

RATIONAL MAGNESIUM APPLICATION IN VINEYARDS AND GRAPE QUALITY: EXPERIENCES IN NORTHEAST ITALY

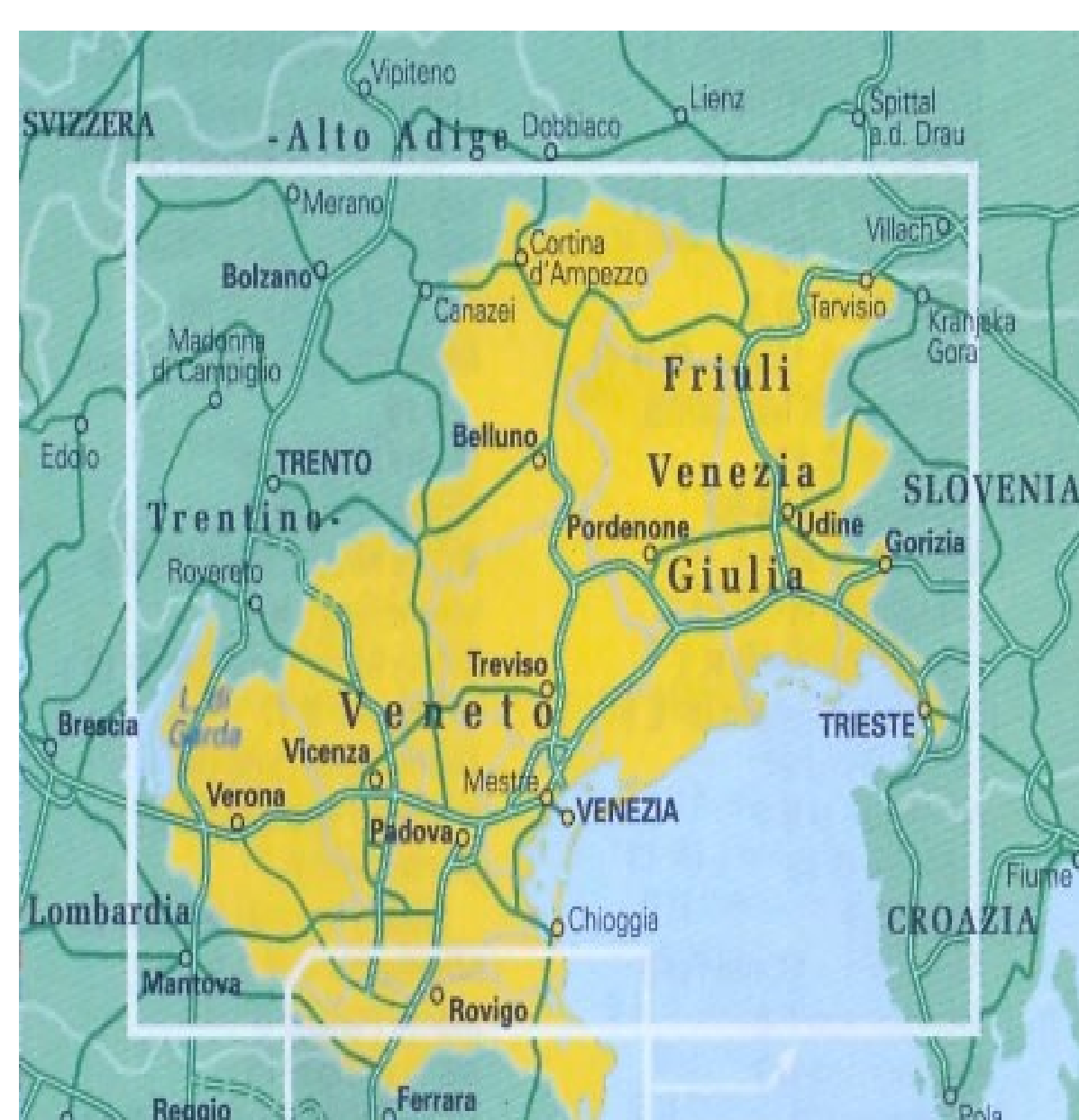
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INTRODUCTION

Imbalanced soil fertilization or excessive inputs may lead to adverse effects on yield and fruit quality (Zhang et al., 2016). Magnesium is involved in many plant physiological functions (Lošák et al., 2017). Magnesium availability depends on various factors such as soil texture, cation exchange capacity, climatic and anthropogenic factors specific to the viticultural area, agronomic practices management and cultivar (Blume et al., 2002; Mikkelsen, 2010). Soil microbial biomass is also influenced by short-term magnesium sulphate application. Soil and plant management in recent years are priority aspects for the

management of grape quality to protect the environment to produce high quality grapes with low impact agronomic and viticultural techniques (Olego et al., 2023; Shi et al., 2019; El Nasharty et al., 2016; Rumin et al., 2012; Majer, 2004).. In this context the reasoned application of micro and macro elements in the vineyard can have a fundamental role in the production of quality grapes and related wines. This study evaluated the effect of a specific fertilization regime based on magnesium sulphate heptahydrate on the quality of different white and red grape varieties cultivated in Friuli Venezia Giulia and Veneto regions (Northeast Italy).

METHODOLOGY



Fertilization trials in triplicate on homogeneous plots using a randomized block experimental design.

Cultivars: Sauvignon Blanc, Tocai Friulano, Pinot grigio, Cabernet sauvignon, Corvina.

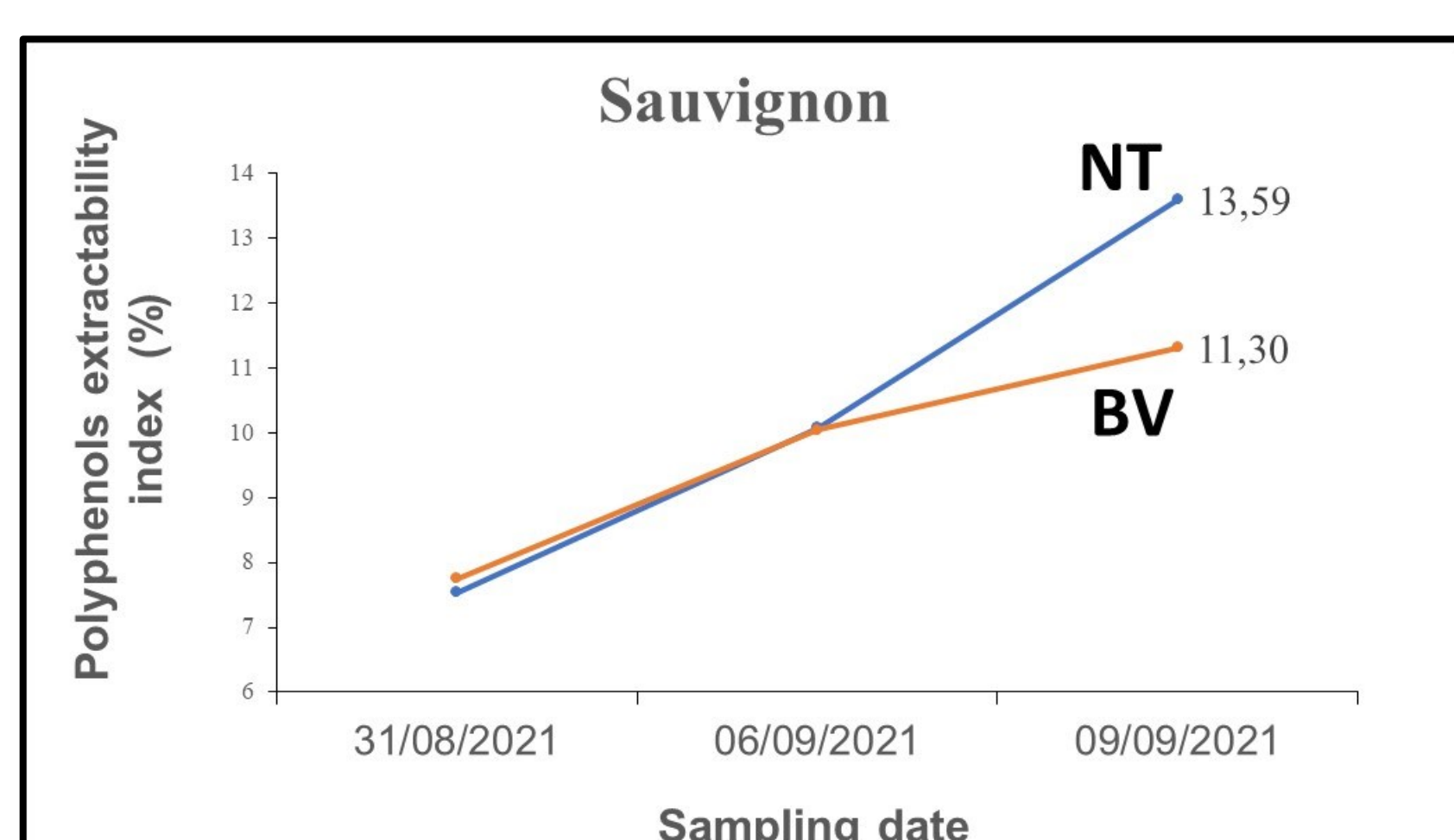
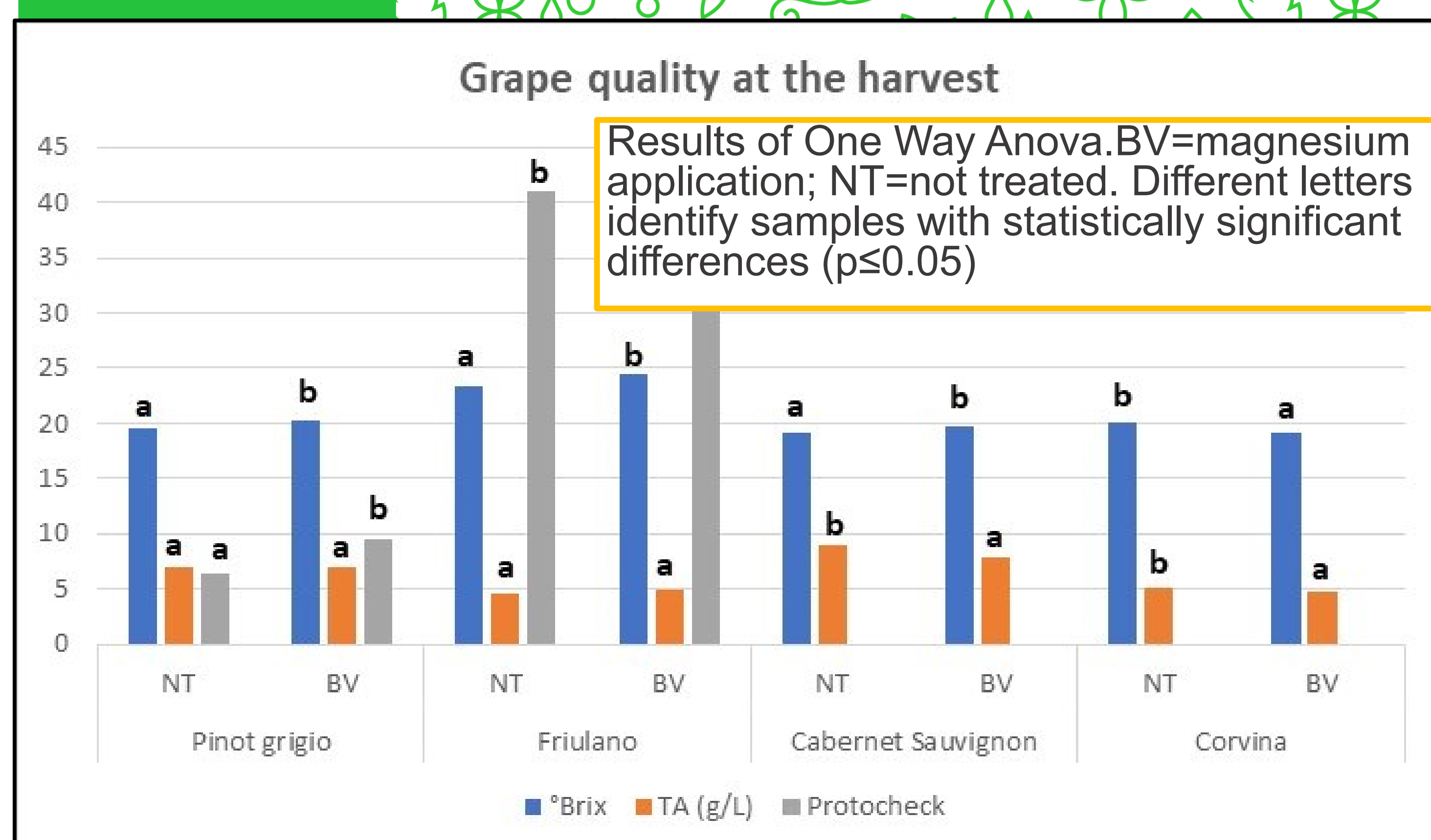
Magnesium sulphate application (BV treatment with Bluvite product by EVER BLUAGRI companies: **first** at sap flow (18 kg/ha); **second** application at pre-flowering (18 kg/ha). Control treatment without magnesium application

ANALYSIS

on vineyard during maturation
sugar content, pH, acidity, polyphenolic maturity

at the harvest
berry weight, average diameter, sugar content, pH, titratable acidity, polyphenolic maturity,
skin phenolic extractability index, skin breaking strength using a dynamometer, protein content using Protocheck Test.

RESULTS



Polyphenols extractability index during maturation.
Lower values correspond to higher extractability

CONCLUSIONS

Magnesium sulphate-based fertilization (BV) demonstrated significant effects on some grape analytical parameters, particularly on sugars and polyphenols. However, there is a different cultivar response. Further studies on a wide statistical basis will be necessary to understand and delve into the effects of magnesium supplementation, aiming to identify the best conditions based on the cultivar and specific enological objectives.

Main effects of Magnesium Sulphate application (BV treatment) on: Sugars, Titratable acidity, Polyphenols, Skin extractability index, Proteins.

On Sauvignon grape significative correlation between skin extractability and breaking strength.

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