Botrytis cinerea: quantify the damage and choose the proper strategy

To ensure the quality of wine, it is necessary to always have the right solutions and tools available in the cellar to prevent and solve all adversities that might occur due to adverse weather conditions.

The summer seems to have a fluctuating course, for most of the Italian regions: the violent and in some cases too frequent rains have favoured the onset of many plant diseases both for the vegetation and the bunch. Among the most feared threats is the ***Botrytis cinerea***, commonly called grey mould. Although the suggestion to limit the damage related to the rottenness of the bunch is always to work well starting from the vineyard, a season like the one under way also tests the best agronomic and defence techniques of the vineyard. **The selection in the vineyard** before or at the time of the harvest is always a good prevention weapon, even if the visual estimate made by the operators does not always allow identifying all the grapes affected. This type of selection became impossible after the advent of mechanical grape harvesters, which in addition to represent an alternative to the lack of labour, contribute to the production of more competitively priced wine.

The oenological damage

The worst damage caused by the infection of *Botrytis cinerea* in grapes is linked to the production of a particularly stable and very soluble oxidasic enzyme, the **laccase**, increasing the risk of oxidation and browning in musts and wines. However, the grey mould does not exhaust its “bad jokes” here: the oxidative damage is compounded by the production of **polysaccharides** (ß-glucans) making it difficult to clarify and filter wines and molecules that inhibit alcoholic fermentation like botryticines. The presence of *Botrytis* on bunches also favours the establishment of other socalled opportunistic **fungi**, like some species of the genus *Penicillum*, responsible for the production of a compound, geosmin, giving unpleasant odours of soil and fungus in wines. The grapes affected by *Botritys* finally often have deficiencies of nitrogenous substances and vitamins and a greater presence of contaminating yeasts and bacteria.

Specific products of AEB range

ANTIBOTRYTIS ADJUVANTS	ENZYMES	TANNINS	CHITOSAN	SPECIFIC TREATMENTS
ANTIBOTRYTIS 2014	ENDOZYM Antibotrytis L 2.0	FERMOTAN Antibotrytis	CHITOCEL	PROTECT-F
ENDOZYM Antibotrytis L 2.0			CHITOCEL Must	
ANTIBOTRYTIS Varietal			CHITOCEL Red	
ANTIBOTRYTIS Max			CHITO-F	
ANTIBOTRYTIS Rouge			ANTIBRETT 2.0	

Useful practices to remember...

- In general, **it is essential to manage inertizations well**, using dry ice already in the vineyard and gall tannin already on wagon. Afterwards it is necessary to inertize the entire pipe line, from the press to the fermenter.
- **In the case of white musts**, after the clarification it is preferable to only border a clear product by bringing turbidity to the desired value with **CELLOFERM**. This is to have the cleanest possible free run juice, since, if clarification is carried out effectively, many undesirable substances remain in the lees.
- With **batches of red grapes heavily affected by fungal attacks**, it is advisable to maintain a **fermentation temperature higher than normal**, e.g. even up to 28°C; this because it will be better to carry out a short fermentation rather than a slow one.
- **In some cases with red musts**, it is advisable to remove the skins as soon as possible, even with high residual high sugar residues, and continue fermentation without skins. At the end of fermentation, it is always better clarify and filter the wine immediately, keeping it constantly, as far as possible, covered with the SO_2, taking care to avoid exposure to any dose of O_2.

BOTRYTIS: THE THREE GOLDEN RULES

1 PREVENT

Protect grapes and musts from enzymatic oxidation and the development of undesirable microorganisms.

- By using repeated doses of sulphur dioxide and other complex antioxidants (**AROMAX** and **AROMAX Gal**) from the earliest stages of the harvest, **combining the antiseptic and antioxidant activity of sulphur dioxide with the reducing efficacy of ascorbic acid and the antioxidase activity of gall tannin.**
- They support antioxidase activity through the use of the range of highly antioxidant AEB tannins such as: **GALLOVIN**, **PROTAN AC**, **PROTAN Q SC**.
- There are also specific products such as **ANTIBOTRYTIS 2014**, which can reduce the damage caused by these moulds.

2 USING BIOLOGICAL WEAPONS

Favouring the establishment of the desired microflora to limit the production of undesirable compounds and allow the consumption of gluconic acid.

- **PRIMAFLORA**, a complex microflora mix of *Saccharomyces* and non-*Saccharomyces* yeasts, **limits the development of unwanted flora**, contributing positively to the expression of wine complexity. It must be distributed to the grapes at an early stage, at harvest and crushing.
- A further aid in the prevention of microbial contamination and oxidative spoilage consists in the application choice of **CHITOCEL, CHITOCEL Must, CHITOCEL Red, CHITO-F** and **ANTIBRETT 2.0**, which **allow exhaustively to control possible populations of acetic, lactic and wild yeasts**. A new opportunity to also inhibit bacteria is **PROTECT-F**.
- Adequate nitrogen nutrition and the reintegration into the musts of the vitamin complexes consumed by grey mould promotes the establishment of the desired microflora.
- The correct inoculation of the chosen strain of ADY promotes a good start of alcoholic fermentation and **ensures protection against the development of undesirable microorganisms and oxidative phenomena, as well as preventing an increase in volatile acidity.**
- **Co-inoculation of the selected lactic acid bacteria** 24 hours after yeast inoculation facilitates malolactic fermentation to take place in a short time and allows the **reduction of the oxidative risk** in the period between the end of alcoholic fermentation and malolactic fermentation, in which the wine is not protected from the action of sulphur dioxide. In the case of co-inoculation, however, the doses of anhydride used on the grapes and in crushing must be limited. The malolactic fermentation also helps to reduce the gluconic acid content.
- Correcting the acidity in musts with **MIX Acid TLM** and **PROTECT-F** makes it possible to **reduce the high pH values favourable to microorganisms such as bacteria** and to keep the active molecular share of sulphur dioxide high.
- The use of **CHITO-F,** not only helps maintain low pH levels, but also **counteracts yeastswild yeasts and in particular *Brettanomyces* ones**.

BOTRYTIS: THE THREE GOLDEN RULES

3 CLEANLINESS FIRST

Promote the rapid clarification of musts with the use of enzyme complexes effective on pectins and glucans (ENDOZYM Antibotrytis L 2.0 and ENDOZYM Éclair).

- The polysaccharides produced by *Botrytis*, which hinder clarification and filtration operations, and the solid parts present in the pulp in contact with the skin in which the metabolites of the fungus are concentrated.
- **ENDOZYM Antibotrytis L 2.0** allows grapes to be processed in the same way as if they were not affected by *Botrytis cinerea*.