Agri intelligence

Vineyard Toolkit 2025/26

www.agrii.co.uk

Agrii

WELCOME

to the Agrii Vineyard Toolkit

Our products and services help fruit growers and nursery workers to meet the exacting standards demanded by the marketplace.

Agrii fruit agronomists don't just advise on the best crop protection treatments; they can also help with the supply of a wide range of ancillary products as well as agronomy, regulatory, environmental and budgeting support services that today's growers demand.

The Agrii fruit team is comprised of dedicated top and soft fruit agronomists together with ancillary product specialists. Within the vineyard sector, we have two leading agronomists, Julian Searle and Ben Brown, with other members of the team also working in vines.

Our staff provide a professional advice based service supporting you throughout all stages of your vineyard business:

- Pre-planting advice.
- Rootstock and variety choice.
- Cover crop selection.
- Disease risk modelling.
- Nutrient management programmes.
- IPM planning.
- Trellising and ancillary product supply.
- RHIZA digital agronomy and precision service.

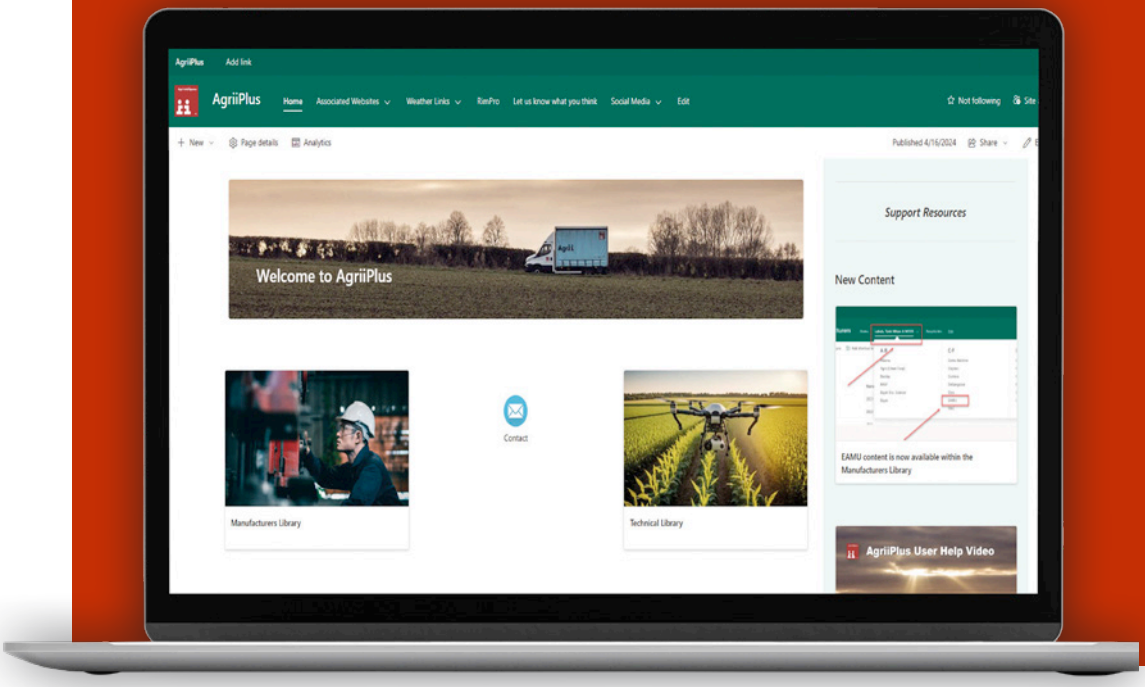
Contents

AgriiPlus is Agrii's customer intranet

It provides a comprehensive package of information to help manage crop production safely, legally and with due regard for food standards and the environment.

Available to customers only.

Speak to your Agrii agronomist if you would like to sign up.



Don't overlook the importance of iron

Iron is an important element for vines as it supports a number of physiological processes, but in many vineyard situations it is deficient.

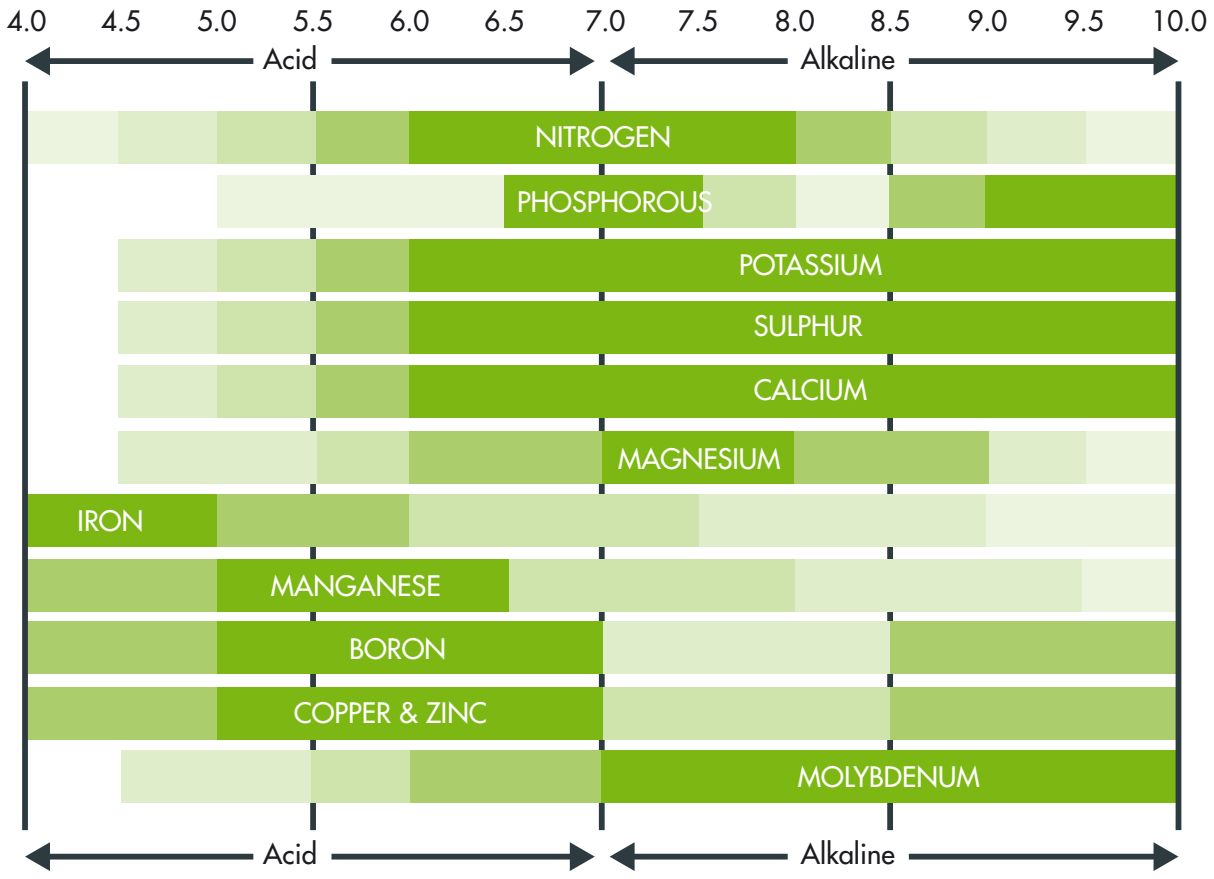
Gary Saunders
Fruit Agronomist

Of the many functions that iron supports, respiration and photosynthesis are perhaps the most important.

- In respiration, iron is a component of several enzymes that govern this behaviour. An iron deficiency reduces the activity of these enzymes, reducing respiration (release of energy) within the vine.
- In photosynthesis it is involved in the synthesis of chlorophyll. This is the green pigment within the chloroplasts which is the site of photosynthesis. Hence as a physical symptom, the lack of iron shows up as a yellowing of the leaves on the vine – iron chlorosis, initially in the young leaves (as iron is not remobilised within the plant) and then showing in the older leaves as the symptoms persist.

The calcareous soils that favour vines typically have a pH that is neutral or close to it. In such situations, several micronutrients, including iron, can become less available, as can be seen in the diagram below. This is also true for manganese, boron, copper and zinc. The macronutrients on these soil types are readily available.

Iron is often present in horticultural soils, but its availability is often low because it forms ferric (Fe+++) compounds at what is considered to be the neutral pH range and above which are highly insoluble and therefore not available to plants. Plant roots absorb most iron as ferrous (Fe++) ions. Plants have evolved, to varying degrees, methods to obtain iron from soils by reducing Fe+++ ions to Fe++ ions in the rhizosphere by the roots excreting a range of organic compounds and acids into the soil, but this is often insufficient to meet plant needs.



The effect of soil pH on nutrient availability: The denser the band colour the greater the availability. As the colour diminishes, nutrient availability decreases.

To overcome iron deficiency in the vineyard we employ several strategies:

- First, make use of the plant's evolution that enables iron uptake. The ability to take up iron at higher pH ranges varies between rootstocks. With this knowledge, it is possible to select a rootstock that suits the soil. The IPC index, developed by INRA, the French National Research Institute for Agriculture, Food and the Environment, is a measure of grape rootstock sensitivity to lime-induced iron chlorosis in relation to 'free' $CaCO_3$ and the availability of iron in the soil. Where this is high (IPC>60), tolerant rootstocks such as 41B and Fercal are required.
- At planting, treat the vines with **NorTrace Myco** (Mycorrhiza), this improves iron uptake by promoting root mass through a greater volume of finer hairs and the production of exudates that solubilise iron into a biologically available form. 10 kilos of NorTrace Myco will inoculate roughly 3,300 vines at planting.
- **Applying Onset Mini Prills & Onset Standard Prills** (sulphur) pre-planting can help to correct pH thereby improving iron availability. Application rates vary depending on soil cation exchange capacity and soil texture but are typically between 1.33-2.66 t/ha.
- It is important to maintain iron availability through the growing season. This can be done through either soil or foliar applications. Suitable soil-applied products include **Ferromel 20** (Ferrous sulphate heptahydrate 19%). Alternatively, iron can be applied in the form of a chelating agent such as **Q15** and **Q40** (Iron EDDHA 7% and 6% respectively). There are four commonly used chelating agents: citric acid, EDTA (Ethylenediaminetetraacetic acid), DTPA (Diethylenetriaminepentaacetic acid) and EDDHA (Ethylenediamine di(o-hydroxyphenylacetic acid)). Of these the chelating agent EDDHA is the strongest and maintains iron availability to plants past pH 9.0.
- Typical application rates for ferrous sulphate or iron chelates are 3-8 t/ha.
- Suitable for both soil and foliar applications is **Bio-Chel Fe**. This is a soluble lignin chelated form of iron (5%) which is suitable for both soil and foliar applications and has been optimised to ensure stability and availability across a wide pH range (2.0-9.0).

Embracing a biological future

The use of plant protection products (PPPs) in grape production is coming under pressure from market forces and lack of available active ingredients, away from the highly efficacious pesticides of old towards newer perhaps more considered approaches.

Ben Brown
Agronomist &
Viticulture Specialist

This new approach is much more nuanced and precarious and leaves greater margin for error. This means all your agronomy needs to be much more precise, with a better understanding of environmental conditions and diseases, not only regarding disease pressure but in order to get the most out of the plant protection products (PPPs) we use.

We are seeing shifts away from products like glyphosate, despite its renewal for a further 10 years. Over the next 5 years we could see the loss of up to 5 different active ingredients used in the fight against downy mildew. What we are likely to see over time is a lessening of reliance on more persistent and systemic active ingredients towards bio-solutions. This will increase the pressure on remaining active ingredients from a resistance perspective. It will also make controlling disease in periods of fast growth much more difficult. However, in a positive light we may see some benefits to fruit quality due to the softer nature of many biologicals, when compared to conventional PPPs. Many growers may also want to look at this approach as a way to reduce spray residues from a marketing and end-use perspective.

SO WHAT ARE THESE BIO-SOLUTIONS?

Bio-solutions is a catch all phrase for a variety of products, from outright biologicals such as Botector or Amylo-X, which contain living bacteria or fungi, through to biostimulants such as Innocul8.

Bio-solutions may also be used to refer to some old products like potassium bicarbonate or elemental sulphurs. Classes of bio-solutions may include; Physical Pesticides (including herbicides), Biologicals, Elicitors, Biostimulants, Endophytes. Bio-solutions are not new, Serenade has been around in different iterations for over 2 decades. These early generations of product are now better understood and better developed both in terms of the strains of microbe but also their formulations.

ELICITORS AND BIOSTIMULANTS

Elicitors and biostimulants should always be used in advance of a disease risk period. Many elicitors such as Frutogard prime the plants own defence response working similarly to vaccines, reducing the efficacy of any fungal attack.

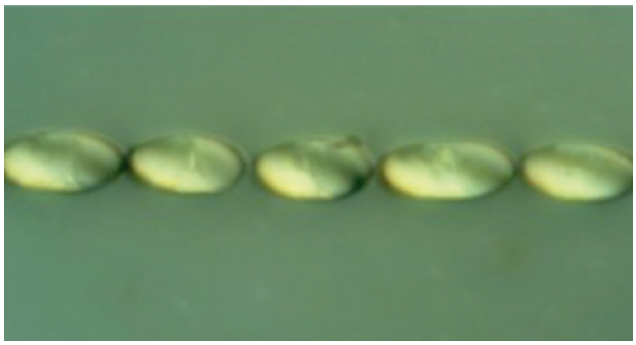
Biostimulants may have similar effects such as Innocul8, but are applied primarily to improve a plants response to stress, increasing disease tolerance. Products like ProAct have been shown to enhance calcium uptake, in plants especially when applied in and around flowering. Calcium is a critical part of cell wall structure, so enhancing its availability can have positive effects on cell wall strength, therefore reducing wounds which pathogens like Botrytis can take advantage of. A risk of elicitors is that we use them after infection or expect them to achieve too much, these products are not cure-alls but perhaps better as part of a 'marginal gains' approach to producing clean crops.

PHYSICAL PESTICIDES

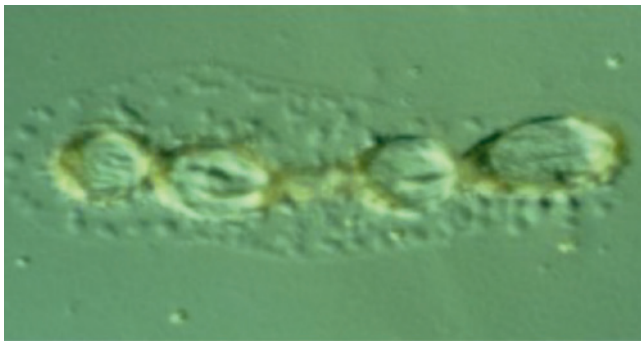
Physical pesticides are a really useful part of our armoury and have perhaps been around far longer than any other type of products.

Whether this be oils or copper, they can offer both; protection and/or curative activity. Copper for example needs good coverage to achieve protection, creating a crystalline protective layer. Where coverage isn't achieved, we can't expect any protection. The major weakness of physical pesticides tends to be their persistence. Many sulphur formulations don't require the level of coverage that we need to achieve with copper, as they can enter and redistribute within the canopy, however they will not remain on the plant following rain events. Some new formulations of sulphur such as Thiopron do aim to address this using more wetters to enhance adherence to the plant but they aren't fool proof. Copper and sulphur both work best ahead of infection. We are beginning to see the use of terpenes amongst other natural extracts and oils for the control of a wide range of diseases in fruit crops, these products tend to be scorchy in nature when not used properly. Terpenes tend to have superficial, eradicative activity killing fungal hyphae and spores on the outside of a leaf. This can limit their efficacy on diseases such as downy mildew and botrytis.

Potassium bicarbonate or Karma can show good efficacy on diseases including botrytis however when used at the right time of year can significantly 'dry-up' infections, reducing further spread of disease. Potassium bicarbonate impacts the pH and osmotic pressure



Untreated powdery mildew spores



Treated powdery mildew spores

1. In vitro assay showing Karma mode of action

causing fungal cells to rupture and inhibiting cell growth. This effect is not selective and can have negative effects on biological populations. This is important to remember when we are integrating and layering products like Botector alongside Karma. We shouldn't rotate these products but consider building up protective colonies of Aureobasidium pullulans, or incorporating alternative to Karma early in a programme.

2. Inhibition of the growth of ESCA (Pch) complex by fungus in Vintec

BIOLOGICALS FUNGICIDE/ INSECTICIDES

These offer perhaps the most promising control of trunk diseases and botrytis. The original weakness was always their stability during storage and when exposed to UV and the external environment.

Modern product formulations however have significantly brought the quality of these products forward, increasing their viability in storage as well as their functionality. Many early formulations such as Serenade were largely reliant on antifungal agents produced by the bacteria during their fermentation process used to produce the product. Modern products like Botector however remain viable once applied to the plant and can outcompete pathogens like botrytis which tries to invade through wounds on the grape surface.

Perhaps the biggest shift in fungal 'technology' is Vintec a Trichoderma spp. which has been shown to successfully control trunk diseases. This fungus being biologically active can grow to cover nooks and crannies, releasing proteases and chitinases to degrade pathogenic fungi. It does have its limits however, it shouldn't be applied if rain or frost will follow within 48hrs of application and works best in spring when temperatures are above 10°C.

ENDOPHYTES

Endophytes are organisms that live within a plant, agronomically it is used to refer to organisms that offer a symbiotic non-fungicidal benefit to a host plant. Novel endophyte products such as Nientris may have a place in grape production going forward.

Nientris is a surface living co-formulation made-up of bacteria and a fungus. Nientris has been shown to fix as much 30-40 Kg N/ha. It has the potential to improve nitrogen uptake with a much lower carbon footprint that conventional nitrogen fertilisers. Nientris works better when applied in good growing conditions with low plant stress and when stomata are open (such as in the early morning). Highlighting the nuanced approach that the future of agriculture will need to take..

FINDING THE TIPPING POINT

Agrii's low residue spray programme highlights some of the ways in which we can push and restructure a traditional spray programme to reduce pesticide residues and where we can enhance the use of biologicals.

It is not necessarily the answer to a clean and healthy crop of grapes, but highlights some of the opportunities for the future of crop protection. It looks at how modern formulations of elicitor technology and new biological fungicides can be used to protect a crop and plausible situations when we can use them. As we move forward a definite ability to work prophylactically will be necessary as the options to clear-up disease will lessen. That said this programme will allow for systemic chemistry to be integrated in high pressure such as following heavy rainfall events or in warm humid conditions.

The real restraints of the programme will be the risk of powdery mildew developing in the July/August period, and botrytis developing over flowering. Historically products like Scala (botrytis) and Justice (powdery) offered very useful systemic activity when coverage was difficult to achieve. Many people have moved away from copper, which will be hard to replace for its strong protectant activity, without falling back on conventional chemistry. This programme is a great base on which to develop nuanced and effective low-residue programme.

“Agrii's low residue spray programme highlights some of the ways in which we can push and restructure a traditional spray programme to reduce pesticide residues and where we can enhance the use of biologicals.”

Wine Grape Low Residue Spray Programmes

PERIOD OR GROWTH STAGE	PEST DISEASE DEFICIENCY	PRODUCT RECOMMENDATION	MAX RATE PER HECTARE	COMMENTS (Spray interval 10 days (7-14 as conditions dictate). Adjust spray rates according to canopy height).
BUD DEVELOPMENT – APRIL				
Woolly Bud	Bud mite Frost protection	Liquid Sulphur ProAct	10 lt /500 lt 0.2 kg	From Rosy bud – Timing eriophyid mite x2/3 applications (Anti-frost products: ProAct, Actiff, Spraygard)
Bud break		Liquid Sulphur	10 lt /500 lt	Green point visible Nutrient Opte-Cu 2.5 lt/ha
SHOOT DEVELOPMENT – MAY				
2-3 Leaves unfolded	Downy Mildew Biostimulant	Cuprokylt Innocul8 Zonda	1 kg 0.6 kg 2.5 lt	
+10-14 days	Downy Mildew Powdery Mildew Biostimulant	Cuprokylt Thiopron Innocul8 Zonda	1 kg 2 lt 0.6 kg 2.5 lt	Deploy Tortrix pheromone traps LBAM, GBM Cool temperature tolerance, repeat as necessary
Inflorescence clearly visible	Downy Mildew Powdery Mildew Biostimulant	Frutogard Thiopron Innocul8	4.5 lt 2 lt 0.6 kg	1.5, 3.0 to 4.5 lt/ha; pro rata for canopy height
INFLORESCENCE DEVELOPMENT – JUNE				
Inflorescence expanded	Downy Mildew Biostimulant Nutrient LBAM / GBM	Frutogard Innocul8 Microthiol Special Dipel DF	4.5 lt 0.6 kg 2.5-4 kg 0.75 kg	Apply at RIMPRO forecast primary infection or Tracer Trap threshold dependant
Flower buds separated	Downy Mildew Powdery Mildew Biostimulant Nutrition LBAM / GBM	Frutogard Thiopron ProAct Maxicrop Natural Dipel DF	4.5 l lt 2.5-5 lt 0.2 kg 5 lt 0.75 kg	Microthiol Special or Kumulus DF viable alternatives Source of N-P-K repeat application as required *apply weekly for effective control
Flowering (25%-80% Caps Off)	Downy Mildew Botrytis	Frutogard Botector	4.5 lt 1 kg	
FRUIT FORMATION – JULY				
Fruit Set	Botrytis Downy Mildew Powdery Mildew Biostimulant	Botector Frutogard Thiopron Innocul8	1 kg 4.5 lt 2.5-5 lt 0.6 kg	See Agrii Nutrition programme
Early Bunch	Downy Mildew P. Mildew Biostimulant Nutrition	Cuprokylt Thiopron Innocul8 PeKacid	1 kg 2.5-5 lt 0.6 kg 5 kg	
Pre bunch closure	Downy Mildew: Botrytis Powdery Mildew Biostimulant Nutrition	Frutogard Botector Thiopron Innocul8 PeKacid	4.5 lt 1 kg 2.5-5 lt 0.6 kg 5 kg	If PM present consider separate applications of PHC (1-2%) + Kantor 1.5 lt/1000 lt *apply moth insecticide if required
FRUIT MATURATION – AUGUST				
Maturation	Downy Mildew Powdery Mildew Biostimulant	Cuprokylt Thiopron Innocul8	1 kg 2.5-5 lt 0.6 kg	
M 2	Powdery Mildew Nutrition	Thiopron PeKacid	2.5-5 lt 5 kg	
M 3	Botrytis / P. Mildew Physical acting	Amylo-X SB Plant Invigorator	2.5 kg 0.5 lt / 500 lt	
RIPENING – SEPTEMBER				
Veraison	Botrytis / P. Mildew Physical acting Biostimulant	Amylo-X SB Plant Invigorator ProAct	2.5 kg 0.5 lt /500 lt 0.2 kg	
V 2	Botrytis Biostimulant	Amylo-X ProAct	2.5 kg 0.2 kg	
V 3	Botrytis Biostimulant	Amylo-X ProAct	2.5 kg 0.2 kg	
PRE RIPE – OCTOBER				
Pre Ripe	Botrytis Wasps / SWD	Botector Tracer	1 kg 100 ml	1 day phi 14 day phi or Hallmark Zeon 7 day phi
PR 2	Botrytis / Fruit diseases	Karma	5 kg	
Post-Harvest	Wood Ripening Nutrient	Copper Budbuilder Urea	5 lt/1000 lt 5 lt 5%	Promptly post harvest before leaf fall At this rate reduces disease carry over
Pruning	Wood diseases	BlocCade-wound paint or Vintec	200 gm	Apply to restructuring and crown/spur cuts

Phylloxera: nodules on UNDERSIDE of leaves } Formerly Notifiable. Batavia recommended.
Erinose: nodules on TOPSIDE of leaves } Eriophyid mite. Sulphur recommended.

IMPORTANT NOTICE: These recommendations are only advised subject to the manufacturer's written instructions being carried out in exact detail. IT IS ESSENTIAL THAT LABELS ARE READ FULLY BEFORE USE.

Putting IPM into practice

Julian Searle
Agronomist &
Viticulture Specialist

Integrated Pest Management (IPM) is the embodiment of a pro-active approach to crop protection. Done successfully, it builds on an understanding of how pests and disease affect crops to slow their build up and subsequent spread while promoting stronger crops with better tolerance to attack.

The result of which is potentially higher yields with better quality, lower growing costs through less reliance on conventional crop protection products and a healthier environment with more of the beneficial bugs and microbes that are part of the symbiotic relationship with nature. In short, IPM is good for the crop, good for the business and good for the environment.

For many businesses, IPM is already widely practiced, but it has gained prominence since becoming a condition of the Sustainable Farming Incentive (SFI). Including an IPM Plan with your SFI application is worth about £1,200, so a worthwhile exercise in every way.

For those pondering how best to demonstrate adherence to the principles of IPM, Agrii has developed a template consisting of eight steps. This includes:

1. Prevention and suppression
2. Monitoring
3. Decisions based on risk and thresholds
4. Non-chemical forms of control
5. Plant Protection Product (PPP) selection
6. The right PPP at the right time
7. Anti-resistance strategies
8. Evaluate and review – what worked well to deliver a robust IPM strategy

In this decision hierarchy, the use of conventional PPPs is based on need and comes only after other forms of pest and disease control have been deployed.

In all cases, IPM begins with promoting a healthy environment. This begins with soil health because healthy soils grow healthy crops. Consideration should be given to maintaining a fertile soil of good structure with effective drainage and appropriate organic matter content. The plan should consider:

- Routine soil testing with fertilisers and lime applied as necessary.
- The targeted use of foliar applied nutrients based on identified deficits.
- Application of PAS100 compost post planting.
- The use of slow-release fertilisers at planting to optimise vine establishment and health.
- Sub-soiling between rows to correct soil structure where necessary.
- Routine clearing of ditches and maintenance to drains and water courses.
- Maintain maximum soil cover without compromising the health of the vines; the alleyways, headlands, buffer strips also allowing regrowth post-harvest in the planted row to reduce dormant season compaction, run-off, and erosion.

Cultural controls should reflect good plant husbandry and consider both how the vine is pruned in the dormant season and the canopy managed in the growing season.

- Balance bud number according to the charge of the vine. Strive to create enough healthy vigour without too much vigour.
- Adopt a 'gentle' method of pruning and make cuts to promote good sap flow unrestricted by dieback and a build-up of necrotic wood in the head of the vine. Remove diseased wood.
- Consider using training canes and cordons to reduce bud weakness and blindness.
- Thin the crown to remove excess growth and unfruitful shoots.
- Manage the canopy to maximise light interception and airflow to reduce disease build up. Downy mildew favours long periods of leaf wetness; powdery mildew favours restricted light intensity; and botrytis favours slow drying conditions.

The farmed environment should be managed to create favourable habitats for beneficial and pest-predatory insects. Although grapevines do not specifically require pollinating insects to crop, they are a critical component of biodiversity and the flourishing of all ecosystems. IPM plans should demonstrate:

- Maintenance of living windbreaks and hedges.
- Allowing a metre or so adjacent to these unsprayed for natural plant species to grow.
- Maintenance of other uncropped areas to both reduce the seed burden of noxious weeds and also encourage the flourishing of the wide variety of native plant species to support biodiversity of the farm flora and fauna.
- Maintenance of field headlands and buffer strips to reduce run-off to water courses.
- Attention to vineyard alleyways including reduced mowing every other row and not at all in May to allow flowering of the indigenous grasses and other plant species present. Where possible, ensure good light penetration and airflow within the crop to limit pest and disease development. Remember, roughly half the area of a vineyard is given over to alleyways, so maintaining them will benefit the floral species growing in them and support the health of the wider environment.

Ensure crop protection products are used according to need based on a matrix of assessed needs and applied by suitably qualified personnel. The IPM plan should demonstrate:

- Applications are based on the advice of a BASIS qualified advisor and delivered by a trained spray operator.
- Routine crop monitoring for pest, disease and nutritional status.
- The use of decision support services with data from weather stations integrated into pest and disease models to ensure crop protection products are applied for optimal effectiveness.
- Responsible product stewardship with modes of action rotated as part of an anti-resistance management strategy.

With every plan it is important to reflect and review. For IPM, this is not just good practice, but a statutory requirement. Your records will need to demonstrate evidence of a review with consideration given to what worked well and what could be done better to deliver an IPM strategy that is fit for future seasons.

Specialist Cover Crops Mixtures

Cover crops used correctly as part of your soil management strategy can have the following benefits:

- **Improve soil structure through root penetration at different depths** – subject to the species used. Channels created by the roots open up the soil allowing free movement of air and water through the soil profile, even breaking up compacted layers at depth.
- **Encourage farmland wildlife and beneficial insects** by creating cover and a food source over an extended period.
- **Increase the quantity of the biota (bacteria, earthworms, fungi, insects) in the soil** over time by having a growing crop and increased organic matter available for more of the year to feed them consistently. The increase in soil biota will then speed up the breakdown of organic matter, bring the carbon:nitrogen ratio into balance and make nutrients readily available to the crop.
- **Improve overall soil health,** which is the foundation for helping to promote good crop health, enhancing crop yields and farm sustainability.

GRASS ALLEY MIXTURES

The grass alleyways between the vine rows are often overlooked and seen simply as a place to travel with machinery, pickers, pruning staff and so on.

At the establishment phase of a vineyard, the grass mixture is rarely considered, and a "tumble-down" ley of broad leaved weeds and any other vegetation that arrives on the wind is so often seen as acceptable.

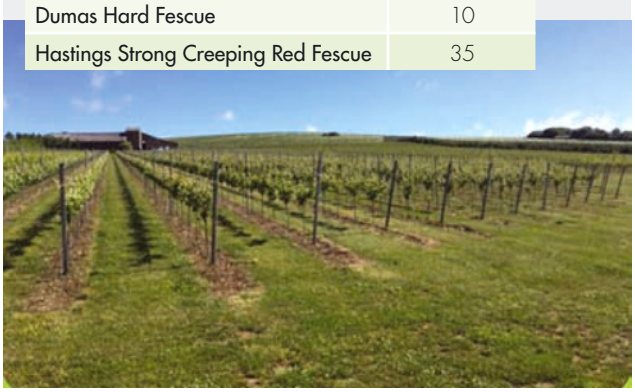
However, selecting the right grass mixture for your alleyways can afford other benefits:

- Soil structure improvement.
- Increase in soil microorganisms.
- Improved water infiltration and drainage.
- Less compaction and tractor wheel ruts.
- Less weed pressure beneath vines.
- Nitrogen fixing and carbon capture.

SLOW GROWING GRASS

An established slow-growing grass mix:

AGRII'S GRASS 12 BLEND	%
Esquire PRG	40
Siskin Chewings Fescue	15
Dumas Hard Fescue	10
Hastings Strong Creeping Red Fescue	35



AGRII VITI MASTER

The Agrii Viti Master mix was developed with the help of our customers at Poulton Hill Estate in Cirencester.

It is designed to be both practical and agronomically suited to UK vineyards. The blend has a high percentage of dense grasses that will give excellent ground cover and outcompete most pernicious weeds, whilst offering great traction for travelling. The broad leaved plants provide an array of flowers all season long – producing pollen and nectar for visiting pollinating insects and beneficial predators.

The inclusion of nitrogen fixing plants (red clover, white clover, bird's-foot trefoil), which are all companion species to each other, will help other species establish and provide adequate nitrogen to the ley over the establishing years.

SEED RATE PER ACRE	
Boyne Perennial Ryegrass	5.50 kg
Nifty Perennial Ryegrass	5.00 kg
Maxima Strong Creeping Red Fescue	2.25 kg
Rivendel White clover	0.75 kg
Birdsfoot trefoil	0.45 kg
Chicory	0.45 kg
Red Clover	0.60 kg
Kilos per acre	15.0

Vineyard Special Standards

VINEYARD STRUCTURATOR

- Strong pivotal rooting from oil radish and linseed in combination with the fibrous roots of black oats and buckwheat.
- Nematode reduction from black oats and multi nematode resistant oil radish.
- Buckwheat and linseed are attractive to beneficial insects.
- Buckwheat root exudates which helps mobilise soil phosphate.
- Medium above ground biomass.

	%	Kgs/ha	Seeds/m²
Black oats	60	15	75
Oil radish – Nematode reducing variety	20	5	42
Buckwheat	12	3	12
Linseed	8	2	25
	100	25	154
Seed rate 25 kg/ha			154
Cover crop C:N ratio 30			

VINEYARD REGENERATIVE MIX

- Multi species mix, diverse canopy and root structures providing increased soil health and environmental benefits.
- Nematode reduction from black oats and multi nematode resistant oil radish.
- Excellent nutrient capture and fixation potential.
- Buckwheat root exudates which helps mobilise soil phosphate.
- Medium/high above ground biomass.

	%	Kgs/ha	Seeds/m²
Common vetch	30	7.5	13
Black oats	20	5	25
Oil radish – Nematode reducing variety	12	3	25
Crimson clover	10	2.5	50
Buckwheat	10	2.5	10
Sunflower	10	2.5	5
Linseed	8	2	25
	100	25	153
Seed rate 25 kg/ha			153
Cover crop C:N ratio 25			

*In the event that a variety becomes unavailable, we reserve the right to substitute with a variety of equal merit.

FLOWER RICH MARGIN

- Contains a blend of 90% grasses and 10% wildflowers.
- Will produce a habitat for bees and butterflies in the second year.

MIXTURE FORMULATION:

GRASSES:

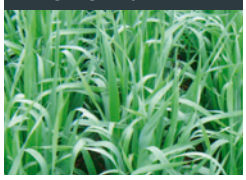
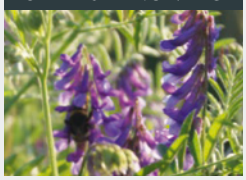
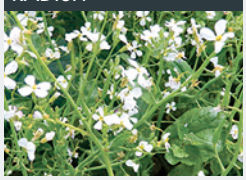
Browntop bent
Chewings fescue
Crested dogstail
Sheeps fescue
Slender creeping red fescue
Smooth stalked meadow grass
Strong creeping red fescue

WILDFLOWERS:

Agrimony
Birdsfoot trefoil
Knapweed
Black medick
Kidney vetch
Oxeye daisy
Lady's bedstraw
Salad burnet
Wild carrot
Yarrow
Red clover
Ribwort plantain
Sainfoin
St John's-wort
White campion

Cover Crops Varieties in Detail

KEY: Soil Structure | Nematode Reduction | Weed Control | NCAP Nutrient Capture | N PROD Nutrient Production | Frost Susceptible | EB Environmental Benefits

	USE	DRILLING	HOW TO DESTROY	OTHER INFORMATION
FORAGE RYE 	NCAP	Best sown from mid August until early October. Full seed rate 160 kg/ha.	Spray off in the spring or graze or silage.	+ C:N ratio 35. + Reliable, quick ground cover. + Extensive root system, good scavenger of nutrients, will continue to grow even in cold conditions.
BUCKWHEAT 	NCAP, EB	Drill from mid April to the end of August. Full seed rate 50 kg/ha.	Will be destroyed with the first few frosts in October/November.	+ C:N ratio 28. + Fast establishment and moderate ground cover. + Early and prolific flowering habit. + Fibrous shallow root system capable of mobilising phosphate in the soil. + Attractive to beneficial insects.
TOSCANE/LUXURIAL BLACK OATS 	NCAP	Best sown from April to August. Full seed rate 30 kg/ha.	Black oats are frost sensitive and can die back naturally during prolonged cold periods.	+ C:N ratio 25. + Good establishment. + Large fibrous root system creates good soil structure. + Resistant to diseases, take-all and good tolerance to BYDV. + Reduction of root knot and root lesion nematodes.
BINGO/TITANE – PURPLE SPRING VETCH 	NCAP, N PROD, EB	Best sown from April to August. Full seed rate 30 kg/ha.	Late summer sown, a strong frost should destroy the crop.	+ C:N ratio 12. + Purple vetch are the fastest growing of the vetch species, which enables them to catch and fix the maximum amount of nitrogen in the limited time available.
CEGALO – CRIMSON CLOVER 	NCAP, N PROD, EB	Drill before the end of August. Full seed rate 15 kg/ha.	Spray off, if not killed by frost.	+ C:N ratio 16. + Faster establishment and good biomass. + Strong tap root and lateral roots.
ASIAN/DAIKON RADISH 	NCAP	Best sown before the end of August. Full seed rate 12 kg/ha.	Will be destroyed by a hard frost.	+ C:N ratio 35. + Very large, strong tap root, good for soil structure improvement. + Large root scavenges and holds more nutrients.

Soil Management & Nutrition

Agrii understands that balanced nutrition is a cornerstone of high performing vineyards.

As a major distributor for Origin fertilisers, a full range of straight or blended products are available to correct soil nutrient deficiency and supply, according to soil analysis and vine specific recommendation.

LIME

We supply **Calcifert**, a granular lime, which has six times the neutralising value of standard screened lime. This means it can be used at a sixth of the rate. Also available is **Calcifert S**, $CaSO_4$ (Gypsum), typical application rate 300-800 kg/ha. It is applied to improve the structure of clay soils and has no neutralising value.

SOIL-APPLIED IRON PRODUCTS (for correction of lime-induced iron chlorosis)

The IPC index, developed by INRA, is a measure of grape rootstock sensitivity to lime-induced iron chlorosis in relation to the levels of 'free' $CaCO_3$ and the availability of Fe in the soil. Where this is high (IPC>60), tolerant rootstocks such as 41B and Fercal are required.

In addition, ferrous sulphate and/or iron chelates can be soil-incorporated for correction. Typical rates applied are 3-8 t/ha depending on severity.

- **Ferromel 20 (Ferrous sulphate heptahydrate 19%).**

Alternatively, iron chelates (EDDHA) can also be soil applied and are available from Agrii:

- **Iron 6-7% EDDHA (ortho-ortho Q15-Q40).**
- **Bio-Chel Fe, a soluble lignin chelate of Iron 5% optimised to ensure full stability, providing high availability over a pH range of 2-9.**

TYPICAL GROUND APPLIED FERTILISERS

PRODUCT	ABBREVIATION	ANALYSIS	COMMENT
Urea	-	46% N	Highest N fertiliser
Ammonium Nitrate	AN	34.5% AN	Highest available form AN
Ammonium Sulphate		21%N 60%SO_4	Soil acidifying N
Calcium Ammonium Nitrate	CAN	27% AN	$CaCO_3$ partially negates AN acidification
Calcium Nitrate	CN	15.5%N 19%Ca	Readily available Ca, N
Potassium Nitrate	KN	13%N 45%K_2O	Readily available K, N
Triple Super Phosphate	TSP	40-46% P_2O_5	-
Muriate of Potash	MOP	60% K_2O	Chloride content
Sulphate of Potash	SOP	50% K_2O	-
Kieserite	-	25%MgO 50%SO_3	Mg availability unaffected by pH
Calcifert	-	$CaCO_3$	Liming agent
Calcifert-S	-	$CaSO_4$	Gypsum
Sulphur 90 / Onset	-	90% S	-
Solubor DF	-	17.5% B	-
Ferrous Sulphate Heptahydrate	-	19% Fe	Pre planting to correct pH and Fe
Iron EDDHA	-	6%Q40 -7%Q15 Fe	Also Biochel-Fe
PAS100 Compost	-	OM	Typical analysis kg/T 9N 3P 7K 3Mg 2.5SO
Ovinalp MV100	-	2N 1P 2K 0.5Mg	Organic humate
Ovinalp SKOR	-	5N 2P 8K 5SO_3	MV100 base + added inorganic NPK

ORGANIC SOIL IMPROVERS

OvinAlp Haute fertilisation

MV100

Naturally rich in organic matter, restructures the soil thanks to a high humic potential, improves water retention and the cation exchange capacity, thus allowing better nutrition for demanding crops.

MV100 COMPOSITION IN % MASS OF RAW PRODUCT	
Dry Matter	80
Organic Matter	60
Total Nitrogen (N)	2
Total Phosphoric Anhydride (P_2O_5)	1
Total Potassium Oxide (K_2O)	2
Total Magnesium Oxide (MgO)	0.5
C/N	15

Usable in biodynamics in accordance with the demeter specifications.

SKOR

SKOR is made of sheep manure selected in the Alps (IGP Sisteron), composted for 12 months thanks to a process and a platform ISO 14001 certified, enriched by: fruits pulps, transformed animals proteins and potassium sulphate usable in organic agriculture. Thanks to its rich biodiversity created by the Ov active ingredient, Skor plays a key role in the mineralisation of organic matter. Distributed in spring time, SKOR promotes the start and vegetative growth of the most demanding crops.

SKOR enriched with the active ingredient Ov, is an effective aid that improves productivity and crop quality while ensuring progressive and balanced plant nutrition over time.

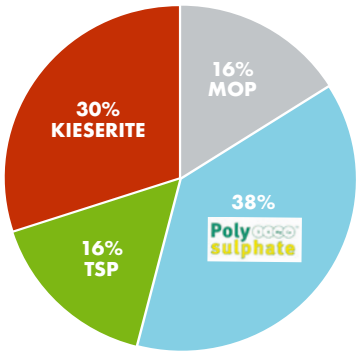
(SKOR) % COMPOSITION OF GROSS MASS PRODUCT	
Total Organic Nitrogen (N) Organic Nitrogen (N) of composted sheep manure, fruits pulps, feathers meal and hydrolized bones powder	5
Total Phosphorous Pentoxide (P_2O_5)	2
Total Potassium Oxide (K_2O) of which water soluble	8 7.4
Total Magnesium Oxide (MgO)	4
Sulphure Trioxide (SO_3)	5

Fertilisers

AGRII FRUIT 50

This fertiliser provides a sole application solution for vines, providing all the key macro and micronutrients needed to maintain optimal soil index throughout a growing season.

Agrii Fruit 50 provides a high quantity of magnesium due to the inclusion of Kieserite in the fertiliser. This will provide readily available magnesium and sulphur to the soil solution for crop uptake.



AGRII FRUIT 50 + N

Launched in 25 kg bags, perfect for smaller growers as well as standard bulk bags.

A perfect amount of nitrogen for heavier soils and where a spring boost is required.

Adding nitrogen to the blend offers a complete solution requiring a single tractor pass in the vineyard.

FRUIT FERTILISER ANALYSIS

	NUTRIENT ANALYSIS ON THE BAG						Application rate N P K SO kg/ha
	N	P	K	SO_3	CaO	MgO	
Agrii Fruit 50	0	7.5	15.5	32	6	9.5	522
Agrii Fruit 50 + N	3.5	7.5	15.5	32	6	9.5	522
	NUTRIENT APPLIED KG/HA						Additional nutrients
	N	P	K	SO_3	CaO	MgO	
Agrii Fruit 50	0	40	80	170	33	50	P-Reserve + Boron + Zinc
Agrii Fruit 50 + N	18	40	80	170	33	50	P-Reserve + Boron + Zinc

WHY USE AGRII P-RESERVE?

P-Reserve is a powerful chelating agent that stops the cations in the immediate vicinity of the phosphate, such as calcium and magnesium (high pH) and iron (low pH) which would otherwise react with the water-soluble phosphate precipitating it out of soil solution and making it unavailable to the plant ("Locked Up").

Provides 40 Kg/Ha P2O5, maintaining Index. All phosphate is protected with Agrii's exclusive P-Reserve. This works by coating the TSP in Agrii Fruit 50. By using P-Reserve, water-soluble phosphate is fully available to the plants.

WHY POLYSULPHATE?

- Polysulphate is 100% soluble organic fertiliser, sourced solely from Cleveland in the UK.
- Polysulphate provides $9K_2O$, $32SO_3$, 11CaO and 4MgO in their readily available form.
- It has no effect on soil pH.
- The potassium in polysulphate is potassium sulphate meaning Polysulphate has no chloride in its granule.
- This brings large amounts of sulphur to the blend, with UK soils having seen a 82% reduction in sulphur deposition over the last 25 years.
- **Very hard granule means slow breakdown, providing phased release of all four nutrients throughout growing season.**

Fertilisers

WHY WOLF TRAX MICRO-NUTRITION?

Wolf Trax is a range of secondary and micronutrients which can be incorporated using a unique Dry Dispersal Powder (DDP) technology.

- Every granule of Agrii Fruit 50 is coated with boron and zinc, to provide readily available micro-nutrition.
- Each DDP (Dry Dispersible Powder) product features at least two mineral sources – Dual-Action™ formulation for quick and extended feeding throughout the year.
- 4-6 additional ingredients (formulants) have important roles: helping nutrients resist soil tie-up, adhere to fertiliser and improve plant uptake.
- Boron is essential for apical meristem development, and flowering (cell division).
- Zinc influences plant growth hormones and enzyme systems.

wolftrax INNOVATIVE NUTRIENTS

Soil Management

MYCO MYCORRHIZAL FUNGI 10 KG

Living soils continually function to turn over organic matter and release natural and applied nutrients to plants and crops.

Key to this process is the presence of soil microbes, including mycorrhizal fungi and beneficial bacteria.

Agrii is committed to supply products that help establish and sustain the necessary balance of biology and essential macro and micro elements for the improvement of crop quality and yield.

MYCO has been developed and is manufactured by PlantWorks Ltd on behalf of AGRII.

INSTRUCTIONS AND APPLICATION

MYCO can be applied as dry granules for larger fruit trees or mixed with a hydro gel (included) as a dipping solution for smaller plants, bare root whips and vines.

DRY GRANULE APPLICATION

Sprinkle the MYCO granules evenly, at the recommended dosage, directly into the prepared planting hole or pit. Place the plant directly onto the granules so that the rootzone comes into contact with the granules.

Application (Containerised or root ball):

TREE GIRTH (Diameter cm)	QUANTITY (g)	TREATED FROM 10 kg
6 - 10	50	200
10 - 14	100	100
14 - 18	120	83

GEL SOLUTION APPLICATION

This package contains gel powder for mixing with clean water to create a root dipping solution, (the appearance, when mixed, should be similar to that of wallpaper paste).

The desired consistency might depend on the root density of the plant species used. Make the solution thinner for plants with dense or more fibrous roots. Add the MYCO granules when the desired consistency is met and stir well. We recommend dipping 10 whips per dip to ensure even coverage. Use mixed gel dip within 2 days and do not allow to freeze. Typically 50 litres of water is used with 5 kg of MYCO.

Application (Bare rooted plants, whips and vines):

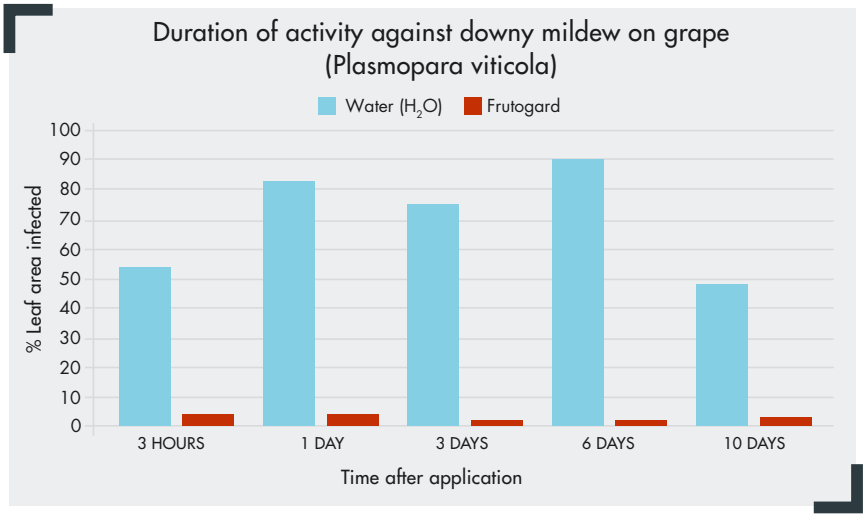
WHIP PLANT SIZE (Height cm)	TREATED FROM 10 kg approx
30 cm (vines)	3300
30 - 60 cm	2500
60 - 90 cm	2000
90 - 120 cm	1600
120 - 150 cm	1400
150 cm +	1100

The greater the contact between the MYCO granules and the tree roots / root ball the faster the life long symbiosis between host and fungal partner will commence.

Biofungicides

FRUTOGARD®

Preventative fungicide for use on table and wine grapes for downy mildew control.



HOW IT WORKS – TRIPLE ACTION FORMULATION FOR YOUR VINES

ALGAE EXTRACT	POTASSIUM PHOSPHONATE	AMINO ACIDS
Activation of the phytoalexins, these have **antimicrobial effects.**	Indirect and direct **fully systemic effects.**	Activation of the plant defence proteins with **anti-fungal effect.**

- Activation of multiple plant defence mechanisms before fungal pathogen attacks.
- Reduces the spread, growth and incidence of infection.
- Helps relieve abiotic and biotic stress.
- The formation of hydrogen peroxide (H_2O_2) provides additional growth promoting effects.
- Only the triple action formulation triggers these complex plant defence mechanisms.

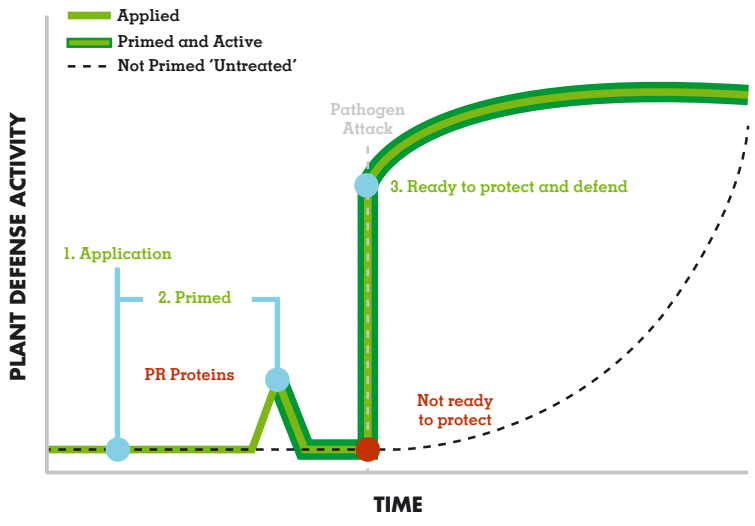
ACTIVATING YOUR PLANTS' NATURAL DEFENCE SYSTEM TO GUARD AGAINST DISEASES

From the Certis Biologicals Field Development Team

Plants have the ability to activate biochemical defences in response to attacks from pathogens.

These induced defences are expressed systematically throughout the plant, not only in the infected tissues.

Plant activators trigger immune responses in the plant even in the absence of a pathogen. This has been demonstrated using molecular and psychological techniques to monitor the signalling cascade and production of pathogenesis related (PR) proteins following application. Priming of plants by products such as Frutogard prepares them to fend off disease when pathogens attack, as illustrated right.



Biofungicides

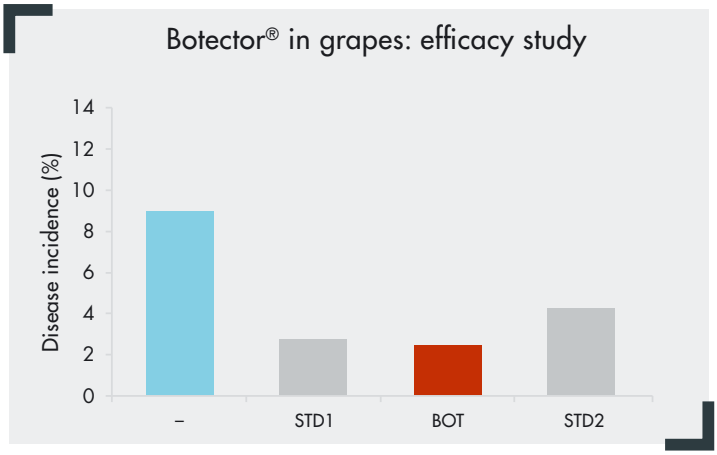
BOTECTOR®

LEAVE NO SPACE FOR BOTRYTIS AND MORE.

BOTECTOR® harnesses the power of *Aureobasidium pullulans* to fight grey mold (botrytis) in grapes.

- Effective against botrytis.
- Provides protection in extreme conditions (wet/dry, hot/cold).
- No residues.
- PHI=1 – pre-harvest interval of only one day.
- No pathogen resistance (no FRAC classification).
- Does not influence the vinification process.
- OF&G-certified organic.

Proven to significantly reduce botrytis in grapes



Disease incidence measured in Székesfehérvár, Hungary, on 9 September 2020. Grape variety: Juhfark.

Efficacy	-	69	72	53
Significance	a	b	b	b
BBCH 68	-	STD1	BOT	STD2
BBCH 77	-	STD1	BOT	STD2
BBCH 81		STD1	BOT	STD2
BBCH 85	-	STD1	BOT	STD2

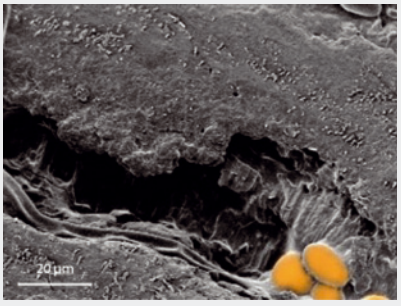
	ACTIVE SUBSTANCE	DOSAGE
BOT	*Aureobasidium pullulans*	1 kg/ha
STD1	Cyprodinil, Fludioxonil	1 kg/ha
STD2	Bacillus subtilis	8 l/ha

HOW DOES BOTECTOR® WORK?

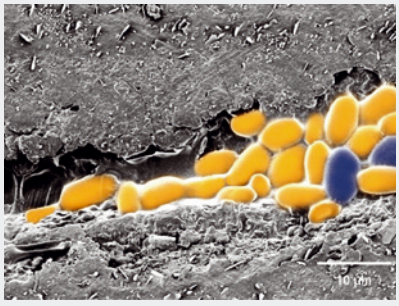
BOTECTOR® unlocks the power of Aureobasidium pullulans.

The active ingredient in BOTECTOR® is a uniquely adapted "supermicroorganism" that colonizes the fine microcracks on the skin of grapes and other fruits and vegetables.

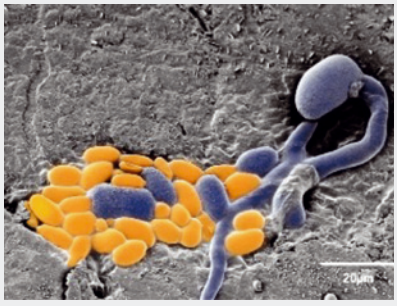
This forms a natural barrier that disables the growth of botrytis and other fungi by out-competing them for vital nutrients.



1. Vulnerable microscratches on plant surface are immediately colonized by *A. pullulans* after applying BOTECTOR®.



2. Microscratches are sealed.



3. The pathogen dies due to lack of nutrients and space.

Biostimulants

INNOCUL8

Peptides by PHC

Plant health enhancement for grapevines.

Innocul8 is a nutritional plant health enhancement containing a plant defence stimulating PREtec peptide, zinc, and manganese.

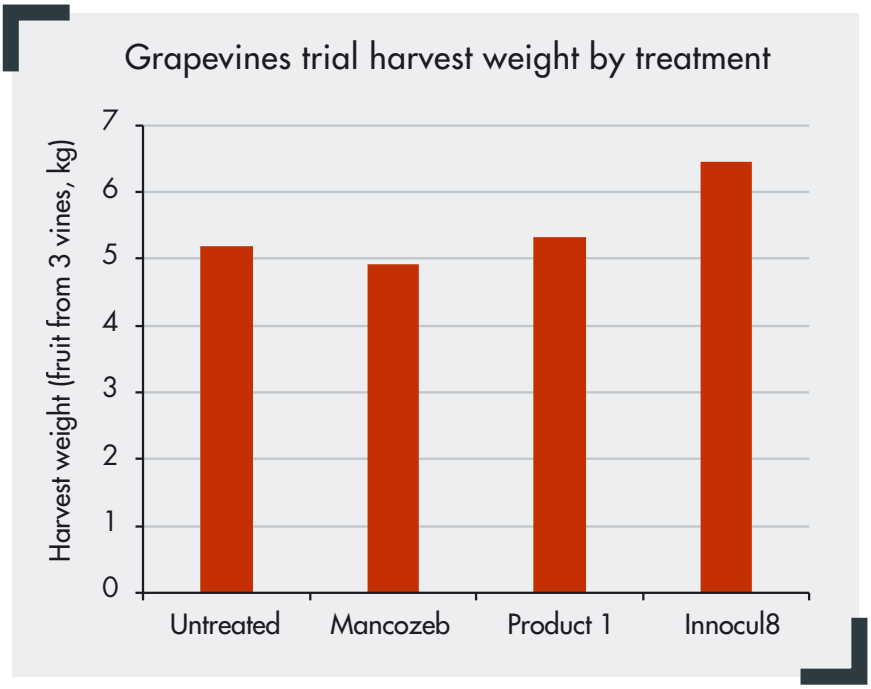
Specifically designed to strongly induce natural plant stress resistance and defence mechanisms, PREtec™ peptides enhance plant health and improve the effectiveness of nutritional and disease management programmes. The result is healthier vines with more resources directed to yield and grape quality.

Zinc and manganese also help to maintain healthy plant metabolism and stress management.

Apply 600 g/ha to vines starting at bud break and continue every 14-21 days according to disease and stress pressure.

COMPATIBILITY

- Do not use water with a pH of less than 5 or greater than 10.
- Apply the spray mixture within 8 hours of preparation.
- In tank mixes apply **Innocul8** to the tank first and mix well.



Replicated Trials – enhanced plant health reduces impact of foliar Downy Mildew:

- East Sussex, 2023
- Chardonnay
- 3 replicates

Applied four times at 600 g/ha every 14 days from 4-8mm fruit (GS71), **Innocul8** stimulated healthy crop development which produced vines more able to withstand high downy mildew pressure than the untreated control.

Final yield in the **Innocul8** treated vines was 24% higher than the untreated control, which had suffered 13% higher foliar loss due to downy mildew.

ProAct®

1% Harpin αβ biostimulant for grape and wine quality.

ProAct® is a biostimulant product containing 1% Harpin αβ protein. It is a natural means of improving tolerance to frost as well as final fruit quality.

Harpin proteins are isolated from plant pathogenic bacteria. When **Harpin αβ** is applied to plants the proteins triggers defense and growth responses. Plants which have been primed by **Harpin αβ** protein accelerate the production of secondary metabolites such as anthocyanins.

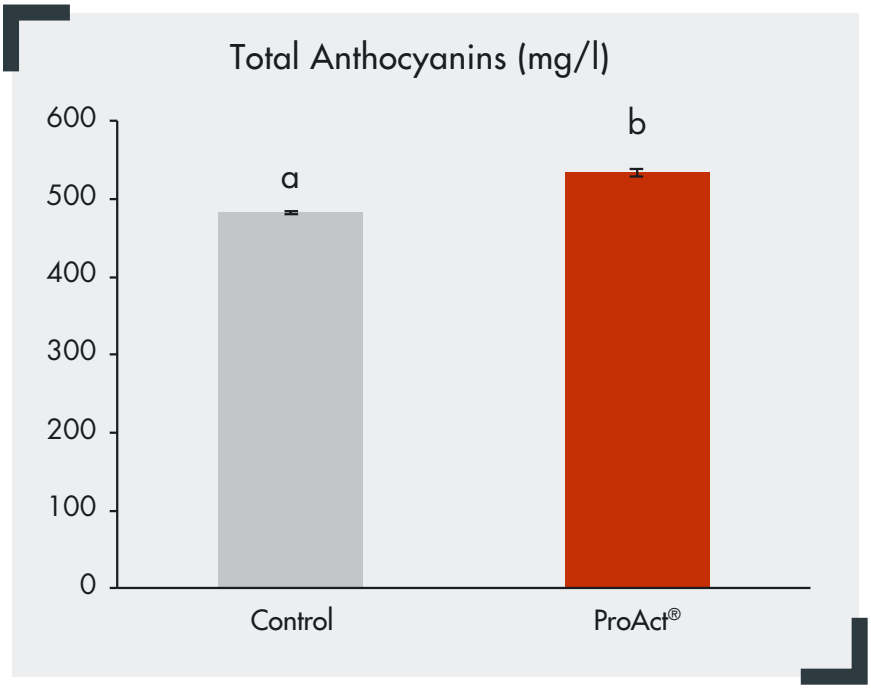
ProAct® is a zero-residue product which stimulates natural processes.

Apply 150 g/ha to vines starting veraison (GS81) and twice more at 7-14 day intervals to promote polyphenol and anthocyanin production.

ProAct® can also be used within a frost management strategy. Apply 150 g/ha 24 hours before an anticipated frost event.

COMPATIBILITY

- Do not use water with a pH of less than 5 or greater than 10.
- Apply the spray mixture within 8 hours of preparation.
- In tank mixes apply **ProAct®** to the tank first and mix well.



Independent Trials – Increased grape phenols and anthocyanins

In trials carried out at University of Murcia, 2021, **ProAct®** was applied to Mourvèdre red variety grapes. 150 g/ha **ProAct®** was applied 3 times at 15-day intervals starting at veraison.

Results:

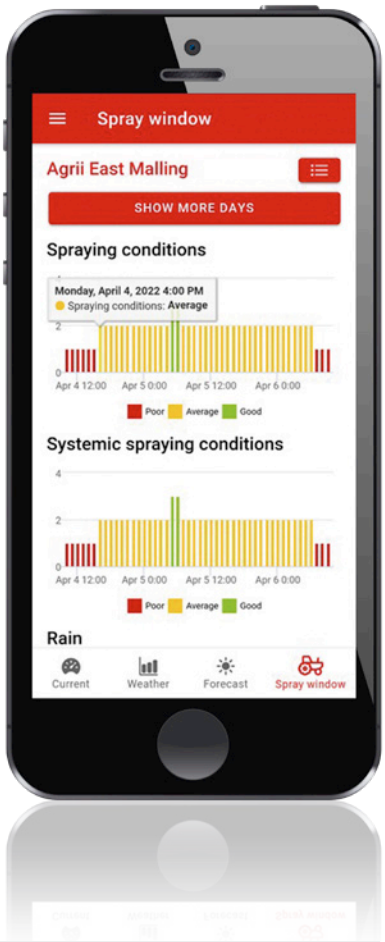
- Significant ($p<005$) increase in total anthocyanins (+10.7%).
- Significant ($p<0.05$) increase in total polyphenols (+6.9%).
- Significant ($p<0.05$) increase in colour intensity (+10.8%).
- No change in wine %ABV.
- No change in total tannins.

RHIZA Connect App and Disease Forecasting

RHIZA

Our Environmental Monitoring and Decision Support Services are delivered via RHIZA Connect.

The RHIZA Connect app is a joint initiative between Agrii, RMA and Anglian Water and provides highly localised weather information from fields, orchards and vineyards across the UK.



KEY BENEFITS:

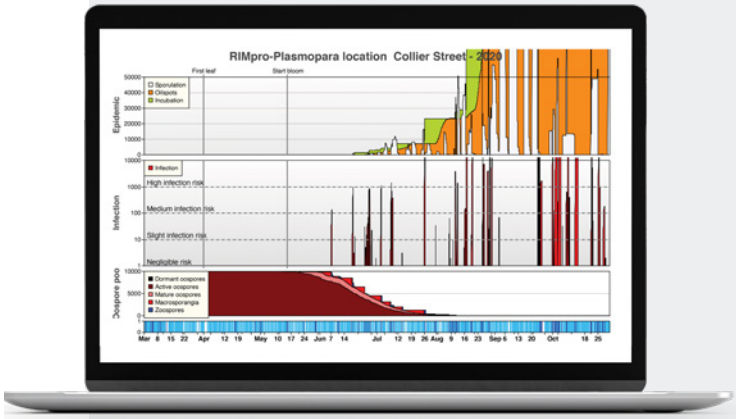
- Weather forecasting (available up to 2 and 8 days ahead).
- Weather history from 8 days and 12 months of historical data.
- Two tier spraying conditions forecast with 5-day outlook.
- Wide and developing range of pest & disease forecasts.
- Multi-depth soil moisture and ETo data.
- Localised weather information is available at any time in the **RHIZA Connect** app.

MORE INFORMATION?

Email: rhizaweather@agrii.co.uk
Tel: 03300 949150
Visit: www.rhizadigital.co.uk

rimpro

Decision support system for the management of key pests and diseases of apple and grapes.



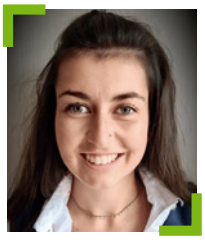
KEY BENEFITS:

- **Connect your weather station** in minutes to the RIMpro platform.
- **Remote field monitoring** – follow the development of pests and diseases though RIMpro's cloud services.
- **Real time information** – updated every 30 minutes.
- **Disease models** – more than 20 models available that have been tested and validated by experts.
- **Risk calculations** – for each disease and pest, a risk severity indicator is calculated to help you make smart treatment decisions.

MORE INFORMATION?

Email: info@agrii.co.uk

GREEN HORIZONS



Amy Watkins
Sustainability and Environmental Services Manager

Why sustainability matters to us

It's all about balance. With pressures to maximise crop production, sequester carbon and restore biodiversity levels, the demands on land use have never been greater.

Understanding how best to capitalise on each of these is vital to secure the future of our farming sector. Sustainability must remain front and centre of decision making, and we see it as our role to help simplify those decisions by making it business as usual across all agronomy services.

Like every other business in the supply chain, we have a responsibility to take action to mitigate the impact of climate change and feed a growing population. However, unlike many other sectors working towards mutual goals, agriculture has a unique opportunity to act as the solution to many of these global challenges.

It is an exciting yet challenging time for food production, and change is integral to remain sustainable for future generations. Our strategy seeks to address every pillar of sustainability; people, planet and profit. We continue to invest in new research and innovation within each of these pillars, which our five insight reports outline.

2024 in numbers

Agrii's fruit team is always looking to make the most from new technology as well as from the trials that we run at the Fruit iFarm in East Malling, Kent.
We aim to give our customers the tools they need to set themselves apart from low-priced imported foods by focusing on sustainability and reductions in emissions on farm. Traffic-mapping machinery and movement around the farm can help us to understand where fewer trips can be made and including "no-mow" zones to promote the presence of beneficial insects can reduce the need for insecticides at key times of the year.

Read more about sustainable farming approaches in our Insight Reports...

Download your copies by using the QR code.

Wine Grape Spray Programme 2025

PERIOD OR GROWTH STAGE	PEST DISEASE DEFICIENCY	PRODUCT RECOMMENDATION	MAX RATE PER HECTARE	COMMENTS (Spray interval 10 days (7-14 as conditions dictate). Adjust spray rates according to canopy height).
BUD DEVELOPMENT – APRIL				
Woolly Bud	Bud mite Frost protection	Thiopron ProAct	5 lt 200 g	From Rosy bud – Timing eriophyid mite x2/3 applications (Anti-frost products: ProAct, Actiff, Spraygard)
Pre-Bud break	Bud mite	Thiopron	5 lt	Green point visible *Nutrient Headland Copper 2.5 lt/ha
SHOOT DEVELOPMENT – MAY				
2-3 Leaves unfolded	Phomopsis Downy Mildew	**Stroby WG** **Cuprokylt**	0.2 kg 1 kg	*consider Mancozeb products where stock allows
+10-14 days	Phomopsis Downy Mildew Biostimulant	**Stroby WG** **Cuprokylt** Actiff	0.2 kg 1 kg 1-2 lt	**Deploy Tortrix pheromone traps LBAM, GBM** Cool temperature tolerance, repeat as necessary Physiocrop or Zonda may be more effective biostimulants
Inflorescence clearly visible	Downy Mildew Biostimulant Capsid bug	**Shinkon** **Frutogard** Innocul8	0.375 lt 4.5 lt 0.6 kg	**See Grapevine Nutrition Programme** 1.5, 3.0 to 4.5 lt/ha; pro rata for canopy height *continue application up to flowering
INFLORESCENCE DEVELOPMENT – JUNE				
Inflorescence expanded	Downy Mildew Nutrient LBAM / GBM	**Cuprokylt** **Option** **Thiopron** Tracer	1 kg 0.15 kg 2.5-5 lt 100ml	*Apply at RIMPRO forecast primary infection.* *Nutrition programme – consider addition Phyte P Plus* or Kumulus DF / Microthiol special or Steward if stock. Trap threshold dependant
Flower buds separated	Downy Mildew Powdery Mildew	**Percos** **Thiopron** **Nativo 75WG**	0.8 lt 2.5–5lt 0.18kg	Where wineries allow. Privest may be an alternative in milder conditions Nutrition for EBSN key timing
Flowering (25%-80% Caps Off)	Downy mildew Botrytis P. mildew PGR	**Shinkon** **Option** **Pirim** **Talius** Regalis Plus or Florgib Tablet	0.375 lt 0.15 kg 2 lt 0.25 lt 1.8 kg 16 tablets	} Taylor cover for botrytis over flowering to suit risk; Filan when lower risk or in sequence to extend cover. } Consider use where strong fruit set determined Rate variety specific – only following written advice **Growth Stage for 1st Petiole analysis**
FRUIT FORMATION – JULY				
Fruit Set	Botrytis Downy Mildew Powdery Mildew	**Teldor** **Cuprokylt** **Option** **Sercadis** Thiopron	1.5 kg 1 kg 0.15 kg 0.15 lt 2.5-5 lt	Or Percos – where wineries allow **Foliar Nutrition:** petiole analysis, known deficiency historic and observed, crop load. *See Agrii Nutrition programme*
Early Bunch	Downy Mildew P. Mildew/Botrytis	**Frutogard** **Filan** **Thiopron**	4.5 lt 0.5 kg 2.5-5 lt	Phyte P will similarly offer incidental downy mildew control or **Nativo 75WG** to extend cover; **x1 app./year**
Pre bunch closure	Downy Mildew Botrytis Powdery Mildew	**Shinkon** **Option** **Shift** **Thiopron** **Cosine**	0.375 lt 0.15 kg 0.8 kg 2.5-5 lt 0.5 lt	*SP058 1 lt/1000 lt – key growth stage for coverage – use for improved nutrient uptake If PM present consider separate application of PHC (1-2%) +
FRUIT MATURATION – AUGUST				
Maturation	Downy Mildew Powdery Mildew	**Frutogard** **Vayo** PHC	4.5 lt 2.0 lt 1-2%	BBCH 83 = 28 day pre-harvest int Max 2/yr. 21 day phi If disease present, not a good tank mix partner
M 2	Downy Mildew Powdery Mildew	**Frutogard** **Vivando** **Thiopron**	4.5 lt 0.32 lt 2.5-5 lt	Max 3/yr. 28 day phi
M 3	Downy Mildew Powdery Mildew	**Privest** **Talius** **Thiopron**	5.2 lt 0.25 lt 2.5–5.0 lt	BBCH 83 (veraison) 28 day phi
RIPENING – SEPTEMBER				
Veraison	Botrytis Nutrient	**Pirim** **Phyte P Plus** **Thiopron**	2.0 lt 2.5-5 lt 2.5–5.0 lt	21 day phi Incidental downy mildew BBCH 81
V 2	Downy Mildew	**Frutogard**	4.5 lt	
V 3	Botrytis	**Botector**	1 kg	3 day interval from Karma
PRE RIPE – OCTOBER				
Pre Ripe	Botrytis Wasps / SWD	Amylo X WG or Botector Tracer	2.5 kg 1 kg 100 ml	BBCH 89 = no phi 1 day phi 14 day phi or Hallmark Zeon 7 day phi
	Botrytis / Fruit diseases SWD	Botector Hallmark	1 kg 100 ml	1 day phi Treat as required 7 day phi
Post-Harvest	Wood Ripening Nutrient	Copper Budbuilder Urea	5 lt/1000 lt 5 lt 5%	Promptly post harvest before leaf fall At this rate also fungicidal and to reduce disease carry over
Pruning	Wood diseases	BlocCade-wound paint or Vintec	200 gm	Apply to restructuring and crown/spur cuts

Phylloxera: nodules on UNDERSIDE of leaves } Notifiable. Batavia recommended.
Erinose: nodules on TOPSIDE of leaves } Eriophyid mite. Sulphur recommended.

IMPORTANT NOTICE: These recommendations are only advised subject to the manufacturer's written instructions being carried out in exact detail. IT IS ESSENTIAL THAT LABELS ARE READ FULLY BEFORE USE.

Grapevine Nutrition Programme

BUD BURST	FIRST LEAVES UNFURLED	FLOWER TRUSS VISIBLE	FLOWER BUDS SEPARATED	FLOWERING	FRUIT SET	PEA SIZE BERRIES	VERAISON	POST HARVEST
Solubor DF 12 kg/ha	Zinic 1 lt/ha				Opte-B 1 lt/ha			Opte-B 1-2 lt/ha
	Bud Builder 5-10 lt/ha				FoliQ Potash 5 lt/ha			Bud builder 5-10 lt/ha
Agrii Fruit 50+N 250-500 kg/ha		Opte-B 1-2 lt/ha						Zinic 1-2 lt/ha
Agrii Fruit 50 250-500 kg/ha		Croplift (NPK) 5 kg/ha			Solinure 12-5-36+2+TE 5-8 kg/ha			
		Nortrace Pitstop (CaN) 5 lt/ha			Nortrace Pitstop 5 lt/ha			
OvinAlp MV100 1 T/ha		FoliQ Calcibor 2.5-5 lt/ha			Foliq Cal 2.5-5 lt/ha			Urea 25 kg/ 1000 lt
Humber Palmer No6 7-5-12+3.5+TE		Opte-Mag 3 lt/ha			Opte-Mag 3 lt/ha			
		Bio-Chel Fe 2-3 lt/ha			Bio-Chel Fe 2-3 lt/ha			
Fe EDDHA 20-40 kg/ha		Opte-Man 2 lt/ha			Opte-Man 3 lt/ha			
		MoBo 1-2 lt/ha	Molytrac 250 0.25 lt/ha			Safe-N 300 5-10 lt/ha		
ProAct 200 gm/ha	Physiocrop/Zonda 1.25lt/ha				Actiff 1-2 lt/ha		ProAct 200 gm/ha	
		Tytanit 0.4 lt/ha				Mono Potassium Phosphate 10-15 kg/1000 lt		MAP
	Innocul8 0.6 kg/ha					Seniphos 5-10 lt/ha		
	Phyte P Plus 2.5–5.0 lt				Phyte P Plus 2.5–5.0 lt			
Soil applied	Micro nutrient	Macro nutrient	Multi mix		Biostimulant			

Grapevine Fungicides

2025 – DISEASE SPECTRUM AND EFFICACY

PRODUCT NAME	BOTRYTIS	D. MILDEW	P. MILDEW	PHOMOPSIS	ACTIVITY	FRAC	MAX / YR
Amylo-X/Serifel	++(+)	+	++	-	P	M bio	6
Botector	++++	+	-	-	P	M bio	4
Copper	+	++(+)	+	+	P	M1	-
Cosine	-	-	++++	-	P C	U6	2
Filan	++(+)	+	+++	-	P	7	2
Frutogard	-	++++	-	-	P	P07 (33)	6
FytoSave	-	-	++(+sulphur)	-	P	-	8
Justice / Talius	-	-	+++(+)	-	P C	U7	2
Karma	+++	+	++(+)	-	P C E	-	8
Mancozeb	-	+++	-	++++	P	M3	4
Nativo 75WG	++(+)	+	++++	-	P C	11 + 3	1
Option	-	++(+)	-	-	P C	27	5
Percos	-	++++	-	-	P C	C8 + 40	3
PHC	++	-	++(++)	-	E	-	-
Prestop	++	-	-	-	P	BI 1	3
Privest	-	+++	-	-	P	40+33	2
Romeo	++	++	++	-	P	M bio	10
Scala / Pirim	++++	-	-	-	P C	9	2
Sercadis	+(+)	-	++++	-	P C	7	2
Serenade ASO	++(+)	+	+(+)	-	P	M bio	-
Shinkon	-	+++	-	-	P	21	3
Stroby	+	++	+++	++	P	11	3
Sulphur	-	-	+++(+)	-	P C (E)	M2	-
Switch / Shift	++++	-	++(+)	-	P C	9 + 12	2
Teldor	++++	-	-	-	P	17	2
Topas	-	-	++(+)	-	P C	3	3
Taegro	++(+)	-	++	-	P	M bio	10
Vayo	-	-	++++	-	P C	3	2
Vintec	+++(+)	-	-	-	P C E	M bio	2
Vivando	-	-	++++	-	P C	50	3

++++ Excellent
+++ Good
++ Moderate
+ Poor

P Protectant – *pre infection*
C Curative – *post symptomless infection*
E Eradicant – *post expression*
( ) Use rate and situation dependant

FRAC (Fungicide Resistance Action Committee) code: Mode of Action of the active ingredient.
Similar products are colour coded. It is good practise to alternate those with the same MoA with another from a different group and to use the same product consecutively twice only. Multi-site(M) products and those co-formulated with two ai have a lower risk of developing resistance.

Grapevine Approved Pesticides

FUNGICIDES

PRODUCT NAME	MAPP NUMBER	ACTIVE INGREDIENT	BUFFER ZONE*	MAX NO	MIN INTERVAL	HARVEST INTERVAL	MAX RATE PER HECTARE	OTHER
Amylo X WG	17978	Bacillus amyloliquefaciens	-	6	-	BBCH 89	2.5 kg	EAMU 0469/18. Strain D747
Botector	20000	Aureobasidium pullulans	-	4	2 days	1 day	1 kg	-
Cosine	16404	Cyflufenamid	5 m	2	10 days	21 days	0.5 lt	EAMU 0846/17
Cuprokylt	17079	Copper oxychloride	50 m	4	7 days	21 days	2 kg	-
Filan	11449	Boscalid 50%	-	2	14 days	28 days	0.5 kg	EAMU 1947/13
Frutogard	19105	Potassium phosphonate	15 m	6	7 days	24 days	4.5 lt	Do not handle crop for 24 hrs
FytoSave	18433	12.5 g / l COS-OGA	-	8	7 days	-	2.0 lt	EAMU 1911/19
Talius / Justice	20360/20359	Proquinazid	18 m	2	20 days	28 days	0.25 lt	EAMU 3639/22
Karma	16363	Potassium bicarbonate	-	8	7 days	0	5 kg	EAMU 3705/22
Karamate DF Neotec	19994	Mancozeb 75% w/w	40 m	4	10 days	56 days	2 kg	Max concentration 0.2 kg/100 lt
Kumulus DF	19420	Sulphur 80 w/w	-	-	10 days	-	-	Max concentration 250 g/100 lt
Microthiol Special	20705	Sulphur 80 w/w	-	-	-	-	-	Max concentration applies
Nativo 75WG	16867	Tebuconazole / Trifloxystrobin	30 m	1	-	21 days	0.18 kg	EAMU 2972/18
Option	20382	Cymoxanil	5 m	5	10 days	28 days	158 gm	EAMU 3620/22
Percos	19700	Ametoctradin/ Dimethomorph	10 m	3	-	BBCH 83	0.8 lt	EAMU 0963/21, min 600 lt/ha
PHC	-	Potassium Bicarbonate	-	3	-	-	20 kg	Use expiry 31/8/25
Prestop	19458	Gliocladium catenulatum	10 m	3	-	GS80	6 kg	EAMU 1352/20 see OSR
Privest	20742	Ametoctradin / Potassium phosphonates	20 m	2	-	BBCH 83	5.2 lt	EAMU 1949/24 max concentration 5.2 lt/520 lt
Romeo	19170	Cerevisane	-	10	-	BBCH 89	0.25 kg	-
Scala / Pirim	15222/19348	Pyrimethanil	10 m	2	21 days	21 days	2 lt	EAMU 0283/11, EAMU 0319/23
Sercadis	19716	Fluxapyroxad	15 m	2	-	BBCH 83	0.15 lt	EAMU 1301/21
Serenade ASO	16139	Bacillus subtilis	-	6	7 days	-	10 lt	EAMU 2342/18
Serifel	19236	Bacillus amyloliquefaciens	10 m	5	-	1 day	0.5 kg	EAMU 1499/23. Strain MB1600
Shinkon	17498	Amisulbrom	15 m	3	10 days	BBCH 83	0.375 lt	EAMU 3119/19. BBCH 83 = 28 days
Stroby	17316	Kresoxim methyl	-	2	7 days	35 days	200 gm	EAMU 0960/16
Switch / Shift	15129/18881	Cyprodinil / Fludioxonil	10 m	2	21 days	21 days	0.8 kg	EAMU 2098/11, 0865/22 min 500 lt
Taegro	19204	Bacillus amyloliquefaciens	-	10	-	1 day	0.37 kg	Strain FZB24
Teldor	11229	Fenhexamid	-	2	21 days	21 days	1.5 kg	Max concentration 0.24 kg/100 lt
Thiopron	20671	80% w/v sulphur	5 m	8	-	BBCH 81	5 lt	-
Topas	16765	Penconazole	-	3	-	28 days	0.3 lt	Max concentration 0.5 lt/250 lt also Topenco
Unicorn DF	18109	Sulphur 70% / Tebuconazole 4%	10 m	3	7 days	PreBBCH 81	2.2 kg	Do not handle crops for min 7 days
Vayo	20549	Mefenentrifluconazole	10 m	2	-	21 days	2 lt	EAMU 1648/24 do not apply before BBCH 14
Vintec	20311	Trichoderma atrovide SC1	-	2	-	1 day	0.2 kg	-
Vivando	18026	Metrafenone	-	3	10 days	28 days	0.32 lt	EAMU 2990/19

Grapevine Approved Pesticides

HERBICIDES

PRODUCT NAME	MAPP NUMBER	ACTIVE INGREDIENT	BUFFER ZONE*	MAX NO	MIN INTERVAL	HARVEST INTERVAL	MAX RATE PER HECTARE	OTHER
Finalsan	13102	Pelargonic acid 186 g/l	5 m	4	-	1st Sept	17 ml/m²	Use approved 1st May to 1st Sept
Fusilade Max	19013	Fluazifop-P-butyl	-	1	-	28 days	1 lt	-
Kerb Flo	13716	Propyzamide	-	-	-	31st Jan	4.25 lt	EAMU 0968/21, apply 1/10 – 31/1
Roundup Biactive	10320	Glyphosate 360 g/L	-	1	-	Pre Fruit Set	5 lt	EAMU 1355/22
Roundup Powermax	16373	Glyphosate 720 g/kg	-	-	-	28 days	2.5 kg	= MON 79991
Shark	18700	Carfentrazone ethyl	-	2	-	90 days	0.9 lt	EAMU 0624/19 in 300 L water

INSECTICIDES / ACARICIDES

PRODUCT NAME	MAPP NUMBER	ACTIVE INGREDIENT	BUFFER ZONE*	MAX NO	MIN INTERVAL	PHI	MAX RATE PER HECTARE	OTHER
Batavia	18449	Spirotetramat	10 m	2	14 days	BBCH 81	0.7 lt	EAMU 1262/22, do not handle for 3 days
DiPel DF	18874	Bacillus thuriengensis-BT	-	-	7 days	-	0.75 kg	EAMU 3029/19
Eradicoat Max	18852	Maltodextrin	-	20	-	1 day	20 ml/lt max	EAMU 1837/22, SWD & thrips
Flipper	19154	Fatty acids C7-C20	20 m	8	7 days	-	10 lt	EAMU 3419/19, see OSR
Hallmark Zeon	12629	Lambda-cyhalothrin	25 m	2	-	7 days	100 ml	EAMU 0266/06, max. 2 of same a.i.
Lepinox Plus	16269	BT Kurstaki E2348	-	3	-	-	1 kg	Also Delfin WG
Steward	18792	Indoxacarb	15 m	3	-	10 days	125 gm	EAMU 1313/22 also Explicit 18763
Tracer	12438	Spinosad	38 m	3	10 days	14 days	100 ml	EAMU 0732/21

PLANT GROWTH REGULATORS (PGRs)

PRODUCT NAME	MAPP NUMBER	ACTIVE INGREDIENT	BUFFER ZONE*	MAX NO	MIN INTERVAL	PHI	MAX RATE PER HECTARE	OTHER
Florgib Tablet	18285	Gibberellins GA3	-	1	-	BBCH 65	16 tablets	Apply at full flower
Regalis Plus	16485	Prohexadione calcium	-	-	21 days	90 days	1.8 kg	EAMU 0180/15

MOLLUSCICIDES

PRODUCT NAME	MAPP NUMBER	ACTIVE INGREDIENT	BUFFER ZONE*	MAX NO	MIN INTERVAL	PHI	MAX RATE PER HECTARE	OTHER
Sluxx HP	16571	Ferric phosphate	-	4	-	-	7 kg	also Felyn, Ferrex, Ironmax Pro

*BUFFER ZONES and LERAPs: Certain plant protection products have an aquatic buffer zone requirement when applied by horizontal boom or broadcast air-assisted sprayers. If you want to reduce this aquatic buffer zone, there is a legal obligation to carry out and record a Local Environment Risk Assessment for Pesticides (LERAP). For horizontal boom sprayers this has changed so that under interim arrangements it is only possible to reduce crop buffer zones of 5 metres (& current category B products); crop buffer zones of greater than 5 metres up to 20 metres cannot be reduced (& current category A products). The arrangements for broadcast air assisted sprayers remain unchanged. Neither arrangement above cover sprayers such as tunnel sprayers, which are neither, broadcast air-assisted nor ground crop sprayers. Where sprayers such as tunnel sprayers are used to apply a pesticide for which a buffer zone is set, this buffer zone has a default of 5 metres which cannot be reduced following a LERAP assessment.

If you just want to apply the buffer zone specified on the label you don't have to carry out a LERAP. But you are still legally obliged to record this decision as normal in your spray records, as advised in section 6 of the updated Code of Practice for Using Plant Protection Products (keeping spray records). ALWAYS READ THE LABEL BEFORE USE.

Foliar Applied Fertiliser Products

NUTRIENT	PRODUCT	ANALYSIS % w/w or w/v	LABEL RATE / HECTARE
Nitrogen	Calcium nitrate (CN)	19 Ca – 15 N	
	Urea	46 N	
	YaraVita Safe N, Azolon Fluid	31 N w/v	5-10 lt
Phosphorus	Nortrace Uptake Plus / Magphos K	44 P – 7 K – 6 Mg w/v	3-5 lt
	Mono ammonium phosphate (MAP)	26 P – 12 N	
	YaraVita Seniphos	31 P – 4 Ca – 4 N w/v	10 lt
	Opte-phos	20 P – 5 N w/v	10 lt
Potassium	Krista SOP	50 K	
	Potassium nitrate	46 K 13N	
	YaraVita Foliar Potash, FoliQ Potash	50 K – 8 P w/v	3-5 lt
	Mono potassium phosphate (MKP)	28 K 22 P	
	Nortrace Phyte P Plus	26 K phosphonate w/v	3-5 lt
Magnesium	Magnesium nitrate	16 Mg 11N	
	YaraVita Magflo	30 Mg w/v	4 lt
	Bittesalz / Epso-Top	10 Mg	
	Opte-Mag	9 Mg – 8 N w/v	3-5 lt
NPK	YaraVita Croplift / UPL Complex	20 N – 8 P – 14 K – 2 Mg + trace	2.5-5 kg
	Polyfeed SF	12 N 6 P 36 K + trace	
	Poliverdol	8 N – 8 – 6 K + trace w/w	4 lt
Boron	YaraVita Bortrac, Opte-B	15 B w/v	1-2 lt
	Mycrobor, Solubor	17.5 B	6-12 kg (soil)
Calcium	Calcium nitrate (CN)	19 Ca 15 N	
	NT Pitstop	24 Ca – 16 N – 3 Mg + trace	4-6 lt
	Bio-Chel Ca	10 Ca w/v lignin chelate	2-5 lt
	YaraVita Stopit	22 Ca w/v	7-10 lt
Copper	Headland copper	25 Cu w/v	0.5-1.0 lt
	Fortify-Cu	Phosphonate + 1.5 Cu	
Iron	Iron EDTA	13 Fe	
	Bio-Chel Fe	5 Fe w/v lignin chelate	2-3 lt
	Maxicrop plus iron	2 Fe w/w sequestered	3 lt
Manganese	YaraVita Mantrac Pro	50 Mn w/v	1 lt
	Opte Man	15 Mn w/v	2.5-5 lt
	Notrace Mensa	15 Mn + complexing agent	2-4 lt
Molybdenum	YaraVita Molytrac, Molybdenum 250	25 Mo w/v	0.25 lt
Silicon	Sion	19 Si w/w	0.25-0.5 lt
Sulphur	Headland sulphur	80 S w/v	5-10 lt
	Microthiol Special	80 S	
Zinc	Zintrac	70 Zn w/v	1 lt, 0.5 lt advised
	Zinic	14 w/v + lignin chelate w/v	
Nutrient Complex	YaraVita Bud Builder	24 Mg – 10 Zn – 7 N – 5 P – 3 B w/v	5 lt
	YaraVita Frutrel	24 P – 20 Ca – 7 N – 6 Mg – 4 Zn – 2 B w/v	2.5-5 lt
Biostimulants	Actiff	Seaweed based	1-4 lt root-dip 1:20
	Maxicrop: Triple, Concentrate, Natural NPK	Seaweed based	
	Sentinel	10% Silicon + Salicylic acid	0.5-1.0 lt
	Tytanit	12% Silicon 8% Titanium	
	Zonda Physiocrop	Amino acid polypeptides	
	Proact	1% Harpin	0.2 kg/ha
	Innocul8	24% Peptide + Mn, Zn traces	0.6 kg/ha

Adjuvants

PRODUCT	CLASSIFICATION	ATTRIBUTES	EXAMPLE USAGE	RATE OF USE
Abate	Silicon based anti-foaming agent.	Tank foaming reduction.	Where high levels of foam are produced in the tank solution.	50-250 ml / 1000 lt. Use low rate to start with and increase as required.
Activator 90	Non ionic wetter.	Drift reduction. Spreads up to 7 times more than water. Use where surface wetting is desirable.	Contact insecticides. Broadleaved herbicides. Contact herbicides such as Diquat.	1 lt / 1000 lt Add to tank last.
All Clear Extra	Balanced formulation of sequestrants and surfactants.	Tank cleaner.	After tank use. Good at removing difficult residues like the SU herbicides.	5 lt / 1000 lt Avoid contact with the concentrate on metal.
Cropspray 11E	Mineral oil adjuvant.	Weed control improvement. Reduces drift.	Difficult to control weeds. Difficult spraying conditions.	Max rate 25 lt / 1000 lt Normal rate 7.5 lt / 1000 lt Can have insecticidal use.
Envirowet	Silicon based non-ionic wetter and spreading agent.	Drift reduction 'super wetter'.	Improve uptake of foliar nutrients. Improve coverage on difficult targets such as waxy or hairy leaves.	1-2.5 lt / 1000 lt
Gateway	Silicone and latex-based sticker, extender and wetter.	Improves wetting, coverage and rainfastness. Increases uptake of systemic products and nutrients. Drift reduction. Frost protection.	Use in difficult weather conditions. On waxy or hairy leaved weeds. Anti transpirant. Difficult target coverage.	1.25 lt / 10 00 lt Add to tank last.
Kantor	Penetrant wetter and spreading agent.	Improved coverage. Aids systemic product uptake. Mix compatibility.	Reduces the risk of tank mixing issues. Aids difficult canopy management.	1.5 lt / 1000 lt
Katalyst	Penetrant wetter. Water conditioner.	Improves the retention and increases the uptake of the spray solution. Reduces the pH and water hardness.	Improves water quality. Use under adverse conditions.	1.5 lt / 1000 lt
H2Opti	Complete water conditioner.	Multi-functional blend of chelating and acidifying agents with humectant system and anti-foam.	To maximise pesticide performance.	2.5 lt/1000 lt
Mixmate	Water conditioner. Acidifier, wetter and sticker.	Use to reduce cationic contaminants. Blend of products to soften water, reduce the pH and minimise alkaline hydrolysis.	Essential where alkalinity reduces product efficacy. Captan. Glyphosate etc. Improves coverage.	1-2 lt / 1000 lt High rate in hard water areas.
Speedup 3000	Water conditioner. Anti foaming agent.	Maintains product half life in solution.	Use with Glyphosate.	0.5 lt / 1000 lt
SP058/Slippa	Silicone based wetter.	Spreader and rainfastness improvement. Soil penetrant and drift retardant. Improves uptake of nutrients, especially calcium and magnesium. Reduces drying time.	Use on difficult target pests like pear sucker, Blackcurrant Gall Mites and Vine weevil larvae. Reduces variability of product performance.	0.5-2 lt / 1000 lt Do not exceed 400 ml of SP058 per hectare.
Spraygard	Extender, sticker and wetter.	Reduces transpiration. Offers frost protection. Reduces phytotoxicity risk. Increases drying time. Improves rainfastness. Increases product uptake.	Use in difficult conditions, especially if cold with drying winds. Where rainfastness is required.	Max rate 20 lt / 1000 lt Normally 1-2 lt / 1000 lt
Transact	Acidifying penetrant wetter.	Acidifies water reducing phytotoxic risks. Improves systemic product penetration. Improves coverage.	General purpose adjuvant and acidification product.	Max 5 lt / 1000 lt Normal rate 1.5 lt / 1000 lt Acidification rate 1 lt / 1000 lt Add to tank last.

Vineyard Products

COILED WIRE

Coiled wire is a useful and cost-effective product which suits a variety of applications.

Coiled wire is available in a choice of convenient specifications, both in high tensile and mild steel.

DIAMETER	LENGTH	WEIGHT	CODE
2.5 mm high tensile	650 m	25 kg	WIR2.5H/T
2.5 mm mild steel	650 m	25 kg	WIR2.5S/S
3.15 mm high tensile	410 m	25 kg	WIR3.15H/T
3.15 mm mild steel	410 m	25 kg	WIR3.15S/S

GRIPPLE WIRE JOINERS, TENSIONERS AND ANCHORING SYSTEMS

The system of choice for joining and tensioning steel wire trellis work.

SIZE	SPECIFICATION	CODE
Standard	For 2-3.15 mm	GRIPPLES
Jumbo	Up to 5 mm	GRIPPLEJ
Gripple Tensioner Tool	For tensioning	GRIPPLER
G-Pack M Tie-back	Loop ended tie-back 3m 10/BAG	GRIPPLEMTIE-BACK
G-Pack 3	Anchoring kit	GRIPPLESL
G-Pack 4	Anchoring kit	GRIPPLEANCH
Diager Tool	For anchoring	VIC1

VINEYARD POSTS – METAL AND WOOD

Vineyard intermediate posts metal	Length 2.5 m	VINEINTERPOST2.5M
Vineyard end post metal	Length 2.75 m 48 x 58 x 2.0 mm	VINEENDPOST2.75M
Creosote wood intermediate and end posts	All lengths and dimensions available on request	

TUTOR RODS

Code: VINE1.2M

TREEFIX

6 cm Code: TREEFIX30

ANCHOR RODS

850 mm x 12 mm

Code: ANCHORROD

VINEGUARDS

For protection from damage by vermin and herbicides. Enhanced establishment.

PRODUCT	SIZE	CODE
Vineguard (Pack size 96)	50 cm	VINEGUARD50CM
Plastic Mesh	60 cm	TREEMASH
Vine Sleeve (Pack size 1000)	45 cm	VIC1

BAMBOO CANES

SIZE	QUANTITY	CODE
900 mm (3 ft)	500/bale	CAN3/9
1200 mm (4 ft)	250/bale	CAN4/18

MAX TAPENER HTR TYING MACHINE

The tried and tested method for tying in vines.

PRODUCT	QUANTITY	CODE
HTR tying machine	Single	MAX2
Tape (Red) 16 m	Box of 10	MAXT7
Tape (Green) 16 m	Box of 10	MAXT13
Tape (Green) 26 m	Box of 10	MAXT8
Tape (Green) 40 m	Box of 10	MAXT9
Maxtape Biodegradable (Green) 40 m	40 m	MAXTBIO
Staples (604)	Box of 2400	MAXTSTAPL

VINE TIE

SIZE	COLOUR	CODE
3 mm x 100 mm	Black	TIE3
5 mm x 300 mm	Green/Yellow	TIE4
8 mm x 150 mm	Green/Yellow	TIE5

VINE CLIPS

Various clips for securing vines to support wires and tutor.

PRODUCT	QUANTITY	CODE
Elbow clip NR40	Per 1000	VICL02
Rebstar 'big' clip	Per 1000	VICL06
Netting clip	Per 1000	NETCL1
Stabfix metal clip (for bamboo)	Per 1000	STABFIX1
Stapfix metal clip (for metal rods)	Per 1000	STABFIXZERO
Green twist ties (4, 6 and 8 inch)	Per 5000	RAI28
Biodegradable clips	Per 1000	VINECLIPBIO

NAILS & CHAIN

TYPE	SIZE / QUANTITY	CODE
Hook nail	5 mm/2.5 kg	HOOKNAIL5
Chains	200 mm/7 links/per 100	WINA20
Nails	1 kg/c.145	

Secure Chemical Storage Units

E-EPS5 – 1840/CS5 STORAGE FOR CHEMICALS

Hinged and lockable

- Size 1410 mm x 810 mm x 1580 mm (L x D x H).
- Manufactured from 2 mm Mild Steel Sheet over 50 mm x 50 mm x 3 mm RHS tube.
- Sump capacity 250 litres.

Code: CHEM3

E-EPS4 – 1840/CS4 STORAGE FOR CHEMICALS

Sliding doors – 3 shelves for 25 lt and 5 lt containers

- Size 2500 mm x 800 mm x 2400 mm (L x D x H).
- Manufactured from 2 mm Mild Steel Sheet over 50 mm x 50 mm x 3 mm RHS tube.
- Sump capacity 380 litres.

Code: CHEM2

E-EPS3 – 1840/CS3 STORAGE FOR CHEMICALS

Sliding doors – 4 shelves for 25 ltr and 5 ltr containers

- Size 3000 mm x 1650 mm x 2400 mm (L x D x H).
- Manufactured from 2 mm Mild Steel Sheet over 50 mm x 50 mm x 3 mm RHS tube.
- Sump capacity 880 litres.

Code: CHEM4

NOTE: The above units will be delivered by an articulated vehicle, therefore please ensure that a vehicle of the size can access your premises before ordering and advise us accordingly. All weights, dimensions, and other figures quoted are approximate.

Pruning Equipment

THE ORIGINAL (MODEL 2)

Original model with riveted anvil blade.
Length: 21.5 cm Weight: 240 gm
Code: FELCO2

COMPACT (MODEL 6)

For the smaller hand, light and compact with tapered cutting head.
Length: 19.5 cm Weight: 210 gm
Code: FELCO6

ECONOMY (MODEL 5)

Economy model with steel handles.
Length: 22.5 cm Weight: 310 gm
Code: FELCO5

PROFESSIONAL (MODEL 7)

High performance model for intensive pruning with rotating handle which reduces the effort by a third when pruning.
Length: 21 cm Weight: 290 gm
Code: FELCO7

ALTUNA SECATEUR

A general purpose secateur for the professional.
Code: ALTSEC

ARS VINE SNIPS

Code: ARSV1

ALUMINIUM LOPPERS (MODEL 210A)

Interchangeable aluminium handled loppers are extremely durable. Ergonomic and comfortable, with a soft non-slip coating on the handles. Fine blade adjustment mechanism to ensure a clean, precise cut.
Maximum cutting diameter: 3.5 cm
Length: 60 cm
Weight: 785 gm
Code: FEL21

ALTUNA FOLDING SAW

A compact folding pull saw, 180 mm long and weighs 280 gm.
Code: ALTFS

Netting

BLUE LIGHTWEIGHT NETTING

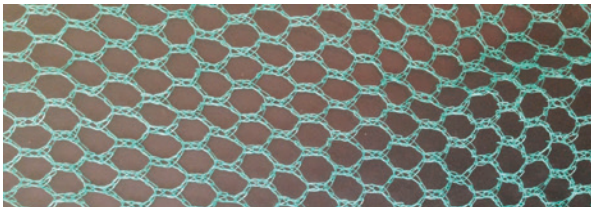
- Protects the grapes against birds and wasps.
- Limited use, usually 1-2 years.

Material: High Density Polyethylene
Weight: 30 g m² (included all the reinforcements)
Widths: 0.9 m x 250 m, 1.2 m x 250 m
Colour: Clear (Crystal)

1.2 m x 250 m Code: GNVN0120250
0.9 m x 250 m Code: GNVN009250

GRO-NET BIRD NET GREEN

Sizes: 12 m x 100 m, 20 m x 100 m
Code: NTAB1520100



GRO-NET ANTI-HAIL/BIRD NET

Size: 20 m x 100 m
Code: NTABD2000100

GRO-NET SWD/1

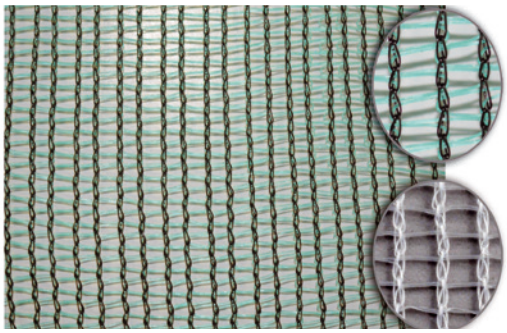
Material: HDPE U.V. Monofilament
Weight: 75 g m² (including reinforcements)
Approx Shade: 15%
Style: 0.8 mm x 0.8 mm
Colour: White

1.8 m x 100 m Code: GNSWD118100
6.5 m x 100 m Code: GNSWD165100

GRO-NET WINDBREAK NET GREEN/BLACK

Material: 100% Virgin HDPE (High Density Polyethylene)
Construction: Monofilament construction
Weight: 106 g m²
Colour: Green / Black
Additions: UV treated
Style: 2 mm x 4 mm 50% windbreak, 30% Shade

Sizes: 1.5 m x 100 m, 2.0 m x 100 m, 3.0 x 100 m, 4.0 m x 100 m, 6.0 m x 100 m; 1.5 m x 500 m, 2.0 m x 500 m, 3.0 m x 500 m, 3.5 m x 500 m, 4.0 m x 500 m, 5.0 m x 500 m, 6.0 m x 250 m



PARAFENCE PARAWEB

Strength: 30 kN/m
Material: High density polyethylene
Roll size: 2 m x 34 m
UV Stabilisation: 20 years
Colour: Black
Code: PARAWEB1

Safety Equipment

FORCE 8 MASK & FILTERS

Press-to-check filters with hinge design to facilitate instant and accurate checking of the face fit, without effecting the seal of the mask to the face.

Easily attaches to the Force 8 Respirator (Code 1863F) with a secure fit when applied.

Mask Code: FORCE8

Filters Code: FORCE58FP

FACE SHIELD PERFO NOVA 82044

Code: NORTH1

BETAFIT DISPOSABLE MASK FFP2V (BOX OF 10)

Code: BETAFIT2

HOODED COVERALL – LIQUID AND PARTICLE PROTECTION

- Durable SMS breathable fabric with additional treatment for increased protection against water based chemical splash.
- Low lint fabric and internal seams to reduce the risk of fibre contamination.
- Two way zip for quick and easy access to work clothes.
- Strong triple stitched seams CE type 5 and 6.

Colour: White. **Size:** M, L, XL, XXL, XXXL

M Code: COVERA
L Code: COVERA002
XL Code: COVERA001
XXL Code: COVERA003
XXXL Code: COVERA004

CHEMICAL RESISTANT APRON

Green Code: APRON

NITRILE GLOVES

M Code: GLOV22
L Code: GLOV23
XL Code: GLOV24

GLOVES LATEX POWDER FREE (100 PACK)

M Code: GLOV14
L Code: GLOV15
XL Code: GLOV16

PARAFFIN CANDLES

- Perfect frost protection for orchards and vineyards in cold spring times.
- Quick and easy lighting.
- Additives ensure burning and warm smoke for up to 10 to 12 hours.

Vineyard Candle Plastoflex 71R Refill Code: VINECANRF
Vineyard Candle Plastoflex 71 Code: VINECAN

Grapevine Growth Stage Phenology (Baggiolini)

A

WINTER BUD
BBCH 00

B

WOOLLY BUD
BBCH 05

C

GREEN TIP
BBCH 07

D

LEAVES EMERGED
BBCH 09

E

LEAVES UNFURLED
BBCH 13

F

INFLORESCENCE VISIBLE
BBCH 53

G

INFLORESCENCE SEPARATED
BBCH 55

H

FLOWER BUDS SEPARATE
BBCH 57

I

FLOWERING
BBCH 65

J

FRUIT SET
BBCH 71

K

BUNCH CLOSURE
BBCH 79

L

VERAISON
BBCH 81

RIPE GRAPES
BBCH 89

Plant Protection Products – Sustainable use

Audits for Sustainable Wines of Great Britain and alike may require an assessment of grams active content for rating Plant Protection Products (PPPs) and inclusion in a suitable spray programme.

This is one criterion by which to judge environmental fate. Such assessments are complex. Stringent regulation is implicit within authorisation of any pesticide in the UK made by the Chemicals Registration Directorate (CRD).

Following statutory use conditions specified on the product label, also DEFRA 'Pesticides' (Code of practice for using PPPs) are paramount for safe use and minimising environmental impact. Guidance given in the DEFRA Code of Good Agricultural Practice (COGAP) in paragraphs 162-171 require implementation of a Crop Protection Management Plan (CPMP) which includes adherence to Integrated Pest Management (IPM) – a risk-based assessment for the control of pests and diseases.

Sustainable use of pesticides is best achieved by effective choice, timing and application. Programme fungicides to prevent disease rather than cure according to 'risk' (e.g. the RIMpro disease forecast model, see more on page 15). Control pests when a damaging 'threshold' is reached e.g. moth species when monitoring traps indicate. These basic principles will help minimise and optimise pesticide inputs.

PRODUCT	ACTIVE INGREDIENT(S)	GRAMS ACTIVE
Amylo-x	Bacillus amyloliquefaciens	250 g/kg
Batavia	Spirotetramat	100 g/l
Botector	Aureobasidium pullulans	500 g/kg
Cosine	Cyflufenamid	50 g/l
Cuprokylt	Copper oxychloride	50% w/w
Dipel DF	Bacillus thuringiensis	54% w/w
Filan	Boscalid	50% w/w
Frutogard	Potassium phosphonate	342 g/l
Hallmark Zeon	Lambda-cyhalothrin	100 g/l
Karamate DF	Mancozeb	75% w/w
Karma	Potassium bicarbonate	850 g/l
Kerb Flo 400	Propyzamide	400 g/l 35.3% w/w
Kumulus DF	Sulphur	80% w/w
Nativo 75WG	Tebuconazole + Trifloxystrobin	500 g/kg + 250 g/kg
Option	Cymoxanil	600 g/kg
Percos	Ametoctradin + Dimethomorph	300 g/l + 225 g/l
Privest	Ametoctradin + Potassium phosphonates	75 g/l + 453 g/l
Romeo	Cerevisane	941 g/l
Roundup Powermax	Glyphosate	720 g/kg
Scala	Pyrimethanil	400 g/l
Sercadis	Fluxapyroxad	300 g/l
Serenade ASO	Bacillus subtilis	1000 g/l
Shark	Carfentrazone ethyl	60 g/l
Shinkon	Amisulbrom	200 g/l
Steward	Indoxacarb	300 g/kg
Stroby	Kresoxim methyl	50% w/w
Switch	Cyprodinil + Fludioxinil	37.5% w/w + 25% w/w
Teldor	Fenhexamid	50% w/w
Topas	Penconazole	100 g/l
Tracer	Spinosad	480 g/l
Vayo	Mefenentrifluconazole	75 g/l
Vivando	Metrafenone	500 g/l

Codes of Practice

Three Codes issued by DEFRA and HSE outline the requirements for land based businesses with regard to good and regulated agricultural practice and as such are essential to possess, read and follow:

- ✔ **Pesticides:** Code of Practice for using plant protection products.
- ✔ **Protecting our Water, Soil and Air.** A Code of Good Agricultural Practice for farmers, growers and land managers.
- ✔ **Farmwise:** Your essential guide to health and safety in agriculture.

Further advice and report forms to fulfil these requirements can usefully be found on AgriiPlus (Agrii database for customers to access current crop, product and due diligence information) or the Voluntary Initiative (VI) website at www.voluntaryinitiative.org.uk.

- ✚ Integrated pest management plan (IPMP) https://voluntaryinitiative.org.uk/schemes/integrated-pest-management/
- ✚ **Pesticide handling areas.** It is still permissible to fill up and wash down in the field/vineyard where product is applied. Dedicated areas for this purpose are regulated; consider installation of a bio bed or bio filter. https://voluntaryinitiative.org.uk/water/biobeds/
- ✚ **Nitrogen use is regulated on approximately 60% of land in the UK.** You may be growing in a Nitrogen Vulnerable Zone (NVZ). Check the status of your land as below. Conditions for crop production are less onerous than for livestock but you must control and record use https://www.gov.uk/guidance/nutrient-management-nitrate-vulnerable-zones

Buffer Zones and LERAPS

Certain plant protection products have an aquatic buffer zone requirement when applied by horizontal boom or broadcast air-assisted sprayers.

If you want to reduce this aquatic buffer zone, there is a legal obligation to carry out and record a Local Environment Risk Assessment for Pesticides (LERAP). For horizontal boom sprayers this has changed so that under interim arrangements it is only possible to reduce crop buffer zones of 5 metres (and current category B products).

Crop buffer zones of greater than 5 metres up to 20 metres cannot be reduced (and current category A products). The arrangements for broadcast air assisted sprayers remain unchanged, as tabulated below. Neither of these arrangements above cover sprayers such as tunnel sprayers, which are neither broadcast air-assisted nor ground crop sprayers. Where sprayers such as tunnel sprayers are used to apply a pesticide for which a buffer zone is set, this buffer zone has a default of 5 metres which cannot be reduced following a LERAP assessment.

If you just want to apply the buffer zone specified on the label you don't have to carry out a LERAP. But you are still legally obliged to record this decision as 'normal' in your spray records, as advised in section 6 of the updated Code of Practice for Using Plant Protection Products (keeping spray records).

PERMITTED BUFFER ZONE (BZ) REDUCTION AFTER LERAP FOR BROADCAST AIR-ASSISTED SPRAYERS				
	Full dose	¾ dose	½ dose	¼ dose
No windbreak	No reduction of BZ	Reduce by 3 m	Reduce by 6 m	Reduce by 12 m
With windbreak	Reduce by 6 m	Reduce by 9 m	Reduce by 12 m	Reduce by 18 m

No windbreak	A minimum 7 m buffer zone is allowed after a LERAP adjustment.
With windbreak or Low drift sprayers	A minimum 5 m buffer zone is allowed after a LERAP adjustment, where tunnel sprayers are used buffer zones have a default of 5 m which cannot be reduced.

Protection of Water

Defra has announced 8 new farming rules for water. "They will standardise the good practice that most farmers undertake and better protect the water environment, while improving resource efficiency."

From April 2018 those that apply to fruit growers are as follows:

+ Rule 1: Planning use of organic manures and manufactured fertilisers

Planning must take into account where there is a significant risk of pollution and the results of testing for Phosphorus, Potassium, Magnesium, pH and Nitrogen levels in the soil, which must be done at least every 5 years.

+ Rule 6: Reasonable precautions to prevent soil erosion and run off

In assessing whether there is "significant risk of pollution" a person must take into account the following factors: the slope of the agricultural land, especially if the slope is greater than 12 degrees; any ground cover; the proximity to inland fresh waters and coastal waters; the proximity to wetlands; the weather conditions and weather forecasts; the soil type and condition; and the presence and condition of agricultural land drains.

Requirements of the Sustainable Use Directive (SUD)

From 26th November 2015 operators who have been spraying under grandfather rights must now hold the appropriate training certificate; the PA1 foundation, and for fruit spraying the PA3 application modules.

PA1 covers key aspects of legislation which apply to the use and storage of pesticides, disposal of empty pesticide containers and washings, personal protective equipment, record-keeping and the risks to people or the environment. PA3 covers how to prepare the sprayer for work, maintain and use it safely, check the equipment for mechanical defects, select spray volume and quality, calibrate application; and how to calculate, measure and mix the pesticide and fill the tank.

At the same time, anyone who buys products authorised for professional use must ensure that whoever is going to apply the product holds the appropriate certification. Existing distributor account holders are unlikely to be asked for proof but under duty of care those without an account or opening one for the first time will be.

From 26th November 2016 the SUD required that all professional pesticide application equipment had to have been tested under the recognised National Sprayer Testing Scheme (NSTS) before this date. Subsequent testing is now required every 5 years after this date and every 3 years from November 2020. Find an approved NSTS examiner at **www.nsts.org.uk**

Since 2014 under the SUD it is required to demonstrate that Integrated Pest Management (IPM) practices are being followed. This can be done by completing an IPM plan and shows you are considering different ways of controlling weeds, pests and diseases. The plan is also needed for farm assurance.

Continuing Professional Development

Member states are required to demonstrate availability of Continuing Professional Development (CPD) and ongoing spray operator training.

The National Register of Spray Operators (NRoSO) run by City and Guilds is the recognised UK service provider. Whilst it has become obligatory for farm businesses operating within Produce Assurance schemes to participate, this is not yet a mandatory requirement.

Meet the Fruit Team

Julian Searle
Agronomist &
Viticulture Specialist

Ben Brown
Agronomist &
Viticulture Specialist

Matt Greep
Area Business
Manager – Fruit
Team & Agronomist

Gary Saunders
Agronomist,
Kent

Brendan Rhodes
Agronomist, Kent &
West Midlands

Neil Obbard
Agronomist,
South & South East

Richard Killian
Agronomist,
South East

Jason Steels
Agronomist,
Lincolnshire

Emma Smith
Agronomist,
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Jonathan Garratt
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Trainee Agronomist

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Product Manager –
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Ancillary
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Alternatively speak to your local Agrii contact/agronomist.

Connect with Agrii

Fruit teams – The Agrii fruit team is comprised of top and soft fruit agronomists together with ancillary product specialists and decision support services

Online at agrii.co.uk for the latest news, event information or to ask us a question

Social media AgriiUK AgriiUK AgriiUK Agrii_UK AgriiUK

Customer Services Team on 01480 418333 or email customer.services@agrii.co.uk






All information in this document was correct at time of printing – May 2025.
Manufacturer's instructions should ALWAYS be read before application and followed.
Agrii accepts no responsibility for off label applications. EAMUs are always applied at the grower's own risk.

Printed using vegetable inks. This product is made of FSC® certified and other controlled material. Manufactured in accordance with ISO certified standards for environmental, quality and energy management. A Carbon Balanced product with World Land Trust certificates.