

The behaviour of grapevine growers in the decision-making of using Plant Protection Products (PPP) from Palmela region

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Abstract. In current days, the major challenges for farmers are the impact of plant protection products (PPP) on the public health, the environment protection, residues reduction, bees and non-target organisms, as well as, the withdrawal of many active ingredients and climate changes. Given the current situation, sustainable use of PPP is a main objective and priority. The decisions making of using PPP of 235 winegrowers from Palmela region, which do not have regular technical assistance, were assessed during 2016 until 2019. The data analysed included the number of applications, the dosages used and the compliance of pre-harvest interval (PHI). For each year, it was observed that a winegrower, on average, made seven treatments, although the tendency is a decrease to reduce the number of treatments. The PPP most used belong to the groups 3 (Triazoles), M02 (Inorganic) and M04 + 4 (Phthalimides + Phenyl Amides) according FRAC Code. Regardless of the climatic conditions and the disease pressure in the vineyard, the winegrowers used PPP every 14 days. Fear and “empiric experience” sometimes overtake knowledge and technology. That could only be changed with trust between technical assistance and farmers. That could be the solution to face the mentioned challenges and to offer sustainable wines from Palmela region.

Keywords: Plant Protection Products (PPP), Sustainability, grapevine growers, Technical assistance, Palmela

1 Introduction

AVIPE is, since 2018, studying the behaviour of grapevine growers (GG) from Palmela region in the decision to spray PPP. The concerns regarding sustainability, PPP impacts in non-aimed organisms, the removal of active ingredients, residues reduction and food safety were analysed on the records of 235 farmers from 2016 until 2019.

Due to the new approach of CAP for the 2020-2027 period and concerning the Portuguese legislation, we would like to study the behaviour of farmers, develop some relationships, understand why and how they take their decisions and make some suggestions for better approaches.

We also want to predict what’s going to be farmers behaviour in a climate change scenario and for organic demands from consumers.

All 235 farmers receive technical notifications through season, by email or by post mail, with information about plagues and diseases risk level, nutrition, irrigation and how to solve the several situations. Farmers received about 8 of this notification per season.

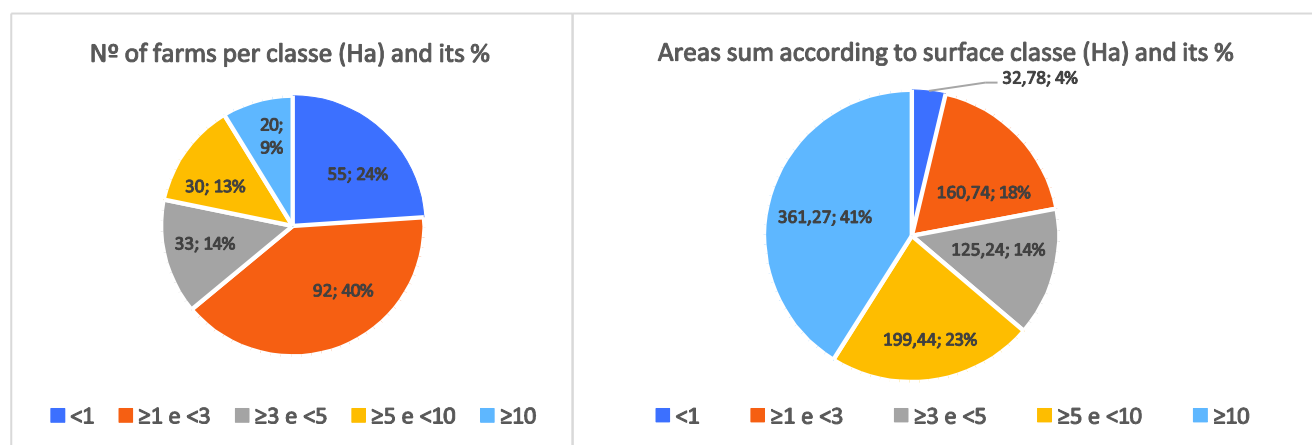
Farmers are mainly man, basic education, 68 years old, full time farmer but it’s not their only income, farm size of 4,8 Ha and doesn’t have an idea about the activity costs.

2 Material and methods

On 235 farmers, only 34 were having regular technical assistance before 2016.

The area represented on this study is 880 Ha.

The number of treatments, the time between them, its doses and the preharvest interval were studied. It was analysed main pesticides chemical groups used and if



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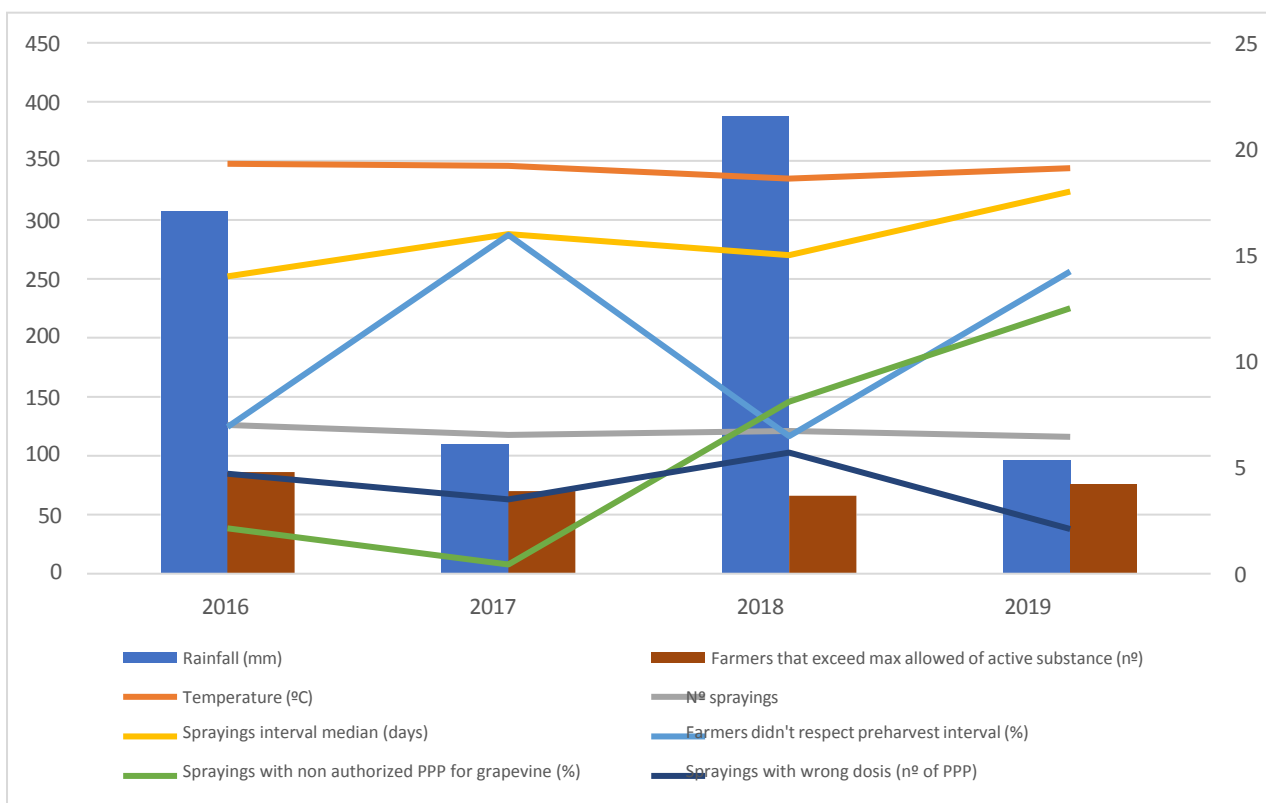
it was exceed the maximum number of allowed application according to chemical groups and action mode. It was also a goal of this study to see if were used PPP not allowed for grapevine crops.

In order to have a better justification of the results, it was conducted a survey to farmers to understand the results. The survey was based on questions about socio-economic characterization and what drives them to choose the PPP and to spray. It was gathered 124 valid answers.

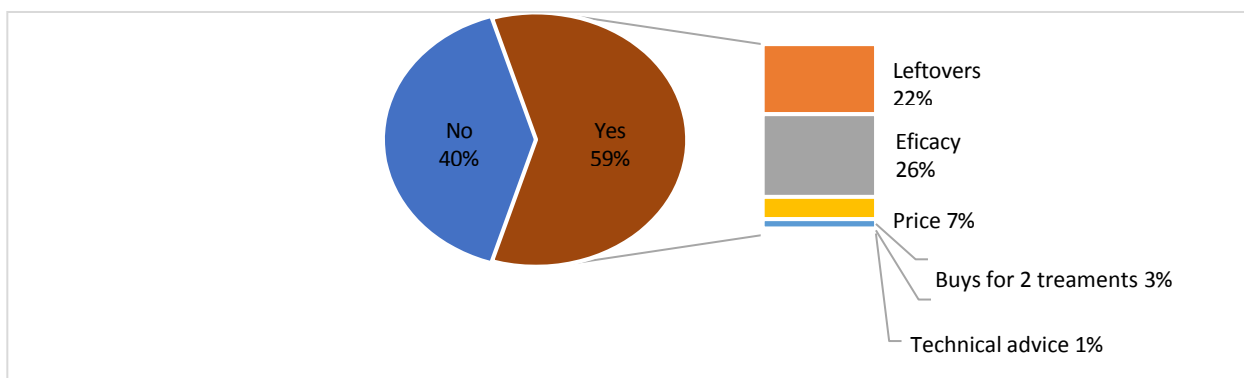
3 Results e Discussion

The results below are quite interesting and show the importance of a good information to farmers and a frequent technical assistance. Even thou some these farmers already had some support, all the other ones started to have in 2016. We can see a reduction in the

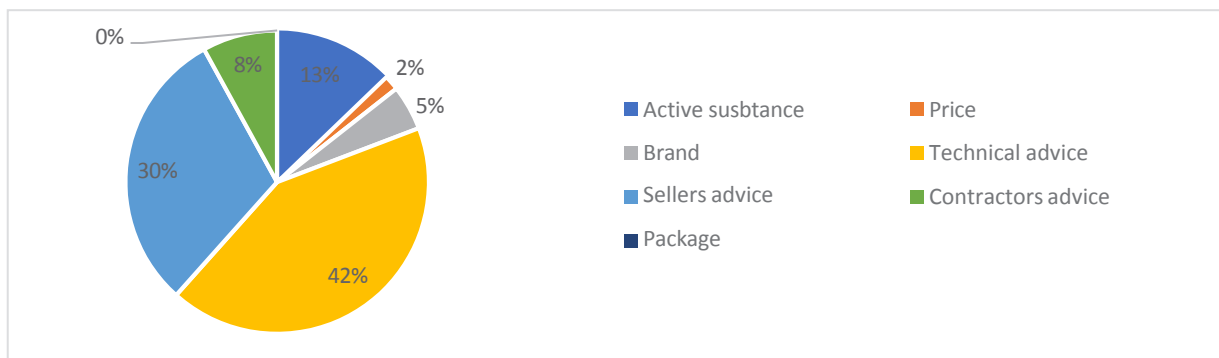
number of treatments as well the increase of days between them. That's mainly on years with low values of precipitation, which is understandable, and mistakes related with doses are also less on these years. However, it's also on these years that pre-harvest interval is less respected. The usage of products that are not allowed in grapevine is increasing because the removal of active substances according to EU directives is also increasing. Farmers are not well informed and some of them have leftovers and continue to use. With these removals, it's expected that maximum allowed sprays according to active substance could also increase. There's a tendency to reduce the number of treatments which can be explained by technical support. These results show clearly the importance of technical support. This could be a solution to reduce mistakes and promote a better farming.



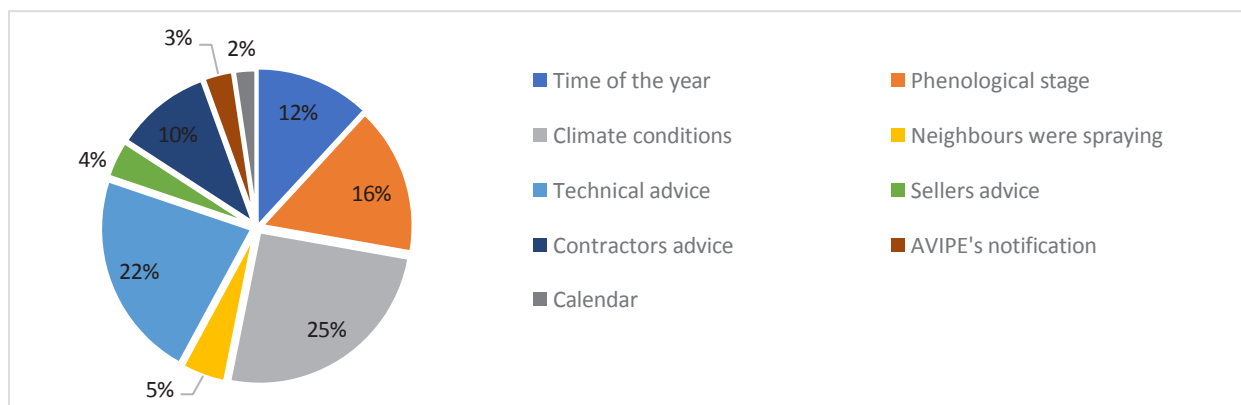
Graphic 1. Relation between mm of rainfall (P) and average temperature (°C T) between March and September and some indicators.



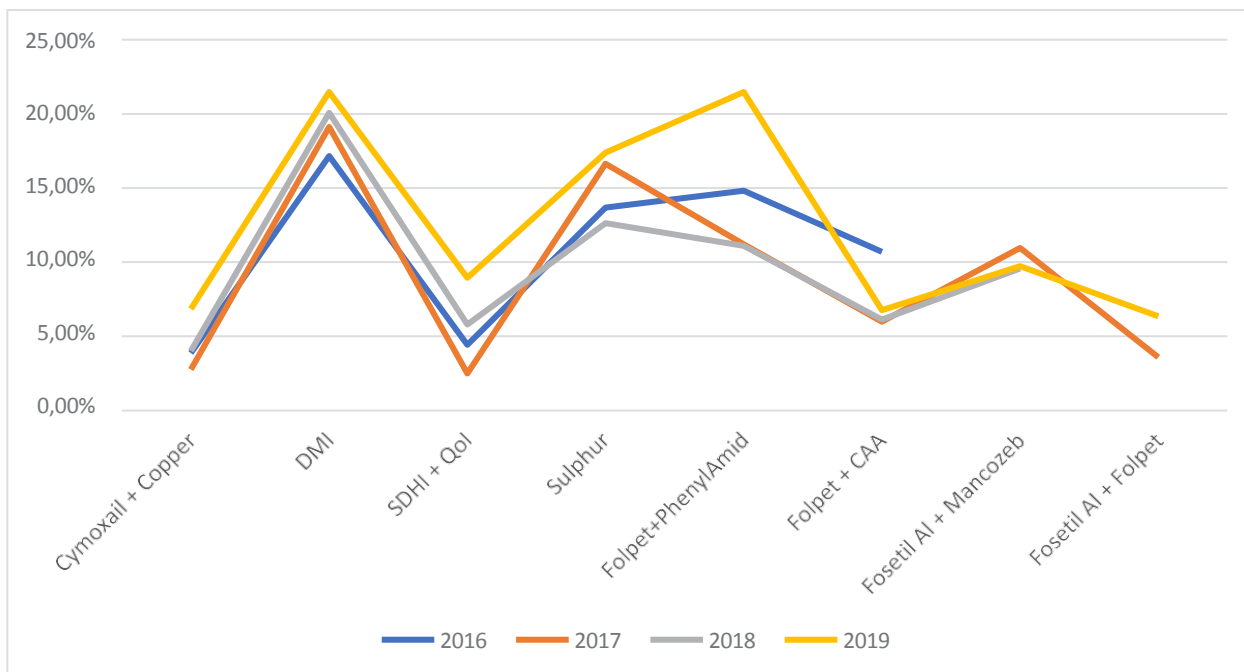
Graphic 2. Do you repeat treatments? For what reason?



Graphic 3. What makes you buy the PPP?



Graphic 4. What makes you spray the crop?



Graphic 5. Most used FRAC groups.

Considering FRAC codes, farmers use 8 fungicides groups. The main group is DMI due to its action against powdery mildew and black rot. It also have a major role on this choice, the price this product have

in shops and that all PPP companies have its on brand. Sulphur is also a chosen active substance that is usually mixed with Fosetyl AI at the beginning of the crop cycle. If we add both fosetyl AI data, we'll have

a similar percentage with Sulphur. DMI products are also mixed with Fosetil Al, PhenylAmid and CAA. There's a much greater concern with downey mildew and usually products for powdery mildew are added for prevention. Since folpet doesn't have any action against black rot, farmers use DMI products for that purpose.

The brands used for this active substance come

from mainly one company and this is explained because 60% of these farmers buy all their products in just one shop. Exclusive marketing deals with PPP companies makes impossible to have a wide choice. This could be worrisome because it's important to change active substance. As we have seen above, in a removal context of active substance, according to EU directives, farmers are not prepared for this change.