



**On the application of SWAN Systems to the Wine
Industry Globally**

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Contents

Company insights 1
Key advantages / advances made by SWAN Systems 2
Mapping of SWAN Systems to VitiSynth Global Audit © Criteria 3

Company insights

In addition to the company information available via the [SWAN Systems website](#) the following insights will be relevant to vineyard operators contemplating integrating their software.

SWAN Systems:

- Has a team of agricultural and software engineers providing service support to customers
- Despite the extremely user friendly layout and functionality of the software significant initial and ongoing support is provided to customers to ensure they can make the most out of its extensive capabilities
- The team includes a viticulture specialist with many years of experience in running large vineyards, including the management of sophisticated irrigation systems across a wide variety of cultivars (personal experience)
- Significant resources are being applied to ongoing product development based on customer feedback. Software development is in-house

Key advantages / advances made by SWAN Systems





In addition to the information available in the [SWAN Systems website](#) the following comments regarding the key advantages of / advances made by SWAN Systems will be relevant for vineyard operators:



- Based on VitiSynth Global Audit results (see below) vineyard operators tend to gather data relevant to irrigation and nutrition on a piece-meal basis i.e. one-time remote / proximal sensing projects and in a non-integrated way i.e. irrigation application, soil monitoring, vine monitoring, weather monitoring, water budget tracking and water resource management in separate software / spreadsheets. SWAN Systems creates the opportunity to bring all of these together
- SWAN Systems is extremely scalable and flexible. One existing customer has over 500 different management units running over the one license
- This scalability creates the opportunity for the vineyard operator (single-site or multi-site) to define block strategies however they prefer i.e. grouping by cultivar, grouping by cultivar and quality / yield target, setting block strategies by individual block
- These group / block strategies are integrated into the overall Dashboard which creates the opportunity to run scenarios i.e. if we give the white cultivars 10% more water over Veraison this year where will we stand in relation to budget?
- The capacity to define group / block strategies also provides the opportunity for senior management, the vineyard manager and irrigation manager to agree clearly defined and documented plans to achieve yield and quality goals while managing business risk. At any point during the year status in relation to these plans can be viewed. This can also be seen as meeting a fundamental aspect of people management- “defining what good performance looks like” (See Ken Blanchard’s One Minute Manager)
- What is also significant about the group / block strategy capabilities of the software is the ease at which these strategies can be fine-tuned based on experience and real data i.e. fine tuning of specific crop-coefficients- knowledge management and transparency at its best
- For those operating in a corporate environment the definition of plans and the transparency of actions and status provide high-level demonstration of due diligence and risk management





Mapping of SWAN Systems to VitiSynth Global Audit © Criteria

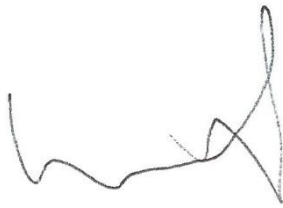
To provide a more detailed overview of how SWAN Systems can assist vineyard operators meet / exceed global best practice the capabilities of its software are mapped against VitiSynth Global Audit © Criteria below.

The VitiSynth Global Audit © is the next generation of a second party audit the author has been conducting for clients over many years. The checklist used during these audits includes over 2000 criteria related to technical, business management, environmental management and occupational health & safety aspects of vineyard, winery, warehouse and cellar door operations. The criteria are mapped against the VitiSynth Wine LoT © to provide structure and to create the opportunity for the client to use the VitiSynth database to further explore opportunities for improvement / innovation. The audit provides clients with a very detailed and constructive overview of the current status of operations including status in relation to compliance with international standards such as ISO 9001, ISO 14001, ISO 45001, HACCP, GMP, ISO 22000 and GFSI recognised standards such as IFS and FSSC 22000. Further information regarding the VitiSynth Global Audit © program can be found at www.vitisynth.com

VitiSynth Global Audit © Criteria	Coverage by SWAN Systems
ENVSOWATTHR-T-01 Soil water thresholds (Field capacity, Onset of deficit, Refill points, Onset of stress, Permanent wilting point) are known, taken into account in irrigation regimes and incorporated into soil water / irrigation monitoring systems	 Software allows for the setting of customised thresholds by group i.e. cultivar and by block
VYDWMTIRPRGREG-T-01 Irrigation regime (RDI, SDI, RFI etc.) suits block strategies (Quality, Yield etc.)	 Software allows for the integration of settings based on individual block strategies
VYDWMTIRPRGREG-T-03 Irrigation regime incorporates crop co-efficients	 Software incorporates crop co-efficients as a standard feature. Crop co-efficients can be individually set for management units and the software provides a feedback mechanism for the fine-tuning of these values over time
VYDWATIRRSUMBUD-T-01 Water budget documented and monitored i.e. Budget Vs. Actual	 Software not only provides an instantaneous overview of current status in relation to the water budget but also projections based on settings. Water budgets can also be integrated for specific management units i.e. whites versus reds, by cultivars, by quality grade etc.

VitiSynth Global Audit © Criteria	Coverage by SWAN Systems
VINWATUSEWUE-T-01 Water use and water use efficiency is calculated and tracked over time	 Software calculates Water Use Efficiency down to the management unit level
VYDCLI-T-02 Weather station data used in irrigation regime i.e. Temperature, Eto, Humidity, Wind speed	 Software provides seamless integration of a wide range of climate data. Of special note is that weather conditions are taken into account in predicting irrigation demands
VYDMONSENREM-T-03 Remote sensing data integrated into irrigation monitoring system	 Software allows for the overlay of remote sensing data / mapping i.e. NDVI
VYDWTIRRMONSOW-R-01 Risk thresholds set moisture levels for soil for different phenology stages VYDWTIRRPRGREG-T-02 Risk profile (cultivar susceptibility to heat events / drought / sunburn etc., soil water holding capacity, irrigation system capacity etc.) is calculated and taken into account in irrigation regime	 Software allows for the setting of additional thresholds including risk management thresholds based on block strategies
VYDWTIRRMONVIM-T-01 Vine measurements are used for monitoring vine water status and irrigation needs	 Software can integrate a diverse range of monitoring data to provide a greater perspective on current vine water status to aid decision making
VYDWTIRRPRGDUR-T-01 Irrigation durations suit infiltration rates and required irrigation depth	 Software has the capacity to integrate infiltration rates to guide both irrigation durations and nutrient application
VYDWTIRRMONDRA-T-01 Drainage of irrigation water is monitored in the context of salinity management and environmental impacts	 Software includes the monitoring of drainage as a standard feature
VYDNUTFERTREG-T-01 Fertilising regime is based on calculated vine demands and tissue monitoring VYDNUTFERTREG-T-02 Fertilising regime accounts for vine demands at specific phenological stages	 Software includes the planning and monitoring of fertiliser applications as a standard feature

VitiSynth Global Audit © Criteria	Coverage by SWAN Systems
<p>VYDNUTFERTREG-T-02 Fertilising regime includes the calculation of both macro and micro nutrient inputs</p>	<p style="text-align: center;"></p> <p>Software includes nutrient values for many common fertilisers and also the capacity to add your own. Soil ameliorants such as mulch / compost / manure applications are also addressed</p>
<p>MGTBUSPERMEAKPI-M-01 Key performance indicators are set for all major aspects of the business</p>	<p style="text-align: center;"></p> <p>Software provides a wide range of opportunities to develop and monitor KPIs for irrigation and nutrition management</p>
<p>MGTBUSPLASTR-M-01 Strategic plans are set and integrated into all major aspects of the business</p>	<p style="text-align: center;"></p> <p>Software provides a platform for the integration of strategic plans into irrigation management</p>
<p>MGTBUSKNO-M-01 Knowledge management (retention, traceability, accessibility, transmission) is implemented in all major aspects of the business</p>	<p style="text-align: center;"></p> <p>Software provides an integrated platform for recording events and management responses related to irrigation and nutrition management. This makes irrigation and nutrition management information available to those who need to know now and in the future i.e. a new irrigation manager</p>



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