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Gaps and needs for pesticides reduction in viticulture production. Evidence from Romania in a multi actor value chain assessment

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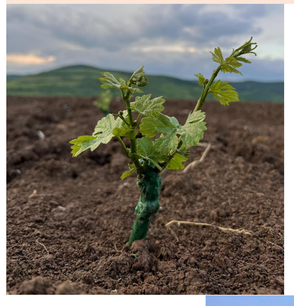
Main findings

In this paper we have identified the obstacles and levers faced by end-users of viticulture production in Romania. Our results reveal that an important barrier encountered is the lack of demonstration of the effectiveness of pesticide reduction measures and, consequently, more farm skepticism towards these levers. Higher costs with alternative practices and long time requirements are among other barriers. In the process of pesticide reduction farmers stress as principals needs the promotion of agroecological practices, a better collaboration between farmers and the research side and the stability of regulations to support the main actors.



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Introduction

Population growth and the diversification of food needs led to the intensification of agriculture. This took place through the excessive use of fertilizers and pesticides without taking into account the negative effects on the environment and humanity. In the past decades, increasing concerns have been raised about the negative impacts of pesticides on human health, the environment and biodiversity [1,2]. In 2009, the EU directive 2009/128/EC defined the first reduction goals by calling for the reduction of risks and dependency on chemical pesticides. However, despite the efforts, pesticide use in Europe has not yet decreased. Recently, the European Green Deal [3] set new goals and defined a roadmap with multiple strategies. Ambitious targets have been set related to agriculture and food, with substantial reductions in the use of antibiotics, pesticides, fertilizers and nutrient losses. In particular, the goal is to reduce by 50% until 2030 the use and risks of chemical pesticides. In the absence of adequate alternative strategies for crop protection, this target could lead to large yield losses due to pests, diseases and weed competition, which could weaken domestic food security.

Objective

Thus the main objective of this paper is to identify the obstacles and levers faced by end-users (actors throughout the value chain) of viticulture production in Romania, considering the significantly reduction in the use of pesticides. These results can lead to the establishment of an adequate strategy and measures to help actors in the chain to reduce the use of pesticides.

Methodology

Concept Knowledge workshops based on multi-actor approach was used to collect the data. A online Concept - Knowledge workshop was organized with a number of 12 participants in Cluj-Napoca, Romania, , in February 2023. The participants were from the entire wine chain: 2 input suppliers, 3 wine growers, 1 wine distributor, 3 product quality advisors, 3 viticulture researchers. The workshop was divided into 3 main topics: technological, social/market and regulation. These topics were debated from the perspective of barriers and needs to reduce pesticides in viticulture. The workshop was recorded. Content analysis was used to analyze the collected data. The first stage of data analysis consists in transcribing the workshop recording. Then followed the content analysis of the thematic categories: gaps and needs. Thematic categories were identified for each type of actor. For each thematic category, the aspects specified by the participant were identified. Then followed by a prioritization according to the frequency of occurrence. Thus, the barriers and needs were prioritized according to the number of mentions by the actors in the chain.

Findings

The results of the research are presented in table 1.

Table 1. Gaps and needs for pesticides reduction in viticulture production

Topic/Thematic categories	Gaps	Needs
Technological	- Lack of demonstration for the efficiency of biostimulants/solutions - Farmer skepticism - Investment costs in precision farming and mechanical tools - Enhanced microbiota supply by wine producers and consumers - Biocontrol solutions considered to be costly and ineffective - Lack of knowledge and agrotechnology's for multi cropping, multifunctional crops - The influence of pesticide companies	-Better describe and understand the composition and the role of the microbiota and leaves on grapes - Better understand/research plant immunity - Promote agroecological practices - Training for advisory services - Need to develop educational & training resources on low-input systems and practices - Systematic data on the impact of microbiota on soil and crop condition, health and disease and pest control - Productive varieties with higher systemic resistance
Social/Market	-Lack of knowledge for producers and consumers - Not a well-developed Agricultural Knowledge and Information System (AKIS). Insufficient sharing of knowledge and innovations - Lack of market - Confusion between zero-pesticide and organic - Consumer reluctance to change their habits, lack of awareness campaigns - The limited resources for employing professionals in the advisory service - There is no governmental support towards this kind of production (except some subsidies for organic agriculture)	- Need to educate producers, policy makers and consumers about the negative effects of pesticides on health - Need to adapt the didactic content to the new trends - Quality schemes which are promoting pesticides free production and pesticides free products - Producers Organisations - Promotion of zero pesticide agriculture by the authorities
Regulation	- Regulators do not communicate directly with farmers, there is a lack of understanding of the requirements - Mandatory requirements are not the same for EU growers and non-EU growers for products exported to the EU - EU registration for biopesticides too expensive and taking a long time - Lack of knowledge and interest among administrators who design funding models, and poor connections between them and the scientific community and farmer associations	- Clear political objectives - Need to review the concept of registration and use of pesticides - Plant protection products authorization - Need for regulating ecosystem service of pest control

Source: author's projection

Conclusion

An important gap encountered is the lack of demonstration of the effectiveness of measures to reduce pesticides and, consequently, more farm skepticism towards these levers. Higher costs with alternative practices, lack of technical consultancy and long time requirements are among other gaps. In the process of reducing pesticides, the actors in the chain highlight that the main needs are the promotion of agroecological practices, a better collaboration between farmers and the researchers and the stability of the regulations to support the main actors. With the help of this paper, the direct and real needs faced by the main actors in order to reduce the use of pesticides are highlighted. Thus, concrete policies and measures can be established based on real needs in practice.

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