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► To cite this version:

Esther Fouillet, Laurent Deliere, Chartier Nicolas, Nicolas Munier Jolain, Sébastien Cortel, et al.. Reducing pesticide use in vineyards. Evidence from the analysis of the French DEPHY-Network. 14. European International Farming System Association (IFSA) Symposium, Apr 2022, Evora, Portugal. hal-03679022

HAL Id: hal-03679022

<https://hal.inrae.fr/hal-03679022>

Submitted on 25 May 2022

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DIGITAL BOOK OF PROCEEDINGS

14TH EUROPEAN IFSA SYMPOSIUM
FARMING SYSTEMS FACING CLIMATE CHANGE
AND RESOURCE CHALLENGES

8 – 14 APRIL, 2022, UNIVERSITY OF ÉVORA, PORTUGAL

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REDUCING PESTICIDE USE IN VINEYARDS. EVIDENCE FROM THE ANALYSIS OF THE FRENCH DEPHY-NETWORK FOUILLET Esther¹, DELIERE Laurent², CHARTIER Nicolas³, MUNIER-JOLAIN Nicolas⁴, CORTEL Sébastien⁵, RAPIDEL Bruno^{6,7}, MEROT Anne¹

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Abstract: High quantities of pesticide are applied on vineyard. Transition towards low pesticide farming systems is a key issue to improve viticulture sustainability. Farmers have to gradually change their practices to engage in this transition. A large number of agroecological practices are already existing but farmers can encounter obstacles during their implementation.

This work aims at analysing the pesticide use evolution during transition towards low pesticide farming systems and identify some management options mobilized by winegrowers. To understand the diversity of pathways taken towards agroecological transition, we characterized different types of pesticide use trajectories.

We analysed the data from 244 cropping systems engaged in a network of French demonstration farms, DEPHY-Farm network, created to promote and assess the implementation of practices to reduce the pesticide use. The network provides data over a 10-year period across 12 winegrowing regions. To assess pesticide use, we used the Treatment Frequency Index (TFI) and focused on TFI trajectories. We described the TFI trajectory of each farm using six indicators: the initial TFI and final TFI, the intensity of the TFI decrease, two indicators of potential rupture and the slope. A Principal Component Analysis followed by an Ascendant Hierarchical Clustering were performed to build a typology of pesticide use trajectories. In addition, we performed a survey to identify, for each type of pesticide use trajectories, the levers implemented by winegrowers.

Our results showed that cropping systems experienced a pesticide reduction of 33% in average related to the decrease of fungicide use. Three types of pesticide use trajectories were identified : the first type represents farms with a high initial TFI and an important reduction of TFI. The second type corresponds to farms with a low TFI when entering the network and that reduced it progressively. The last type represents farms with low initial TFI and without significant pesticide use evolution.

Depending on the trajectory type, the intensity and the type of changes in fungicides applications and biocontrol used were different. From the surveys, 76 levers implemented by the winegrowers were recorded. The main levers implemented are related to the dose reduction, choice of the product, stop of herbicides and optimisation of spraying. The changes were characterized according to the ESR framework. Cluster 2 Farm mostly redesigned their cropping system while Cluster 3 Farms mostly implemented levers based on a gain on Efficiency. The context of the farm impacted changes in practices.

ASSESSMENT OF THE RESILIENCE OF FARMING SYSTEMS IN THE SAÏSS PLAIN, MOROCCO