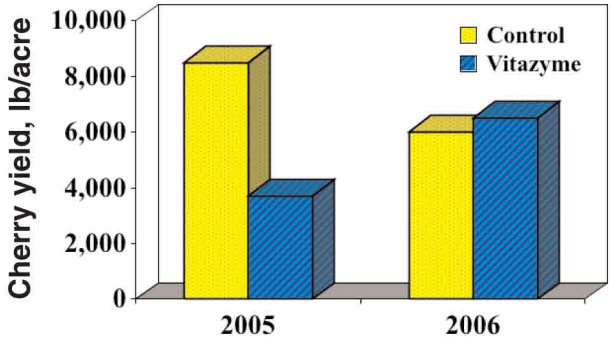


Increase in cherry weight with Vitazyme

2005: +4%
2006: +8%

Yield results: Harvest weights were made for each treatment for both years.

Treatment	2005	2006
	lb/acre	lb/acre
Control	8,500	6,000
Vitazyme	3,700 (-56%)	6,500 (+8%)



In year one of the Vitazyme program, the yield of the better portion of the field greatly exceeded the treated area. **However, once the product had stimulated the trees to produce more fruiting buds and enabled the leaves and roots to feed the fruit better, the poorer but treated portion of the field outyielded the control by 500 lb/acre.**

Change in cherry yield with Vitazyme

2005: -56%

2006: +8%

Income results: The increased 500 lb/acre of cherries in 2006, at $0.15/lb., resulted in a greater return from Vitazyme of $75.00/acre.

Conclusions: This cherry study with Vitazyme near Lake Ontario in New York shows the potential of the product to improve tree fruiting over consecutive years. While the Vitazyme treatment was placed on the poorer portion of the orchard, and produced considerably less total fruit (56% less) though the fruit was 4% higher per cherry — yet **the second year the yield of cherries was 8% higher in the treated area than in the control. The Vitazyme treated cherries had increased in size even more than the control the second year, by 8%.** The product presumably stimulated the production of more fruiting buds, rhizosphere expansion, and short and leaf growth so that by year two of the study the treated trees were able to more effectively utilize sunlight, CO_2, water, and plant nutrients than the untreated control.

The yield increase of the treated trees was actually considerably greater than the 8% benefit above the control trees in 2006 because these trees increased from a considerable yield deficit in 2005.