



HAL
open science

Analysis of the 2007-2008 Hérault premiumized grubbing-up campaign: a tool to better understand Fischer-Boel's 2008-2011 grubbing-up campaigns and the desire in 2022 to reintroduce locally premiumized grub-ups

Étienne Montaigne, Samson Zadmehrán, Alfredo Coelho, Yacine Messaoudène

► To cite this version:

Étienne Montaigne, Samson Zadmehrán, Alfredo Coelho, Yacine Messaoudène. Analysis of the 2007-2008 Hérault premiumized grubbing-up campaign: a tool to better understand Fischer-Boel's 2008-2011 grubbing-up campaigns and the desire in 2022 to reintroduce locally premiumized grub-ups. *Wine Economics and Policy*, 2023, online first, 10.36253/wep-12781 . hal-04153714v1

HAL Id: hal-04153714

<https://hal.science/hal-04153714v1>

Submitted on 6 Jul 2023 (v1), last revised 15 Oct 2023 (v2)

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

1
2
3
4
5 **Analysis of the 2007-2008 Hérault premiumized grubbing-up campaign: a tool**
6 **to better understand Fischer-Boel's 2008-2011 grubbing-up campaigns and the**
7 **desire in 2022 to reintroduce locally premiumized grub-ups**

8
9 Étienne Montaigne¹, Samson Zadmehran², Alfredo Coelho³, Yacine Messaoudène⁴

10
11
12
13 ¹ L'Institut Agro, SupAgro Montpellier, 34060 Montpellier, France, Email:
etienne.montaigne@supagro.fr

14 ² MoISA, Univ Montpellier, CIRAD, CIHEAM-IAMM, INRAE, Institut Agro Montpellier, France,
15 Email: zadmehran@gmail.com

16 ³ Department Enterprises and Territories, Bordeaux Sciences Agro, 33170 Gradignan, France, Email:
17 alfredo.coelho@agro-bordeaux.fr

18 ⁴ CIHEAM-IAMM, UMR MoISA, F-34093, Montpellier, France

Correspondence concerning this article should be addressed to Samson MoISA, Univ Montpellier,
CIRAD, CIHEAM-IAMM, INRAE, Institut Agro Montpellier, France, Email:
zadmehran@gmail.com

19
20 This article has been accepted for publication and undergone full peer review but has not been through
21 the copyediting, typesetting, pagination and proofreading process, which may lead to differences
22 between this version and the Version of Record.

23
24 Please cite this article as:

25
26 Montaigne E., Zadmehrane S., Coelho A., Messaoudène Y. (2023), Analysis of the 2007-2008
27 Hérault premiumized grubbing-up campaign: a tool to better understand Fischer-Boel's 2008-2011
28 grubbing-up campaigns and the desire in 2022 to reintroduce locally premiumized grub-ups, **Wine**
29 **Economics and Policy**, *Just Accepted*.

30 DOI: 10.36253/wep-12781

32 **Abstract**

33 In 2022, in Bordeaux due to a structural oversupply, grape growers' syndicates have asked to
34 reimplement premiumized grub-ups in order to bring the market back to equilibrium. However,
35 in today's CMO no legal basis exists to conduct such a policy. In this article, we go over the
36 policy of planting rights (transformed in 2016 into planting authorization) and of premiumized
37 grub-ups. In undertaking this historical review of Europe's grubbing up policy, we analyze in
38 detail Pierre Bartoli's 1982 thesis and studies of the Observatoire de l'Hérault (Dyopta) that
39 take into account experts' opinions and statistical viewpoints. This review enables us to present
40 the main indicators in order to "objectively" analyze data that we received from a 2007/2008
41 grubbing up campaign in Hérault. Our originality is the analysis of a subset consisting of 341
42 Viniflor applications for grubbing up premiums, which represents 20% of all beneficiaries
43 receiving premiums. The applications were later sent with the applicants' consent to a
44 development agency that transmitted them to us. Within this subset, we selected 51 grape
45 growers with whom we conducted a qualitative and quantitative survey. Our goal was to
46 identify their real motivations for grubbing up their vines. We then put forward synthesized
47 results explaining the qualitative interviews and run the data through an econometric model.
48 The main results are that many grape growers grubbed up only a small fraction of their
49 vineyards mainly to cash in on the premiums in times of dire wine crisis. Grubbing ups of young
50 "improving varieties" reinforces this analysis. Furthermore, the 2007/2008 grubbing up
51 campaign comes a year just before the 2008/2011 Fischer-Boel grubbing up campaigns that
52 wanted to reduce Europe's vineyard of 175,000 ha of vines by eliminating the least efficient
53 grape growers. We thought it would be interesting to shed light on this 2008 wine CMO policy
54 by using the results of the 2007/2008 grubbing-up campaign. **Keywords:** Sustainability; wine
55 sector; CAP Reform; FADN

56 **Keywords:** Grubbing-up campaign, wine CMO, planting rights

57

58

59

60

61

62

63 1. Introduction

64 Unlike the New World's viticulture, the potential of the European grape production is
65 controlled through planting rights introduced by the 1976 wine CMO and planting authorizations
66 since 2016 and the 2013 CMO¹. Planting rights gave the EU the possibility to control the area planted
67 in vines and therefore participated to the long-term regulation of the wine market. Historically, the
68 UE wine market was also controlled by other short-term methods such as distillation, but it is another
69 method that has attracted our attention: grub-ups and specifically premiumized ones. Interestingly, it
70 seems that one could imagine grub-ups as the flip side of planting rights: the EU commission enlarges
71 the area planted in vines by issuing additional rights and diminishes it by introducing permanent grub-
72 ups. Currently under the 2013 CMO, premiumized grub-ups are no longer available as a policy tool
73 to control the production potential of European vineyards. However, today in 2022, Bordeaux's grape
74 growers' syndicates are seeking to reintroduce a legal framework to be able to use them.

75 In this paper we had access to data from the 2007/2008 Hérault grubbing-up campaign that
76 consists of 341 application files that the Hérault Chamber of Agriculture received and transmitted to
77 us. The particularities and importance of our data are linked to its rarity (individual grubbing-up data
78 is difficult to access) and to the fact that it sits at the end of the 1999 wine CMO and right before the
79 beginning of the 2008 wine CMO. The 2007/2008 Hérault grubbing-up campaign is part of a set of
80 campaigns that followed the 2004 worldwide overproduction crisis and its intent was clearly to
81 regulate supply by diminishing it. Our 2007/2008 campaign immediately precedes the three
82 2008/2011 grubbing-up campaigns (2008 wine CMO) that were introduced by the European
83 commission and Commissioner Mrs. Mariann Fischer-Boel in order to improve the competitiveness
84 of European grape growers by grubbing-up 170,000 ha. This improvement was deemed necessary
85 before the liberalization of the market through the disappearance of planting rights in 2016.

86

¹ For a historic and long-term vision of French viticulture, interventions and regulations, see Chevet et al. (2018) [1] and Meloni and Swinnen (2013) [2].

87 In our work, on a given population and in a limited area, we aim to do an in-depth analysis of
88 the grubbing-up policy at the dawn of the new EU policy promoted by Mrs. Fischer Boel. Our article's
89 first ambition is to analyze the 2007/2008 Hérault grubbing-up campaign by looking in detail at what
90 was grubbed up. Our second ambition is to study the motivations that directed the grape growers'
91 decision. To do so we conducted 51 qualitative interviews with grape growers contained within our
92 initial sample (341 application files). Furthermore, we use these analyses as an exploratory tool in the
93 event of a future reflection on the evaluation of the 2008/2011 EU grubbing-up policy. By doing so,
94 it appears that the reasons put forward in European texts' recitals were focused on eliminating "old
95 and inefficient" small grape growers and did not take into account, at least in Hérault, all of the grape
96 grower's microeconomic and technical motivations.

97

98 **2. History of European wine CMOs for the production potential management**

99 It has now been more than eighty years since France and Spain implemented rules commonly
100 known as planting rights to control the planting of vines [1,2]. Following King's Law's logic [3],
101 their aim is to prevent anarchic plantings of vines that would come to weigh on the wine supply within
102 the next three years² and perhaps cause the collapse of prices on the wine market. Starting on January
103 1, 2016, planting rights became planting authorization³ and still remain a pillar of the wine CMO as
104 they manage the capacity of wine production [4]. However, this was not always the case in the
105 European Union (UE): originally in 1970 the UE recuperated the French market organization except
106 for planting rights meaning that from the 1970 to 1976 planting rights did not exist in the EU except
107 in France. In 1976, the UE decided to activate planting rights in order to face a table wine
108 overproduction crisis induced by "wine wars" between France and Italy that caused riots [5]. As
109 winemakers rioted in 1976 in Montredon-Corbrières (Languedoc-Roussillon, France), they faced the

² In general, it takes three years for planted vines to mature and produce grapes that will come to the market.

³ With the 2013 CMO, planting rights have been transformed into planting authorizations but have retained the same impact on controlling production. Also, the new rules forbid to transfer the title to other producers. This constraint highly affects the evolution and the capacity to control the evolution of vineyards.

110 CRS⁴: during the clashes both a CRS captain and a winemaker died [6]. Planting rights/authorizations
111 have gone on to become the hallmark of the UE wine policy.

112 **2.1 1976 wine CMO: adoption of “(Re)planting⁵ rights and grubbing premiums**

113 In 1976, facing social tension, the European Commission decided to manage the capacity of
114 wine production by prohibiting the planting of any new vines and by doing so recreated de facto
115 “(re)planting rights.” In other words, a grape grower could only plant an area of vines if he had
116 previously grubbed up an equivalent area. Simultaneously, the European Commission created
117 premiums for grape growers grubbing up their vines to compensate the suspension of their rights to
118 plant for six years (Council Regulation (EEC) No. 1163/76) [7].

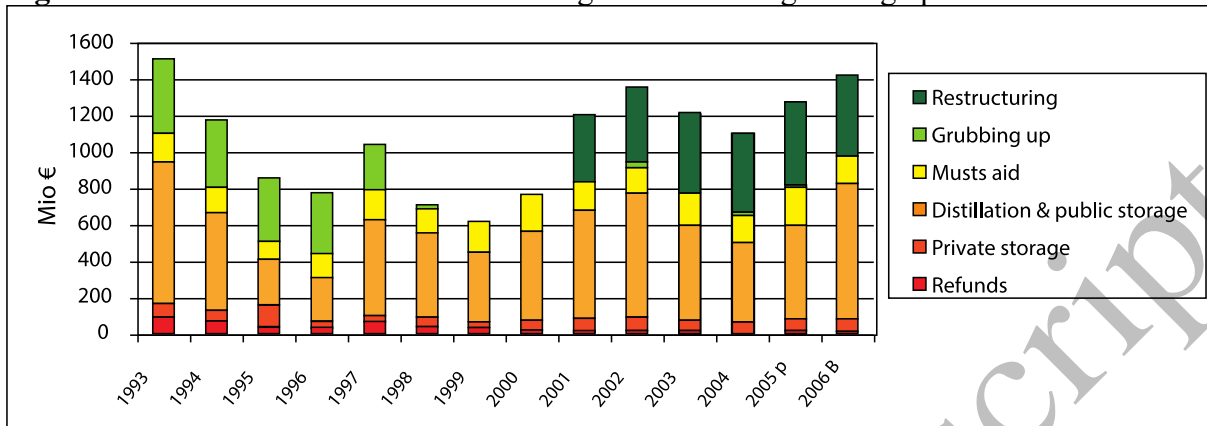
119 Later, premiums for permanent grub-ups, resulting in the permanent disappearance of planting
120 rights, appeared and were maintained through the following wine CMOs [8]. Economically, this
121 policy had an impact on the wine market: until the middle of the '90s grubbed-up areas brought the
122 European wine market to a general quantitative equilibrium [9]. Other measures concerning
123 restructuring, favoring the transition to PGI and PDO have participated in a better adaptation to the
124 market. From the 1988/1989 campaign to the 2004/2005 one, premiumized grub-ups resulted in the
125 permanent disappearance of roughly 500,000 ha of vines in all of the EU [10]. Figure 1 gives the
126 share of the grubbing-up budget in the wine CMO budget from 1993 to 2005 (light green). In regard
127 to the dimensions of the EU vineyards, on a period going from 1990 to 2007, the French ones grew
128 on average from 4 ha to 9 ha, the Spanish ones from 3.5 ha to 5.5 ha, the German ones from 2 to 3.5
129 ha and the Italian ones from 1 ha to 1.5 ha. However, there is still a large number of small vineyards
130 left and some were even created during the 2007/2012 grubbing campaigns as a result of splitting the
131 vineyards in order to be able to receive the premiums. From 2010 to 2020 changes appear as

⁴ *Compagnies Républicaines de Sécurité*: an elite French police force specialized in facing riots.

⁵ In 1999, this first category of planting rights will be renamed replanting right in order to differentiate it from the two newly created categories. Hence the parentheses.

132 restructuring financed by the CAP becomes the principal policy tool affecting Languedoc vineyards
 133 instead of CMO ones such as planting rights and grubbing-up campaign [11].

134 **Figure 1:** Evolution of the wine CMO's budget allocated to grubbing up



135 Source: Challenges and opportunities for European wines - 16.02.2006 – slide 42 [12]
 136
 137

138 **2.2 1999 wine CMO: creation of the reserve for rights, reserve rights and “new”**
 139 **planting rights**

140 The introduction of the 1999 wine CMO⁶ refined the management of planting vines in the
 141 EU⁷. This reform arrived in the midst of fears of an insufficient wine supply, at least in certain
 142 markets, due to: (1) the systematization of premiumized grub-ups from 1976 to 1997, (2) three
 143 consecutive small harvests (1995/1996; 1996/1997; 1997/1998) [13] and (3) flawed diagnostics made
 144 during the 1993/1994 amendment of the previous wine CMO [14,15]. In refining its management,
 145 the 1999 wine CMO created a reserve system to save forsaken or unused planting rights and clearly
 146 distinguished three categories of planting rights: (1) replanting rights (previous grub-up required), (2)
 147 new planting rights (a new right created ex-nihilo) and (3) planting rights from the reserve.

148
 149 As we've seen replanting rights already existed in the former wine CMOs: planting an area
 150 of vines was only possible if an equivalent area of vines was grubbed up elsewhere. In 2000/2001,
 151 replanting rights remaining in grape growers' portfolios represented an area of 193,016 ha. By

⁶ Council Regulation (EC) No. 1493/1999 of May 17, 1999.
⁷ “This suppleness is comforted by the level of the community's production of wine. The 1996, 1997 and 1998 harvests were situated at levels clearly below the previous years. This was the background for the discussions that took place and that resulted in the new 1999 basic rules, which decided to create the new planting right quotas for the member States.” [13]

152 2005/2006 this area had increased to 216,004⁸ ha [16]. **Errore. L'origine riferimento non è stata**
 153 **trovata.** illustrates the evolution of the area of replanting rights held by grape growers from
 154 2000/2001 to 2005/2006 in major EU wine-producing countries.

155 **Table 1:** Replanting rights held by the grape growers (ha, EU-15, 2000/2006)

In ha	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006
<i>Czech Republic</i>	NR	NR	NR	0	154	192
<i>Germany</i>	3900	4235	4184	4366	4436	4285
<i>Greece</i>	2376	2376	560	1682	1206	987
<i>Spain</i>	74,189	83,315	80,949	82,814	88,475	88,412
<i>France</i>	45,094	47,611	51,942	44,823	43,749	43,702
<i>Italy</i>	42,056	44,448	41,103	47,748	46,502	52,465
<i>Cyprus</i>	NR	NR	NR	467	596	596
<i>Luxembourg</i>	0	0	0	12	0	0
<i>Hungary</i>	NR	NR	NR	12,509	13,525	14,266
<i>Malta</i>	NR	NR	NR	0	0	0
<i>Austria</i>	12,592	12,695	5313	5501	8897	9030
<i>Portugal</i>	12,809	10,737	12,045	13,541	17,124	17,124
<i>Slovenia</i>	NR	NR	NR	0	276	251
<i>Slovakia</i>	NR	NR	NR	0	500	500
Subtotal EU 15	193,016	205,417	196,097	200,488	210,390	216,004
Subtotal EU 10	NR	NR	NR	12,976	15,051	15,805
Total	193,016	205,417	196,097	213,463	225,441	231,809

156 Source: Communications of the Member States according to table 7.2 and, where applicable, table
 157 7.1 of the Annex to Regulation (EC) n. 1227/2000, cited by Commission of the European
 158 Communities. Commission report to the European Parliament and the Council on management of
 159 planting rights pursuant to chapter I of Title II of Council Regulation (EC) n. 1493/1999. Brussels:
 160 Commission of the European Communities; 2007.

161
 162 The 1999 wine CMO created ex-nihilo an overall 51,000 ha quota (Art. 6(1) of R. 1493/1999)⁹ of
 163 new planting rights (Art. 3(2) of R. 1493/1999) which was distributed to 8 countries as

164

165

166 **Table 1** indicates. This table also shows that only 68% of the quota equaling to 34,783 ha of rights
 167 to plant new vines were allocated and the rest were directed towards the newly created rights' reserve
 168 [16].

169

⁸ This number rises to 231,809 ha if we include the 10 wine producing Member States that joined the European Union on May 1st, 2004 after the Athens treaty: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia.

⁹ This handing out did not have major impact on determining the production capacity. The decrease in wine consumption has led to premiumless grub ups and reconversions in many wine-producing countries.

170

171

172

173 **Table 1:** Use of the newly created planting rights for planting vineyards to produce quality wines
 174 and table wines with geographical indication

	Quota distributed (ha)	New planting rights used (ha)	Percentage of use (%)
Germany	1534	471	31
Greece	1098	1098	100
Spain	17,355	17,107	99
France	13,565	9377	69
Italy	12,933	3688	29
Luxembourg	18	0	0
Austria	737	0	0
Portugal	3760	3041	81
Total	51,000	34,783	68

175 Source: Communications of the Member States according to Table 2.2 of the Annex to the Regulation
 176 (EC) n. 1227/2000 and article 6 of Regulation (EC) n. 1493/1999.

177

178 The 1999 wine CMO created national and regional “reserves” to recuperate unused new
 179 planting rights and replanting rights that were set to expire. On three campaigns from 2000/2001 to
 180 2003/2004, the reserves held 68,000 ha [16]. Members States or their regions could access these
 181 reserve rights if an inventory of their wine production showed that their wine supply was below their
 182 demand. When applying, young and recently settled grape growers were given priority.

183 All in all, the three categories of planting rights represented 275,797 ha or 8.3% of the
 184 European vineyards consisting of 3,326,542 ha [16].

185 From the 2000/2001 campaign to the 2007/2008 one, grubbing-up was carried out with the
 186 help of limitless community (European) funding. Each Member State specified the regions where the
 187 intervention would be applied. In France, small regions and small surfaces were first concerned for
 188 the initial four campaigns and the average grubbing rate was 1,200 ha/year. Then, due to the 2004
 189 global overproduction crisis, this measure became more widely solicited and over the next three
 190 campaigns, from 2005 to 2008, the average national grubbing rate rose to 14,000 ha/year. 70% of all
 191 grub-ups happened in Languedoc-Roussillon with 9,740 ha/year. These three grubbing up campaigns
 192 were far superior to the following three from the 2008/2011 “Fischer Boel” Operation.

193

194

195 **2.3 2008 wine CMO: a thirst for competitiveness**

196 In 2006, a procedure that would profoundly modify the 1999 wine CMO appeared. It was
197 initiated by discussions between the different European bodies—the European Commission, the
198 COPA-COGECA and the European Parliament—and based on two documents provided by the
199 European Commission [17,18] and three by the Commission of the European Communities
200 [12,19,20] and completed by studies ordered by the European Commission and the European
201 Parliament [14,21–23].

202 The European Commission’s proposal took into account the hardships of the European wine
203 sector, which were linked to a never before witnessed worldwide overproduction of 50 to 60 million
204 extra hectoliters¹⁰ [24,25]. This crisis impacted to a certain degree all wine actors, including Australia
205 and other countries from the New World and the southern hemisphere. The economic situation
206 worsened in the EU due to an internal decrease of wine consumption in the traditional wine producing
207 countries and a significant increase in imports of New World wine entering northern European
208 markets, especially the United Kingdom. The European Commission concluded that this situation
209 existed due to a lack of competitiveness from the European producers because their farm sizes were
210 too small [26].

211 In its communication “Towards a sustainable European wine sector,” the European
212 Commission retained the scenario “Profound Reform of the CMO—Variant B—Two-step” and
213 justified its choice by stating: “The first phase is restoring market balance and the second phase is
214 building improved competitiveness, including the abolition of planting rights. The principal feature
215 of variant B would be a structural adjustment, i.e., temporarily reactivating the grubbing-up scheme.
216 The system of restrictions on planting rights would be extended until 2013, when it would expire.

¹⁰ Each year the OIV publishes data in regards to wine production.

217 The least competitive wine producers would have a strong incentive to sell their planting rights or to
218 grub up with subsidies. Rapidly, competitive producers can be expected to focus more on the
219 competitiveness of their enterprise, as the cost of planting rights will no longer hamper expansion. In
220 the medium to long term this would represent a reduction in their fixed production costs” [19]. This
221 scenario would span 5 years, aim to grub up 400,000 ha and allocate 2.4 billion euros towards
222 premiums. Incentives were also given to grape growers to act quickly as the value of the premiums
223 received would decrease in the second and third years of the policy. Promoting competitiveness and
224 fighting oversupply were truly at the heart of this policy project.

225 However, this scenario was not validated and a second proposal was negotiated in 2007. After
226 many debates and a parliamentary text putting forward more than 500 amendments [27], the Council
227 of ministers approved the 2008 wine CMO¹¹ reform (Council Regulation (EC) No. 479/2008 of April
228 29, 2008), which included a new grubbing policy. In it, the original target of 400,000 ha was first
229 reduced to 200,000 ha spanning 5 years and then, furthermore, to 175,000 ha on a 3-year period—
230 2008/2009, 2009/2010 and 2010/2011—with premiums also decreasing in the second and third years.
231 This three-year grubbing policy is defined in the 2008 wine CMO under TITLE V, PRODUCTION
232 POTENTIAL, CHAPTER III Grubbing-up scheme. Arguments for such a scheme are stated in
233 recitals 3, 58 and 68: “Moreover, some of the existing regulatory measures¹² have unduly constrained
234 the activities of competitive producers.”—recital 3; “While the transitional prohibition on new
235 plantings has had some effect on the balance between supply and demand in the wine market, it has
236 at the same time created an obstacle for competitive producers who wish to respond flexibly to
237 increased demand.”—recital 58 and finally “Where producers consider that the conditions in certain
238 areas are not conducive to viable production, they should be given the option of cutting their costs
239 and permanently withdrawing these areas from wine production and should be enabled either to

¹¹ The new wine CMO dealt with the organization of the wine common market. It modified rules (EC) No. 1493/1999, (EC) No. 1782/2003, (EC) No. 1290/2005 and (EC) No. 3/2008, and repealed rules (CEE) No. 2392/86 and (EC) No. 1493/1999.

¹² Commonly understood as planting rights, as confirmed by recital 58.

240 pursue alternative activities on the relevant area or to retire from agricultural production
241 altogether.”—recital 68.

242 Through these recitals the grubbing-up policy appears to intervene simultaneously on supply
243 and efficiency with objectives to respectively eliminate planting rights¹³ and foster economies of scale
244 in grape farms. It is also put forward as a way to eliminate the least productive producers, by enticing
245 then with a premium. Article 102 “procedure and budget” defines how to target the least productive
246 grape grower through a set of rules prioritizing the access to the premium. Priority is given to those
247 (1) grubbing up the entirety of their vineyard or completely ceasing their wine-related activity and
248 (2) to applicants aged 55 or higher. Furthermore, premiums increase with the yield and decrease in
249 the second and third years as shown in **Errore. L'origine riferimento non è stata trovata.** This
250 gradualness is part of the European Commission’s tradition, as it believes that it should compensate
251 the loss in revenue in proportion to the yield¹⁴.

252 This grubbing-up policy was successful as EU countries used a 100% of the available budget
253 and seamlessly reached the 175,000 ha target and 160,550 once the application files were treated¹⁵.

254 **Table 3:** Level of the premium provided for in Article 98 of Regulation (EC) n. 479/2008 ANNEX
255 XV

Historical yield per hectare (hl)	Premium (EUR/ha)		
	requests approved in 2008/2009	requests approved in 2009/2010	requests approved in 2010/2011
(1)	(2)	(3)	(4)
≤20	1740	1595	1450
>20 and ≤30	4080	3740	3400
>30 and ≤40	5040	4620	4200
>40 and ≤50	5520	5060	4600
>50 and ≤90	7560	6930	6300
>90 and ≤130	10,320	9460	8600
>130 and ≤160	13,320	12,210	11,100
>160	14,760	13,530	12,300

256 Source: Commission Regulation (EC) n. 555/2008 of 27 June 2008

¹³ Planned next was the liberalization of vine planting by making disappear all planting bans (i.e. planting rights). The start of this plan ranged from 2015 to 2018 and many reasons in the text supported and motivated their definitive disappearance. But as the deadline approached, many European professionals and many locally elected representatives questioned the soundness of this deregulation as they feared disastrous consequences.

¹⁴ Delord and al. (2016) have questioned the relationship between yield, size and profitability in viticulture [18].

¹⁵ Upon further notice FranceAgriMer determined that 160,550 ha resulted in premiumized grub-ups [28]. Dacian Ciolos confirmed the 160,000 ha of grubbed up vines in the April 19, 2012 speech [29].

257 Simultaneously to the implementation of three grubbing-up campaigns, the 2008 wine OCM
258 (CE n° 479-2008) reorganized the management of viticulture by means of the NSPs, “the national
259 support programs”. These programs provided a fixed budget for each country and gave each
260 Member State (MS) the possibility to choose its objectives “à la carte within a menu”, and with the
261 possibility of doing so at the regional level. By doing so, Europe was thus giving itself other means
262 of continuing to improve its viticultural performance, in particular by three preferred means in
263 France: restructuring and reconversion (37.8%), investment (32.3%) and promotion (14.3%) ((CE)
264 n° 479-2008, art. 10-11-15 confirmed by (CE) n° 32013R1308 art 43-52) [30].

265 *2.4 2013 CMO: abolition of planting rights and the end of premiumized of grubbing-up* 266 *campaigns*

267 The 2008 wine CMO introduced the abolition of planting rights by 2015, a decision that led
268 to debates and controversies within the wine industry. Responding to the uproar, the 2013 CMO
269 transformed planting rights into planting authorizations and introduced a yearly growth limitation
270 corresponding to 1% of the area planted in vines. Authorizations are free, they cannot be sold on a
271 market like planting rights could. Economically argued limits were also introduced at the PGI and
272 PDO level. Grape growers can plant as many vines as they want as long as national and local limits
273 are not attained. In the south of France [11], with the exception of Charentes exposed to strong
274 growth in demand for cognac, local limits have not been very much used. Hérault area planted in
275 vines has stabilized around 80,500 ha since 2011, after having lost 40,931 ha from 1988 to 2010
276 with the permanent abandonment premium [31].

277 Grape growers use today CAP tools, such as restructuring instruments, that let them get
278 financial help in order to plant improving varieties, change the distance between rows, changing the
279 canopy management, introduce irrigation, improve environmental aspect such as planting hedges.
280 But it appears that the CAP’s tools are not sufficient to replace the effects of a grubbing up
281 campaign in regard to bringing the market back to equilibrium, particularly in on a regional market.

282 Recently, in 2022, Bordeaux has been pleading for a grubbing up campaign, but under the 2013
283 CMO there is no legal basis to fund it [32,33].

284

285 **3. Hérault 2007/2008 campaign: a case study to shed light on the 2008/2011 EU grubbing policy** 286 **and the question of the reintroduction of localized premiumized grub-ups in 2022**

287

288 **3.1 The importance of Hérault and past studies in Languedoc-Roussillon**

289 Historically¹⁶ the Languedoc-Roussillon region, where Hérault is situated, has been very prone to
290 grubbing up: from 1977 to 2010, this policy resulted in the disappearance of 40% of the vineyard
291 (166,000 ha) [35]. According to the *Cour des comptes*, the grub-up of high-yield vines and vineyards
292 being qualitatively restructured led Languedoc-Roussillon's mean yield to drop from 80 hl/ha in 1980
293 to a bit more than 50 hl/ha in 2009 [35]. This court adds: "The focus of the grubbing-up subsidy
294 policy on a region traditionally prone to overproduction, added to the restructuration policy has
295 profoundly modified this region's landscape and the wine supply. It has favored the going out of
296 business of many small polyvalent producers and has led to an upgrade of the product range" [35,
297 p. 24–25]. In France, the 2008 wine CMO grubbing campaign resulted in more than 58,000 ha of
298 vines removed and not surprisingly most came from Languedoc-Roussillon and Hérault [35]. From
299 2005 to 2010, 69% of all grubbed-up areas in France and receiving premiums happened in
300 Languedoc-Roussillon [35].

301 Past research has already been conducted in Hérault on grub-up motivation, particularly the
302 study done by Pierre Bartoli and Marc Meunier in 1982 [36]. In "*La politique de reconversion*
303 *viticole : résultats de la prime d'arrachage en Languedoc-Roussillon 1976-79*"¹⁷ [37] the goal was
304 to examine the consequences of the *distribution of sizes* on production systems. They wanted to
305 understand the farmers' governing motivations, their adequacy with the wine policy and analyze the

¹⁶ For a general view of French viticulture see Alonso et al. (2019) in *The Palgrave Handbook of Wine Industry Economics* [34].

¹⁷ *The wine conversion policy: results of the grubbing up premium in Languedoc-Roussillon 1976-79.*

306 socio-economic situation. This study showed the importance of the gap between the objectives set
307 forth for reconversion premiums and the actual results. This gap appeared not only at the level of
308 zones and farm structures, but also at the one dealing with the types of grubbing-up implemented
309 and their reasons.

310 The Observatoire viticole de l'Hérault's (2005) [38] study "*Étude d'impact des arrachages*
311 *définitifs dans l'Hérault*"¹⁸ updated the 1997 works of Aigrain et al. [39] by undertaking a very
312 precise statistical analysis, taking into account quantities and geographical areas, on a period ranging
313 from 1988 to 2003. It showed that grub-ups were mostly located in the coastal plain, in urban and
314 peri-urban areas. It also took note of the regression of the number of small size farms, the grub-ups
315 within areas of appellation, the acceleration in the loss of the traditional varieties and the grub-ups of
316 improving varieties. The study also showed "that from 1988 to 1991, the reasons for grubbing up
317 gathered from the analysis are diffuse. Their results show that **premium value arrived in first place**
318 **(83% of grub-ups received a premium)**. A need for diversification is also very present (80%) and
319 it is hard to dissociate decision-making elements, such as retirement (30%), family reasons (24%)
320 from a need for cash (10%)" [38]. However, they did not precisely state their survey's sources and
321 methodology.

322 Nevertheless, this study cites through "experts' statements" the possible motivations for primed
323 grub-ups: "(1) some grape growers that are dealing with hardships, take advantage of this chance to
324 improve finances (grubbing up small surfaces), (2) small farms (<5 ha), farmers that will retire soon
325 and have nobody to takeover, will be the first concerned, (3) for certain farms the whole area may be
326 grubbed up" [38, p. 16]. We find the same reasoning that had been expressed by the European
327 Commission as the study cites their arguments and explicitly leans on them.

328 Our analysis also aims to complete and further advance these previous works by pinpointing the
329 real motivations (economic and social) that push grape growers to permanently grub up, partially or

¹⁸ Impact study of final grubbing up in the Hérault.
WEP – Wine Economics and Policy

330 totally, their vines. This leads to a finer analysis of the adequacy between the actual grub-ups and the
331 future objectives set forth by the policy within the 2008 wine CMO.

332 3.2 *Our analysis of the 2007/2008 grubbing up campaign*

333 Any economic policy decision taken at a level as aggregated as viticulture in Europe cannot take
334 into account all the situations of grape growers and all their motivations for grubbing up their vines.
335 Few data have been published on either the age of grape growers or on their economic performance
336 to justify the a priori choices made. Being considered as common knowledge was enough to make
337 these facts relevant. Furthermore, the success of this policy according to selected criteria has
338 substantiated the merits of the common knowledge. To us, it seemed interesting to deepen the thought
339 process on the EU 2008/2011 grubbing-up policy by analyzing the technical and microeconomic data
340 originating from a genuine database capturing the grape growers' motivations and behaviors adopted
341 during the last subsidized grubbing-up campaign (2007/2008) using the previous 1999 wine CMO
342 rules.

343 It should be noted that this is France's second largest grubbing-up campaign during the entire
344 1999/2011 period with 6,278 ha grubbed up and of which 4,040 ha happened in Languedoc-
345 Roussillon. Also, the 2007/2008 campaign gave the possibility to introduce specific rules locally.
346 This was authorized by the 1999 wine CMO, adopted at the French national level and defined
347 regionally by the "interprofessions" (inter-professionnal organisations) as they had the possibility to
348 exclude any appellation or any varietals within an appellation from being grubbed up¹⁹.

349 There are several reasons for doing so (1) because precise data on the 2008 wine CMO grubbing-
350 up scheme is extremely hard to encounter due to privacy rules and (2) according to experts (INAO
351 and FranceAgriMer) this data may not be representative as rumor is that some grape growers split-up
352 their grape farms and made their elderly grandparents owners of the areas to be grubbed up in order

¹⁹ "Geographical areas that can benefit from the premium for definitive abandonment of area of vineyard under the 2007/2008 campaign for the Languedoc-Roussillon region: [...] for the department of Hérault, all areas under vines, excluding areas planted with Clairette (white) grape variety in the PDO 'Clairette du Languedoc' and areas planted with Cinsault grape variety (red) in Vin de Pays des 'Côtes de Thongue'" [40].

353 to maximize their chances of receiving their premium. Therefore, the 2008/2009 data may be skewed
354 and therefore the previous 2007/2008 campaign may be more representative of grape growers' natural
355 motivation as it does not incite them to change their behavior.

356 Our analysis acknowledges the 2004 world oversupply crisis that impacted all wine-producing
357 countries in the world. Falling prices created financial hardships for farms and cooperative cellars
358 [41, 42²⁰, 43²¹, 44²²]. Our complementary hypothesis is that numerous grub-ups were motivated by
359 the consequences of the economic crisis due to falling prices and that grubbing-up premiums were
360 also a means of survival for many grape growers, as they could use these premiums to reimburse bank
361 loans contracted to purchase land or to plant vines in order to meet the '90s new qualitative
362 orientation. The 2004 supply crisis was followed by a strong demand crisis in 2008 due to the
363 subprime mortgage crisis, which extended hardships for grape growers and increased their resort to
364 grubbing up.

365 **3.3 Hypotheses**

366 Using a typology of grape growers, we state the following hypotheses on their use of premiums
367 resulting from permanently grubbing up their vines:

- 368 - Freshly installed young grape growers facing a budget and indebtedness crisis: for them,
369 premiums will be of great help in facing current farm expenses and to pay back loans and
370 debt.
- 371 - Grape growers near retirement: grub-up premiums guarantee them a decent retirement.

²⁰ “The study clearly illustrates the crisis. The majority of winemaking farms from Languedoc Roussillon cannot survive with the actual wine prices. We add to this the deficiency of the yields. Sacrifices have been made to ‘hold on’ (few private withdrawals) but we note strong restrictions on investments (on average €10,000 per farm in 2007, €6,000 in 2008)” [42].

²¹ “The Languedoc-Roussillon economy: 90% of the grape-growing farms appears to be in financial hardship. The CER (Center of rural economy) of Languedoc-Roussillon presented this week an alarming report on the financial situation of the region’s grape growing farms. According to this study conducted within the scope of the regional wine production observatory, the financial situation of the wine-growing farms has strongly deteriorated within the last three years” [43].

²² “In reality it’s mostly Languedoc-Roussillon that is going to grub up its vineyards. The crisis is here, worst and more profound than anywhere else and the winemakers’ cash reserves are totally depleted” [44].

- 372 - Grape growers that can no longer face the crisis: their belief is that grape-growing has no
373 future in the region and has become a rewardless enterprise. Therefore, they decide to grub
374 up their vines and with the help of the premiums, they invest in other crops (wheat, fruits,
375 vegetables, etc.). They may reorient themselves towards other sectors they deem more
376 rewarding.
- 377 - Grape growers owning land near urban centers: their vineyards are grubbed to transform
378 their land lots into building plots.

379

380 4 Materials and method

381 4.1 The sources of information: 341 Viniflor application files

382 Viniflor²³ manages premiumized grub-ups in France and grape-growers must submit to them an
383 application file. In addition to its administrative task, Viniflor analyzes the information in the files
384 to compile grubbing-up statistics at the levels of the city, the department, the region and the country
385 that are published on the site of the *Observatoire viticole (Dyopta)*²⁴. Spatialized data is highly
386 interesting especially at a fine scale, but it only allows us to randomly approach and survey grape
387 growers that have decided to grub as Viniflor's management of grubbing-up premiums anonymizes
388 all application files to ensure confidentiality meaning that individual grape growers are theoretically
389 inaccessible.

390 An exception was made for the 2007/2008 grubbing-up campaign as professional wine
391 organizations demanded Viniflor to insert in the application files an optional consent form for grape
392 growers allowing their application files to be forwarded to a development agency. France directly
393 funded 2007/2008 campaign and it was the last one before the implementation of the new EU
394 grubbing-up policy (2008/2011). The idea was to allow an ongoing thought process to improve future
395 targeted interventions in order to better follow up on grape growers and their grubbed-up lots. The

²³ Now FranceAgriMer.

²⁴ Today this privately owned company is defunct.

396 main points were economic monitoring and managing landscapes. In the case of our study, consenting
397 grape growers accepted that their contact information and the content of their accomplished grub-ups
398 be transmitted to the Hérault Chamber of Agriculture (local extension service). 341 files representing
399 about 20% of all Hérault applications for the 2007/2008 premiums were transmitted. However, on
400 certain files, certain information was missing as some questions remained unanswered.

401 As the application files were handed over to us by the Hérault Chamber of Agriculture, we did not
402 construct the survey sample. Furthermore, in regard to the French laws concerning privacy (CNIL),
403 we do not have any information on the entirety of the population that grubbed up their vines.
404 Therefore, we are unable to see if our 20% sample represents or not and if it is biased or not in regard
405 to the Hérault population grubbing up their vines during the 2007/2008 campaign. It could therefore
406 appear, a priori, as a sample created by convenience since it is true that, within the grubbing-up
407 application files, the choice “is favorable to the transmission of the file to a development
408 organization” is not subject to any known statistical references.

409 However, a posteriori, once we look closer, this is not the case of our survey sample. In fact, we
410 can do the hypothesis that the population grubbing up their vines is representative of the total
411 population of grape growers in Hérault. To do so, we use the criterion “size of the vineyard”. When
412 characterized by this criterion, our sample survey comes very close to one created by quota sampling
413 using data contained in a survey conducted in 2007 by the Hérault Department on the size of grape
414 farms in Hérault. [45]. Our sample’s variable concerning the size of grape farms when regressed
415 against the one contained in the 2007 Hérault survey results in a coefficient of determination equal to
416 0.78 (R^2 using Pearson’s method).

417 The transmitted information was limited and contained: identification of the farmer and his farm,
418 direct or indirect farming, owner-farmer or tenant-farmer leasing land, farm’s total area in vines and
419 grubbed-up areas, winemaking location, list of lots being grubbed up including age of vines, their
420 classification and if appellation wine was being produced, and the area grubbed up. Quite
421 surprisingly, the farmer’s age and yield were missing. These elements are essential in calculating the

422 premium amount and should have normally been included. We assume their absence was due to the
 423 fact that Viniflor directly gathered this data on site during the field evaluation prior to the grub-ups
 424 and immediately evaluated premiums, according to **Errore. L'origine riferimento non è stata**
 425 **trovata.**, as it completed the processing of the files.

426 **Table 4:** Premium for the permanent abandonment (2007/2008 grub-up campaign, amount in euros
 427 by yield and by hectares

Total area to be grubbed up	Vineyard area within the farm	Yield (hl/ha)	Premium amount (€/ha)
Less than 10 ares	Any area	Any value of yield	0
From 10 ares to 25 ares	Lower or equal to 25 ares	Any value of yield	4,300
	Higher than 25 ares		
More than 25 ares	Higher than 25 ares	Yield lower or equal to 20	1,450
		Yield higher from 20 to 30	3,400
		Yield higher from 30 to 40	4,200
		Yield higher from 40 to 50	4,600
		Yield higher from 50 to 90	6,300
		Yield higher from 90 to 130	8,600
		Yield higher from 130 to 160	11,100
Yield higher than 160	12,300		

428 Source: Viniflor [40]

429

430 4.2 Sources of information: a survey of 51 grape growers

431 After waiting 9 months, from September 2009 to March 2010, we completed our study by
 432 individually surveying 51 grape growers. Indeed, as the 341 files were not anonymized we constituted
 433 a sub-sample containing 51 grape growers selected by size strata [46] and using telephone interviews,
 434 we were able to complete the information contained in the application files. Our survey included
 435 detailed questions on farm structure and grub-up motivations. Questions included the sex and age of
 436 the grape growers, the legal entity of their farm, how they acquired it, the size of their farm, the
 437 planted area of each varietal, the area of the varietals being grubbed up, the motivations for grubbing
 438 up, questions on the financial situation of the grape grower, questions of past grub ups, the presence
 439 of other crops on the farm, questions on grants received, questions on the possibility of an heir taking
 440 over. Included was also a non-directive qualitative commentary from grape growers on their
 441 economic situation.

442 The goal was to have access to a sample that best represented the concerned population. Many
443 questions were not fully answered, but a certain number of them enabled us to confirm certain
444 qualitative results.

445

446 5 Results

447 5.1 *The grubbing-up rates*

448 The grubbing up rate is an excellent indicator to measure the application of the grubbing-up
449 policy. As shown in **Errore. L'origine riferimento non è stata trovata.**, we can define four groups
450 of application files. The first group includes the smaller sized grape growers that grubbed up all or
451 almost all their vines. The total area of their vineyard is 10 ha or less. The second group is similar to
452 the first in vineyard size. Its specificity is that the grubbing-up rate is lower, between 50 and 80%.
453 They often conserve a small land lot to grow vines to keep a link with the cooperative cellar. This
454 guarantees grapes for family consumption and a family revenue. They are trimming down on their
455 size. The European Commission specifically targeted these models. The third model englobes small
456 and medium-sized farms that only grubbed up a smaller part of their vineyard: 1 to 30%. These grub-
457 ups are limited. Many farmers justify their decision of “selling a lot with vines” because of the
458 opportunity to sell in a land market depressed by the crisis [47] and to find cash to reimburse loans.
459 The fourth group gathers all the large farms. The areas grubbed up are high in absolute values, but
460 much lower in relative values. Grubbing-ups represent a sort of “option value” on the future, as it
461 enables to balance the accounting books while they await the market’s evolution and the impact of
462 the European grubbing-up campaign on the prices. The decision to quit, maintain oneself or again,
463 increase in size will depend on the future sectorial situation. **Errore. L'origine riferimento non è**
464 **stata trovata.** gives another illustration of this data.

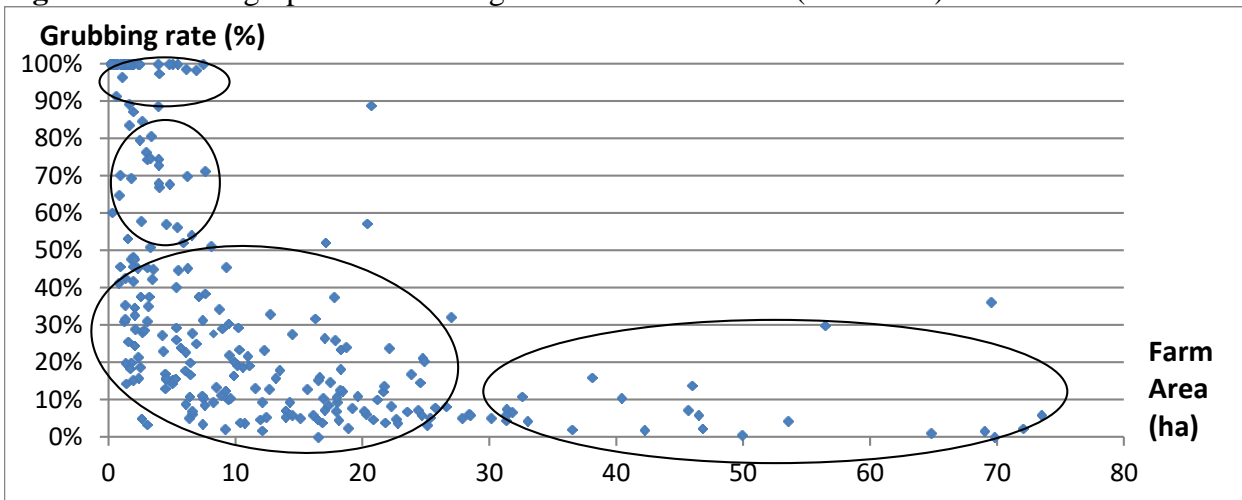
465

466

467

468

469 **Figure 3:** Grubbing-up rates according to total areas of vines (341 farms) 2007/2008 Hérault



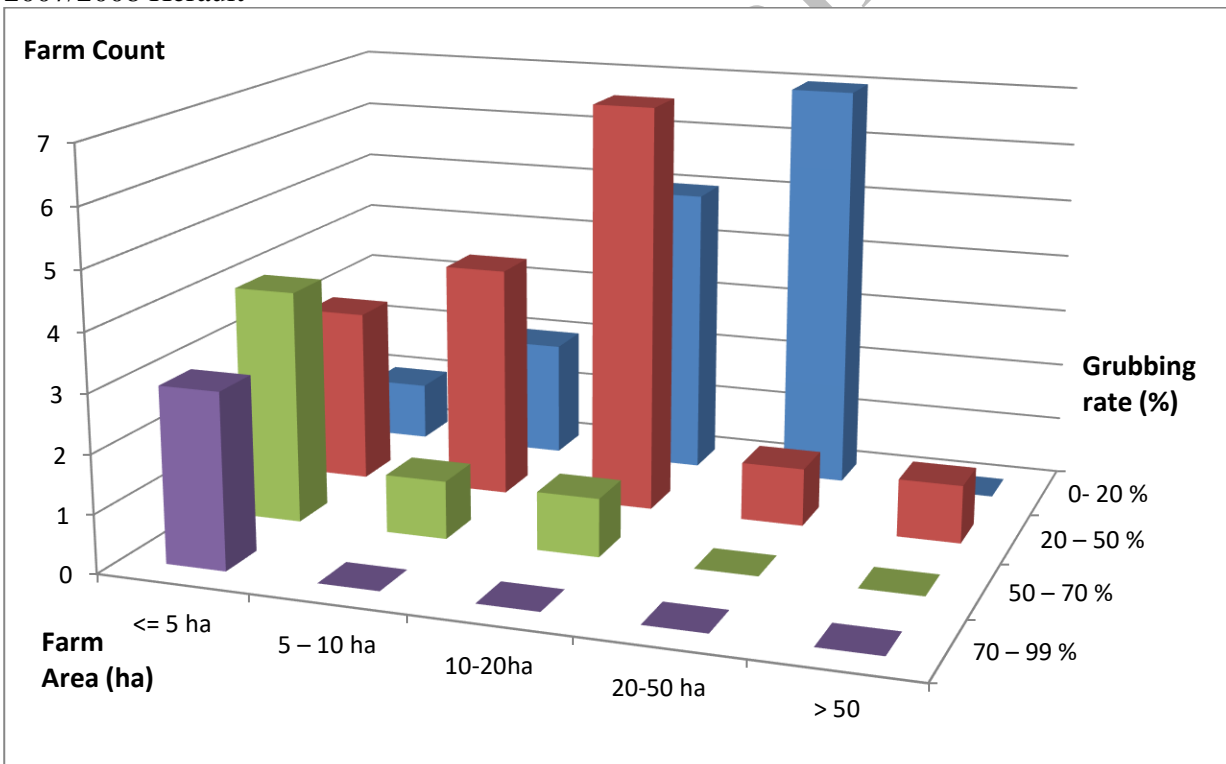
470

471 Source: 341 Viniflor application files submitted with authorization to development agencies [4]

472

473

474 **Figure 4:** Headcount of surveyed farms according to their area and grubbing-up rate (341 farms)
475 2007/2008 Hérault



476

477 Source: 341 Viniflor application files submitted with authorization to development agencies [4]

478

479

480

481

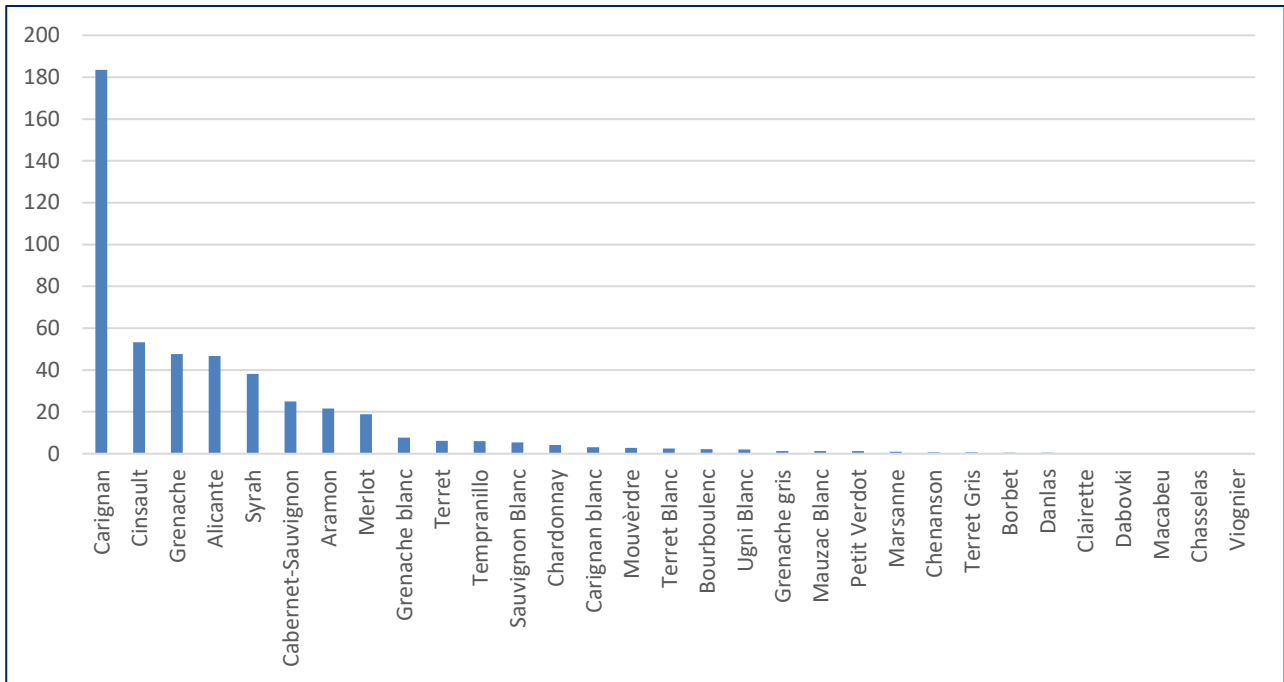
482

483 *5.2 The varieties*

484 We analyzed the grub-ups of 273²⁵ grape growing farms based in Hérault and their corresponding
485 1,029 land lots, for the year 2007—representing 484 ha of grubbed-up vines. The grubbed-up
486 varieties can be categorized into two principal categories: traditional varieties and improving varieties
487 as shown in **Errore. L'origine riferimento non è stata trovata.** Among the latter, some are
488 considered as southern qualitative varieties such as Syrah or Grenache, and are found in the PDO
489 specifications (cahier des charges). Others, such as Cabernet Sauvignon and Merlot, are excluded
490 from the Languedoc PDO specifications. These were principally developed for the Pays d'Oc wine
491 category [48,49]. The traditional varieties (Carignan, Aramon, Alicante, Cinsault, Terret-Bouret,
492 white Ugni) are considered as either too abundant or too productive when planted in the plain. The
493 Ministry of Agriculture's policy and subsidies for restructuring have favored the reduction in share
494 of these varieties in the Hérault vineyards. The eight most grubbed-up varieties represent three
495 quarters of all the grub-ups (361 ha/484 ha). Among those 83% are traditional varieties and 17%
496 improving varieties.

497 **Figure 5:** Grubbed-up areas (ha) according to varieties (2007/2008 Hérault)

²⁵ Varietal data was missing from 68 wine estates.
WEP – Wine Economics and Policy



498 Source: Viniflhor application files submitted with authorization to development agencies (273 estates
 499 as some data was missing in the files) [4]
 500

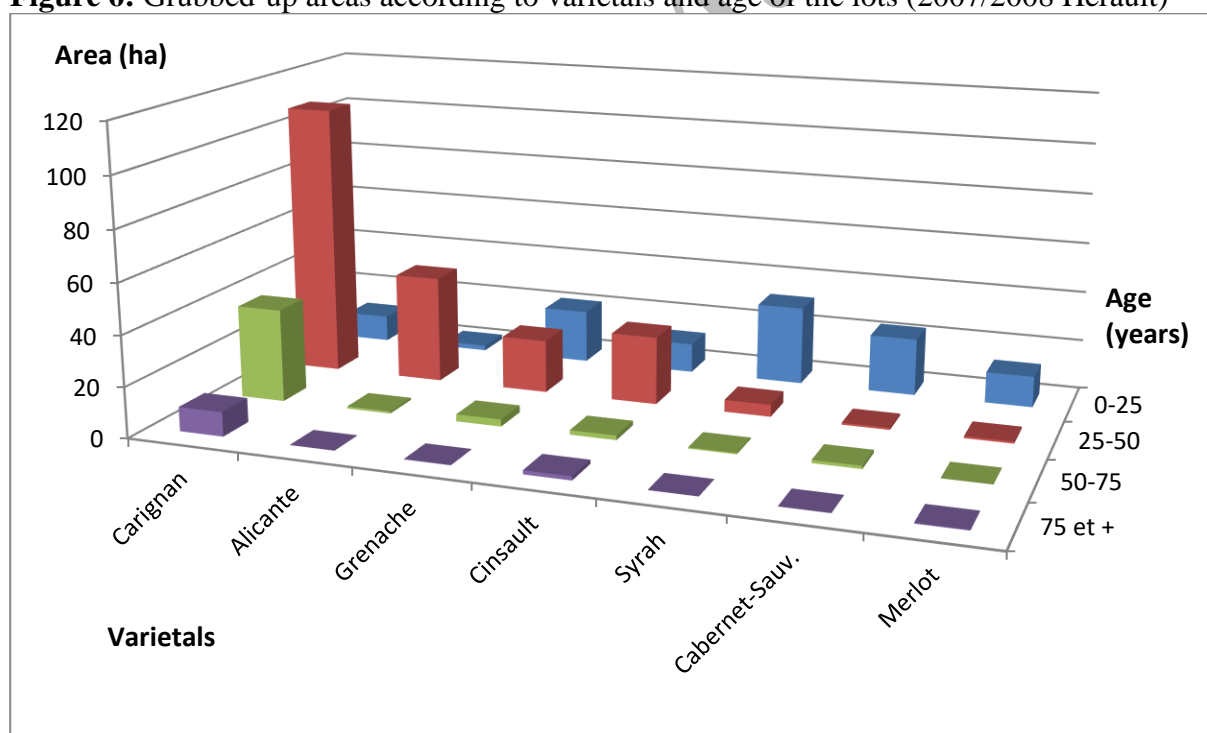
501 More than a third of grubbed-up vines are Carignan: 184 ha (38%). Other major traditional
 502 varietals from the Languedoc vineyard are Cinsault (53.3 ha or 11%), Grenache (47.6 ha or 10%),
 503 Aramon (21.6 ha or 4%) and Alicante (46.6 ha or 10%). Added to these traditional varietals are
 504 improving varietals such as Syrah (38 ha or 8%), Cabernet Sauvignon (25 ha or 5%) or Merlot (19 ha
 505 or 4%). The remaining grubbed-up hectares are either made up of traditional varietals from
 506 Languedoc (Mourvèdre) or other improving varietals (Viognier). We even found some table grapes
 507 (Danlas or Dabovki), but their proportions remain minimal and stay below the 1% mark.

508 To refine our analysis, we looked at the age of the grubbed-up vines (**Errore. L'origine**
 509 **riferimento non è stata trovata.**) and in doing so we retained 4 age categories with a 25-year interval
 510 (0 to 24 years, 25 to 49 years, 50 to 74 years and 75 to 100 years). The major fact observed is that
 511 most of the improving varietals are grubbed up before they reach 25 years. 92% of grubbed-up
 512 Cabernet Sauvignon (22.9 ha/24.9 ha) and Merlot (12.4 ha/13.5 ha) were less than 25 years old. In
 513 regard to Syrah, 85% of grubbed-up vines were under the age of 25. Oppositely, the age at which
 514 traditional varietals are grubbed up was much older: almost 2/3 of Carignan vines (108.5 ha/165.9 ha)
 515 were grubbed up between ages 25 and 49. About a 1/4 of grubbed-up Carignan vines were between

516 ages 50 and 100 (46.7 ha). We find similar age ranges for other traditional varietals as the age of 93%
 517 of grubbed-up Alicante is between 25 and 49 years. 42.5% of grubbed-up Aramon is located within
 518 the same range and 53% within the range of 50 to 100 years. Only in the varietals Grenache and Syrah
 519 did we see vines under the age of 25 having been grubbed up: 46% and 28% respectively. However,
 520 when we look at the varietals between the ages 25 and 49, the grub-ups represent respectively 46.5%
 521 and 64%.

522
 523
 524
 525
 526
 527
 528
 529
 530
 531
 532
 533

Figure 6: Grubbed-up areas according to varietals and age of the lots (2007/2008 Hérault)



534
 535
 536
 537

Source: Viniflor application files submitted with authorization to development agencies (273 estates as some data was missing in the files) [4]

538 When looking at the grubbed-up varietals and their ages as illustrated in **Errore. L'origine**
 539 **riferimento non è stata trovata.**, we can state that the main goal of eliminating the oldest vines and

540 the least adapted to the market demand constituted the main part of the intervention. However, an
541 important part of “improving varieties,” about a sixth were removed. This sends us to other
542 explanations that are of a microeconomic nature that we will now study.

543 **5.3 The motivations**

544 The reasons why each grape grower grub up his vines are unique, that is, if we take into account
545 the history of his farm, the specificities of his vineyard, his outlook on the future, his financial
546 situation, if his farming business is full time or part-time, the existence of side revenues, etc. We
547 conducted a survey in order to pursue our idea of testing the relevance of the “reaction” induced by
548 the European Commission’s economic policy.

549 Our goal is (1) to shed light on the impact of the premiums on the behavior of grape growers
550 during the 2007/2008 campaign (the grubbing-up policy preceding the three-year campaign of the
551 2008 CMO), (2) but also use these finding to reflect on the new grubbing policy born from 2008
552 CMO and see which of our findings appear, or not, in Fischer Boel’s decision to grub-up 175,000 ha.

553 We surveyed grape growers that grubbed up their vines. We recorded word for word their reasons,
554 expressed directly from the grape growers, for their grub-ups. Twenty reasons were noted **Errore.**
555 **L'origine riferimento non è stata trovata..** We have been very thorough in recording these
556 motivations. Oftentimes we recorded two or three, near or complementary reasons coming from the
557 same grape grower (on average two and a half).

558 These motivations can be placed in five large categories:

559 - Economic reasons are dominant: a lack of profitability and a need for cash. Almost half of the
560 answers dealt with economic reasons. Our hypothesis of the impact of the economic crisis on
561 the situation of farms has been confirmed. The goal can be to leave the business or simply to
562 have access to more disposable cash. The additional cash may be used to change businesses—
563 linked to farming or not—or reduce debt. The premium enables to transform land capital into

564 financial capital in a period when the market for vineyard land is limited [47]. The land prices
565 adjust themselves to the value of the premium added to the value of bare land.

566 - Then come the reasons associated to the farmer's "life cycle." These reasons are almost cited
567 as much as the economic reasons. They are similar to the wine CMO whereas: The premiums
568 allow grape growers to retire with additional capital. It is a type of retirement annuity²⁶. Old
569 age often goes hand in hand with retirement and the absence of a buyer or a successor. This
570 happens with the departure of land leasing farmers and sharecroppers. The owner due to his
571 old age cannot himself take over the work needed for the vines. Lack of time and a second
572 activity are motivations that are slightly different. Low profitability is the reason that leads to
573 reevaluate the opportunity cost linked to the time committed to grape growing. Death and
574 health problems speak for themselves.

575 - Farm reorganization is less frequently cited. Reducing the size can be linked to a reduction of
576 payroll taxes, particularly by laying off a farm worker. It can free up additional time for a
577 family member that can then take on another business. Grubbing up vines from land lot
578 situated far away from the farm's center will reduce the distances within the farm. This can
579 be analyzed as a cost reduction (distance) or as a waiting strategy to purchase, at a later date,
580 better situated land or vines. The goal is to increase the rationality of farming. Here, we are
581 also looking at a deal that in a time of crisis is impossible to go forward with because of a lack
582 of buyers. The nature of the investment made with the premiums is not clearly stated. But it
583 is also linked to a strategy of future farm enlargement or reorientation of the estate. The
584 possibility of transforming a freed-up land lot into a building lot is only cited once. The intent
585 here to perform a double dividend: turn the estate into cash and cash in on the real estate
586 profits. Bartoli and Meunier's [36] study had shown that this double dividend was meaningful

²⁶ In French this is called: "indemnité viagère de départ".

587 in the suburbs of the Languedoc plains and in many villages. For our survey, this dimension
 588 seems statistically too limited.

589 - The age of the vines or their poor state is a technical reason that is very rational. The remaining
 590 question would be to know if it was appropriate to subsidize these grub-ups. Sooner or later
 591 these lots would have been eliminated and their contribution to the excessive supply was low.
 592 The premiums, however, were the right answer to Brussels targets. Lots that are in bad state
 593 have a low profitability and therefore coincide with the elimination of the least productive
 594 grape growers. However, we must state that this motivation is rather rare in our sample.

595 - A new orientation for farm activities also constitutes an answer to the objectives of the
 596 commission, but in a more indirect way. Developing a more profitable business, changing
 597 business models, developing another crop, selling directly to customers, and organizing
 598 oenotourism, all these goals meet the target of improving competitiveness and support the
 599 need for extra cash.

600

601 **Table 5:** Reasons for grub-ups

Economic			57	45%
Absence of profitability	38	30%		
Need for cash	19	15%		
Life cycle			44	35%
Retirement	4	3%		
Old age	3	2%		
Lack of workforce to hire	4	3%		
Lack of time due to second activity	11	9%		
Death	1	1%		
Departure or absence of the land leasing farmer or sharecropper	7	6%		
No buyer/successor to take over business	7	6%		
Health problems	7	6%		
Farm Reorganization			7	6%
Size reduction	1	1%		
Recentering the farm	3	2%		
Investment	1	1%		
Land purchase	1	1%		
Building plots	1	1%		
Technical			10	8%

Old vines or in bad state	10	8%		
Activity reorientation			9	7%
Direct sales	1	1%		
Oenotourism	2	2%		
Development of another crop	5	4%		
Change of business	1	1%		
Total	127	100%	127	100%

602 Source: Data from the 51 grape growers surveyed [4]
603

604 **5.4 Econometric model: ordinary least square regression**

605 In order to further explain the reasons for grubbing up within the data gathered from our 51
606 grape growers, we have used an ordinary least square (OLS) regression where X_i are the k
607 explanatory variables and Y is the dependent variable. The model is linear and for each sample n
608 the value y_n is:

609
$$y_n = \sum_{i=0}^k \beta_i x_{ni} + \epsilon_n$$

610
611 The coefficient β are found by minimizing the error of prediction.

612 In our model Y is the grubbing rate and the k X_i explanatory variables are: grape grower's
613 sex and age, his need for cash and profitability, his agricultural activity, belonging to a cave coop,
614 having an heir to take over the vineyard, if the grape grower had already previously been in a
615 grubbing up campaign. Other variables included are the age of the vines being grubbed up and
616 several important varietals: Carignan, Syrah, Aramon, Grenache, Merlot, Cinsault and Sauvignon.

617 Our OLS model has led to interesting results that are shown in **Errore. L'origine**
618 **riferimento non è stata trovata.** It seems that there is an average correlation between having a
619 tendency to grub up less and the fact of being a man (-0.172*) or of planning an agricultural activity
620 after the grub-ups (-0.199*). This tendency to grub up less seems to be strongly correlated to being
621 optimistic (-0.291**) and having an heir wishing to take over the family vineyard (-0.374**). These

622 correlations are rational. The fact that a correlation exists between grubbing up and being a man is
623 linked to the fact the low number of women (12 women, 23.5%).

624 The other strong correlations in our OLS regression are linked to varietals. It appears to that
625 a strong correlation exists between a high percentage of grubbed-up vines and the grubbing-up of
626 varietals Aramon (0.316**) and Merlot (0.369**). Conversely, it seems that the more grape
627 growers own Cinsault (-0.259**), the less they tend to grub it up. This data on varietals should be
628 put into perspective with the historical evolution of Languedoc grape varietals.

629 The grubbing-up of Aramon is logical as it is one of the old Languedoc varietals planted in
630 the plains and linked to mass production of table wine. Today the area planted in Aramon is still
631 deemed excessive meaning that more should be grubbed up. The explanation of grubbing up Merlot
632 is more counterintuitive as Merlot is one of the first improving grape varietals introduced into the
633 Languedoc vineyards. Several interpretations may be put forward explaining why they have a
634 higher tendency to be grubbed up. Firstly, these may be the first generation of Languedoc Merlots
635 introduced in the 80's probably planted in poor ecological condition (soil, microclimate, canopy
636 management). In such a case, their grubbing-up and potential replacement are justified. Another
637 interpretation is that the grape growers' situation is too dire to take into account the quality of this
638 varietal. Yet another possibility is that the grubbing-up is linked to the impossibility of selling the
639 plot planted in Merlot. Finally, it must be noted that all three interpretations may be combined.

640 Cinsault is a dual-purpose varietal (it is also a used to produce table grapes) traditionally
641 found in Languedoc. Recently it has been revisited by many Languedoc PDOs, particularly in
642 Corbières, Pic Saint-Loup and Saint-Chinian and currently benefits by the high demand for rosé
643 wines. Furthermore, special rules in Hérault banned its grubbing-up in certain appellations [40].

644 It is interesting to note that our model does not show any strong correlation between the
645 grubbing-up rate and the age of the grape grower, the financial situation of the grape grower, a
646 participation in a cooperative, the age of the vines, the existence of the previous grub-ups.

647 Furthermore, in regard to the varieties there appear no strong correlation between the grubbing-up
 648 rate and Carignan, Syrah, Grenache and Sauvignon.

649 **Table 6:** Econometric analysis using the OLS

	(1)	(2)	(3)
male	-0.187* [-1.95]	-0.158 [-1.62]	-0.172* [-1.81]
grape_grower_age	0.00803** [2.08]	0.00891* [1.93]	0.00621 [1.31]
need_for_finance		0.0230 [0.22]	0.130 [1.25]
other_agri_activity		-0.105 [-0.92]	-0.199* [-1.89]
coop		-0.0678 [-0.53]	-0.118 [-0.87]
heir		-0.400** [-2.62]	-0.374** [-2.49]
optimistic		-0.264** [-2.06]	-0.291** [-2.31]
previous_grub_up		-0.0891 [-0.71]	-0.128 [-1.07]
age_of_vines		-0.00322 [-1.12]	-0.00298 [-1.09]
carignan			0.103 [1.00]
syrah			0.0858 [0.68]
aramon			0.316** [2,39]
grenache			0.0349 [0,33]
merlot			0.369** [2.73]
cinsault			-0.259** [-2.07]
sauvignon			-0.198 [-1,23]
_cons	0.0835 [0.37]	0.330 [0.88]	0.391 [0.94]
N	49	49	49
R2	0.152	0.348	0.573

650 Source: Zadmehran (2016) [50]

651

652 **6. Conclusion**

653 Can the grubbing campaigns that followed the period we studied, i.e. after 2007/2008, be
654 clarified or, conversely, can it enlighten the micro-economic analysis of our survey on the
655 permanent grubbing up awarded in Hérault?

656 The three campaigns that followed, 2008/2009, 2009/2010 and 2010/2011, were the
657 implementation of Commissioner Mariann Fischer Boel's project of massive grubbing up schemes
658 oriented first on the equilibrium of the market, then on the improvement of the productivity of
659 European viticulture. This orientation was formalized in the criteria required for allocating aid: the
660 grubbing up of an entire vineyard or the grape grower's age needed to be higher than 55 years. As
661 such, this grubbing up policy allowed elderly people without heirs or any economic prospects to
662 exit their business and at the same benefit from the cashing out of their capital.

663 Simple criteria were needed to implement Fischer Boel's policy, however, these criteria could
664 not take into account qualitative aspect such as the choice of grape varieties to be grubbed up (see
665 improving grape varieties of the 2007/2008 survey), nor the financial needs of grape growers under
666 pressure from banks due to debt stemming from the crisis of overproduction in 2004 (Cf.
667 motivations). In fact, it is also known that the selected criteria have caused families to divide their
668 vineyards to meet the threshold and benefit from this funding (see the partial uprooting observed in
669 2007/2008).

670 The realization of this operation was a success as it reduced the EU's vineyard production
671 potential and allowed the early retirement of many operators. In the years that followed, the
672 question of premiumized permanent grub-ups was settled. In fact, at first our work only serves to
673 improve our understanding of the impact of a "dated" agricultural policy measure.

674 Subsidized grubbing-up policies have been implemented since a long time in many grape-
675 producing countries. The European Commission has finally adopted this tool to achieve an identical
676 goal: regulate the supply through the control of the production potential. Even though the question
677 of how to improve productivity has been set at the forefront as a justification for the intervention,

678 the target is truly, in a first step, the impact of the reduction of supply potential on the market. From
679 this point of view, the policy was highly efficient since 160,550 ha were grubbed up.

680 In our analysis, limits we faced stemmed from the sampling method as the selection of grape
681 growers was volunteer-based and thereby affects the representativeness of our quantitative
682 evaluation. Also, by using indirect productivity variables, age and total area grubbed up, the 2008
683 wine CMO rules for the 2008/2009 grubbing-up campaign gave priority to older grape growers and
684 those grubbing up all their vines. However, it seems quite certain that these tools/variables take into
685 account all aspects of the decision-making process to grub up and the data collected renders it
686 difficult to analyze multifactorial motivations. Furthermore, the quality policy appears to be put on
687 the back burner since there are no criteria taking into account the nature of the grape varieties.

688 As for perspectives to improve our analysis, there is work to be completed by improving the
689 data processing, renewing the survey after 2011 (last campaign) and continuing to monitor data on
690 the number of grape farms and their sizes, by particularly taking into account private estates and
691 cooperatives.

692 Our analysis of the grubbing-up rates of the 2007/2008 campaign show that some of the
693 least efficient farmers were eliminated through the deletion of their farms and when varieties of the
694 grubbed-up grape are taken into account, the results merge towards those expected by the new 2008
695 wine CMO as most of the grubbed-up grapes are old or not sought-after varieties. However, one
696 sixth of the eliminated lots are young improving varieties.

697 The analysis of the motivations encompasses a large diversity of motivation and is mainly
698 split between economic reasons linked to the crisis and the life cycle of the grape grower. The
699 economic crisis and the premiums led a certain number of grape growers that had established
700 vineyards in the '90s to use the subsidies to reduce their debt. The 2008 wine CMO enabled a
701 certain proportion of windfall for grape growers offsetting the impacts of the 2004 global supply
702 crises (overproduction) and the 2008 demand crisis (subprime): premiums just as much help grape
703 growers “get by” as improve productivity.

704 In their 2016 article, Kim Anderson and Hans Jensen [51] criticized how the OECD interpreted
705 the subsidies paid by the European Union to the grape-growing sector. When trying to attempt to
706 rectify the retained values, they added in the grubbing-up premiums. Would the grubbing-up
707 premium be a social subsidy helping the aged and non-efficient grape growers to retire? Or would it
708 be a larger subsidy helping the “wine industry”? Our study on the 2007/2008 grub-up campaign, the
709 ultimate one before the introduction of the 2008 wine CMO, gives us the following results: half of
710 the grub-ups are done by grape growers for reasons that will be targeted by the 2008/2011 grub-up
711 campaigns (the rejuvenation of the vines and grape growers) and the other half of the grub-ups are
712 related to a windfall effect enabling grape growers to survive the crisis and wait for better days,
713 even by grubbing up improving varieties. We can only wonder if this windfall effect will also
714 appear in the 2008/2011 campaigns.

715

716 **7. Discussion**

717 Premiumized grub-up campaigns should therefore theoretically be a policy of the past.
718 However, news emanating from the wine market brings us back to reality. Indeed, as
719 overproduction reappeared in Bordeaux, the question to grubbing up 8,000 to 10,000 ha of vines is
720 again being brought up [32].

721 On May 23, 2022, during the general assembly of the Bordeaux Wine Interprofessional Council
722 (CIVB), the CIVB president stated that “European texts do not currently allow to finance through
723 public money permanent grub-ups. Reminding this does not mean that we are against grubbing up,
724 it means that these texts must be changed to remedy it” [32]. In its subtitle, the newspaper prints:
725 “Faced with the abandonment of vines and the depression of winegrowers, the interprofession
726 wants to convince other French and European regions to release community funds to grub up
727 surplus plots”.

728 The question to grub up a significant area of vine is again on the rise, but the mechanism for a
729 collective financial incentive through premiums no longer exists. The possibility of reintroducing
730 this scheme through the French NSP raises many questions such as what specific criteria to
731 introduce (exclusion of area or grape varieties, minimum surfaces, age of the winegrower or the
732 vines, etc.). More questions arise, notably economic and political ones (on what budget to take the
733 means of this campaign, at what level to ask for the individual bonus, what contribution to ask from
734 the interprofession or the region, how to involve and obtain the agreement of the European
735 Commission and its funding?)

736 At the microeconomic level, our work very modestly highlights a set of economic policy
737 questions: how to take into account the economic situation of winegrowers, how not to destroy part
738 of the quality grape varieties, and which criteria should be selected for a grubbing-up campaign and
739 premiums should be directed towards which producers. The new policy of planting authorizations
740 has had consequences on the price of land: how will this effect be taken into account in a new
741 grubbing-up intervention? [4]

742 Furthermore, it appears that the question of premiumized grubbing should no longer
743 exclusively be seen in terms of qualitative categories of wine, i.e. table wines versus quality wines.
744 In fact, this question should take into account both national and global markets that are increasingly
745 respectfully segmented into regions and countries. The 2007/2008 Hérault rules of excluding grub-
746 ups in certain appellations or certain varieties in certain appellations could be used in the case of
747 Bordeaux.

748 Finally, on a more general note, from a historical perspective, perhaps grub-up campaigns
749 should just be seen as a succession of long-term stop-and-go policies essential to balancing the
750 market?

751

752 **References**

- 753 [1] Chevet JM, Fernández E, Giraud-Héraud E, Pinilla V. France. In: Anderson K, Pinilla V, editors.
754 Wine Globalization: A New Comparative History. Cambridge: Cambridge University Press; 2018. p.
755 55–91. DOI: 10.1017/9781108131766.005
- 756 [2] Meloni G, Swinnen J. The Political Economy of European Wine Regulations. *Journal of Wine*
757 *Economics*. 2013 Dec;8(3):244–84. DOI: 10.1017/jwe.2013.33
- 758 [3] Milhau J. L’avenir de la viticulture française. *Revue Économique*. 1953;4(5):700–38. DOI:
759 10.2307/3497117
- 760 [4] Zadmehran S. Des droits de plantation de la vigne aux autorisations : impact du droit foncier et
761 des OCM-vins sur la dynamique économique viticole française [Thèse de doctorat en économie].
762 Université de Montpellier; 2020. Available from: <https://hal.inrae.fr/tel-03159125>
- 763 [5] Bartoli P, Boulet D, Lacombe P, Laporte JP, Lifran R, Montaigne É. L’économie viticole
764 française. Paris: INRA; 1987. 282 p.
- 765 [6] Barrère F. Aude : il y a 40 ans, Montredon, le vin et le sang. *midilibre.fr* [Internet]. 2016 Mar 3;
766 Available from: <https://www.midilibre.fr/2016/03/03/montredon-le-vin-et-le-sang,1294907.php>
- 767 [7] Commission of the European Communities. Commission staff working document accompanying
768 document of the proposal for a Council Regulation on the common organisation of the market in wine
769 and amending certain regulations: Council Regulation (EEC) N° 1163/76. Brussels: Commission of
770 the European Communities; 1976. (COM 372 final).
- 771 [8] Barthe R. L’Europe du vin : 25 ans d’organisation communautaire du secteur viti-vinicole, 1962-
772 1987. Paris: Cujas; 1989. 383 p.
- 773 [9] Montaigne É. L’OMC-vin : autopsie d’une réforme. In: Byé P, editor. *Domestiquer le végétal :
774 construction et appropriation des techniques Une sélection des travaux du CTESI (Changement
775 Technique et Évolution des Systèmes Industriels) réalisés dans le cadre du programme DADP 1996-
776 1998*. Montpellier: INRA; 1998. p. 173–203.

- 777 [10] César G. Réforme de l'OCM vitivinicole : sauvons notre filière et nos viticulteurs. Vol. n° 348
778 (2006-2007). Sénat; 2007. 53 p. Available from: [http://www.senat.fr/notice-rapport/2006/r06-348-](http://www.senat.fr/notice-rapport/2006/r06-348-notice.html)
779 [notice.html](http://www.senat.fr/notice-rapport/2006/r06-348-notice.html)
- 780 [11] Agrosynergie EEIG, Directorate-General for Agriculture and Rural Development (European
781 Commission). Evaluation of the CAP measures applied to the wine sector: case study report: France
782 – Languedoc Roussillon. Luxembourg: Publications Office of the European Union; 2018. DOI:
783 10.2762/609285
- 784 [12] European Commission. Challenges and opportunities for European wines. Brussels: European
785 Commission; 2006. 44 slides.
- 786 [13] Commission of the European Communities. Commission report to the European Parliament and
787 the Council on management of planting rights, (Chapter I of Title II of Council Regulation (EC) N°
788 1493/1999). Brussels: Commission of the European Communities; 2004. 20 p. (COM 161 final; vol.
789 1493). Available from:
790 [http://www.europarl.europa.eu/registre/docs_autres_institutions/commission_europeenne/com/2004](http://www.europarl.europa.eu/registre/docs_autres_institutions/commission_europeenne/com/2004/0161/COM_COM)
791 [/0161/COM_COM](http://www.europarl.europa.eu/registre/docs_autres_institutions/commission_europeenne/com/2004/0161/COM_COM)
- 792 [14] Innova SpA, Euroquality, Fundeyct, Forschungsanstalt Geisenheim, SPI SA, Phytowelt GMBH,
793 et al. Ex-post evaluation of the common market organization for wine. Final report prepared for
794 European Commission - DG Agriculture, Tender AGRI/Evaluation/2002/6. Roma: Innova SpA;
795 2004. 203 p.
- 796 [15] Montaigne É. The common market organization for wine: autopsy of a reform. In: Tracy M,
797 editor. CAP reform: the southern products. Genappe, Belgium: Agricultural policy studies; 1997. p.
798 41–54.
- 799 [16] Commission of the European Communities. Commission report to the European Parliament and
800 the Council on management of planting rights pursuant to Chapter I of Title II of Council Regulation
801 (EC) N° 1493/1999. Brussels: Commission of the European Communities; 2007. 12 p. (COM 370

802 final). Available from:
803 http://www.parliament.bg/pub/ECD/69689COM_2007_370_EN_ACTE_f.pdf
804 [17] European Commission. Wine: Common Market Organisation, working paper. Brussels:
805 European Commission; 2006. 77 p.
806 [18] European Commission. Wine: Economy of the sector, working paper. Brussels: European
807 Commission; 2006. 154 p.
808 [19] Commission of the European Communities. Synthèse de l'étude d'impact, document de travail
809 des services de la commission joint à la communication de la Commission intitulée « Vers un secteur
810 vitivinicole européen durable ». Brussels: Commission of the European Communities; 2006. (COM
811 319 final). Available from:
812 http://www.europarl.europa.eu/meetdocs/2004_2009/documents/com/com_com
813 [20] Commission of the European Communities. Communication from the Commission to the
814 Council and the European Parliament: Towards a sustainable European wine sector {SEC(2006) 770,
815 SEC(2006) 780}. Brussels: Commission of the European Communities; 2006. 14 p. (COM 319 final).
816 Available from: http://www.europarl.europa.eu/meetdocs/2004_2009/documents/com/com_com
817 [21] Montaigne É, Coelho A. La réforme de l'organisation commune du marché du vin. Rapport
818 d'étude soumis au Parlement européen, Département thématique Politiques structurelles et de
819 cohésion IP/B/REGI/ST/2006-22. 2006. 89 p.
820 [22] Montaigne É, Coelho A. The reform of the common market organization for wine. Report
821 presented to the European Parliament, Policy Department Structural and Cohesion Policies,
822 IP/B/REGI/ST/2006-22. 2006. 75 p.
823 [23] ONIVINS, CIHEAM-IAMM, Ministère de l'Agriculture, de la Pêche et de l'Alimentation.
824 Panorama de la viticulture (2006). Agreste Cahiers. 2006;(1).
825 [24] Observatoire Viticole, Conseil Général de l'Hérault, DVA Consultants, CIHEAM-IAM.
826 Commerce international : Les échanges internationaux. Montpellier; 2005. 7 p.

- 827 [25] Aigrain P. *Éléments de conjoncture vitivinicole mondiale disponibles début octobre 2007*. Paris:
828 OIV; 2007. 8 p.
- 829 [26] Delord B, Montaigne É, Coelho A. Vine planting rights, farm size and economic performance:
830 do economies of scale matter in the French viticulture sector? *Wine Economics and Policy*.
831 2015;4(1):22–34. DOI: 10.1016/j.wep.2015.03.001
- 832 [27] Batzeli K. *Rapport sur la réforme de l'organisation commune du marché du vin*
833 (2006/2109(INI)). Strasbourg: Parlement Européen; 2007. 38 p.
- 834 [28] FranceAgriMer. *Prime à l'arrachage de vignes : Bilan 2008/2009 à 2010/2011*, Conseil spécialisé
835 filière viticole du 21 mars 2012. Paris: FranceAgriMer; 2012. 25 p.
- 836 [29] Ciolos D. *Relever les défis de la qualité et du revenu des producteurs*. Bruxelles: Commission
837 européenne; 2012. 3 p.
- 838 [30] European Commission. *Wine National Support Programs: Expenditure up to 15 October 2020*
839 (updated December 2020). Brussels: European Commission; 2020. 6 p. Available from:
840 [https://agriculture.ec.europa.eu/system/files/2021-01/wine-national-support-programs-exp-15-10-](https://agriculture.ec.europa.eu/system/files/2021-01/wine-national-support-programs-exp-15-10-2020_0.pdf)
841 [2020_0.pdf](https://agriculture.ec.europa.eu/system/files/2021-01/wine-national-support-programs-exp-15-10-2020_0.pdf)
- 842 [31] Soteras G. *Chiffres clés de la viticulture héraultaise*. Montpellier : Observatoire viticole de
843 l'Hérault; 2020.
- 844 [32] Abellan A. *Bordeaux défend une sortie de crise d'arrache-pied de vigne*. vitisphere.com
845 [Internet]. 2022 May 24; Available from: [https://www.vitisphere.com/actualite-96786-bordeaux-](https://www.vitisphere.com/actualite-96786-bordeaux-defend-une-sortie-de-crise-darrache-pied-de-vigne.html)
846 [defend-une-sortie-de-crise-darrache-pied-de-vigne.html](https://www.vitisphere.com/actualite-96786-bordeaux-defend-une-sortie-de-crise-darrache-pied-de-vigne.html)
- 847 [33] Abellan A. *Le vignoble bordelais débat de l'arrachage définitif de 8 à 10 000 hectares de vignes*.
848 vitisphere.com [Internet]. 2020 Jun 22; Available from: [https://www.vitisphere.com/actualite-](https://www.vitisphere.com/actualite-91923-le-vignoble-bordelais-debat-de-larrachage-definitif-de-8-a-10-000-hectares-de-vignes.html)
849 [91923-le-vignoble-bordelais-debat-de-larrachage-definitif-de-8-a-10-000-hectares-de-vignes.html](https://www.vitisphere.com/actualite-91923-le-vignoble-bordelais-debat-de-larrachage-definitif-de-8-a-10-000-hectares-de-vignes.html)
- 850 [34] Alonso Ugaglia A, Cardebat JM, Jiao L. The French Wine Industry. In: Alonso Ugaglia A,
851 Cardebat JM, Corsi A, editors. *The Palgrave Handbook of Wine Industry Economics*. Cham: Springer
852 International Publishing; 2019. p. 17–46. DOI: 10.1007/978-3-319-98633-3_2

853 [35] Cour des comptes. Les aides au secteur vitivinicole : relevé d'observations provisoires (art.
854 R.141-8 du code des juridictions financières), Extraits, Septième chambre, Troisième section. Paris;
855 2011.

856 [36] Bartoli P, Meunier M. La politique de reconversion viticole : comportements d'exploitations et
857 impact de la prime d'arrachage. Enquête auprès d'exploitations languedociennes. Montpellier: INRA;
858 1982. 160 p. (Série Etudes et Recherches).

859 [37] Bartoli P. La politique de reconversion viticole : résultats de la prime d'arrachage en Languedoc-
860 Roussillon 1976-79. Montpellier: INRA; 1981. 122 p. (Série Études et Recherches).

861 [38] Observatoire viticole de l'Hérault. Étude d'impact des arrachages définitifs dans l'Hérault,
862 décembre 2005, Documents graphiques issus de l'IAMM (Institut Agronomique Méditerranéen de
863 Montpellier), Conseil général de l'Hérault. 2005. 47 p.

864 [39] Aigrain P, Brugière F, Sevillea M, Seniuk A, Strohl J. Évaluation de l'impact des mesures
865 structurelles viticoles en France. Paris: ONIVINS; 1997. 121 p.

866 [40] Viniflor. Note aux demandeurs de prime d'abandon définitif de superficies viticoles, campagne
867 2007/2008. Montpellier, France: Office National Interprofessionnel des Fruits, des Légumes, des
868 Vins et de l'Horticulture, Délégation Régionale Languedoc-Roussillon; 2007. 14 p.

869 [41] Bouquier L, Laurent B, Perrin F, Roussignol V. Alternative et complément au revenu
870 économique de la vigne [Mémoire d'ingénieurs]. Agro Montpellier; 2007.

871 [42] Centre d'Économie Rurale (CER) France. Dossier de presse : « La crise viticole clairement
872 illustrée par cette étude » Synthèse de la 4ème édition de l'observatoire de la production viticole en
873 Languedoc-Roussillon. 2009.

874 [43] Vitisphère. Économie Languedoc-Roussillon: 90 % des exploitations viticoles seraient en
875 difficulté financière. vitisphère.com [Internet]. 2006 Jun 16; Available from:
876 [https://www.vitisphere.com/actualite-76660-languedoc-roussillon-90-des-exploitations-viticoles-](https://www.vitisphere.com/actualite-76660-languedoc-roussillon-90-des-exploitations-viticoles-seraient-en-difficulte-financiere.html)
877 [seraient-en-difficulte-financiere.html](https://www.vitisphere.com/actualite-76660-languedoc-roussillon-90-des-exploitations-viticoles-seraient-en-difficulte-financiere.html)

- 878 [44] Clavel J. Crise viticole. vitisphere.com [Internet]. 2005 Dec 5; Available from:
879 <http://www.vitisphere.com/actualite-76612-Crise-viticole-suite.htm>
- 880 [45] Autin G. Évolution du pourcentage du nombre d'exploitations professionnelles viticoles par
881 classes de taille dans l'Hérault : 2000, 2005 et 2007. Conseil général de l'Hérault; 2009.
- 882 [46] SCEES. Principaux résultats de l'enquête sur la structure des exploitations agricoles en 2003.
883 Agreste Cahiers. 2005;(2):1–72.
- 884 [47] Observatoire foncier du Département de l'Hérault. Analyse comparée sur 3 périodes 1999-2003
885 / 2004-2008 / 2009-2013. Montpellier: Observatoire foncier du Département de l'Hérault; 2014. 5 p.
- 886 [48] Montaigne É. Normes, qualités des vins et mutations de la viticulture du Languedoc. Bulletin
887 d'information et de documentation de la DGCCRF. 2001;(9):51–8.
- 888 [49] Montaigne É. Standards and quality wine in the transformation of the winegrowing sector in the
889 Languedoc. In East Lansing, USA, 1999/10/31-1999/11/03; 1999. p. 1–22.
- 890 [50] Zadmehran S. L'impact des nouvelles autorisations de plantation sur le foncier viticole. [Thèse
891 Master 2 Commerce des vins]. Université de Montpellier et SupAgro Montpellier; 2016. Available
892 from: https://web.supagro.inra.fr/pmb/opac_css/doc_num.php?explnum_id=3532
- 893 [51] Anderson K, Jensen HG. How much government assistance do European wine producers
894 receive? Journal of Wine Economics. 2016;11(2):289–305. DOI: 10.1017/jwe.2016.16

895
896
897
898
899