



# CERTIFIED ORGANICS

## Case Study

### BioWeed™ Control use in Vineyards

#### CHECKLIST

i) Please read the general product information regarding the features and benefits of using BioWeed™ Control prior to addressing this case specific information.

ii) Full Application Instructions and a printable product application manual are available at [www.certifiedorganics.info](http://www.certifiedorganics.info)

[www.certifiedorganics.info](http://www.certifiedorganics.info)

## BioWeed™ Control Use in Vineyards

BioWeed™ Control is a new generation, wholly plant derived, knockdown and pre-emergent herbicide.

BioWeed™ Control is not a systemic herbicide but rather works by stripping the outer coating of contacted plant and seed material, causing cell collapse and desiccation.

BioWeed™ Control offers a proven solution for sustainable weed control, providing long term, environmental and economic benefits.

Made entirely from plant sources BioWeed™ Control offers a host of user benefits.

### Suggested Vineyard Use

#### SUSTAINABLE USE

Replace your synthetic knockdown herbicides with BioWeed™ Control - a plant derived herbicide. Combine with use of other types of herbicides as desired.

#### ORGANIC USE

BioWeed™ Control is a certified organic input which can be adopted for year round weed management.

### Key Features and Benefits

#### HIGHLY EFFECTIVE KNOCKDOWN HERBICIDE

BioWeed™ Control is an ideal replacement for harsh synthetic knockdown herbicides:

- very fast action, highly effective
- controls over 3000 weed species
- controls glyphosate resistant and tolerant weeds
- significantly enhances the performance of a range of other herbicides
- utilizes existing spray equipment

#### PRE-EMERGENT HERBICIDE

BioWeed™ Control has a unique pre-emergent activity which kills weed seed in the soil. This reduces emerging weed pressure and can save up to 50% of your normal spray requirements.<sup>1</sup>

- kills under soil weed seed bank with no harm to roots or soil microbia
- reduces the number of sprays needed per year by up to 50%<sup>1</sup>
- reduces time, labor and equipment/fuel input costs
- kills seeds in set weed heads on the plant
- kills seeds by immediate desiccation not by residual chemical action
- allows eradication of declared noxious weeds (instead of ongoing suppression)



“This is a great product, I use it on my property”.

William Downie  
Young Australian  
Winemaker of the  
year 2006.  
Gourmet Traveller  
Wine Magazine.



<sup>1</sup>See case study

[www.certifiedorganics.info](http://www.certifiedorganics.info)

## BioWeed™ Control Use in Vineyards

### CROP SAFETY

BioWeed™ Control has NO systemic action. This offers users the highest level of crop safety. It works by dissolving the waxy outer coating and collapsing the cell walls of contacted plant and seed tissue.

If contact with a desirable plant or crop surface occurs (via overspray) then only localized spot damage can result. As a certified organic product made entirely from plant sources BioWeed™ Control has NO withholding period for crops or stock.

- non systemic - can be used in delicate areas and right throughout crop cycle
- removes the risk of a positive residue test from produce supplied for export
- increases sustainability rating
- has NO withholding period on food crops
- has NO withholding period for grazing animals
- is a certified organic input for organic farms

### ENVIRONMENTAL SAFETY

As a product made entirely from plant extracts, BioWeed™ Control will immediately improve your weed control programs environmental impact. Replacing synthetic herbicides will immediately begin to improve your soil health and alleviate soil residue concerns.

When used according to label instructions:

- does not harm soil microbia
- has no effect on birds, bees and earthworm populations
- has zero soil residue (dissolves into a naturally occurring oxide in 72 hours)
- is pH neutral on application
- is a carbon positive product (you are putting long chain carbons back into the soil)

### OPERATOR SAFETY

BioWeed™ Control offers a new level of operator safety. As a wholly plant derived product it answers many concerns held by authorities and operators alike on the effects of exposure to synthetic chemical poisons:

- certified organic
- made entirely from plant extracts
- reduces the occupational safety concerns for applicators
- reduces the public health concerns for spraying in public areas
- is not a synthetic chemical poison
- re-entry period - nil

### MARKETING





Whether used to increase sustainability or as a certified organic input, BioWeed™ Control is ideal for any grower wishing to respond or market to the growing consumer niche concerned with food safety issues or to avoid export barriers based on crop residues.

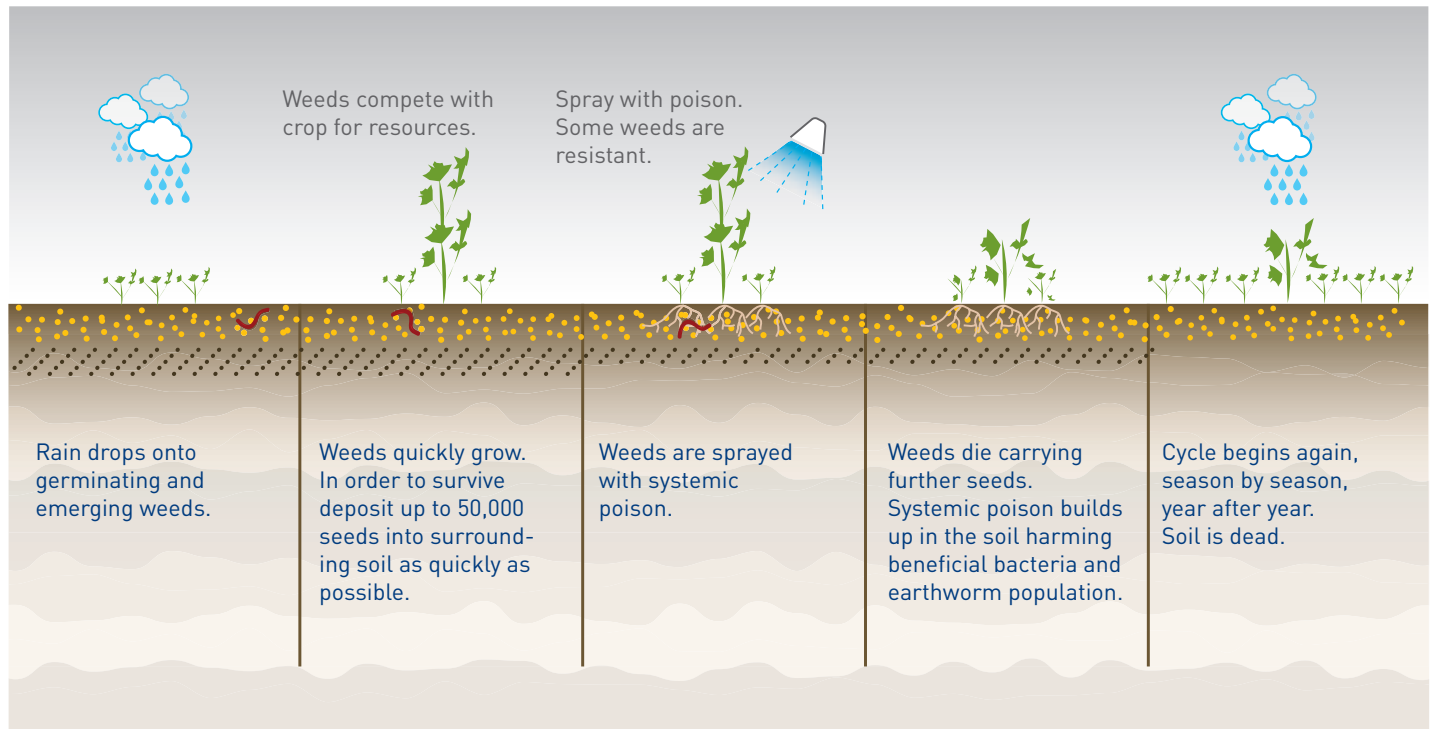
Can be used to remove broadleaf from inter-row cover crops.




# Weed Management System Comparison

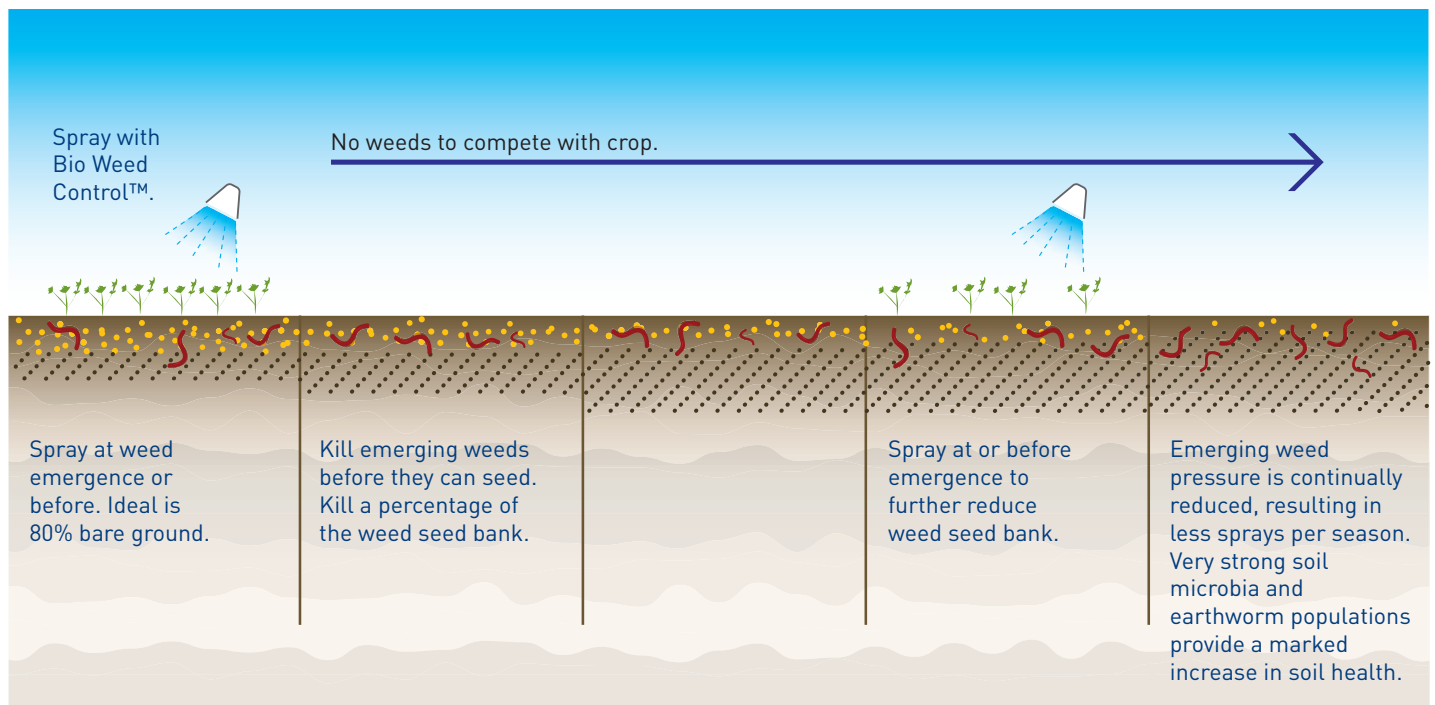
## SYNTHETIC WEED CONTROL SYSTEM

Key:  Beneficial bacteria  Weed seed  Earth worm  Soil



## BIOWEED™ CONTROL SYSTEM

Key:  Beneficial bacteria  Weed seed  Earth worm  Soil



## Case Study: Reduce Your Spray Frequency

After three seasons use Elephant Hill Vineyard sees the results of weed seed bank reduction.

### WEED SEED BANK REMOVAL

Utilizing BioWeed™ Control will, through sustained use, achieve a significant reduction in the emerging weed pressure.

This will first be noticeable in the emerging weed spectrum as softer, less competitive weeds take over and then by increasingly longer control periods from each spray.

### EXAMPLE

Elephant Hill Wines is planted on a very high weed pressure site, with a lot of stony ground (which protects the weed seed). These three year old vines have been cared for with

BioWeed™ Control since planting and require only three sprays per year. Field data from the surrounding blocks using glyphosate/ synthetic knockdown spray regimes still require six+ sprays per year. When you add up the savings including tractor and labor costs from halving the number of sprays required - BioWeed™ Control is delivering the vineyard savings of \$652 per hectare annually. Additional benefits include the reduction in soil compaction through less frequent machinery use and the availability of staff for other tasks.



“This product has provided us with two immense benefits - a major reduction in costs and a significant increase in sustainability...”

Denis Green  
Vineyard Manager  
Elephant Hill Wines.

Elephant Hill Vineyard and Winery. Hawkes Bay - New Zealand



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## Weed Management

BioWeed™ Control is designed as a highly effective (non residual) pre-emergent herbicide.

The same qualities that allow the product to destroy contacted plant tissue will also destroy weed seed in the soil. Therefore, the most effective use of this product will (generally) involve a change in management practice to target the existing weed seed bank.

Weed seed is most effectively eradicated when BioWeed™ Control is not diverted to burning off large amounts of existing weed foliage before contact with the soil surface.

Therefore, weed management practices need to change from spraying growing weeds (which are already competing with your vines) to the elimination of weeds in their most vulnerable form; at a young and pre-emergent stage. This allows the most effective eradication of the dormant weed seed bank and an ongoing reduction in emerging weed pressure.

Effective adaptation of this methodology will reduce your required spray regime by up to 50% and deliver significant (ongoing), time and cost savings.

BioWeed™ Control is also a highly effective knockdown herbicide with a host of environmental, human and crop safety benefits and can be used solely for these reasons. The most cost effective use of the product will however only be achieved by correct product application and the subsequent reduction of spray requirements.

Compatible with existing spray equipment.

### LETS TAKE A CLOSER LOOK:



Is this bare ground?

Count the number of exposed weed seeds (waiting to germinate) in the picture. Would you rather kill them before they begin to compete with your vines or after?



## Weed Management

### Suggested Vineyard Use

Works as an effective stem disbudding agent.

#### FOR SUSTAINABLE USE

Use of BioWeed™ Control provides genuinely sustainable weed management.

By replacing harsh knockdown chemicals with a plant derived bioactive, soil health and residue levels will immediately begin to improve.

By reducing emerging weed pressure you can reduce the number of annual sprays by up to 50%, generating ongoing savings in spray inputs, time, labor and machinery usage.

Combined with low rates of glyphosate, BioWeed™ Control produces a synergistic effect and offers a unique combination of systemic, knockdown and pre-emergent activity. This is ideal for use whenever crop safety requirements allow. However at seasonal times when use of systemic chemicals is undesirable, BioWeed™ Control should be used as a standalone product.

#### FOR CERTIFIED ORGANIC USE

BioWeed™ Control is ideal as a stand alone weed control agent for all certified organic vineyards.

It can be used as an effective knockdown to bring existing weeds under control. Thereafter its pre-emergent qualities will provide ongoing benefits.

By reducing emerging weed pressure you can reduce the number of annual sprays by up to 50%, generating ongoing savings in spray inputs, time, labor and machinery usage.

Whilst BioWeed™ Control provides offers a host of benefits over alternatives, it can also be used as a flexible adjunct to existing weed management practices.

### Management Practice

#### WHEN TO INTRODUCE BIOWEED™ CONTROL

You can spot spray at any time of the year. The ideal time to introduce BioWeed™ Control is in late winter/early spring. This is when the over wintering weeds are dying away and before new spring growth.

Management practices and growing requirements differ greatly. Therefore - If you have an existing weed problem then this needs to be brought under control first. This is the safest (vine exposure) period for sustainable users to apply a glyphosate/BioWeed™ Control combination spray to clean up any hardier weeds at the end of winter and the most cost effective time for organic growers using BioWeed™ Control by itself.

#### EXISTING WEED PRESSURE AND HEIGHT

The key in either case is to eliminate the existing weed foliage and establish a program that attacks the weeds whilst they are at a young and pre-emergent state. Thereafter you can maintain a program where the ground is sufficiently bare that you have opportunity to eliminate the weed seed in the soil.

This requires a significant jump in management thinking because you are shifting the focus from attacking weeds once they are already growing/grown to attacking them in their most vulnerable state – before, during and shortly after emergence.



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## Weed Management

### CHANGE OF MANAGEMENT PRACTICE

Remember we ideally want to be maintaining a vineyard with at least 80% bare ground and attacking weeds the 1- 4 true leaf stage – so anything larger than that has to go first.

Secondly if you have not previously been using BioWeed™ Control then you will no doubt be experiencing the highest possible weed pressure that your soil can sustain.

Therefore you must maintain a continued attack on the weed seed bank in the soil. At first you will begin to notice a change in the emerging weed spectrum as less dominant, (and generally much easier to kill), weeds begin to emerge. This is a clear sign that the dominant and hardier weeds are being removed, making way for other species to emerge. Thereafter you will notice the “hold” period between sprays getting longer and longer. Again, climatic conditions and existing weed pressure when you start will effect how long this takes. Field logs from vineyards suggests that a full two year program is ideal to fully demonstrate the remarkable savings available.

### APPLICATION CHECKLIST

Bring existing weeds under control.

Ideally 80% of the soil surface should be weed free to ensure that the maximum benefit is gained from BioWeed™ Control’s pre-emergent activity.

The key to the most cost effective spray program is trusting that you will achieve the best results by using the product as a pre-emergent and knockdown at early growth stage. If you wait for weeds to establish themselves you will spend a high degree of the activity of the product dehydrating weeds instead of penetrating the soil and reducing the weed seed bank.

Controls emerging spring bud via standard spray operation.



Mechanical weeding machines are effective tools in a weed management program but also have some limitations. They are expensive to purchase, can only operate on flat ground, cannot weed close to obstructions like post ends and tend to damage young vines. They are also too slow to do large areas in short periods of time. Use of BioWeed™ Control overcomes these problems.



[www.certifiedorganics.info](http://www.certifiedorganics.info)



## Application Instructions for Sustainable Use

BioWeed™ Control is entirely compatible for use with synthetic chemicals and can be mixed in the same equipment.

### Sustainable Use

#### USING BIOWEED™ CONTROL ON A CONVENTIONAL VINEYARD

BioWeed™ Control is an ideal replacement for synthetic knockdown herbicides and can be introduced immediately to any spray program.

#### Instructions for use

Mix as per the instructions and apply to remove all existing weeds and organic materials. Repeat this process until 80% of the soil surface is weed free at all times. Spray early. This will ensure that the maximum benefit is gained from BioWeed™ Controls pre-emergent activity. Over time this will reduce your spray requirements by up to 50%.

BioWeed Control™ has a synergistic effect on the uptake of glyphosate and so both products can be utilized in low combination rates to maximum effect. Add 1% (by volume) 360g/l or stronger glyphosate and 10% by volume BioWeed™ Control to your spray mix. The ideal application rate is 450 litres per (sprayed) hectare. Therefore you will need 4.5 litres of Glyphosate, 45 litres of BioWeed™ Control and 400 litres of water per sprayed hectare.

Please note that BioWeed™ Control contains an existing plant based surfactant and no further wetter/spreader needs to be added to the spray mix.

The ideal time for application is after rain or irrigation. A high moisture content in the soil will further aid product penetration and increase the efficacy on the dormant seed bank.

#### Application Pressure

It is very important to use the exact application pressures and volumes within the table below. Failure to strictly adhere to these measures could result in poor kill.

Please note: BioWeed Control™ is formulated for use at higher application pressures. Wand application at low pressure (hand pump and quad bike) is not ideal.

#### NOZZLES

Use the nozzles suggested in the table below, depending on the spray pattern required. Failure to utilize the suggested nozzles will result in poor kill.

#### SPRAY WIDTH

Apply 40cm either side of vine or as required. It is important that the mowing strip overlaps the spray strip by 10cm.

100 litre rate for spot spraying

- 1 litre glyphosate
- 10 litres BioWeed™ Control
- 89 litres water

No further surfactants required (already in BioWeed™ Control)

Please see general application instructions for spot spraying at [www.certifiedorganics.info](http://www.certifiedorganics.info)

#### NOZZLES

Colour code: blue



A19503EVS



AIUB8503

#### Application Rates for Sustainable Use

Weed stage	Sprayer	Nozzle	Pressure	Speed	Mix*	Stage
General Spray	Motor Driven Inter-row or Boom Sprayer	Tee jet A19503EVS or AIUB8503	5 bar	4km/hr	4.5 litres Glyphosate and 45 litres of BioWeed™ Control dissolved in 390 litres of water	All Weeds

## Application Instructions for Certified Organic Use

It is critical to ensure that the organic weed management program recognizes the importance of pre-emergent control.

### Certified Organic Use

#### USING BIOWEED™ CONTROL IN A CERTIFIED ORGANIC VINEYARD

BioWeed™ Control is an ideal stand alone weed control agent for organic vineyards. It can be used as the backbone of a successful spray program or as an adjunct to existing weed management practices.

#### Instructions for use

Mix as per the instructions and apply to remove all existing weeds and organic materials. Repeat this process until 80% of the soil surface is weed free at all times. Spray early. This will ensure that the maximum benefit is gained from BioWeed™ Controls pre-emergent activity.

If your existing weeds are over 2.5 cm (1") in height then the higher rate of BioWeed Control™ should be used. Hard grazing or mechanical weeding are also acceptable means for bringing your existing weeds under initial control.

Add 15% by volume BioWeed™ Control to your spray mix. The ideal application rate is 600 litres per (sprayed) hectare. Therefore you will need 90 litres of BioWeed™ Control and 510 litres of water per sprayed hectare.

If (or once) existing weeds are reduced to the young and pre-emergent stage you can use to the lower application rates in the table below. Therefore you will need 60 litres of BioWeed™ Control and 540 litres of water per sprayed hectare.

Please note that BioWeed™ Control contains an existing plant based surfactant and no further wetter/spreader needs to be added to the spray mix.

The ideal time for application is after rain or irrigation. A high moisture content in the soil will further aid product penetration and increase the efficacy on the dormant seed bank.

#### Application Pressure

It is very important to use the exact application pressures and volumes within the table below. Failure to strictly adhere to these measures could result in poor kill.

#### NOZZLES

Use the nozzles suggested in the table below, depending on the spray pattern required. Failure to utilize the suggested nozzles will result in poor kill.

#### SPRAY WIDTH

Apply 40 cm either side of vine or as required. It is important that the mowing strip overlaps the spray strip by 10 cm.

100 litre rate for spot spraying

- 20 litres BioWeed™ Control
- 80 litres water

Please see general application instructions for spot spraying at [www.certifiedorganics.info](http://www.certifiedorganics.info)

#### NOZZLES

Colour code: red



AI9504EVS



AIUB8504

#### Application Rates for Organic Use

Weed stage	Sprayer	Nozzle	Pressure	Speed	Mix*	Stage
General Spray Emerging Weeds	Motor Driven Inter-row or Boom Sprayer	Tee jet AI9504EVS or AIUB8504	5 bar	4km/hr	60 litres BioWeed™ Control dissolved in 540 litres of water	Pre-emergent and Emerging Weeds
General Spray Established Weeds	Motor Driven Inter-row or Boom Sprayer	AI9504EVS or AIUB8504	5 bar	4km/hr	90 litres BioWeed™ Control dissolved in 510 litres of water	Established Weeds over 25mm height

## Application Instructions for Pre- Planting of Young Vines

BioWeed™ Control is an ideal pre-emergent treatment in preparation for new vine plantings.

### Pre-emergent Use

#### USING BIOWEED™ CONTROL TO PREPARE SOIL FOR NEW VINE PLANTINGS

BioWeed™ Control offers the highest level of safety when controlling weeds pre and post new vine plantings.

It has NO systemic movement or potential in the soil or on a plant. It can be used in either conventional or certified organic viticulture. It will kill the weed seed in the soil and yet have no effect on formed bark on newly planted vines.

### Instructions for use

Prior to planting the soil should be cultivated to fully remove all established weeds.

BioWeed™ Control should be applied to the bare soil planting strip at the rate of 60 litres BioWeed™ Control in 540 litres water per sprayed hectare. This will reduce the weed seed bank prior to planting. Whilst it can be used on dry soil the ideal time for this application is while the soil is near field capacity after irrigation or rain.

The young vines are then planted. A second application of BioWeed™ Control should be made when weed emergence has covered 20% of the bare soil in the planting/strip.

Application nozzles should be placed to ensure that spray does not directly contact very young vines or spot damage could occur. Whilst BioWeed™ Control will not harm formed bark and no systemic damage can take place - protective covers should be used if the height of the new vines will allow direct spray contact with buds and leaves. Subsequent application of BioWeed™ Control should be carried out as required to maintain 80% bare soil around vines.

### Application Pressure

It is very important to use the exact application pressures and volumes within the table below. Failure to strictly adhere to these measures could result in poor kill.

#### NOZZLES

Use the nozzles suggested in the table below, depending on the spray pattern required. Failure to utilize the suggested nozzles will result in poor kill.

#### SPRAY WIDTH

Apply 20 – 40 cm either side of vine as required.

100 litre  
mixing rate

- 20 litres BioWeed™ Control
- 80 litres water

#### NOZZLES

Colour code: red



AI9504EVS



AIUB8504

For underleaf band spraying:



AIUB Tip

### Application Rates for Pre-emergent Use

Weed stage	Sprayer	Nozzle	Pressure	Speed	Mix*	Stage
General Spray Pre & Post Planting	Motor Driven Inter-row or Boom Sprayer	Tee jet AI9504EVS or AIUB8504	5 bar	4km/hr	60 litres BioWeed™ Control dissolved in 540 litres of water	Pre-emergent and Emerging Weeds

# The Keys to Successful Weed Management

## IDENTIFY HOW YOU WANT TO USE THE PRODUCT

- Sustainable properties use BioWeed™ Control in combination with glyphosate and/or other chemicals
- Organic properties use BioWeed™ Control as a standalone certified organic input.

## DETERMINE THE CURRENT WEED PRESSURE

Look at the current weed height, size, type, and strength of seed bank and use appropriate rate to bring this under control. Use seasonal weed pressure to aid in introducing the product.

## FIT APPLICATION METHOD TO WEED PRESSURE

Only use knapsack spraying for small spot spraying situations as they lack pressure and volume. Foliage coverage is key with use of this product. Best results will always be obtained with equipment delivering 5 bar pressure and a flow rate that matches recommended volumes per sprayed hectare.

## APPLICATION TIMING

Superior economic and long term weed control results are achieved by treating young and emerging weeds with the correct pressure and volume. Field data shows that the best weed seed control results are achieved when 80% of the soil surface is free of weed.

## Further Uses in the Vineyard

### SPOT SPRAYING

Use the general instructions provided for your equipment in the BioWeed™ Control Application Instructions Manual. This can be downloaded from [www.certifiedorganics.info/prodbwccapplication.html](http://www.certifiedorganics.info/prodbwccapplication.html)

### POST ENDS

Use spot spraying instructions as above.

### MULCHING

Use BioWeed™ Control in the winter prior to the laying of mulch to kill existing weeds and weed seed. Ideally you should apply two applications ten days apart prior to mulching.

### AS A DISBUDDING AGENT

Use at woolly bud stage from emergence to 3cm. Spray vine trunk using hand gun or adjust nozzle height on inter row sprayer using standard management rate. Use BioWeed™ Control and water ONLY.

Please Contact Us for further Information

[info@certifiedorganics.info](mailto:info@certifiedorganics.info) or  
[www.certifiedorganics.info](http://www.certifiedorganics.info)

Compatible (and synergistic) with a range of other herbicides.

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