



Report by Peter Hayes – WineSkills Vine growing and Vineyard Management Mentor, August 2012

Introduction:

This visit was the latest in a series of 6 Grapegrowing and Vineyard Management mentoring visits over the past 30 months in which I have made a total of 66 contacts with a diverse array of geography, age and scale of vineyards and their operators.

The report records my overview of issues in UK vineyards derived from discussions and inspections of vineyard operation gained within the context of the latest mentoring visit conducted over the period 18th-24th August 2012 to 11 different vineyard operations across the SE to SW regions of England and further supported by observations from earlier visits.

The August series of visits included meetings with 6 new contacts and a repeat visit to 5 others visited at various times over the past 30 months

Given the nature of the contact and intention of this programme, a mentor's role cannot and should not substitute for the on-site experience of an owner-operator, support from regional peers or that delivered by experienced local advisors. Notwithstanding this cautionary comment, this brief overview report will hopefully be of relevance to the developing industry. A separate report has been provided to each of the individual businesses involved in the visits programme.

In reading this report which attempts to summarise experiences over the 6 sets of visits, one should also be aware of the 5 previous overview reports which provide more specific detail around a number of important issues addressed in brief below.

Seasonal Conditions and Impact:

This season 2012 highlights most plainly that the UK's grape and wine production is undertaken at the limits of commercially feasible viticulture.

Despite a reasonably warm, dry early spring, conditions reverted to very cold and extremely wet for much of the later spring and summer with very serious issues and outcomes related to;

- Flowering and fruit set including likely impact on actual flower differentiation and function
- Stages of development with vine phenology delayed from 2-4 weeks depending on location and specific conditions experienced at each site
- Challenges under incessant rainfall conditions of vine vigour management and disease pressure with difficulties in achieving vineyard access and ensuring effective, repeated spray coverage
- Inferred impacts on the fruitfulness potential likely to be established for season 2013
- The risk of very delayed maturity and compositional issues where some crop had been attained

As a consequence, only 3 of the developed vineyards had crop loads that might be considered satisfactory under the conditions with 7 others carrying non-commercial crops (i.e. so small as to be barely worth harvesting and with likely very low juice yield from poorly set berries). One vineyard was still in the development stage with no crop planned or expected.

I had previously drawn attention to growers'

- Limited ability to minimise annual risk to productivity and quality

- Poor awareness of the impacts of supply inconsistency on marketing plans and reality of marketing operations.

This remains a serious concern especially where one poor season may be followed by another of very poor yield; this situation can result simply from poor conditions (low temperatures, cloudy conditions, high vine vigour and shoot shading through June-July) in the first year inducing poor fruitfulness for the subsequent year and with limited realistic prospects of increasing that potential even if the second season is good.

Much greater attention must be applied to these issues and all reasonable effort applied to managing inter-seasonal variability and adverse carry-over effects. Failure to effectively address this core issue will see industry failing to reach its potential and on an individual basis, very serious impacts on business viability.

Major Issues:

Key elements to be addressed in order to reduce inter-seasonal variability and to improve vineyard reliability, productivity and viability involve managing the vineyard towards a better adapted and more “tightly” managed operation with greater tolerance or resilience in the face of quite variable and often severe environmental stress. These elements include improved;

- ***Understanding of underlying grapevine biology and its developmental phases***, especially,
 - Floral initiation and differentiation as these are fundamental to potential productivity.
 - Poor climatic conditions (cold, overcast days) during floral initiation (nominally June-July) along with high nitrogen supply/excessive vigour and poor carbohydrate status will limit fruitfulness and yield potential.
 - Subsequent cold conditions or poor carbohydrate supply will inhibit the complete differentiation of flower initials and may result in poorly receptive flowers
 - Poor conditions at flowering and inadequate mineral nutrient supply or poor carbohydrate supply (possibly associated with “nutrient robbing” excessive shoot vigour will also limit fruit-set
 - Capacity of management to influence productivity, maturation rates and grape composition in relation to the;
 - Combined impact of growth history and cultural practices
 - Projected or laboratory microscopy assessed potential fruitfulness
 - At pruning, selection of the more fruitful canes
 - Interactions with site and seasonal influences and the beneficial influence of well designed, placed and managed) wind-protection/windbreaks; porous filters rather than solid barriers established to also minimise frost risk.
 - Canopy manipulation, especially;
 - Shoot positioning for shoot function and improved floral initiation
 - Encouragement of uniform bud-burst and shoot uniformity through selected viticultural interventions
 - Shoot thinning, especially in vine crown and cane ends to minimise overlap
 - Timely and judicious tipping as opposed to topping
 - Minimising lateral development and excessive canopy density
 - Attaining better ‘in-canopy’ ventilation, reduced disease pressure and better spray coverage
 - Retention of season-long leaf function, this requiring;
 - Effective pest & disease control including mite management

- Planned nutrient supply, anticipating problems and treating pre-symptomatically rather than after-the-event
- **Site and Soil Amelioration Activities** to achieve more timely and greater influence on,
 - Wind and wind-chill control; some serious efforts have been applied at a number of mentored sites but it remains very evident that adequate flower development, flower function and fruit-set can only be attained in more stressful years where good protection from winds has been achieved
 - Site drainage in heavier soils; restricted root development, delayed seasonal vine development and nutritional imbalances remain evident issues for some sites
 - Where soil pH and nutrient deficiencies or imbalances occur, to apply effective rates of amendments, appropriately placed in regard to the plantings and where needed appropriately incorporated; all too often, undue reliance appears to be placed on foliar treatments to correct underlying soil-root interaction problems when such treatments are best used for some in-season corrections or “tuning” rather than as the prime means to correct a problem
 - Those areas requiring liming or added phosphate should see the liming agent or P fertiliser incorporated into the rootzone prior to planting and as close to the rootzone if applying post-planting; these products are poorly soluble/poorly mobile and are slow to be mobilised into the rootzone.
 - Those areas of high pH commonly have high calcium (Ca) concentrations and magnesium (Mg) deficiencies in part due to the high Ca but also related to rootstock function and efficiency of uptake of the cations Ca^{++} , Mg^{++} and potassium (K^+); banding balanced rates of Mg and where needed K along the vine row will offer some scope for improved uptake of the Mg^{++} and K^+ relative to the high concentration of Ca^{++} ; foliar treatments may still be warranted to achieve full corrective results.
 - Boron (B) deficiencies are commonly evident (from foliar symptoms and petiole nutrient analyses) and are frequently treated via soluble foliar B products. This may correct immediate issues and assists pollen tube growth/flower fertilisation and fruit-set but will not assist in root development. Soil applied B (strictly according to label directions) will assist root development and is best applied close to the vine in order to enable uptake by a limited rootzone.

- **Pest & Disease Management.**

Given the considerable challenges of pest and disease management under the UK’s cool/cold and wet climate, and with a limited range of phytosanitary products substantial effort is warranted in development of a suitable “porous” canopy to ensure good canopy and fruit-zone ventilation, reduce disease pressure, afford fruit some protection from extreme exposure to wind and rain and to facilitate application and effective coverage and retention of spray treatments.

Trellis design and vine training are fundamental to this and along with balanced nutrition adequate water supply and judicious canopy management will provide probably more than 50% of the measures required to minimise disease and pest impact. In any case, these measures will also facilitate the more efficient and effective application of spray treatments.

Nevertheless, the selection, maintenance, calibration and specific operation of many spray units warrants considerably more attention than has been evident in my visits. Several important comments can be made;

- There appears to be confusion between the defined label and targetted product treatment rates (active ingredient /treated hectare or area of vine canopy) and the capacity of “concentration” or low volume sprayers (e.g. air-shear type sprayers, delivering perhaps 100-150l/ha)) to deliver adequate product doses in perhaps 1/10th or 1/8th of the volume of water that might be applied via a commonly used “dilute” sprayer (delivering perhaps 800-1500l/ha). Water is simply the carrier and the uniform distribution of protectant sprays in the correct dose per area of target should be the aim of all sprayers
- Many operators have little knowledge of how air-flow and direction interact with the vine canopy and too many spray rigs appear to flatten or “shingle leaves so that air-flow by-passes many leaves and fruit without actually allowing the spray mist to dwell within the canopy and cover all surfaces;
 - Air speed is often excessive and the air-mass finds the line of least resistance through or around the canopy
 - Air volumes are often excessive with the spray cloud ejected up, down and through the canopy rather than being trapped within; this is inefficient and allows much off-target application
 - Airflow is directed directly at the canopy often ensuring excessive wetting of the immediate contact are but little other coverage
- It is recommended that much greater attention be paid to calibration and adjustment of treatment volume; airflow rates and air flow or spray direction according to trellis and vine configuration and seasonal growth stages. These of necessity must be adjusted and checked on a regular basis on-site in order to optimise settings so carrying suitable tools and spray-on thread penetrant, keeping adjustment points lubricated, and being willing to stop-check and adjust is critical!
 - Where possible evaluate the impact of adjusting airflow speed via gearbox settings or fan pitch where these are adjustable as often a lower airspeed will give better coverage; more uniformity and less overspray.
 - If airspeed cannot be adjusted consider the use of an air-choke to restrict airflow to the fan.
 - Direct air-guides or spray heads to allow a bigger cross-section of air or spray rather than narrow jets engaging the canopy
 - Direct air flow and jets 20-45° to the rear to enable more turbulence and penetration of the spray into the canopy this will definitely require ‘trial-and-error’
 - Ensure that enough spray and air where used is delivering into the lower and upper parts of the canopy and also contacting the extremes of canopy; too may long drooping or tall erect shoots have no protective cover
 - Use of water-sensitive papers to monitor distribution and appropriate coverage especially on undersides of leaves, reverse side of grape bunches, extremes of canopies---inside and outside etc. is highly recommended recognising that more elaborate monitoring is also possible (fluorescent dyes and UV lamps etc.).
 - See below for detail with this product available from a number of suppliers and via web order
http://www.qinstruments.com/uploads/media/wsp_use-it-in-agriculture.pdf or
<http://www.teejet.com/english/home/tech-support/nozzle-technical-information/calibration--adjustment-accessories.aspx>

Conclusion:

The opportunity to engage in this mentoring role has been much appreciated and I trust that participants have focussed and accelerated their development through the mentoring programme.

It seems to me that ongoing training and professional development opportunities presented by WineSkills have had a significant impact on industry development; this was well demonstrated in the course of a number of repeat visits. Nevertheless there remains considerable work to finesse operations and to better plan and undertake the dynamic management that shall be required to stabilise production and attain the full quality potential on offer.

I look forward to ongoing opportunity to assist in development of your industry and in the meantime urge review of previous reports which address many of the elements which contribute to improved vineyard performance.

Prior Reports are available:

[Winter 2012](#)

[Summer 2011](#)

[Spring 2011](#)

[Autumn 2010](#)

[Spring 2010](#)