

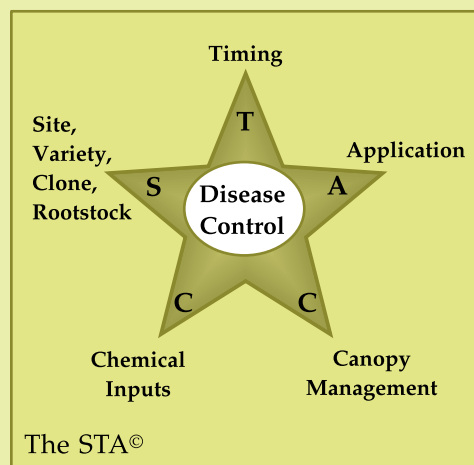


The STA Concept of Disease Control

In my last newsletter I introduced the idea of following the STA concept of disease control.

The STA graphic below came about through the many discussions I have had with viticulturists over the years. In these conversations it often seemed to me that we have developed an unhealthy reliance on just one facet of disease control, (most often chemicals). So the STA has 5 arms, each denoting a disease control strategy. These arms are equally sized for a good reason. Each arm has equal importance in developing a holistic disease control programme for your vineyards.

Each arm of the STA is strongly interdependent, so if any one fails, it weakens the others.



'S' is for Site, (including variety, clone and rootstock).

It should be obvious that every site has a particular disease potential. Where there is excellent drainage and low to moderate fertility, there's generally lower disease risk. But that same site with low fertility and good drainage could express considerable disease problems if it is too well sheltered. Sites that catch the morning sun are often less disease prone than those that miss the dawn.

On top of site factors, each variety has its own spectrum of disease tolerance and susceptibility. Those who grow Merlot easily

recognize Blackspot. Growers of Cabernet Sauvignon on well drained 'morning slopes' rarely experience Botrytis. And so it goes on with clone and rootstock also adding further complexity to the disease potential. So how is this relevant to you as a grower, stuck with vines in the ground? Through time you will understand the disease potential of every block you own. When you build this picture you can start to apply other arms of the STA to a greater or lesser degree as every arm is interdependent.

In the long term you will consider the possibility that some areas of your vineyard are planted with the wrong variety, clone or rootstock. It's this realization that will lead you to consider making your job easier by working with the variety /clone/rootstock combination best adapted to your site. This is what the Europeans have spent the last couple of thousand years working out.

In the meantime, if your site factors are working against you, the other 4 arms of the STA have to be employed to greater effect, but that interdependence means you must accept that you will never reach your potential.

'T' is for Timing

You have to make time to be on time. Almost every grower knows at first hand the consequences of doing tucking too late. You get lots of damage, crop loss and loss of ideal shoots for next winters tying down.

Disease control is no different. Almost all of the chemicals we use work best as protectants. This means they need to be applied before infection periods and definitely before disease thresholds are exceeded. That's because there are very few chemicals available that can work systemically (like antibiotics do in animals) to eradicate disease once it's established.

When vines start growing they wait for no-one. Pests and diseases are the same. Know their life cycles on your property. Develop an understanding of when they will show up and where. Act with precise timing. Always work on the basis that prevention is easier and cheaper than cure.

The best way to prevent disease or pest outbreaks is to:

1. Monitor and record pest and disease levels in every block every week.
2. Watch the weather like a hawk. Spray preventatively before infection periods, not after them.

Never think, "I'll spray after the rain to stop it being washed off". It's completely false economy.

'A' is for Application

When you think about it, controlling disease in vineyards in NZ is no mean feat. We have a humid maritime climate with changeable weather, we grow lots of varieties with sensitivity to disease, we often employ contractors to do the spraying for us and it can be a battle to get them there on time. So when we do put some spray on, hitting the target is a maker or breaker.

We have to spray the target evenly and effectively so that the whole 3 dimensional surface is coated with the correct dosage of spray material to prevent disease. The first and easiest step in getting this right is to calibrate your sprayer so that you know how much liquid you are spraying per hectare. This is the first step in getting the chemical dosage right.

The next and often overlooked step is setting the machine up so that the spray coats the target completely.

The only practical way for you to do this on your vineyard is to use water sensitive papers. These should be used several times through the season to check that the effectiveness of your sprayer does not diminish as the canopy fills in. Growing tips are probably the easiest things to coat with spray. The hardest to protect and probably the most sensitive to disease are laterals growing inside the canopy, inflorescences, and inside the bunches close to pre-bunch closure.

The most important elements of application are:

- Droplet size – medium and small sizes are best.
- Droplet velocity – sufficient for the canopy and wind.
- Droplet trajectory – turbulent trajectory is better than straight line.

Adjust your machine until you have the best result it can deliver.

If you are still not getting good coverage and your water rate is tending low, the best solution is to increase water rate, as low water rates combined with poor application technique invariably spell disease. I really can't say this enough. There's no point spraying liquid gold (yes, some active ingredients are that expensive) if it's not hitting the target and covering it completely. By now you will have read Gustav Holz's

paper (www.mistyvalley.co.nz) and so you'll understand the importance of complete and thorough coverage of the parts of the vine most susceptible to the target disease. When you time things right and get good coverage and the right dosage you significantly improve your chances of success.

'C' is for Canopy Management

Our vineyards have seen a revolution in canopy management practices in the last 20 – 40 years. I can still remember leaf plucking being demonstrated to my father for the first time about 40 years ago. He was skeptical but we gave it a go and made the best Daly plonk ever. Incredulously there are still a few die hards who don't see the merits in leaf plucking.

Operations such as regular hedging, shoot thinning, leaf plucking and crop thinning can significantly improve both quality of wine and disease management when done well. That means doing every operation at the right time and doing it correctly. Space doesn't allow a detailed description of the various canopy management practices that count for improved disease control. Suffice to say that they all count and the more timely the doing the greater the contribution.

Further developments in the area of mechanization are being driven by the need to reduce costs and replace labour. This technology is racing ahead, sometimes without sufficient regard to the consequences.

One particular concern is the development of high pressure, high velocity air blowers for leaf plucking. These machines are very effective at scarifying leaves and effectively remove trash from bunches post flowering. The problem is that if used inappropriately they also damage the berry surface. If this damage is followed soon after by a botrytis infection period the damaged berries are predisposed to primary infection of botrytis. So the message here is to go ahead and use the technology, use it well and understand its limitations. Understand also that the cheap way can sometimes cost more in the end.

'C' is for Chemical Inputs

I was discussing modern botryticides with a new grape grower the other day. He said, "This is where I come unstuck. I just can't figure out which one is best, so I don't know which to use." I then heard myself saying "Don't worry, use any one, they're all good. If you think too long about the chemistry, you'll forget to do all the other stuff like

getting the Timing, Application and Canopy Management right".

And that's the bones of it really. He was focused on the chemical and forgetting its only a small part of the equation. Sure there are subtle differences between the synthetic Botryticides. In the overall scheme of things those differences don't add up to significantly higher quantities of botrytis free grapes going over the weigh bridge. That's the case for Botrytis. The good ones are all good. It's how you use them that matters.

When it comes to powdery mildew, black spot, phomopsis etc there are some superstar products on the market. They're most often recognized by their relative price per hectare. It's a case of you get what you pay for. But the real point is that the best chemical used at the wrong time with poor application technique on a poorly managed canopy hasn't got a dogs show of overcoming disease or pests.

Nutrition also fits on both the Chemical and the Site arms. These days it is well understood that some site factors like high nitrogen contribute to greater disease pressure, whilst others like available calcium may reduce disease pressure. What's not well understood is our absolute ability to manipulate nutrition sufficiently to make a substantial difference to disease control.

In its true meaning sustainable management is a good practice. It's a first step towards smart management where reliance on chemical solutions to problems isn't an option. That's also why I take my hat off to those who successfully grow grapes anywhere in NZ using organics or biodynamics. From a conventional view point the cards are well and truly stacked against these people, yet many do it well and produce great quality wines. These champions aren't all sitting on the very best sites in NZ. They know and understand the STA intrinsically. They've developed an understanding of the interdependence of all of the facets of disease control.

Post Script

On the day our November newsletter went to print, (This Model Needs a Feed), the Kiwifruit industry announced a 35 million dollar investment in new variety research. Size wise, our industries are comparable. Our investment on an industry basis towards new variety research is nil. You might like to mention this to your Board representative the next time you are chatting...

To our customers, we thank you for doing business with us during 2009 and to all our readers we wish a productive season and a warm, dry vintage. Merry Christmas and safe Holidays everyone! We look forward to being in touch in February 2010.

Donna Pecar and Rex Sunde

At Misty Valley we provide high quality advice free of charge to our customers.

And, we're committed to providing NZ's best quality vines under the grafted grapevine standard.

What's Available

VARIETY	CLONE
Barbera	MS
Cabernet Franc	214, 326, 327, TK 05102
Cabernet Sauvignon	338, FPS29, KVV15, LC10
Chardonnay	B95, UCD 6, UCD15, 121, 131
Chenin blanc	KWV9, ST68/01/09
Cornalin	MS
Dolcetto	UCD1
Flora	MS
Gewurztraminer	456, 457, 1106, GM11, GM14
Malbec	584, 595, UCD 6, UCD4
Merlot	181, 347, UCD3, UCD8
Montepulciano	MS
Nebbiolo	111, 230, 36
Petit Verdot	C400, G7V4
Pinotage	1/48
Pinot blanc	GM 1, GM 2, GM 7
Pinot Gris	7a, LBS, 326i, 40a, Barrie, GM 2/15, GM2/16, GM 2/21, 52B
Pinot Noir	UCD4, UCD5, 114, 115, 667, 777, Abel
Riesling	110, 198/19, 239/9
Roussanne	HR1D1, HR2F5
Sangiovese	12T
Sauvignon Blanc	MS/UCD1
Semillon	UCD2
Syrah	470, MS/Hermitage, 174, Chave
Tannat	Haden
Tempranillo	HR2C1, HR3B2, HR4C1
Touriga Nationale	MS
Verdelho	HR1C1, HR2D4
Viognier	642, HTK, UCD1
Uzbekistan Muscat	MS

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