



Spergola vines, under conversion, with cover crop sown in October



Non-BD field near Spergola vines



Tractor wheel path – BD but compacted



BD structured soil in Spergola vines, cover crop



Scandiano, Italy, neighbour's conventional soil



Cabernet, ripped, 500



BD conversion underway - midrow, grass cover



Cabernet, ripped, 500



Barley, first 500 spray

Practical Results of the Use of Biodynamic Preparations in a Vineyard on the Hills of Scandiano, Italy – Francesco Saverio Petrilli

This article comes from Saverio Petrilli, a farmer using the Australian Biodynamic Method in Italy, who also acts as an advisor. The article was first sent to Alex Podolinsky for correction, and will be presented by Saverio at the IFOAM¹ international conference in northern Italy this year (Alex will be a keynote speaker). Alex felt that correction would diminish the vitality and style-originality of Saverio's very good English. He commented "this article shows the quality of the advisors we have in Europe".

This paper aims to show how the use of good quality Biodynamic preparations, stirred and distributed in a proper way can improve dramatically soil structure in only four years. Organic matter increases, fixing great quantities of carbon dioxide in the humus, minerals are not washed out but are readily available for the plant needs, humus stores water limiting the negative impact of drought on vine health and yield. As a consequence, vine health increases – in the first stage the quantities of copper used are reduced annually down to less than 3 kg per hectare per year. In the second stage copper is dismissed in favour of milk. Also the quantities of sulphur are reduced. But the most important aspect is that the quality of the wine increases both hedonistically and from a healthy point of view.

Description

Tenuta di Aljano is a 20 hectare property on the beautiful hills of Scandiano (Reggio Emilia province, Emilia Romagna administrative region). It has been used as a hunting lodge for decades, the farming land neglected; only the vineyards were still cultivated conventionally and mechanically, delivering fruit to the local cooperative. In 2000 the owner, Marco Ferioli, assisted by his father and mother, decided to put back in operation Aljano as a farm, with the ambition to produce high quality products.

The project started with the planting of a new vineyard of 5Ha with red varietals such as Cabernet and merlot as stated by the DOC (Denominazione di Origine Conrollata) rules. Together with the construction of a new winery. In 2003 the writer was called in as consultant ecologist.

Climate and Soils

The regional climate is arid, rain is concentrated in autumn and winter, spring is usually cool and humid and summer

hot and dry. The average temperature is higher than the neighbouring province, and drier than the flat land at the bottom.

Geology

The typically hilly territory presents subsoil formed by sedimentary rocks belonging to the Epiligure Ranzano-Bismantova formation, consisting of Ranzano sandstone. Antognola marls and clays of various colours. These clays, formed in the cretaceous period, feature striations whose colours stem from the presence of iron, sandstone, sulphur and gypsum. Their presence is due to the subsequent fragmentation of the Appenine range formation, the debris of which moved down valley. Topsoils are calcerous from silty-clayey to clay silty.



Vineyards

Vineyards have been planted in two different moments: the old vineyards, 7 ha, made for delivering grapes to the coop, were planted with the local varietal "Spergola" 25-30 years ago. The trellising system is a GDC (Geneva Double Curtain) with 2000 plants per hectare, to be highly mechanised. Soils were compacted by the heavy machinery used for picking and pruning, vine vigour was very low and the pressure of disease high, especially

¹: International Federation of Organic Agriculture Movements. Alex has been a member of this organization since the 1970s.

downy mildew since the humidity of spring is optimal to its development.

New vineyards, 8 ha, are planted with 4500 vines per hectare; varieties include Cabernet Sauvignon, Merlot and the local varieties Sgavetta, Malbo and Spergola. The trellising system is a classic vertical shoot pruning, the first four years a long pruning to rejuvenate the cane every year and control the excess vigour, Guyot was the pruning adopted. After the fifth year this changed to spur pruning to have more reserves increasing the quantity of old wood.

Reasons for Conversion

In 2003 the vines' condition was dreadful; both old and new vineyards lacked completely any vigour or strength. As a consequence common diseases like mildew were proliferous and virulent. Young vines were not in condition of producing any wood or fruit. For the old vines the yield was declining as well as wood weight.

Since the beginning of the new course it was decided to become organic, the reasons for that was the belief that only organic can provide the condition for healthy vines and hence quality wines, but, to have a practical comparison of its benefits, the first year only young vines were converted to organic. Every second row was ripped at 35-40cm of depth; broad beans were sown and grown over winter. In May the cover crop was slashed, used as green manure. Only copper sulphate and sulphur were used to control mildews, the total quantity of copper at the end of vintage was just over 6kg per hectare.

Old vineyards instead were sprayed following the indications of the consultant of a chemical multinational, with systemic sprays once every ten days. In June there was an outbreak of downy mildew in all the old vineyards, while the young vines with only Bordeaux mixture² looked healthy and vigorous. This fact led to the confidence of every worker on the new course, some of them confessed their dislike of chemicals and that they had never used anything else than copper sulphate on their own vines and vegetables! It also led to the immediate expulsion of the multinational consultant and the last treatments to the old vines were made with copper sulphate at a slightly increased dose which proved effective in eradicating the disease.

In spring next year, the use of Biodynamic preparations was suggested. Farmers of Aljano seemed convinced of the damage of chemicals and well equipped of the necessary knowledge and vision to farm independently from the hegemonic culture of two very bad rules:

- the belief that what is taken out of the field has to be supplied back.
- feeding vines from roots instead of leaving them to feed out in the sky from Sun and carbon dioxide.

In April 2004, prepared 500³ bought from Carlo Noro and made following Alex Podolinsky's specifications, was stirred for one hour in a mechanical stirrer made by Montanari in Arceto and distributed with a backpack sprayer unit.

Already in July the colour of the soil had changed dramatically. From the grey dead colour still visible on the roads around the vineyard to the chocolaty deep brown colour visible in the rows. Many worms were found and the soil started to acquire its own alive structure, containing air pockets and enough humus to store water.

Since then prepared 500 has been sprayed twice a year, in autumn and spring with careful attention even to the quality of the water used to dilute it. No more sowing of cover crop has been made, preferring the establishment of a natural, varied presence of herbs. No fertilizer has been added in any form apart from prepared 500 twice a year. Wood weight has increased five fold; yield is slowly increasing as well.

A synthetic draft of the plan of cultivation would be like this:

Deep ripping, down to 50-60cm, to deliver oxygen and the warmth of the Sun into the compacted layer of soil only at the beginning, for young vines or when compaction may occur. After the ripping a cover crop is sown, as many species as possible, leguminous, gramineae and crucifers. In May the cover crop is slashed and worked into the soil if vine vigour is low, otherwise simply transformed in a grass cover, slashed several times a year, where natural herbs will slowly dominate.

When vine vigour is satisfying, a natural grass cover is established, that should be as tender and varied as possible. When a single species starts to dominate, it is a good time for a superficial work of the soil in autumn, with or without seeding. By spring the cover crop will already be grown with varied species. Slashing should be done quite frequently, definitely before flowering (following the season) feeding soil micro-organisms with tender grass easy to be broken down into humus, and developing the dynamic process of growth and death of roots with the intervention of micro-organisms to build up the best humus.

Undervine management is done with a disc plower or with an undervine slasher.

All spray passages of the tractor are done every second row, using the same row, for the whole year. In this way all compaction is restricted to 40-50cm of the wheel width. The rest of the soil is kept friable and alive. During winter there is no use of the tractor, and by spring for the natural capacity of regeneration of soil

3: The Biodynamic soil activator preparation 500, with the six BD compost preparations incorporated, as developed by Alex Podolinsky

2: A mixture of solutions of copper sulphate and lime

the sinking caused by the tractor passages disappears. When this happens it means that the soil is alive and vital.

Old vineyards trained mechanically and used to systemic sprays are protected with decreasing quantities of copper sulphate and sulphur until soil structure shows the quality of the picture. At the beginning commercial Bordeaux mixture has been used at 3-3.5kg/ha, decreasing to the actual 2kg/ha. When soil is well structured, copper is substituted with skimmed raw milk at a rate of 7-15 litres per hectare (mixed with water, the ratio determined by how much milk we have, the volume of the canopy, and disease pressure). No sulphur is added. If the season requires it, natural powdered sulphur is dust sprayed. Usually one treatment when buds open and one more in June if weather is humid. In a normal vintage grapes are picked with 50kg of dust sulphur per hectare and nothing more! But to reach such health, soil structure must be of the quality shown in the picture.

Leaves of vines grown on a structured soil rich in humus, not stressed by heavy chemical sprays, will be very active in photosynthesis, the main way of feeding for a plant. Through this way, polyphenols and aromas are made. They are very important for our health and pleasure. Tannins and aromas protect and stimulate our health and are responsible for delivering emotions.

Wine in our culture has a very special place, and is responsible for relaxing our formality allowing the exchange of emotions between people sometimes of very different culture. Plants fed on minerals, artificially or naturally (non-composted organic matter spread on weak, compacted soils) will not be very efficient in photosynthesis, hence production of aromas and polyphenols will be poor.

Many producers resort then to the use of new oak barrels to supply with expensive tannins and aromas that have not been produced naturally by the vine. But human beings are not designed to eat wood and wood tannins and aromas are very heavy and difficult to digest.

Natural tannins and aromas from the vine are capable of stimulating our nervous senses, increasing our creativity and bettering our social behaviour developing our empathic skills. They can feed us even when very scarce food is available. They can help us to look at life in an easy way, with irony and not oppressed by the rhythm of life.



A Robinvale Wines "drop"

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Attendance at an introductory field day is a prerequisite for membership of the Biodynamic Gardeners Association, which allows access to BD preparations, library, 2 copies of *BD Growing* magazine per year, sowing chart and more.

The Biodynamic Gardeners Association teaches Australian "Demeter-standard" BD as developed by Alex Podolinsky

