

WINE GRAPES

Increase the plant tolerance to drought

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PLACE



Test location:	Tolaini Winery, Castelnuovo Berardenga (SI)
Person in charge:	M. Malanchi, M. Biagini, M. Magnano, Y. Beni Houd
Number of thesis:	2
Type of cultivation:	Open field
Technique of distribution:	Foliar application, Fertigation
Period:	20/05/2021 - 12/07/2021
Variety:	Sangiovese, Cabernet Sauvignon
Tested products:	ILSAVEGETUS, ILSAPOLICOS, ETIXAMIN BIO-K



OBJECTIVE

To evaluate the efficacy of **ILSA** biostimulants and nutritional specialities on improving water management in drought years, such as that of 2021 in the Siena area.

RESULTS ACHIEVED

The 2021 wine year was characterised by a rather rainy early spring, followed by a prolonged drought until September, conditions that affected yields throughout Italy and especially in this area of Siena. The aim of the trial field was to reduce water stress for plants, by means of specific foliar applications and fertigation, with special formulations able to regulate transpiration and optimise the use of available water.

Evaluations of the two varieties tested, Sangiovese and Cabernet Sauvignon, were made by comparing the yields obtained on the same fields with those of the previous years, considering the millimetres of rain that fell from March to August and the amount of irrigation. In previous years, the nutritional management of the fields involved only the foliar application of boron and fluid potassium with the addition of the EDTA chelator in fertigation.

The trial field on the Sangiovese variety was carried out on a "rittochino" system, i.e. with a strong slope and on soil with a high presence of stone, which determines rapid water runoff and nutrient leaching. The yield in 2021 was +122% higher than in 2020, despite much less rainfall and similar irrigation. In 2021, the grape yield returned to the values of the years 2014-2016, which were characterised by much higher rainfall and irrigation. In particular, fertigation applications with IlsaPolicos allowed the plants to overcome water stress at the crucial time (July-August) while maintaining good turgidity of the leaf tissues. This also made it possible not to anticipate the harvest too much (as in the 2017 vintage), so that the harvested grapes had a good sugar content (on average 22 degrees Brix) and a good level of acidity, freshness and aromas.

The field trial on Cabernet Sauvignon, also on a "rittochino" system, involved only foliar applications but with the addition, of Etixamin Bio-K, a fertiliser with a high content of potassium and amino acids (in free form and oligopeptides), which therefore play an important role in promoting osmotic exchange at the cellular level and regulating transpiration. Also in this case, the increase in yield was evident, even when compared to previous years with higher rainfall. The foliar applications made it possible to harvest the grapes at the right degree of ripeness and to keep the leaves greener and more efficient from a photosynthetic point of view, an important factor in favouring the storage of reserve substances for the vegetative growth of the following year.

TEST PROTOCOL

STAGE	Sangiovese	Cabernet sauvignon
FOLIAR APPLICATIONS		
17/05/2021	IlsaVegetus: 2 kg/ha	IlsaVegetus: 2 kg/ha
27/05/2021	IlsaVegetus: 2 kg/ha	IlsaVegetus: 2 kg/ha
04/06/2021	IlsaVegetus: 2 kg/ha	IlsaVegetus: 2 kg/ha
26/07/2021	/	Etixamin Bio-K: 2 kg/ha
02/08/2021	/	Etixamin Bio-K: 2 kg/ha
FERTIGATION		
15/07/2021	IlsaPolicos: 10 kg/ha	/
22/07/2021	IlsaPolicos: 10 kg/ha	/

The other treatments, top dressing and plant protection, were similar for both thesis, as per company practice.



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RESULTS ACHIEVED

SANGIOVESE	2021	2020	2019	2018	2017	2016	2015	2014
Yield (q/ha)	60	27	20	58	26	69	70	74
Total rainfall March-August (mm)	158	268	320	544	132	443	230	384
Irrigation (mm)	90	90	50	92	130	55	114	75
Harvest time	24/09	15/09	08/10	15/09	07/09	14/09	28/09	20/09

CABERNET SAUVIGNON	2021	2020	2019	2018	2017	2016	2015	2014
Yield (q/ha)	60	27	20	58	26	33	57	32
Total rainfall March-August (mm)	158	268	320	544	132	443	230	384
Irrigation (mm)	90	90	50	92	130	204	140	90
Harvest time	05/10	02/10	08/10	02/10	18/09	06/10	11/10	15/10



Plants of the Sangiovese variety in mid-May, with leaves already showing symptoms of water shortage.

SANGIOVESE VARIETY



Detail of the plants and clusters of the Sangiovese variety. Despite the prolonged drought, the vegetative condition and the colour of the leaves were optimal, both during the inspection on 8 July 2021 (top photo), and during the inspection on 26 August 2021 (bottom photo).

