



GMV PRECISION VITICULTURE

CASE STUDY



Maxar imagery helps optimize vineyard production

The variables that determine the quality and yield of a vineyard in a particular location at a particular time are one of the world's greatest challenges. There is elevation to consider, sun exposure, drainage, soil quality and richness. These elements are commonly referred to as the terroir, or the characteristics of geography, geology and climate and how they interact with a plant's genetics to produce a unique product specific to that growing site.

Science driving vineyard performance

Vineyard operators around the world share a common goal, to find that unique combination of yield, quality, and margin to produce the best product with the greatest profit. It's a combination of luck and science with science more often taking a leading role as precision viticulture techniques are adopted. Precision viticulture is accomplished by precisely measuring local variation in factors that influence grape yield and quality, such as soil, topography, microclimate and vine health, and applying appropriate management practices, such as trellis design, pruning, fertilizer application, irrigation and harvest timing.

Satellite imagery central to precision viticulture

More and more precision viticulture depends on technologies such as GPS, meteorologic systems, environmental sensors, GIS and satellite imagery. It is a field that Maxar information partner GMV, a worldwide technology and engineering consultancy, is embracing.

"Grape growers often manage vineyards in a homogenous manner," says Antonio Tabasco, Head of Division for GMV. "Operations start at one corner and finish at the opposing corner of the vineyard even though conditions within the vineyard are rarely the same throughout. Inevitably, the variability of vegetation and soil patterns within a vineyard impact yield and quality. Our goal is to identify and define the homogeneous sections within the vineyard so growers can have all the data at hand to both increase yield and quality while reducing production costs."

COMPANY INFORMATION

GMV, a Maxar information partner, is a worldwide technology and engineering consultancy offering solutions in aeronautics, banking and finance, oil and gas, space, defense and transportation.

WINE REGIONS



MAXAR

WorldView-2 imagery: a decision support tool for growers

To create a precision viticulture solution, GMV is using Maxar WorldView-2 8 band imagery to monitor the growing campaign and to support decision making for site-specific management variables, such as rates of fertilizing, spraying, irrigating and precise timing of harvest.

“The typical structure of a vineyard consists of a series of planting lines with a separation of about two meters, leaving areas of soil not covered by vines,” Tabasco says. “In order to retrieve information on the biophysical and biochemical characteristics of a plant, the high spatial resolution that WorldView-2 offers is mandatory to the process.”

Timing is critical

The availability and reliability of WorldView-2 imagery is critical as image collection needs to take place at precise cycles during the growing campaigns to ensure the winemaker has the data to make timely decisions that affect production. In addition, vineyards present a unique challenge because changing soil variables in short distances can dramatically impact quality and production rates.

According to Tabasco, “Vineyards constitute a technological challenge because of the influence of the soil on the image is very noticeable. The arrangement of the vines, which can vary in range over short distances, requires the use of high spatial resolution sensors like WorldView-2 to take these minute variables into account.

“Precision viticulture is all about making the right decision in the right place at the right time. WorldView-2 is helping us provide precise and timely data that allows our customers to make the best decisions with the best available information.”

ANTONIO TABASCO, HEAD OF DIVISION, REMOTE SENSING APPLICATIONS AND SERVICES
DIVISION, GMV

Challenge

To provide wine producers with the tools and information to make land use decisions that improve yield, quality and profitability.

Solution

Maxar information partner GMV deployed WorldView-2 high resolution satellite imagery with high spatial resolution sensors to detect changing phenological crop variables over short distances.

Results

Imagery at precise cycles during the growing season gave winemakers information to make best-practices decisions regarding fertilizing, spraying, and irrigating to impact harvest and profitability.

INDUSTRIES

- Agriculture
- Environmental Services
- Government

USES

- Mapping
- Precision Viticulture
- Soil Monitoring
- Agricultural Monitoring



MAXAR