

Azienda Agricola Lorenzo Costantini

Integrated insect and disease control is followed. Prevalence of sulphur and copper base products are utilised. The minimum number possible of disease and insect control treatments is carried out. No use of insecticides, if needed only biological products made with "*Bacillus Thuringiensis*" (a bacterium that attacks certain types of insects) are used.

In the area where the vineyards stand there are no botrytis (mould) infections of the clusters. Only organic fertilizers are used.

I. Appendix

We would like to very briefly introduce some agricultural practices that are utilized by the producers of our portfolio and that can be defined as low environmental impact/sustainable/natural practices. We would also like to add that up to 2012 in Italy only the agricultural aspect could be certified as organic or biodynamic. According to a regulation of the EU enforced on the 1st of August 2012, wines can now be certified as "organic" starting from the 2012 harvest and "vino biologico" ("organic wine") can be written on the label.

I.1. Integrated insect and disease control ("*Lotta integrata*" in Italian)

Integrated insect and disease control is a control practice where the use of substances such as insecticides or fungicides is drastically reduced. It is based on three stages: prevention, observation and intervention. Besides spraying the vines, other means of control are also utilised which can be agronomical (maintaining healthy vines and vines that are "balanced" so that the incidence of diseases is much lower, managing the canopy so to prevent humidity building up and so on) or for example the coupling of insects is prevented ("male confusion" where strips emanating insect sex attractants - pheromones – mask the female insect's own attractant so that the sexes fail to get together), or insect predators are introduced or bacteria that kill certain types of insects (as products made with *Bacillus Thuringiensis*) are used etc.

In practice control treatments are carried out only when strictly necessary and this is established by monitoring of various kind such as agro-metereological stations (according to weather conditions alarms for diseases are given), pheromone traps (when the captured insects reach a certain number, control measures are necessary) etc. One of principles of this method is, as far as insect pest control is concerned, to control only the harmful insects (without necessarily eradicating them) and to protect the "useful" ones.

In the EU, and consequently in Italy, there are various regulations that foresee integrated insect and disease control and subsidies are given to those growers that apply such practices. Controls are very strict and are carried out by professionals hired by the various Italian regional entities.

II.2. Use of cover crops (*inerbimento* in Italian) in viticulture

Cover crops are planted on the aisles between the rows of vines or the spontaneous crops (grass cover) are left. This can be done on all the aisles, or on every second one or only in certain plots. This naturally depends on the soil conditions and also on the type of grape varietal (more or less vigorous).

Why is this practice carried out? First of all there is competition for nutrients and water between the cover crops and the vines, therefore the production of the vines is lower (i.e. higher quality of the clusters). In fact this practice cannot be carried out when the vines are young nor, for example, when the area is very hot in the summer to prevent hydric stress of the vines. Due to this agronomical practice, the roots of the vines are compelled to go deeper in order to find water (in this way the vines are less subject to hydric stress). The roots of the cover crop "explore" the soil,

permitting better aeration, drainage and life of micro-organisms. Nutrient complexes are formed which are more easily absorbed by the root system of the vines. This is a very efficient mean to control erosion (water drains into the soil without flowing on the surface). The cover crop is usually mowed (a few times) and the plant substance forms compost which is left on the ground (the turf is left in place) or the crop can be mowed (a few times) and the soil can be tilled so to work the plant substance (compost – green manure) into the soil. Other advantages of this practice is that no herbicides are utilised and it is possible to enter the vineyard with machinery during wet weather (while it would be impossible on tilled ground).