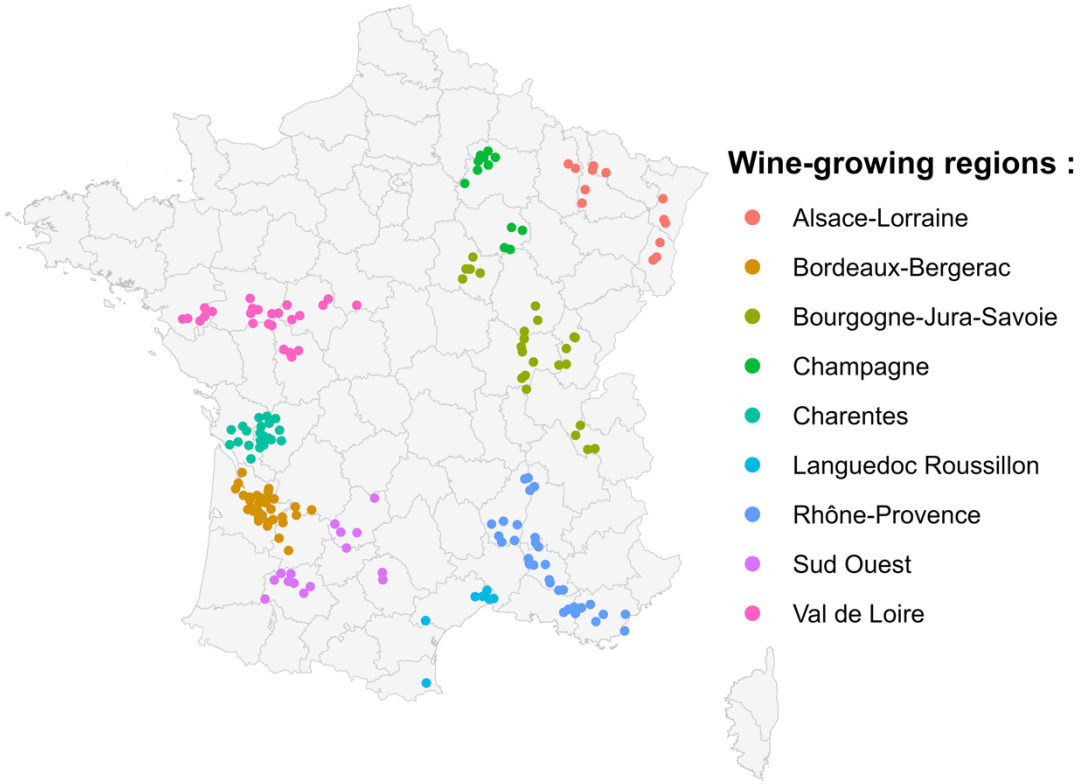
Nefti, O., Chartier, N., Merot, A., Peyrard, T., & Delière, L. (2024). To what extent can a phase-out of pesticides in viticulture be achieved? Learning from the efforts of a large farm network after 10 years. *OENO One, 58*(2).
https://doi.org/10.20870/oeno-one.2024.58.2.7885

SUPPLEMENTARY DATA



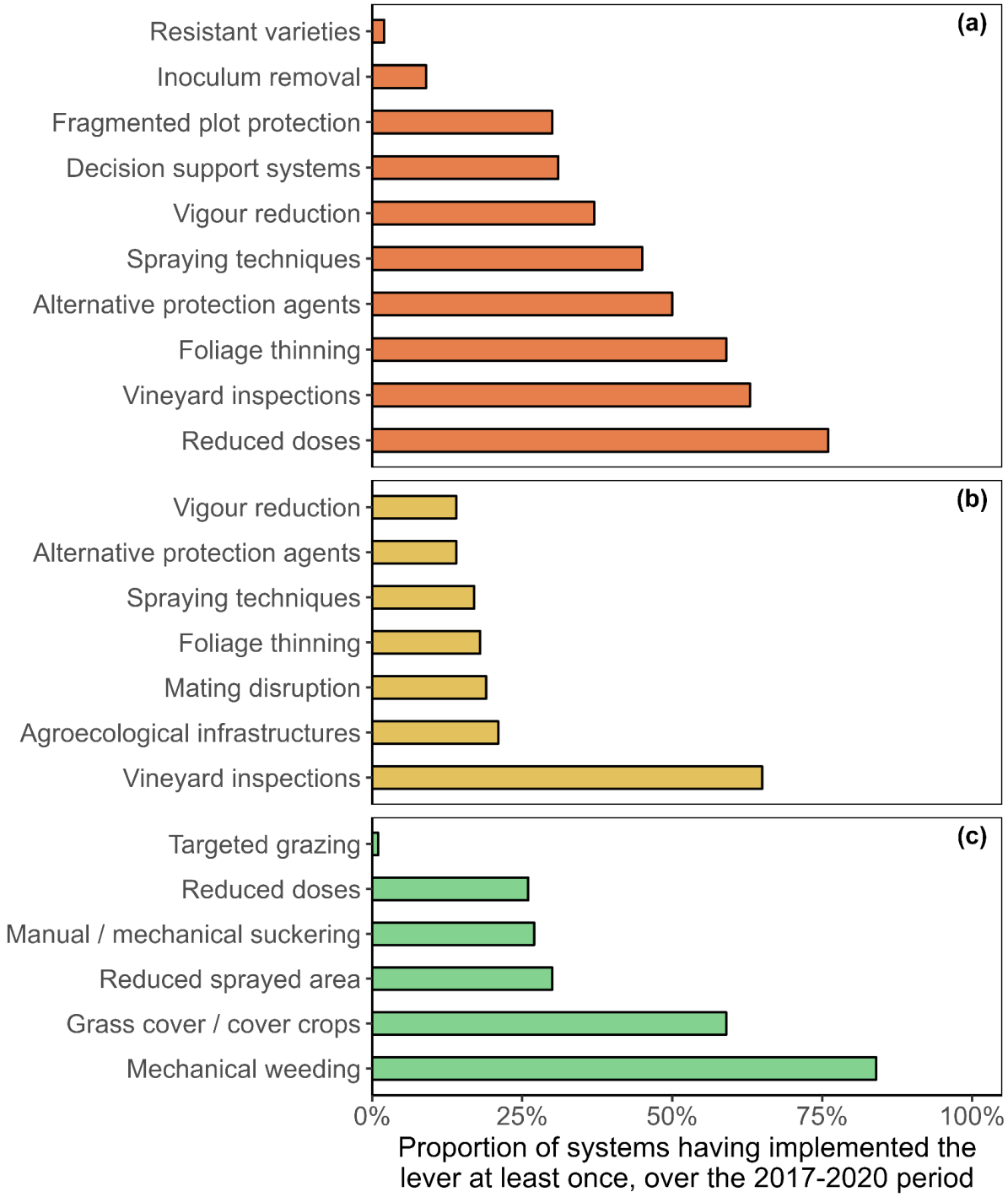
Supplementary Figure 1. Geographical distribution of the 343 systems, and their associated wine-growing region.

Nefti, O., Chartier, N., Merot, A., Peyrard, T., & Delière, L. (2024). To what extent can a phase-out of pesticides in viticulture be achieved? Learning from the efforts of a large farm network after 10 years. *OENO One, 58*(2).
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Supplementary Table 1. Description data on the 16 pesticide-use trends, based on standardised TFIs at the Initial point and in 2019:

Initial PUI	2019 PUI	abbreviation	N	org	convers	convent
Inefficient	Inefficient	ine_ine	42 (12 %)	0 %	0 %	100 %
Inefficient	Moderately eff.	ine_mod	19 (6 %)	0 %	5 %	95 %
Inefficient	Efficient	ine_eff	23 (7 %)	0 %	9 %	91 %
Inefficient	Very efficient	ine_ver	14 (4 %)	0 %	64 %	36 %
Moderately eff.	Inefficient	mod_ine	13 (4 %)	0 %	0 %	100 %
Moderately eff.	Moderately eff.	mod_mod	29 (8 %)	0 %	7 %	93 %
Moderately eff.	Efficient	mod_eff	23 (7 %)	4 %	0 %	96 %
Moderately eff.	Very efficient	mod_ver	21 (6 %)	0 %	43 %	57 %
Efficient	Inefficient	eff_ine	10 (3 %)	10 %	0 %	90 %
Efficient	Moderately eff.	eff_mod	12 (3 %)	0 %	0 %	100 %
Efficient	Efficient	eff_eff	25 (7 %)	12 %	8 %	80 %
Efficient	Very efficient	eff_ver	25 (7 %)	36 %	36 %	28 %
Very efficient	Inefficient	ver_ine	0 (0 %)	NA	NA	NA
Very efficient	Moderately eff.	ver_mod	4 (1 %)	25 %	0 %	75 %
Very efficient	Efficient	ver_eff	8 (2 %)	75 %	13 %	12 %
Very efficient	Very efficient	ver_ver	75 (22 %)	91 %	3 %	6 %

Displayed columns: headcounts (N), proportion of strictly organic wine-growing systems (org), proportion of WS converting to organic (convers), and proportion of conventional WS (convent).

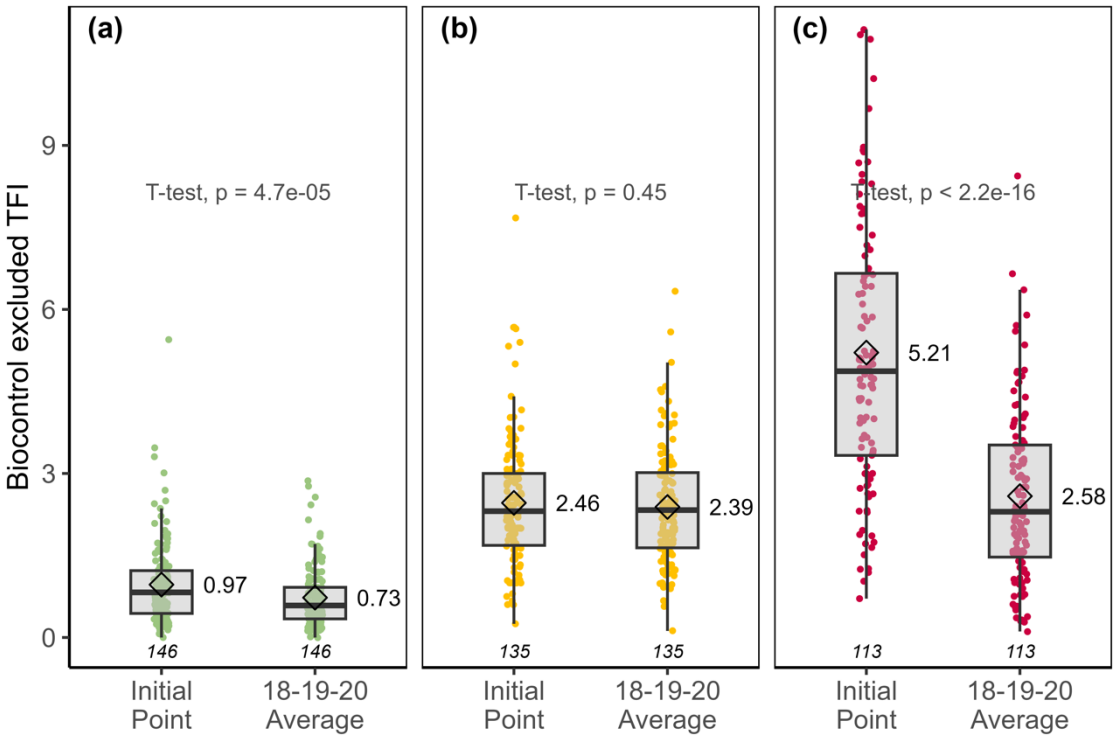


Supplementary Figure 2. Fungicide (a), Insecticide (b) and Herbicide (c) reduction levers mobilised by the sample's wine-growing systems between 2017 and 2020, ordered and expressed in adoption rate.

Supplementary Table 2. Mean TFI values (total and partial) for the whole sample (n = 343), at the Initial Point and for the 2018-2019-2020 campaigns. Associated with paired statistical comparisons of means or ranks, depending on data distribution.

Indicator	Initial Point	18-19-20 average	Evolution	Test performed	p-value
Total TFI	12.38	10.61	-14.3 %	Student	< 0.001
Biocontrol excl. TFI	10.30	7.71	-25.1 %	Student	< 0.001
Fungicide TFI	8.42	6.20	-26.4 %	Student	< 0.001
Herbicide TFI	0.60	0.35	-40.2 %	Wilcoxon	< 0.001
Insecticide TFI	1.29	1.15	-10.9 %	Wilcoxon	< 0.001
Biocontrol TFI	2.07	2.90	+40.0 %	Student	< 0.001
CMR TFI	3.13	1.10	-64.9 %	Wilcoxon	< 0.001

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Supplementary Figure 3. Herbicide (a), Insecticide (b) and CMR (c) TFI values at both ends of the studied period (biocontrol products excluded), for the wine-growing systems that kept using these products every campaign.

Supplementary Table 3. Evolution of all performance indicators for the 16 standardised TFI trajectories. Changes in each indicator are expressed as the variation rate (%) between the average values for the 18-19-20 period and the IP.

Traj	TFI tot	TFIbe	TFIh	TFI cmr	P. Exp.	M. Costs	M. Time	E.O. Time	GHGf	GHG p
ine_ine	-17 % (***)	-19 % (***)	-21 % (ns)	-47 % (***)	-17 % (**)	-17 % (*)	-0 % (ns)	-7 % (ns)	-9 % (ns)	-23 % (*)
ine_mod	-21 % (***)	-30 % (***)	-46 % (*)	-64 % (***)	-19 % (*)	+12 % (ns)	+13 % (*)	-17 % (*)	-14 % (ns)	+1 % (ns)
ine_eff	-35 % (***)	-46 % (***)	-61 % (***)	-81 % (***)	-41 % (***)	+50 % (ns)	+11 % (ns)	-9 % (ns)	-8 % (ns)	-5 % (ns)
ine_ver	-38 % (***)	-64 % (***)	-66 % (*)	-89 % (***)	-47 % (***)	+6 % (ns)	+0 % (ns)	+9 % (ns)	-7 % (ns)	+21 % (ns)
mod_ine	+9 % (ns)	+4 % (ns)	-6 % (ns)	-33 % (*)	+7 % (ns)	-3 % (ns)	-3 % (ns)	-1 % (ns)	-9 % (ns)	+19 % (ns)
mod_mod	-6 % (ns)	-15 % (***)	-24 % (ns)	-59 % (***)	-19 % (**)	+1 % (ns)	+1 % (ns)	+1 % (ns)	+4 % (ns)	-5 % (ns)
mod_eff	-14 % (***)	-25 % (***)	-43 % (*)	-77 % (***)	-19 % (**)	-4 % (ns)	-3 % (ns)	-18 % (*)	-13 % (ns)	-0 % (ns)
mod_ver	-36 % (***)	-61 % (***)	-83 % (***)	-86 % (***)	-52 % (***)	+17 % (ns)	+1 % (ns)	-5 % (ns)	-6 % (ns)	+42 % (ns)
eff_ine	+47 % (***)	+43 % (**)	-20 % (ns)	-37 % (ns)	+74 % (***)	-16 % (ns)	+3 % (ns)	-19 % (ns)	-24 % (ns)	+52 % (ns)
eff_mod	+2 % (ns)	-7 % (ns)	-32 % (ns)	-50 % (**)	-1 % (ns)	-0 % (ns)	+2 % (ns)	-7 % (ns)	-7 % (ns)	+19 % (ns)
eff_eff	-14 % (**)	-19 % (***)	-46 % (**)	-69 % (***)	-20 % (*)	+6 % (ns)	-4 % (ns)	-10 % (ns)	-6 % (ns)	-9 % (ns)
eff_ver	-25 % (**)	-44 % (***)	-91 % (***)	-81 % (***)	-29 % (**)	+20 % (*)	+2 % (ns)	+17 % (ns)	+22 % (*)	-1 % (ns)
ver_ine	NA (-)	NA (-)	NA (-)	NA (-)	NA (-)	NA (-)	NA (-)	NA (-)	NA (-)	NA (-)
ver_mod	+68 % (-)	+80 % (-)	+39 % (-)	-29 % (-)	+50 % (-)	+3 % (-)	-1 % (-)	+1 % (-)	+6 % (-)	-3 % (-)
ver_eff	+31 % (-)	+36 % (-)	-100 % (-)	-31 % (-)	+21 % (-)	-1 % (-)	+2 % (-)	+2 % (-)	+8 % (-)	+1 % (-)
ver_ver	-9 % (ns)	-16 % (*)	-97 % (ns)	-87 % (*)	-8 % (ns)	-0 % (ns)	-1 % (ns)	-6 % (ns)	-5 % (ns)	-6 % (ns)

*Displayed indicators are Total TFI (TFItot), Biocontrol excluded TFI (TFIbe), herbicide TFI (TFIh), CMR TFI (TFIcmr), Phytosanitary expenses (P. Exp.), Mechanisation costs (M. Costs), Manual labour time (M. Time), Equipment operating time (E.O. Time), Fuel-related GHG emissions (GHGf), Input-related GHG emissions (GHGp). Statistical significance of paired comparison tests is indicated as such: ns = non-significant ($p > 0.05$), * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$, - = no test.*