Avoiding Establishment Problems

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Before purchasing a property or turning the first sod of a new vineyard a set of goals and a plan to achieve the goals is vital. Remember that to fail to plan is to plan to fail.

The goals that are set must address the issues of:

- Future crop levels.
- Boundary levels to be achieved.
- What market to target.
- What price per tonne required.
- Sustainability of the vineyard.

Once these quantifiable goals have been set a list of essential resource requirements must be met. The list is:

- Suitable site with suitable soil
- Irrigation water available
  - secure source
  - quality – suitable
  - quantity – sufficient
- Sufficient finance
- Secure market – contract
- Human resources
  - management
  - sufficient labour

I suggest that if any of the first three requirements (1–3) are not met, the project should be abandoned. I would like to take the opportunity to expand on the essential requirements in the light of problems that have arisen in Eastern NSW in the past when these requirements have been ignored.

A suitable vineyard site with appropriate soil is essential to a successful vineyard. Firstly, when selecting a vineyard site it is important to know where the boundary of any identified viticultural region is. We can all cite examples where a vineyard has been situated outside a designated region and problems have occurred. This situation could have a significant impact on the price of grapes and resulting wine.

Topography of a proposed site is very important in relation to:

- Flood zones
- Frost pockets
- Areas of potential erosion

The history of viticulture in Australia is littered with examples of vineyards placed in local stormwater flood zones and in frost pockets resulting in crop losses. Local and expert knowledge must be taken into consideration. In the Cowra region, as an example, any vineyard site having a silty loam topsoil which is highly erodable and is on sloping ground must be designed under strict soil conservation guidelines. It is best to have the NSW Soil Conservation Service design a layout for the vineyard. Having seen two 1-in-500 year storms of 100 mm in 1 hour fall in the one year, I can confidently say that the Richmond Grove Vineyard in Cowra suffered no soil loss in these storms because of soil conservation design.

Soil profile, chemical makeup, physical structure, fertility, depth, etc. all are key aspects of a vineyard. I have often seen prospective new grapegrowers standing on a block of land evaluating the above factors with a cursory look and ‘kicking a few clods’. The Hunter Valley has many examples of now derelict or unviable vineyards planted in the 1970s that would not have been planted had extensive soil testing occurred. It is critical you know exactly what your grapevines are to grow in and how it will respond to water application.

Second to soil, the most important essential resource is irrigation water. It may seem satisfactory to have an excellent regulated-flow stream flowing past a proposed vineyard site, but is there a licence to pump and is the licence secured? This problem is highlighted by a grower in the Cowra District who planted 20 ha in 1994 and with a lot of hard work had the vines trained up in one year so that a crop of around 7–10 tonne/ha in 1996 is expected. That crop is now in serious jeopardy because the property does not have a high security water licence. Due to the drought the Water Resources Department has declared a nil allocation for normal unsecured licences. If high security water cannot be obtained in surface streams then the alternative is bore water.

Quality of water is also an essential ingredient. There are many publications addressing this issue and numerous laboratories available to test water. I suggest 2–3 tests per source. I know of one new grower in the Central West of NSW who received the wrong information after one sample test. Instead of the irrigation breathing life into his newly planted vines, they were being killed. There are several key points in water quality, namely:

- total salinity EC
- chloride
- S.A.R.
- hardness
- iron content

Make sure they are all within the range for grapevines in relation to your irrigation type, e.g. drip or spray.

Another problem that often befalls new growers is that they become irrigation experts overnight and often grossly underestimate the irrigation requirement of vines in warm/hot, dry summer areas. Too often a little knowledge is dangerous, as growers base their requirements on weather and water budgets from cooler, wetter areas. To ensure a sustainable cropping level, match planted area to the available water, both in total required over a year and the flow rate per day/week. The total water requirement should be that of a dry year; do not take the average figure.

It is a recipe for disaster to have a bore licence for, say 600 ML watering 100 ha to a total of 6 ML/ha if the bore’s pumping capacity is only 35 L/sec, or 3 ML/day, or 20 ML/week when approximately 29 ML/week is required at peak requirement.

Once the physical components of soil and water are deemed satisfactory then ensure sufficient finance—either your own or borrowed—is available to support the budget and cash flow during the negative income period of the development. Budgets and cash flow charts are extremely important for the first 8 years of the vineyard’s life. There are many instances in the past where developments have faltered due to lack of finance. Unexpected, unplanned financial constraints often lead to short cuts on essential details of establishment.
leading to a decrease in potential returns.

Security of a market for the grape product is essential in a time when extensive expansion is occurring in the industry. Over-supply is a very real prospect, especially after the disastrous 1995 vintage which has adversely affected the profitability of the wine industry. Having a secure and comfortable contract is not only beneficial, it is essential for some lending institutions.

Availability of a work force is often overlooked by new growers looking to open up previously unplanted areas. Young vineyards are very labour-intensive and skilled labour is required around training and pruning time. Don't be caught short with insufficient labour as it may curtail the amount of vineyard you originally planned.

After all the essential resource requirements to establish a vineyard have been ticked off as being available and suitable, then work out an action plan. Key points to note in this plan are:

**Vineyard design and site preparation**

- Soil conservation principles are very important, as previously mentioned.
- If a depth of around 1 metre and not too shallow to save costs or stop posts sinking.
- Ameliorants, if needed, are best applied pre-planting; don't try to put the expense off till later.
- Irrigation design must be done in relation to soil relative available water (RAW) capacities and soil type. It is senseless to carry out soil surveys and then design an irrigation system not using the available data. If this does not happen then overwatering and underwatering could become a permanent feature of the vineyard.

**Trellis design**

Even though a crop will not be grown for a couple of years, the trellis system and canopy management must be planned early. This planning will determine the row and vine spacings, panel lengths, wire size, post heights and end assembly design.

Seek expert advice and the advice of as many experienced growers as possible. Always keep in mind your crop goals. If, for example, you are aiming to grow a 30 tonne/ha crop on fertile soil using minimal pruning, then make sure your trellis will carry that load. It is too late when your weak trellis, with small diameter wire and wide panels, starts to collapse. Do the trellis well and do it once. Conversely, if your aim is a low yield of 8 tonne/ha then don't waste your money on large head assemblies and on over-engineered trellis system.

**Vine variety/clones selection**

The most important part of vineyard establishment is of course planting the vines. Make sure when planting vines, by whichever method, that the roots are not cut back too severely and that air is expelled from around the roots in the ground. Irrigate the vines as soon as possible to avert drying.

Before planting, ensure that the vines are of the best available material. Remember, it costs no more to maintain a healthy, high yielding vine than it does for a poor vine with low yield potential. Planting the correct variety is also a key issue. Consult with your wine company. Don't end up with a wondrous crop of fruit that nobody wants to buy. Plant varieties in soil suited to those varieties and their accepted crop levels and quality. I have seen growers planting red varieties such as Shiraz on extremely rich river flats. The resultant crop, whilst being very large, is of low quality, low Baume and poor colour, fetching low prices. Again, advice from the purchasing wine company will be invaluable.

**Young vine maintenance**

Once the vines are in the ground a new set of problems arise. Unfortunately, due to over- or under-irrigation, pests and weed competition many vineyards in the past have been placed under severe financial strain and had their viability compromised during the first year.

Year-old vines need constant irrigation but not well-watered conditions. Forget complicated tools such as Enviroscans and neutron probes in the first year. A shovel, soil auger and knowledge of soil buls moisture testing by hand is sufficient. Weed control must be near perfect; act early, weed control just doesn't happen, it must be worked at constantly. Timing is essential and use all methods at your disposal. Luckily, good weed control methods are well documented.

With pest and disease control in young vines most troubles occur because the grower is usually 'on the back foot', fighting outbreaks of either pests or diseases, or both. Don't leave control to chance or organic means. Use programmed preventative sprays for mildew diseases and monitor vigilantly for pests, be they insects or vertebrates. When pests are seen in any significant number, act to control immediately. I have had the experience of seeing the occasional rabbit in a new vineyard but not acting promptly. The occasional rabbit turned into hundreds that did great damage before we were able to have them eradicated. In the Cowra, Canowindra regions of NSW, African black beetle can cause devastating damage to one-year-old vines. If you suspect there could be an outbreak in spring after planting, don't wait—inject an insecticide around the vines immediately. To wait is courting a potential disaster: I have seen whole blocks replanted after black beetle devastation. Mature vines can handle a little pest or disease pressure with no effect, however a young vines' growth will be checked by any pest or disease pressure.

As with any juvenile, a young vine's nutrition is a key factor in its growth rate. Young vines that suffer from major or minor element deficiencies will not grow to their full potential in the first or second years. This growth period is critical, as it is when the vines' future structure and root system are established. Young vines' nutrition needs must be monitored visually and by petiole testing all growing season, and quick action must be taken to adjust nutrition levels where needed.

If the vines have been planted early in the first spring and the season's growth is unchecked and vigorous, then training up to and along the wire in the first season is worthwhile. If, however, the vine will only make the wire and not produce a crop, it is better to leave the vine untrained in the first year. Many inexperienced growers have higher expectations for their one-year-old vines than the vines can achieve. This can result in much labour expense being used up in the first year to train the vines only just up to the wire. Then, in the winter, because the simple vertical shoot of the vine is so thin and sometimes of immature wood, it has to be cut back to two buds near the ground. Thus all the wages spent on first year training are unproductive and have to be re-spent the following year. This 'training stress' on the young vine, which involves shoot and leaf removal, can have a deleterious effect on the vine's root system establishment. In short, don't stress the vine in its first year or its potential as a productive unit will be diminished.

In conclusion, if a set of goals is established and constantly recalled, with all the essential resources in place and a positive action plan activated, then there is every chance of avoiding all vineyard establishment problems.