



**Agrizest<sup>®</sup>**

An elicitor for plant health, high quality and sustainable yields



# Celebrating 10 Years of Success

Agrizest is a new-generation, Kiwi technology, invented, tested and proven in New Zealand.

The technology of Agrizest has been locally and internationally recognised:

- A finalist in the NZ Hi-Tech Awards 2007,
- Nominated by international scientists for the World Technology Awards 2013.

As part of the nomination process the technology was peer reviewed by scientists from a number of countries.

The science has been presented at numerous peer reviewed conferences both overseas and here in New Zealand.

We have continued to prove the benefits of Agrizest through commercial scale, scientifically designed, and independently conducted split block trials throughout the last 10 years.

A number of growers and farmers have been using Agrizest for 10 years. We are proud to say that these growers are consistently high performers.

Agrizest now has an irrefutable 10 year track record of success.



# Contents



## Part 1

1. What is Agrizest?
2. An Elicitor for Plant Health and Productivity
3. The Role of Phenylpropanoids in Crop Management
4. Proven Benefits
5. Safety and Approvals
6. User Guidance / Spray Protocol

## Part 2

### Trial protocol

Trial results from kiwifruit orchards prove:

#### **Agrizest Delivers A Sustainable Improvement In Orchard Gate Returns**

1. By improving dry matter production
2. By improving the fruit size profile
3. By increasing fruit quality related (TZG) payment

#### **Agrizest enables the plant to reduce pest, disease and environmental stress**

1. Agrizest suppresses field disease damage,
2. Agrizest suppresses pest incidence,
3. Agrizest reduces the incidence and severity of leaf breakdown disorder and leaf damage,
4. Agrizest mitigates crop load related stress and supports full expression of genetic potential,
6. Agrizest repairs climate related damage to plants,
7. Agrizest moderates high nutrient toxicity,
8. Agrizest is an elicitor that delivers a greater ROI than foliar nutrient sprays.
9. Agrizest is an alternative option to girdling.

# What is Agrizest?

Agrizest is an elicitor of the phenylpropanoid pathway for vine health: proven to sustain high returns in a range of crops.

Agrizest is a unique technology. Agrizest is not a nutrient or seaweed spray with added NPK or hormones.

Agrizest works indirectly to elicit phenylpropanoids which regulate the plants own repair, growth and defence system to improve vine health and reduce pest, disease and environmental stress, and damage.

The combined benefits of plant health, high quality and yield are proven to increase orchard returns.



# An Elicitor for Plant Health and Productivity



Agrizest is an elicitor of the phenylpropanoid pathway. The role of elicitors and phenylpropanoids are becoming more widely understood and appreciated in the horticulture industry - Agrizest already has a 10 year track record of success.

Agrizest is safe and does not cause phytotoxicity. Using an elicitor like Agrizest, which triggers the plant's own system, allows the plant to regulate its own growth, balance its own internal chemistry and avoids the risk of side-effects and damage while enabling the plant to overcome stress and produce the best crop possible.

Plant health is an essential part of your integrated management strategy. Agrizest delivers healthier plants that are better able to withstand pest, disease and environmental stress, resulting in increased quality and productivity.

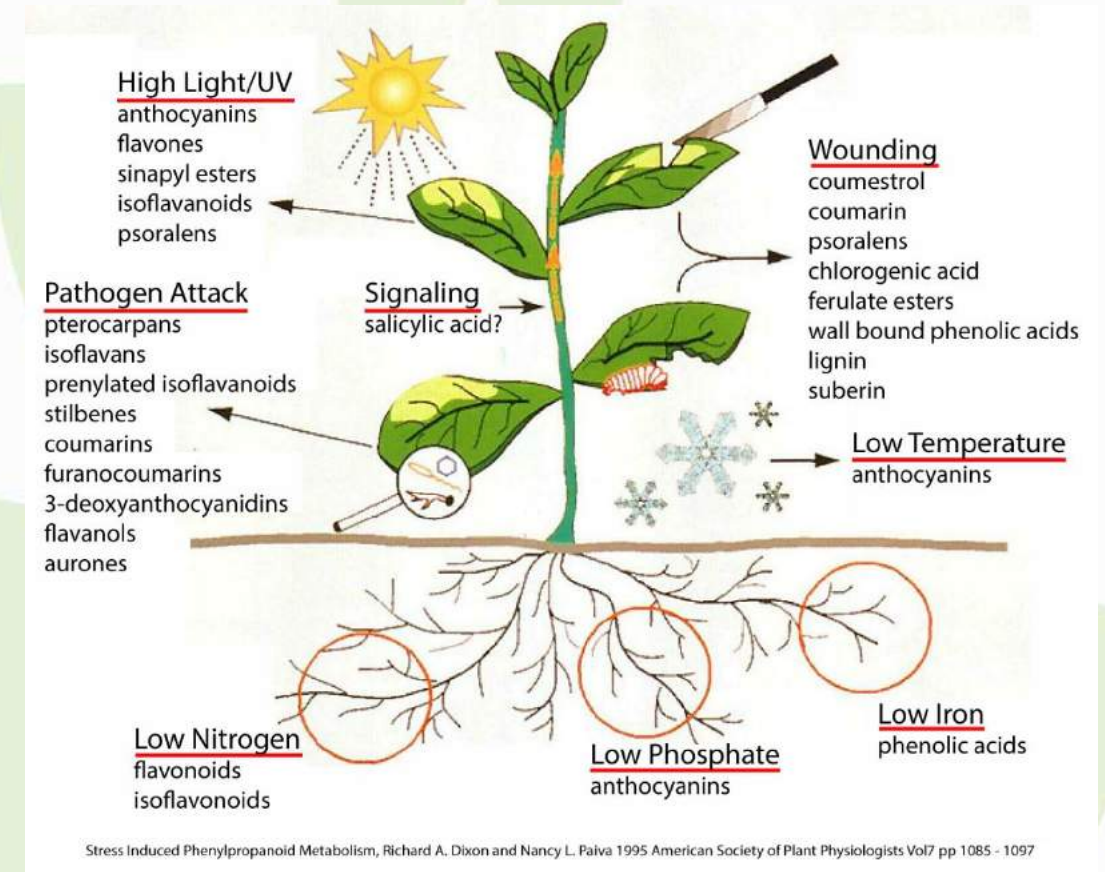
# The Role of Phenylpropanoids in Crop Management

Agrizest is an elicitor of Phenylpropanoids.

Phenylpropanoids (as shown in the chart) are a range of bioactive molecules produced by plants in response to stress from pest or disease attack or environmental changes. Phenylpropanoids are involved in the repair, growth and defence system (immune system).

Some phenylpropanoids are also flavour and colour compounds.

Agrizest is manufactured from various plant derived materials. Proteins, fats and phospholipids are extracted and re-formed so that, when applied to plants, they mimic the attack of pest, disease and environmental stress without causing any actual damage to the plant. The plant reacts to Agrizest applications by producing Phenylpropanoids.



# Proven Benefits

Phenylpropanoids improve crop health, fruit quality and yield.

Applications of Agrizest result in:

- Healthy foliage resulting in optimum dry matter production,
- Improved flavour (from flavonoids),
- High colour (from anthocyanins),
- Resistance to damage from pest, diseases and wind,
- Improved uptake of nutrients from soil,
- Reduced rejects (coumestrol and others that repair damage),

Agrizest is a proven elicitor of Phenylpropanoids that delivers increased quality and marketable yield, and increased grower returns.



Agrizest enhances the repair, growth and defence system without negatives such as phytotoxicity, stunting young vines, residue issues or misshapen fruit.

**Agrizest:**

- Reduces pest and disease damage
- Reduces and repairs tissue damage e.g. from high winds
- Reduces stress e.g. from heavy cropping
- Reduces physiological problems e.g. misshapen fruit
- Increases growth - this is not at the expense of crop yield
- Increases yield - but does not decrease quality
- Improves both quality and flavour - evidenced by quantifiable flavour compounds and pack-out data.

**Reduces physiological problems**

% Core Disorder		
Orchard	Control	Agrizest
Rainade West	11	4
Rainade Grisey	18	4

**Increases growth**

Leaf width index			
	Control	Agrizest	% difference
Control	7.0	7.0	0%
Post-harvest	0.9	0.1	1.0x

**Increases yield**

Kg of dry matter per hectare			
Orchard	Control	Agrizest	% increase
Rainade West	4000	4700	21%
Rainade Grisey	4000	4700	21%
Wagon	4000	4700	20%

**Improves quality and flavour**

Core Managers		
	Control	Agrizest
Background colour	3.56	4.30
Flesh firmness (kg/l)	8.70	8.21
Starch pattern index	0.55	0.80
Soluble solids (Brix)	9.00	10.00
Weight / fruit	156g	179g

**Lifts Orchard Gate Returns**

Hayward Split Block Trial Results: OGR Per Hectare				
Orchard	Harvest Year	Control	Agrizest	OGR Increase per Hectare
Papetera	2006	\$80,599	\$85,142	\$7,243
Beiswet	2007	\$46,205	\$52,268	\$4,758
Tonard	2007	\$31,191	\$38,373	\$6,382
Blodrin	2011	\$37,844	\$44,470	\$6,626
Jonah	2015	\$76,182	\$81,530	\$5,348

**Repairs and reduces tissue damage**

Reduced direct and stress induced leaf breakdown by mechanical harvester

Level of damage on 50 leaves		
	Control	Agrizest
Mildew Brown	75	12
Pine Harvest	124	68

**Reduces pest and disease damage**

**Reduces stress**

**Increases yield**

Increased yield does not decrease quality

**Improves quality and flavour**

10% increase in wine flavour compounds

**Lifts Orchard Gate Returns**

**Repairs and reduces tissue damage**

**Reduces pest and disease damage**

**Reduces stress**

**Increases growth**

**Increases yield**

**Improves quality and flavour**

**Lifts Orchard Gate Returns**



## Safety and Approvals



Agrizest is manufactured from phytogetic extracts, fatty acids, phospholipids, plant compatible organic acids and wetting agents.

Agrizest has been approved and classified by MPI as an agricultural compound that does not require registration as it is not a pesticide or hormone.

Agrizest can be used on all crops with no withholding period and no waiting period.

Agrizest is BioGro certified.



# User Guidance



The Agrizest spray programme has been scientifically developed based on years of field trials.

You can be sure how much to apply and when to apply it. We know that best results are achieved when Agrizest is applied at a rate of 1L per hectare.

Agrizest must be applied 4 times per season: at key stages of physiological development - timing is key.

All 4 sprays are required to maximise improvements in both yield and quality.

\* No wetting agent required.

\* Water rates: dependent on sprayer and canopy - ensure product application rate is 1L per hectare. Typical rates: 1 litre of product to 500-1000L of water per hectare.

\* Compatibility: Agrizest is compatible with most commonly used orchard sprays. Combinations should be tested prior to use. Always read the label.

\* Agrizest can be sprayed on days when it is breezy or rain is expected - when other sprays, such as pesticides cannot be used. This is because Agrizest is effective on leaf contact, does not require full cover, and does not require drying time.

# Spray Programme

## For Newly Grafted Kiwifruit Orchards:

From the 2 leaf stage onwards:

**Primazest**

Rate: 5ml/L with a knapsack sprayer

Timing: every 3-7 days.

When growth has reached the stage where a sprayer with directed nozzles is necessary: **Primazest**

Rate: 5ml/L,

Timing: every 7-14 days.

With an almost full canopy (and when more than 200L of water is needed to cover 1 hectare): **Primazest**

Rate: 1L/ha with an air blast sprayer

Timing: every 14-21 days until full canopy is achieved.

## Standard Kiwifruit Spray Programme:

**Agrizest:** 2 Sprays Pre Blossom:

Rate: 2 sprays of Agrizest at 1L/ha.

Timing: 1st spray 3 weeks before flowering. 2nd spray 3-7 days later.

**Agrizest:** 2 Sprays Post-Blossom:

Rate: 2 sprays of Agrizest at 1L/ha.

Timing: 1st spray post flowering - immediately after the bees are removed. 2nd spray 7 days later.

## For Gold Kiwifruit and Green Orchards Under Disease Pressure:

**Primazest:**

Rate: 2-3 sprays of Primazest at 1L/ha.

Timing: 7 days apart starting at the 2 leaf stage (around 4cm) and until 2-3 weeks before flowering (before the 1st Agrizest spray is applied).

**Agrizest:** 2 Sprays Pre Blossom:

Rate: 2 sprays of Agrizest at 1L/ha.

Timing: 1st spray 3 weeks before flowering. 2nd spray 3-7 days later.

**Agrizest:** 2 Sprays Post-Blossom:

Rate: 2 sprays of Agrizest at 1L/ha.

Timing: 1st spray post flowering - immediately after the bees are removed. 2nd spray 7 days later.

# Trial Protocol

A decorative graphic of several light green leaves of various shapes and sizes, arranged in a cluster on the right side of the page. The leaves are semi-transparent and overlap each other, creating a natural, organic feel.

## **Split Block Trials:**

- Large block trials are required to eliminate random errors,
- The total crop is evaluated to reduce sampling errors
- Quality and yield aspects are electronically detected or measured to avoid human subjective assessment errors.
- While statistical analyses are employed where appropriate, our final measure of product success is that the results, quantitative or qualitative, must be obviously different. We expect the increase in returns to be large so that a farmer perusing the data will readily accept that Agrizest has delivered beneficial results.
- The farm gate return per hectare is the true measure of success.

## **Independent Application, Monitoring, Harvest and Packing:**

- Agrizest is to be applied by farmers or their contractors.
- Pre harvest testing for harvest clearance is to be carried out by independent laboratories approved by the industry.
- The crop, pest and disease monitoring during the production season are carried out by independent contractors.
- At harvest, the total crop from the test blocks must be graded and packed by an independent pack-house.
- Yield and quality data is to be electronically assessed (generated by the grading and packing machines at the growers' nominated pack-house).

# Kiwifruit Trial Data

## Agrizest increases orchard gate returns (OGR)

### Zespri Gold Orchard Gate Returns Per Hectare

Harvest year	Orchard	Control	Agrizest	OGR Increase per hectare
2006	Renegade West	\$85,229	\$114,264	\$29,035
2006	Renegade Gridley	\$89,559	\$114,264	\$24,705
2006	Wright Orchard	\$57,075	\$80,205	\$23,130
2007	Fairview Orchard	\$83,189	\$88,732	\$5,543
2008	Tanad Farms	\$54,869	\$64,224	\$9,355
2011	Kobees Orchard	\$61,653	\$79,395	\$17,741

### Hayward Green Kiwifruit Orchard Gate Returns (OGR) Per Hectare

Harvest year	Orchard	Control	Agrizest	OGR Increase per hectare
2006	Pepatree Orchard	\$80,899	\$88,142	\$7,243
2007	Avon	\$39,496	\$44,711	\$5,211
	Basset Orchard	\$48,209	\$52,366	\$4,158
	Tanad	\$31,991	\$38,373	\$6,382
2011	Bodmin Orchard	\$37,844	\$44,470	\$6,626

Agrizest commercial trial results confirm that an increase of \$5000 per hectare in OGR is achievable.

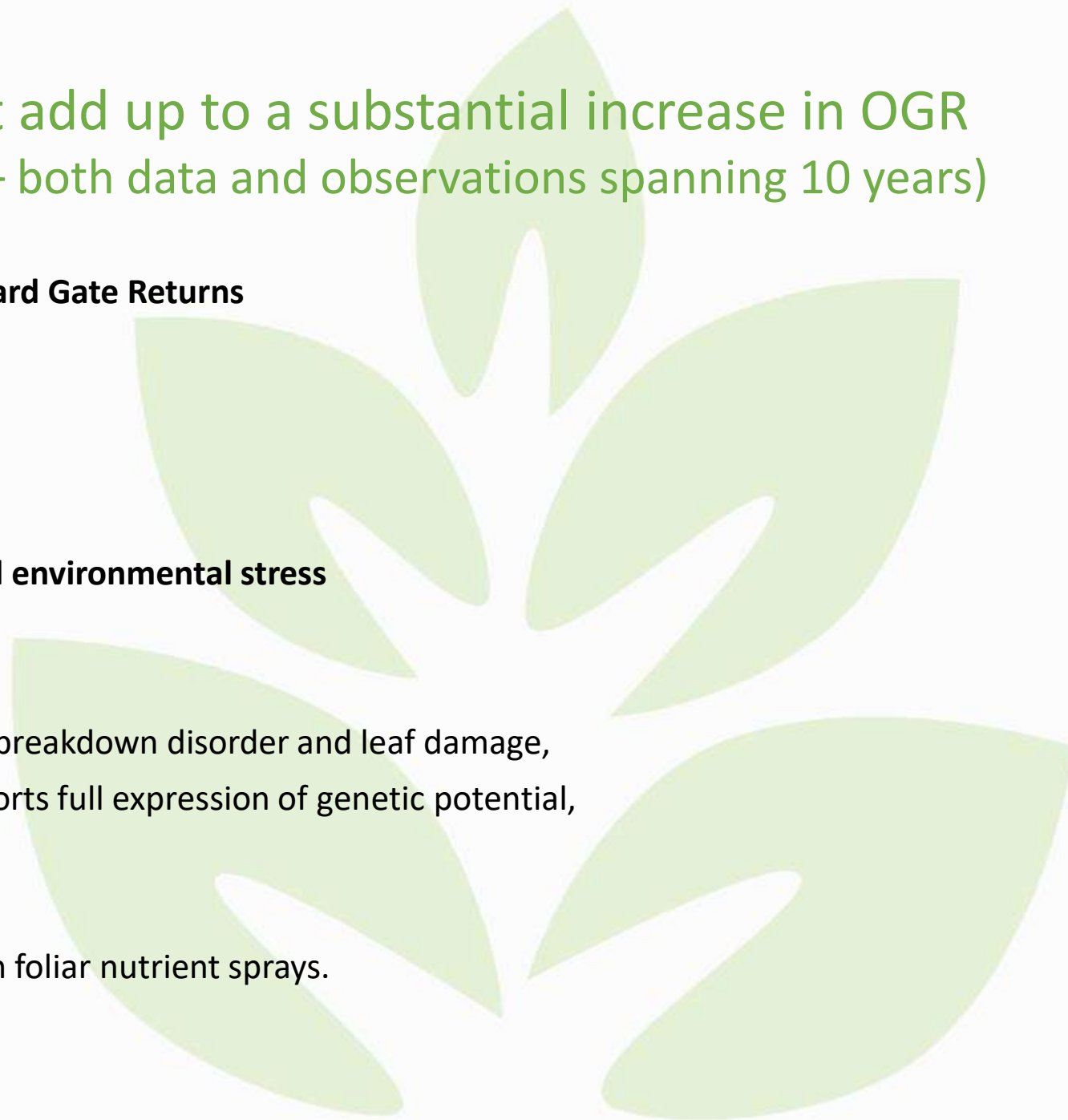
The combined benefits of Agrizest add up to a substantial increase in OGR (the following slides detail trial results – both data and observations spanning 10 years)

**Agrizest Delivers A Sustainable Improvement In Orchard Gate Returns**

1. By improving dry matter production
2. By improving the fruit size profile
3. By increasing fruit quality related (TZG) payment

**Agrizest enables the plant to reduce pest, disease and environmental stress**

1. Agrizest suppresses field disease damage,
2. Agrizest suppresses pest incidence,
- 3<sub>a</sub>. Agrizest reduces the incidence and severity of leaf breakdown disorder and leaf damage,
4. Agrizest mitigates crop load related stress and supports full expression of genetic potential,
6. Agrizest repairs climate related damage to plants,
7. Agrizest moderates high nutrient toxicity,
8. Agrizest is an elicitor that delivers a greater ROI than foliar nutrient sprays.
9. Agrizest is an alternative option to girdling.



# Agrizest Delivers A Sustainable Improvement In Orchard Gate Returns

## 1. By improving dry matter production

In the 10 trial orchards below, treatment with Agrizest increased dry matter production.

Increase in class 1 tray yield is through higher dry matter production.

Increased production is NOT at the expense of quality.

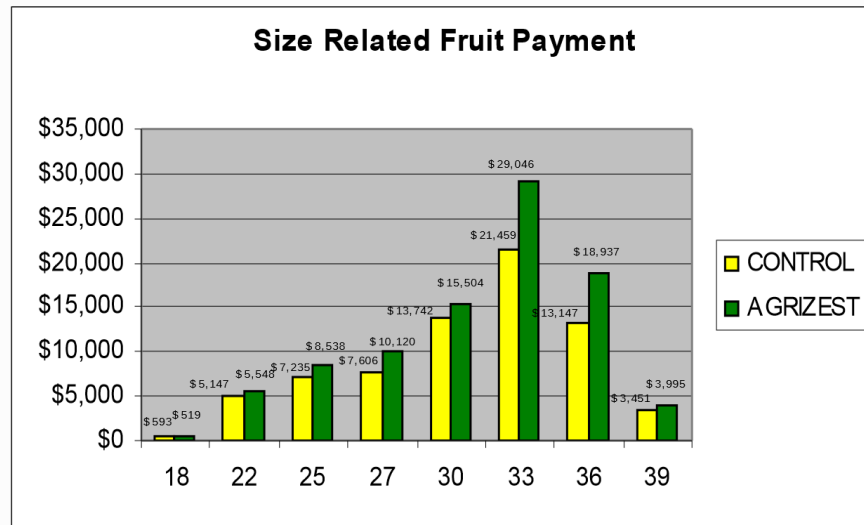
Zespri Gold Kiwifruit					
Harvest Year	Orchard	Dry matter production kg/hectare			
		Control	Agrizest	Increase	% Increase
2006	Renegade West	9678	11720	2042	21%
2006	Renegade Gridley	9653	11720	2067	21%
2006	Wright Orchard	6745	9381	2636	39%
2007	Fairview Orchard	10748	11513	765	7%
2008	Tanad Orchard	10691	11736	1045	10%

Hayward Kiwifruit					
Harvest Year	Orchard	Dry matter production kg/hectare			
		Control	Agrizest	Increase	% Increase
2006	Pepatree Orchard	7926	8274	348	4%
2007	Avon	7425	8453	1028	14%
2007	Tanad Orchard	7414	8127	713	10%
2011	Bodmin Orchard	8405	9113	708	8%

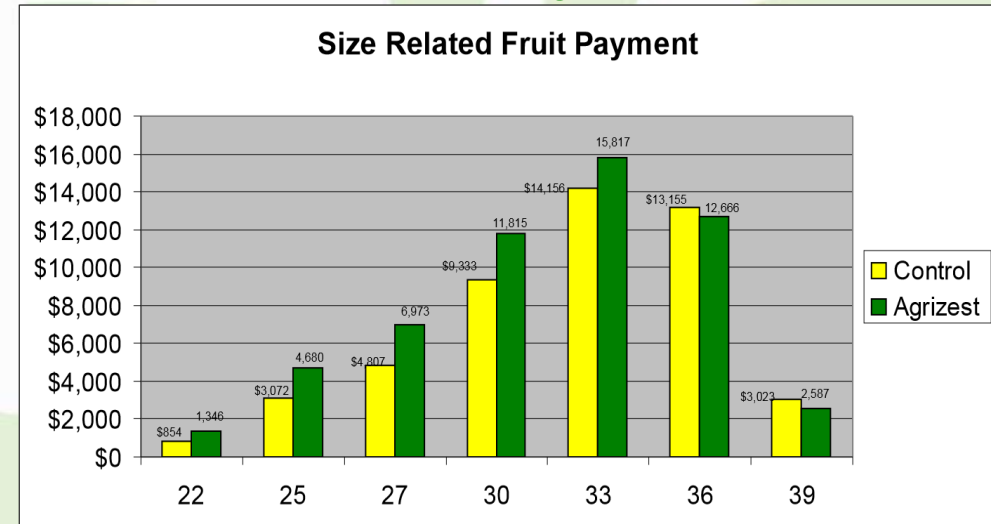
# Agrizest Delivers Sustainable Improvements In Orchard Gate Returns

## 2. By improving the fruit size profile

### Kobees Orchard Zespri Gold kiwifruit



### Bodmin Orchard Hayward Kiwifruit



The Agrizest treated areas in both Kobees and Bodmin orchards achieved higher payments in all fruit sizes except the largest (Kobees) and smallest (Bodmin). The greatest gains were made in the desirable 30, 33 and 36 size bands.



### 2011 Kobees Orchard Gold Kiwifruit Size Related Fruit Payment

Size	18	22	25	27	30	33	36	39	Total
Fruit Payment control	\$593	\$5,147	\$7,235	\$7,606	\$13,742	\$21,459	\$13,147	\$3,451	\$72,379
Fruit Payment Agrizest	\$519	\$5,548	\$8,538	\$10,120	\$15,504	\$29,046	\$18,937	\$3,995	\$92,207
Difference (control/Agrizest)	-\$73	\$401	\$1,303	\$2,514	\$1,762	\$7,587	\$5,790	\$544	\$19,828

### 2011 Bodmin Orchard Hayward Kiwifruit Size Related Fruit Payment

Size	22	25	27	30	33	36	39	Total
Fruit Payment control	\$854	\$3,072	\$4,807	\$9,333	\$14,156	\$13,155	\$3,023	\$48,400
Fruit Payment Agrizest	\$1,346	\$4,680	\$6,973	\$11,815	\$15,817	\$12,666	\$2,587	\$55,886
Difference (control/Agrizest)	\$493	\$1,608	\$2,167	\$2,482	\$1,661	-\$489	-\$436	\$7,486

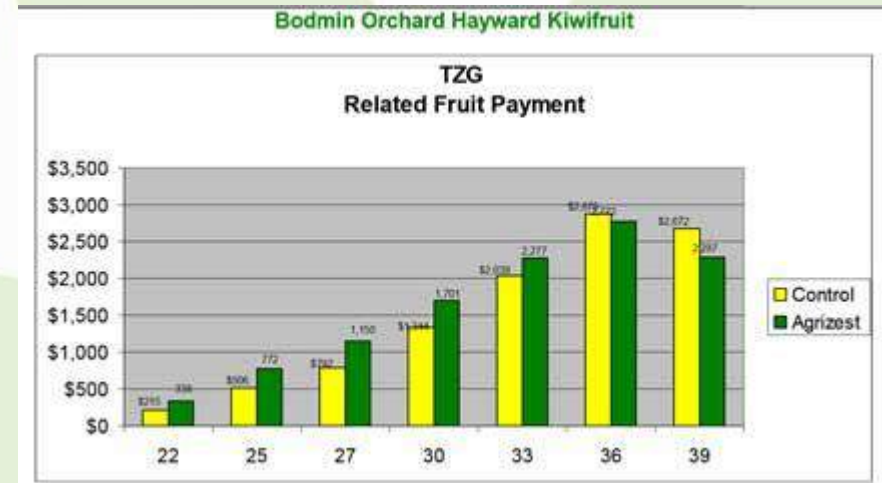
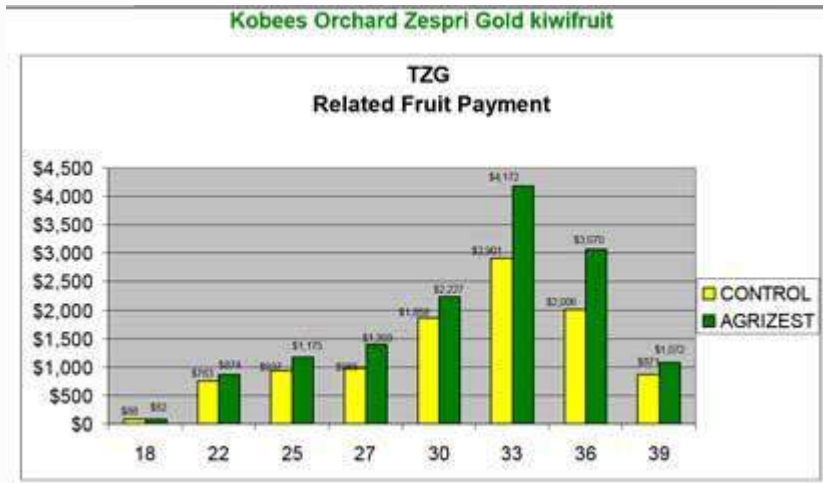
Kobees Orchard (Gold): The Agrizest treated block made an additional \$19,828 per hectare compared to the control block.

Bodmin Orchard (Green): The Agrizest treated block achieved an additional \$7486 per hectare compared to the control block on the same orchard.

Agrizest enables kiwifruit vines to produce increased yield in the desired fruit size profile.

# Agrizest Delivers A Sustainable Improvement In Orchard Gate Returns

## 3. By increasing fruit quality related (TZG) payment



<b>2011 Kobees Orchard Gold Kiwifruit Size Related Fruit Payment</b>									
Size	18	22	25	27	30	33	36	39	Total
Fruit Payment control	\$593	\$5,147	\$7,235	\$7,606	\$13,742	\$21,459	\$13,147	\$3,451	\$72,379
Fruit Payment Agrizest	\$519	\$5,548	\$8,538	\$10,120	\$15,504	\$29,046	\$18,937	\$3,995	\$92,207
Difference (control/Agrizest)	-\$73	\$401	\$1,303	\$2,514	\$1,762	\$7,587	\$5,790	\$544	\$19,828

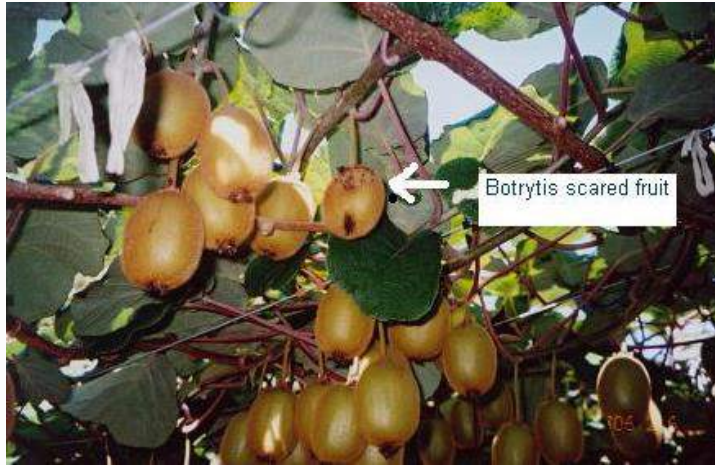
<b>2011 Bodmin Orchard Hayward Kiwifruit fruit quality (TZG) related fruit payment</b>									
Size	22	25	27	30	33	36	39	Total	
Fruit Payment control	\$215	\$506	\$792	\$1,344	\$2,038	\$2,879	\$2,672	\$10,446	
Fruit Payment Agrizest	\$338	\$772	\$1,150	\$1,701	\$2,277	\$2,772	\$2,287	\$11,296	
Difference (control/Agrizest)	\$124	\$265	\$357	\$357	\$239	-\$107	-\$385	\$850	

Treated orchards receive higher fruit quality (TZG) payments per hectare.

Agrizest applications have enabled these orchards to produce increased yield and higher quality.

# Agrizest enables the plant to reduce pest, disease and environmental stress

## 1. Agrizest suppresses field disease damage



Although the incidence of fruit damage is generally low in the field, the evaluation figures are further evidence that Agrizest applications work synergistically to improve the effects of pesticide programs. (See also Apple Data pg15)



ORCHARD	INCIDENCE OF DAMAGED FRUIT PER 1000 CLUSTERS	
	Agrizest	Control
Falcon 1 Orchard	16	31
Gemini Orchard	0	9

# Agrizest enables the vine to reduce pest, disease and environmental stress

## 2. Agrizest suppresses pest incidence



Field monitoring results PEPATREE ORCHARD

**Agrizest** reduced scale infestation and the need for pesticide application.

GREEN KIWIFRUIT			
Date Monitored 20 January 2006			
Agrizest applied - pre blossom -31/10/05 post blossom - 23/11/05, 6/12/05, 6/2/06			
			CONTROL compared to Agrizest
Treatment	Agrizest	CONTROL	
Block No	1	2	
Hectares	0.92	1.15	
Number of leaf sampled	474	508	
Dead Scale	4	2	
Young live Scale	11	27	
Mature live scale	6	13	
Total live scale	17	40	2.35 times more
% of leaf with live scale	3.6	8.7	
Spraying recommendation	No	Yes	

### 3a. Agrizest reduces the incidence of leaf breakdown disorder



Leaf Necrosis Symptoms

<b>Gemini Orchard - LEAF BREAKDOWN INCIDENCE</b>			
<b>100 Leaves selected / close to 1st wire from leader / leaf above the fruit.</b>			
<b>Incidence of Necrotic Leaves</b>			
	CONTROL	AGRIZEST	Compared
<b>Total</b>	67	59	To Agrizest
<b>Average</b>	0.67	0.59	14%more

<b>FALCON 1 ORCHARD - LEAF BREAKDOWN INCIDENCE</b>			
<b>100 Leaves selected / close to 1st wire from leader / leaf above a fruit.</b>			
<b>Incidence of Necrotic Leaves</b>			
	CONTROL	AGRIZEST	Compared To Agrizest
<b>Total</b>	48	40	20%more

The preliminary assessment of 100 leaves sorted broadly into “damaged” leaves and ‘clean leaves” showed that there were 14% more damaged leaves in the Gemini control block and 20% damaged leaves in the Falcon 1 orchard control block.

3b. Agrizest reduces the severity of leaf damage/breakdown disorder



Control



Agrizest Treated

FALCON 1 ORCHARD - LEAF NECROSIS SEVERITY										
	CONTROL				Total	AGRIZEST				
	Look Visible	Search Visible	Search Visible	Clean		Readily Visible	Look Visible	Search Visible	Clean	
Total	29	30	19	22	Total	25	33	12	30	
CONTROL compared to AGRIZEST % (+) more than or (-) less than in Agrizest						13.80%	-10.00%	30.80%	36.40%	

CONTROL										
	CONTROL				Total	AGRIZEST				
	Look Visible	Search Visible	Search Visible	Clean		Readily Visible	Look Visible	Search Visible	Clean	
Total	43	17	13	27	Total	25	25	9	41	
CONTROL compared to AGRIZEST % (+) more than or (-) less than in Agrizest						41.90%	-47.10%	30.80%	51.90%	

When the leaves were scored for severity of damage - The severity of the leaf necrosis damage was less in the Agrizest block.

The above assessments confirmed that **Agrizest Reduces the Incidence and Severity of Leaf breakdown disorder and therefore reduces the risk of *Pseudomonas syringae pv actinidiae* (PSA) infection.**



#### 4. Agrizest mitigates crop load related stress and supports expression of full genetic potential.



Heavy fruit load



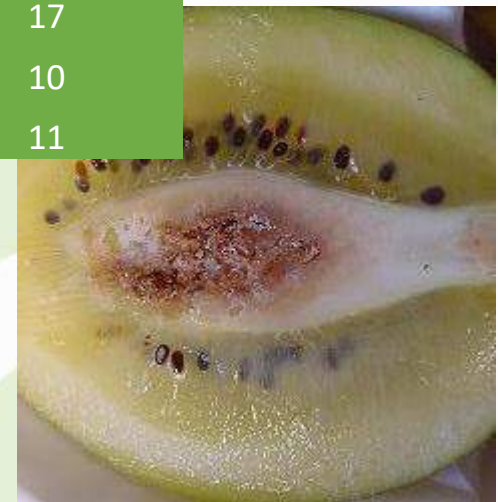
Close up to show even fruit size

These Gold Kiwifruit vines are carrying a very heavy crop. Normally, due to the stress caused by the large number of fruit, the fruit sizes will be affected. This picture shows an even sized crop. Agrizest enables the plant to express its full genetic potential when under stress due to heavy crop load.

## 5. Agrizest prevents core disorder

CORE DISORDER			
ORCHARD	AGRIZEST TREATMENTS	% CORE DISORDER	
		AGRIZEST	CONTROL
Renegade Orchard - vs West Block	4 Sprays applied –pre and post blossom	4	11
Renegade Orchard- vs Gridley 1	4 Sprays applied –pre and post blossom	4	10
S&A Wright Orchard	4 Sprays applied –pre and post blossom	2	10
Kiwinui Orchard	2 Sprays applied – post blossom	7	16
Pepatree Orchard- vs Block 1 Kiwistart	4 Sprays applied all post blossom	17	17
Pepatree Orchard - vs Block 3 Kiwistart	4 Sprays applied all post blossom	17	17
Robertson Gold Orchard	4 Sprays applied all post blossom	3	10
Renegade Orchard	2 sprays applied in January	10	11

Agrizest applied as per label recommendation (4 sprays – 2 pre-blossom and 2 post-blossom) reduces the incidence of core disorder below the threshold level and achieves highest Zespri fruit quality Y taste band.



## 6. Agrizest repairs weather/climate related damage to plants.



The photos to the left show how the Agrizest treated vines (top) recovered from frost damage and, at blossom, had full healthy canopy. The untreated block (bottom) has not fully recovered; poor canopy cover and smaller leaves are evident.

Orchard	Control (Healthy Block)	Agrizest® (Frost damaged block)	OGR Increase per hectare
Basset Orchard	\$48,209	\$52,366	\$4,158

Agrizest elicits the vines repair, growth and defence (immune) system to overcome the stress and damage caused by weather conditions. The healthier plants can resist disease.

The trial data above proves that the treatments are not a cost bleed but substantially improve OGR.

Cold, frosty or wet windy conditions can be conducive to PSA disease. Treatment of plants immediately after frost or wind damage helps the plant to repair damage and recover quickly.

Agrizest therefore reduces further risk of *Pseudomonas syringae* pv *actinidiae* (PSA) infection and damage.

## 7. Agrizest moderates high nutrient toxicity.

The kiwifruit industry has been applying very high levels of nutrients for over 25 years. Increasingly, premature leaf fall in orchards is occurring due to fertilizer induced high soil salinity and nutrient/soil interaction problems. The photos below, from the Agrizest treated and control blocks, demonstrate that Agrizest treatment can mitigate premature leaf fall induced by high nutrient levels.



Agrizest



Control

The above photos were taken on 19th May 2011. The control blocks lost their leaves at the end March early April and the canopy opened up and allowed grass to growth beneath the canopy. In the Agrizest treated block leaf fall has been delayed until May. Very little grass growth is evident.

Although the treated block was treated with 4 sprays of Agrizest post blossom (rather than the recommended 2 pre blossom and 2 post blossom) the treatment still delivered an increase in Orchard Gate returns of \$1462.

Agrizest can reduce high soil nutrient stress factors which are known to promote bacterial infection.

Agrizest reduces another risk pathway for *Pseudomonas syringae* pv *actinidiae* (PSA) infection.

## 8. Agrizest is not a seaweed nutrient spray and delivers a far greater return on investment.

A trial in a high producing orchard showed that Agrizest led to an improvement of over \$7000 in orchard gate return compared to the control block which was sprayed with Nutrikelp.

Orchard	Control Nutrikelp	Agrizest®	Increase per Hectare
Bodmin	\$37,844	\$44,470	\$6,626

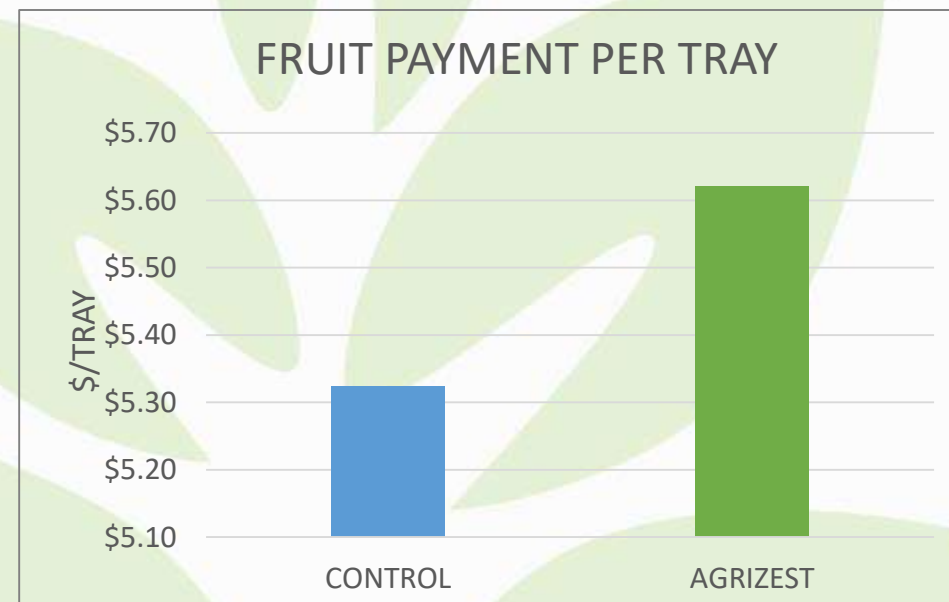
The higher payment per tray for treated fruit was achieved solely through improvement in the desired fruit size profile. (unfortunately the TZG for Agrizest treated and control block were not tested separately so we are not able to state whether Agrizest further increased returns).

Nutri-kelp is “a NPK fortified foliar fertiliser based on Acadian Seaweed, humic acids and additional minerals and TE’s.”

If Agrizest is used to improve productivity foliar nutrient sprays may not be required.

High levels of aluminium, iron, phosphate and potassium in leaves predisposed plants to bacterial disease.

By reducing nutrient inputs and using Agrizest you can mitigate the risk of foliar nutrients predisposing the vine to *Pseudomonas syringae* pv *actinidiae* (PSA) infection.



## 9a. Agrizest treatment is a safer and more sustainable option than girdling



Trunk Girdle

Cane Girdle

Leaf stress (4 days after cane girdle)

The control block was both trunk and cane girdled. The Agrizest treated block (declining block) was trunk girdled but not cane girdled. The Agrizest treated block received only 3 sprays of Agrizest – 2 pre blossom and only 1 post blossom instead of the recommended 4 treatments.

The results show that even when the label recommended 4th spray was not applied Agrizest treatment was able to lift the quality and OGR of the “declined” block above the healthier control block.

Although the yield was 13% less in the Agrizest treated block (due to poor replacement cane production the previous year) the Agrizest treated block produced an additional 528 class 1 trays per hectare than the healthier control block.

Cane girdling did not result in higher TZG or dry matter production in the control block.

GEMINI ORCHARD (Note; only 3 sprays applied)			
QUALITY CRITERIOR	CONTROL	Agrizest	DIFFERENCE
Bins/hectare	141	123	13% Less
Average Brix	6.4	7.2	higher
Average Dry matter	17.54	17.71	higher
TZG	0.58	0.60	higher
Class 1 Trays/hectare	11124	11625	528 trays more
Orchard Gate Returns	\$42,502	\$43,985	\$1,462 increase

In a young orchard, where Agrizest has been used for the last 4 years and no girdling has ever been applied, the 3rd harvest yield exceeded 10,000 trays.

ORCHARD / BLOCK	NUMBER OF CLASS 1 TRAYS / HECTARE
Hope / H1	10,367
Hope / H2	10,190

Agrizest treatment can remediate orchards that are declining due to damage from girdling.

The 1st year treatment helps the plant to produce high quality fruit and replacement canes. The 2nd year the OGR is lifted to match high producing orchards.

Girdling	Agrizest Treated		Agrizest Treated	
	Trunk	Trunk	Cane	Cane
Harvest Year	2008	2009	2010	2011
Orchard Gate Returns	\$26,950	\$32,417	\$32,350	\$49,962



Agrizest remediates and lifts OGR of declining orchards damaged by girdling.

Agrizest also mitigates the risk of girdling (wounding) predisposing the vine to *Pseudomonas syringae* pv *actinidiae* (PSA) infection.