

LAND/BIODIVERSITY

The activities put in place for the conservation or restoration of the ecosystem, practices of sustainable landscape and sustainable agricultural practices have played a fundamental role for the agricultural estates of Tenute Ruffino. Numerous initiatives and projects have been implemented internally on all Ruffino estates to guarantee the quality of the products and processes, consumer and employees' health, as well as protection of the environment.

One of the choices that goes in this direction is to avoid strict "recipes" in the vineyard management during the year, instead applying site-specific viticulture in relation to the season. Every terroir deserves a precise combination of agronomical practices that guarantee the best results through sustainable costs and minimal environmental impact.



An internal "good agricultural practice handbook" has been adopted, stating the agronomical techniques used throughout

the lifecycle of the vineyard, focusing on:

- respect for the environment
- reduction in the use of plant protection products
- increased soil fertility
- organic fertilization and the use of green manure
- reduction of washout and superficial erosions
- reduction of soil compaction.

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The availability of soil maps allows the correct choice of varieties/clones/rootstocks combinations so as to guarantee the best adaptation of plants to the environment. The estates adopt integrated pest management, in compliance with European guidelines and national action

plans, which allows Ruffino to make sustainable choices, guarantee reductions in plant protection products and replace products that are more aggressive towards the environment with lower impact and/or organic products.

In particular, the company has significantly reduced the use of herbicides and insecticides, preferably in both cases biological defense (sub-terrain cultivation, sexual confusion of insects, introduction of “artificial” antagonist insects, use of natural products).

Reducing chemical input in the vineyards

After reducing chemical input in the vineyards through the use of atomizers and recovering any product that does not settle on leaves and bunches (the “Bertoni” project at Poggio Casciano), Ruffino has a step further.

Tenute Ruffino is leading a three-year innovation project PSR-GO PEI, which involves another top Tuscan winery as well as research institutions such as CREAVE (Research Center for Viticulture and Oenology), the Department of Sciences and Agricultural, Food and Environmental Technologies and Forestry (DAGRI) of the University of Florence, with the general support of Confagricoltura and ERATA (Regional Authority for Technical Assistance in Agriculture). The purpose of this project is the development of a kit to modify the atomizers capable of performing treatments with Innovative Optimized Variable Dose Technology (depending on the foliage) to reduce the release of pollutants and pesticides (The project’s acronym is “Kattivo”.) In a nutshell, the idea behind this ambitious and innovative project is to develop and distribute a technological kit

that, when applied to traditional atomizers, would allow the distribution of pesticides at a variable dosage depending on the volume of the foliage to be treated, allowing reductions in wastewater and pesticides. It’s an ambitious and innovative project.

Precision Farming



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Ruffino's precision farming project started in 2011 by acquiring maps of the vigor of the vineyards comprising the Chianti Classico estates from the air. The main objective was to characterize the variability of the vineyards, their vigor, production and quality of the grapes, developing a management method specific for each site of the vineyards, in order to increase the quality and quantity of the grapes used to produce our top wine, Riserva Ducale Oro Gran Selezione.



The first results were used to draft index-based vigor maps (NDVI Index) and to define winter fertilization, basing on the

types of land and the vegetative vigor of the plants.

From 2014 onwards, the project has been also used as a means of supporting and optimizing choices made during the harvest period. One of the main features is the possibility of drafting grape quality maps and their usage as a provision for the harvest. Since 2014 we have been using a high-technology grape harvesting machine, which utilizes these maps to carry out automated selective harvesting directly in the vineyard. In this way, two quality levels of the grapes are sent separately to the cellars for differentiated winemaking, resulting in two wines: Riserva Ducale Oro Chianti Classico Gran Selezione DOCG and Riserva Ducale Chianti Classico Riserva DOCG.

In 2018, the precision farming project expanded to the estates of La Solatia in Monteriggioni and Greppone Mazzi in Montalcino, with the aim of:

- optimizing agronomical activities, such as fertilization (hence reducing product waste),
- and, through detailed vineyard knowledge, to be able to guarantee maximum efficiency and productivity,
- and, above all, to achieve the best possible quality of grapes for Chianti and Brunello di Montalcino.

Precision farming is site-specific: to achieve these high results, all the companies in the group and their technical managers must be equipped with adequate tools capable of processing and viewing data about agricultural activities for planning and decision making. The Enogis Cluster platform uses technologies based on georeferencing observations to provide tools useful to the company's technicians.

A smartphone or tablet with an Android app are sufficient for collecting data directly in the vineyards and being able to view immediately all the information about the history of the vineyard as well as all other satellite data, such as vigor maps/NDVI index, forecast models on the development of plant diseases, weather data and much more (for example, one can download pedological maps, the sampling site data of each grape sample and data on the progress of grape ripening). All the comments are georeferenced and connected to the specific place in the vineyard where they are inserted into the database.

In summary, the entire wine production management process, from grape growing to winemaking, is tracked in detail. All data collection and processing can be managed from a browser and a cellphone: relative to agronomical management, pre-harvest sampling, production estimates, a phytosanitary status of the vineyards, in addition to personalized observations, in relation to a map linked to the vineyard registry.

Biodiversity friend

Biological diversity is one of the fundamental resources for people, along with water and energy resources. Maintaining high biodiversity in the environment must therefore be an essential goal for businesses. The belief of the Ruffino Group is that an environment with high biodiversity is healthier and offers better quality products with improved organoleptic properties.

For this reason, we implemented a series of actions to obtain the “Biodiversity Friend” certification released by the World Biodiversity Association (WBA), a non-profit association composed of naturalists,

botanists, zoologists and nature lovers engaged in the conservation of biodiversity hotspots in Italy and worldwide.

WBA considers the following 10 actions as a sort of agricultural “ten commandments”:

1. cultivation model
2. soil fertility
3. water resource management
4. hedges, woods, meadows and nectariferous species
5. agricultural and structural biodiversity
6. soil quality
7. water quality
8. air quality
9. renewable energy
10. environmental responsibility.

These rules form the basis of the “Biodiversity Friend” certification. By buying a “Biodiversity Friend” certified product, the consumer has the guarantee that the product has come from agricultural systems with a high level of naturalness and from processes with a low environmental impact, as proven by scientifically verified monitoring procedures. Consequently, “Biodiversity Friend” products are the result of a production process that has sustainability as its basic principle.

In October 2018, the Ruffino Group was audited by CSQA and obtained the “Biodiversity Friend” certification. We can therefore use the Biodiversity Friend © brand for the distribution of the following products:

- Riserva Ducale Oro Chianti Classico Gran Selezione DOCG,
- Greppone Mazzi Brunello di Montalcino DOCG
- Alauda IGT Toscana

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- Fiasco Chianti Superiore DOCG
- La Solatia Pinot Grigio IGT Toscana
- Romitorio di Santedame Chianti Classico Gran Selezione DOCG
- Santedame Chianti Classico DOCG.



Organic production

The Poderi Ducali company is 100% organic and follows all the necessary organic farming practices.

In the last fiscal year, Tenute Ruffino made the decision to convert the company's agricultural surfaces to organic production. The process began with two estates (Poggio Casciano and Greppone Mazzi) on August 29, 2018, with an initial notification to the inspection body and the presentation of the organic estate's Quality Plan, which stated the measures that the estate puts in place to comply with European Union legislation on organic farming.

For Tenute Ruffino, the transition to organic is the result of increased awareness and attention to the environment and people.

We started years ago by adopting an internal sustainability protocol aimed at the reduction of the use of herbicides, followed by their gradual elimination and replacement with different methods; and the choice and use of pesticides with a lower environmental impact, always preferring organic treatment to chemical. At Poggio Casciano, insecticides have already been eliminated, using biological control against the main insects that attack the vines.

The transition from integrated to organic viticulture represents the natural evolution

of a journey started years ago and a greater awareness of its environmental benefits. In populated areas, the choice to go organic is a clear mark of respect from a company towards the environment, the local area and the population. The human factor takes a central role.

Switching to organic viticulture means not only sustainability but also environmental biodiversity: not monoculture, but vines, forests, hedges, arable crops, essences and living organisms; altogether they guarantee the diversification and creation of a balanced environment, as well as soil fertility and awareness of the importance to preserve and promote its vitality. From a practical point of view, organic viticulture differs from integrated agriculture due to the following practices:

- no herbicides, replaced by mechanical operations in the vine rows
- organic fertilization and giving up "chemical" fertilization
- defense against major plant diseases only with copper and sulfur, assisted with natural products for plant protection
- adoption of alternative means to fight against insects, including the "sexual confusion" technique.

All this inevitably leads to a technical and cultural change in business management. Timing becomes fundamental: all practices, in particular the phytosanitary defense, must be done at the right time. This means having professionals work according to a more flexible structure, which differs from the traditional agricultural plans: it may sometimes be necessary to work on

weekends, if weather conditions require it.

The machinery must be redesigned, in its size and functions, to increase operational efficiency in the limited time available.

Finally, detailed knowledge of the vineyards, vigor and microclimate differences, attention to detail and the continuous monitoring of the situation in the field are all fundamental to obtain results and the necessary “protection” of the vineyard from diseases and pests.