

**The Common Agricultural Policy  
of the European Union –  
the present and the future**

**EU Member States  
point of view**





INSTITUTE OF AGRICULTURAL  
AND FOOD ECONOMICS  
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# **The Common Agricultural Policy of the European Union – the present and the future**

## **EU Member States point of view**

*Editors:*

*dr Marek Wigier*

*prof. dr hab. Andrzej Kowalski*

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CHALLENGES, CHANCES, THREATS, PROPOSALS**

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*Summa Linguae S.A.*

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*Instytut Ekonomiki Rolnictwa i Gospodarki Żywnościowej*

*– Państwowy Instytut Badawczy*

*ul. Świętokrzyska 20, 00-002 Warszawa*

*tel.: (22) 50 54 444*

*faks: (22) 50 54 636*

*e-mail: [dw@ierigz.waw.pl](mailto:dw@ierigz.waw.pl)*

*<http://www.ierigz.waw.pl>*

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## 9. Re-adjusting risk management within the CAP: evidences on the implementation of the Income Stabilisation Tool in Italy

*Prof. Samuele Trestini, PhD Elisa Giampietri*  
*Department of Land, Environment, Agriculture and Forestry,*  
*University of Padova, Italy,*  
*samuele.trestini@unipd.it; elisa.giampietri@unipd.it*

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### Abstract

In order to contribute to the literature on the Income Stabilisation Tool (IST), this study investigates which is the better geographical dimension of a sector-specific instrument. In particular, the study focuses on Italian farms specialised in viticulture over the period of 2011-2014, estimating their income losses, the level of indemnification and the average fee due to farmers. We also compare the hypothesis of both a national IST and five different macro-regional funds, considering the threshold for indemnification at 30% and 20%. Results suggest a strategy to establish a double mechanism where macro-regional funds can guarantee more tailored fees for farmers (specific for different geographical areas and level of riskiness), whereas a national IST, being able to reduce the systemic risk and the variability of income losses more than smaller funds, can provide resources for the compensation of farm losses, in case of insolvency.

**Keywords:** income risk assessment, Income Stabilisation Tool (IST), Common Agricultural Policy, farm economic sustainability, viticulture, Italy

**JEL codes:** G32, Q12, Q18

### 9.1. Introduction

Income risk has been increasingly attaining academic relevance in the last years. Indeed, due especially to both the joint volatility of input costs, output price and crop yields at farm level [Chavas, 2011; Tangermann, 2011] and climate change, nowadays Italian agriculture results are extensively exposed to income risks [Anton et al., 2012; Severini et al., 2016], and the viticulture sector also. In addition, literature suggests the role of agricultural policy in influencing the higher exposure to production and market risks that contribute to threaten farmer's viability and sustainability. To this purpose, on the one hand, cross-compliance and agri-environmental schemes in the majority of cases have resulted in augmenting production risks, while promoting less intensive production processes [El Benni et al., 2016]. On the other, it is good to mention the progressive reduction of direct payments over the last years, that represented a sort of guarantee for farmers.

In order to find new solutions to efficiently tackle farm economic risks, the Common Agricultural Policy for 2014-2020 of the European Union provides a new measure called Income Stabilisation Tool (IST) within the rural development policy, that aims at coping with income risks [JEU, 2013a]. In addition to this, the wine sector continues to be included into the Common Market Organization [JEU, 2013b] and also the management of crisis. As opposite to insurances and mutual funds against yield losses, the new IST offers an overall risk coverage for farmers [Pigeon et al., 2012; Finger and El Benni, 2014] in the form of a compensation against income losses beyond 30% over the previous three years. More precisely, the new IST recognizes the establishment of mutual funds by farmers who decide to self-financing their losses in the case of a severe income drop. In particular, these funds represent private initiatives owned by farmers who share common risks and territorial membership. When the loss experienced by the farmer is greater than 30%, compared to the average of the previous three years or the previous five years (excluding the highest and the lowest), such mutual fund provides compensations to farmers for a maximum of 70% of the loss. Subsequently, a contribution up to 65% (of the amount previously paid to farmers) is granted to the fund from the EU compensation. A number of changes to the previous risk management toolkit arose with the so-called “Omnibus Regulation” [JEU, 2017] that, within its agricultural rules package, aims at improving the implementation of the current tools since January 2018. As regards the IST, the main changes are the following: introduction of a new sector-specific IST; reduction of the threshold level for indemnification from 30% to 20%; increase of public support from 65% to 70%; the possibility to cover both the initial assets of the fund and the annual contribution paid by the farmer with public support; finally, implementation of Index-based IST to simplify income losses’ calculation. With regard to the implementation of such innovative tool, in 2013 the EU asked Member States to specify the rules to establish and manage the tool. To this purpose, as well as Hungary and Spain (Castilla Y Leon region), Italy applied the IST measure by allocating a total amount of EUR 97 million and providing for a specific national plan. Going beyond the EU borders, it is interesting to note that the IST instrument also attracted the interest of Switzerland, as suggested by El Benni et al. [2016]. Up to now, this instrument is still not available in Italy; in the current scenario, the limited availability of information on real farm income is found to be the most relevant reason preventing the IST to be operational [MIPAAF, 2015]. Although it does not exist yet, the potential beneficiaries represent a prominent number in Italy. To this end, Trestini et al. [2017a] found a positive relationship between the variability of value added loss of wine growers and many characteristic features of Italian

traditional viticulture areas as big farm size (UAA) and high altimetry (mountain and hill). In 2016 a Ministerial Decree<sup>11</sup> in Italy has ratified some main operative features<sup>12</sup> of the IST, representing a first step toward its implementation. To sum up, contrary to the already established voluntary basis for farmers' participation and the sector-specific nature of the IST, any precise decision in relation to the IST geographical dimension exists [Finco et al., 2013; Capitanio et al., 2016], at the best of our knowledge; thus, this current knowledge-related gap existing in Italy leaves room for this research.

Comparing a hypothetical national and five different macro-regional dimensions of the IST, this study examines the differences between these funds and their riskiness, in order to check which kind of territorial dimension could guarantee better performances, based on farm information observed during the period from 2008 to 2014. To this purpose, both the level of income loss and the indemnification of wine growers in Italy have been analysed, comparing the establishment of a national and five different (related to five macro-regions) IST mechanisms, considering the threshold fixed at both 30% and 20%. Although its better performance compared to other farm types [Trestini et al., 2017b], as many other sectors also the viticulture sector faced income risks and losses in Italy in the last years; hence, this justifies the choice to study a specific IST for wine growers in this work.

## 9.2. Data and methodology

A FADN dataset related to Italian farms specialised in viticulture provided data for the analysis. This study represents an assessment of income losses at both territorial and corporate level, referring to a constant sample of 325 farms within the observed time interval that is 2008-2014. In accordance with Regulation of the EU No. 1305/2013 on Rural Development, the value added (VA) based on individual farm data was used as an indicator of income loss, being calculated as the sum of farm total revenues and public payments (i.e. direct payments) minus costs for external factors. In order to calculate the reference parameters to estimate farmer compensation from the IST, we calculated the average VA per hectare of the previous three years for each year and each farm.

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<sup>11</sup> G.U. n. 141/2016, art. 10

<sup>12</sup> In particular, it provides clear information about: voluntary nature of participation; nature of the initial capital of the fund (voluntary payments by farmers); duration of the fund (minimum five years) and fund membership (minimum of three years); indemnification rules; minimum requirements for fund establishment (minimum 150 farmers or 50 farmers with a total turnover of more than EUR 10 million); nature of the subjects responsible for establishing and managing the mutual fund (agricultural cooperatives and consortia, producers' organizations and associations, etc.); duration of the income protection (one year for income protection funds and less than one year for funds related to climate and environmental risks).

From this it follows that we obtained a four-year observable period (2011-2014) to estimate the indemnification that Italian farms would have received through IST. Afterwards, we compared this reference VA to the actual VA for each year from 2011 to 2014, in order to estimate the loss and to verify the existence of a severe income drop (i.e. greater than 30% and 20%) to justify the indemnification from the fund. Based on a total of 1300 usable observations, we estimated the average indemnification on annual basis in each sample, i.e. the 70% of farm loss, and the average membership fee. The fee was calculated both as a percentage on the reference VA and in EUR/ha for each farm. Moreover, we considered and operational national IST (ITALY) and the following five different funds, related to five Italian macro-regions (MRs): North-East (NE); North-West (NW); Central Italy (CEN); South (SOU); Islands (ISL).

Table 1. Descriptive statistics of different IST-related samples, 2014

	ITALY	NW	NE	CEN	SOU	ISL	
<b>No. farms</b>	325	133	103	17	52	15	
<b>Gender</b> (% of farms)	female	20	20	12	47	18	60
	male	80	80	88	53	83	40
<b>Altimetry</b> (% of farms)	hill	69	94	27	100	68	87
	mountain	15	5	42	-	2	-
	lowland	16	1	31	-	30	13
<b>UAA</b> (ha)	11.9	10.8	9.5	12.8	13.1	33.1	
<b>Average farm revenues per hectare</b> (EUR/ha)	11 284	11 614	14 247	5342	8861	10 737	
<b>Average EU payment per hectare</b> (EUR/ha)	132	78	182	151	162	134	
<b>Average costs for external factors per hectare</b>	3513	3715	5210	1871	2419	1947	
<b>Average value added (VA) per hectare</b> (EUR/ha)	7903	7977	9219	3621	6604	8924	
<b>MACRO-REGIONAL SAMPLES (MRs)</b>	<b>REGIONS</b>						
North-West (NW)	Piemonte, Lombardia, Valle D'Aosta, Liguria						
North-East (NE)	Veneto, Friuli Venezia Giulia, Trentino, Alto Adige, Emilia-Romagna						
Central Italy (CEN)	Umbria, Toscana, Marche						
South of Italy (SOU)	Abruzzo, Campania, Basilicata, Puglia, Molise						
Islands (ISL)	Sardegna, Sicilia						

Source: own elaboration, 2017.

Table 1 reports some main descriptive statistics related to each IST sample. The lack of data related to two Italian regions, i.e. Lazio and Calabria, prevented to consider regionally tailored ISTs in Italy. To test whether the variability of farm VA was significantly different or not among the above mentioned five MRs, a t-test for equality of means at 5% significance level was used, considering the standard deviation as indicator of variability<sup>13</sup>. Furthermore, we considered losses referring to both the 30% and the 20% threshold: as before mentioned, the latter is currently provided for sector-specific ISTs, according to Regulation EU No. 2393/2017. Finally, we tested differences in terms of income variability among all the considered samples and years.

<sup>13</sup> This was standardized dividing it by the 7 year average, representing a coefficient of variation.

### 9.3. Results

Evidences from Table 2 support the choice to consider different macro-regional samples as, for instance, the variability of farm VA between macro-regions significantly differs over the considered seven years, with the exception of the pair-wise comparison between NW and CEN. This reveals that both the level of farm riskiness and the relative compensation from the fund differ and, based on this, also the fee that farmers from different geographical areas have to pay in order to become IST members.

Table 2. t-test for equality of mean values linked to the coefficient of variation (C.I. 0.95) of value added (VA) and comparison among couples of macro-regional samples

	NW	NE	CEN	SOU	No. farms	Mean	Std. Dev.
NW					133	.530	.413
NE	0.167***				103	.363	.221
CEN	0.074	-0.093			17	.456	.273
SOU	0.169***	0.002	0.095		57	.361	.134
ISL	0.179**	0.012	0.105	0.01	15	.351	.163

Note: \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$ .

Source: own elaboration, 2017.

Table 3. Farms (number and %) with income loss greater than 30% and average indemnification, 2011-14

IST dimension (sample)	Variable	Threshold 30%				
		2011	2012	2013	2014	'11-'14
ITALY (N = 325)	No. of farms with income loss greater than 30%	62	61	46	74	
	% Farms with income loss greater than threshold	19%	19%	14%	23%	
	Average indemnification per farm (EUR/ha)	4822	3035	5026	2677	3851
NW (N = 133)	No. of farms with income loss greater than 30%	37	30	26	27	
	% Farms with income loss greater than threshold	28%	23%	20%	20%	
	Average indemnification per farm (EUR/ha)	7241	4406	8188	3694	6094
NE (N = 103)	No. of farms with income loss greater than 30%	16	20	10	30	
	% Farms with income loss greater than threshold	16%	19%	10%	29%	
	Average indemnification per farm (EUR/ha)	2228	2285	5233	2615	3050
CEN (N = 17)	No. of farms with income loss greater than 30%	5	4	4	5	
	% Farms with income loss greater than threshold	29%	24%	24%	29%	
	Average indemnification per farm (EUR/ha)	4813	3186	2679	4663	3746
SOU (N = 57)	No. of farms with income loss greater than 30%	3	4	2	9	
	% Farms with income loss greater than threshold	5%	7%	4%	16%	
	Average indemnification per farm (EUR/ha)	2845	1868	526	1087	1882
ISL (N = 15)	No. of farms with income loss greater than 30%	2	3	4	3	
	% Farms with income loss greater than threshold	13%	20%	27%	20%	
	Average indemnification per farm (EUR/ha)	1579	1613	384	1138	1139

Source: own elaboration, 2017.

Table 3 and Table 4 show that the percentage of farms of the national sample who experienced losses higher than the threshold (both 30% and 20%) has registered a general increase in 2014, as for MRs samples but with the ex-

ception of NW. Generally speaking, when comparing the two levels of threshold, we find the same trend related to the number of farms with income drop, although the percentage is greater when dealing with the lower threshold (20%), as considered by the Omnibus Regulation.

Table 4. Farms (number and %) with income loss greater than 20% and average indemnification, 2011-14

IST dimension (sample)	Variable	Threshold 20%				
		2011	2012	2013	2014	'11-'14
ITALY (N = 325)	No. of farms with income loss greater than 20%	98	85	69	99	
	% Farms with income loss greater than threshold	30%	26%	21%	30%	
	Average indemnification per farm (EUR/ha)	3632	2672	4077	2479	3186
NW (N = 133)	No. of farms with income loss greater than 20%	49	40	34	34	
	% Farms with income loss greater than threshold	37%	30%	26%	26%	
	Average indemnification per farm (EUR/ha)	5963	3780	7237	3163	5154
NE (N = 103)	No. of farms with income loss greater than 20%	31	30	20	37	
	% Farms with income loss greater than threshold	30%	29%	19%	36%	
	Average indemnification per farm (EUR/ha)	1993	1614	3278	2506	2425
CEN (N = 17)	No. of farms with income loss greater than 20%	6	4	4	8	
	% Farms with income loss greater than threshold	35%	24%	24%	47%	
	Average indemnification per farm (EUR/ha)	3839	3186	2679	3263	3016
SOU (N = 57)	No. of farms with income loss greater than 20%	7	7	6	15	
	% Farms with income loss greater than threshold	12%	12%	11%	26%	
	Average indemnification per farm (EUR/ha)	2136	2529	986	2054	2173
ISL (N = 15)	No. of farms with income loss greater than 20%	6	4	5	5	
	% Farms with income loss greater than threshold	40%	27%	33%	33%	
	Average indemnification per farm (EUR/ha)	987	1596	384	1037	989

Source: own elaboration, 2017.

Compared to other MRs (i.e. NE, CEN, SOU and ISL), the average indemnity payment per hectare is found to be greater for farms in NW within the observed period 2011-2014, both when we consider the threshold of 30% (EUR 6094 per ha) and 20% (EUR 5154 per ha). This is due to the fact that, while reducing the threshold, the indemnification becomes higher whereas the number of hectares remains constant into the same sample. In addition, the average compensation per hectare in NW is also significantly greater than what found for the national IST (EUR 3851 per ha and EUR 3186 per ha, for the 30% and 20%, respectively), suggesting that the variability of farm VA is reduced when considering a unique national fund in Italy, instead of many macro-regional ISTs. Indeed, compared to a smaller fund, a national IST could contribute to face systemic risk<sup>14</sup> [Ramsey and Santeramo, 2017] by including geographical heterogeneity, albeit requiring high transaction costs due mainly to information asymmetry problems (e.g. moral hazard).

<sup>14</sup> Systemic risk represents a large financial risk due to highly correlated losses and exists when many farmers are exposed to the same risk in the same moment; notoriously, it can make the fund being insolvent when it has to compensate farmers with severe income drops.

Table 5. Average fee for farmers with income drop above 30% threshold, 2011-14

IST dimension (sample)	Variable	Threshold 30%					C.V. (%)	Max. Dev. from mean level (%)
		2011	2012	2013	2014	'11-'14		
ITALY (N=325)	Average fee on reference VA (%)	12.0	8.1	12.8	7.8	10.2	25.5	25.6
	Average fee per hectare (EUR/ha)	1006	618	1048	647	822	27.6	27.2
	Average fee per hectare (EUR/ha) with the EU contribution (65%)	352	216	367	227	288		
NW (N=133)	Average fee on reference VA (%)	19.4	11.7	22.9	8.1	15.8	43.9	45.7
	Average fee per hectare (EUR/ha)	1894	1033	2001	655	1400	47.1	43.1
	Average fee per hectare (EUR/ha) with the EU contribution (65%)	663	361	700	229	490		
NE (N=103)	Average fee on reference VA (%)	4.0	3.3	9.3	10.1	7.1	52.7	44.9
	Average fee per hectare (EUR/ha)	290	239	814	961	600	63.4	62.7
	Average fee per hectare (EUR/ha) with the EU contribution (65%)	101	84	285	336	210		
CEN (N=17)	Average fee on reference VA (%)	27.7	20.8	22.4	32.4	25.6	20.5	26.3
	Average fee per hectare (EUR/ha)	1600	1067	1027	1234	1234	21.2	29.7
	Average fee per hectare (EUR/ha) with the EU contribution (65%)	560	373	360	432	432		
SOU (N=57)	Average fee on reference VA (%)	4.6	3.1	0.1	1.8	2.4	79.7	91.7
	Average fee per hectare (EUR/ha)	379	222	7	147	178	82.1	106.5
	Average fee per hectare (EUR/ha) with the EU contribution (65%)	133	78	3	51	62		
ISL (N=15)	Average fee on reference VA (%)	4.90	9.60	2.10	4.10	5.00	61.4	88.9
	Average fee per hectare (EUR/ha)	418	632	140	312	371	54.8	69.5
	Average fee per hectare (EUR/ha) with the EU contribution (65%)	146	221	49	109	130		

Source: own elaboration, 2017.

As shown in Table 5 and 6, the fee that is up to farmers in order to participate to IST is different according to the geographical sample we consider (i.e. national or macro-regional ISTs), and the fee reflects a different level of compensation and risk between different areas in Italy. Along the four-year period from 2011 to 2014 and among the different MRs, the average fee (calculated on the reference VA for each farm) is higher for farms belonging to CEN, followed by NW, both when considering the threshold at 30% (25.6% for CEN and 15.8% for NW, respectively) and 20% (26.2% and 16.7%, respectively). In addition, when comparing the two northern macro-regions (NE and NW), which are also the largest in terms of number of sample farms, it is possible to see that the average fee is always lower in NE (7.1% and 8.2%) than in NW (15.8% and 16.7%). Analyzing the average fee per hectare along the four years, on average we note that, compared to the other MRs, this is higher in NW (EUR 1400 per ha with threshold at 30% and EUR 1480 per ha with threshold at 20%), followed by CEN (EUR 1234 per ha and EUR 1236 per ha, respectively).



Table 6. Average fee for farmers with income drop above 20% threshold, 2011-14

IST dimension (sample)	Variable	Threshold 20%					C.V (%)	Max. Dev. from mean level (%)
		2011	2012	2013	2014	'11-'14		
ITALY (N=325)	Average fee on reference VA (%)	12.9	10.1	13.5	9.6	11.6	17.0	16.5
	Average fee per hectare (EUR/ha)	1090	772	1048	8.09	932		
	Average fee per hectare (EUR/ha) with the EU contribution (65%)	381	270	367	283	326	17.8	16.3
NW (N=133)	Average fee on reference VA (%)	20.4	12.4	23.6	9.3	16.7	40.7	42.0
	Average fee per hectare (EUR/ha)	1993	1033	2088	737	1480		
	Average fee per hectare (EUR/ha) with the EU contribution (65%)	698	361	731	258	518	46.4	41.6
NE (N=103)	Average fee on reference VA (%)	5.5	5.1	10.4	10.5	8.2	37.8	29.2
	Average fee per hectare (EUR/ha)	434	399	904	961	696		
	Average fee per hectare (EUR/ha) with the EU contribution (65%)	152	140	317	336	244	44.4	39.3
CEN (N=17)	Average fee on reference VA (%)	28.1	20.8	22.4	36	26.2	25.6	36.5
	Average fee per hectare (EUR/ha)	1600	1067	1027	1388	1236		
	Average fee per hectare (EUR/ha) with the EU contribution (65%)	560	373	360	486	433	21.5	28.7
SOU (N=57)	Average fee on reference VA (%)	4.8	9.8	0.7	8.4	5.9	68.7	65.8
	Average fee per hectare (EUR/ha)	379	741	73	587	440		
	Average fee per hectare (EUR/ha) with the EU contribution (65%)	133	259	25	205	154	64.9	67.6
ISL (N=15)	Average fee on reference VA (%)	5.8	9.6	2.5	4.2	5.3	54.9	77.8
	Average fee per hectare (EUR/ha)	501	569	140	312	398		
	Average fee per hectare (EUR/ha) with the EU contribution (65%)	176	199	49	109	139	50.9	44.9

Source: own elaboration, 2017.

When considering the threshold at 30%, the average fee per hectare among the MRs ranges from a minimum of EUR 178 per ha (SOU) to a maximum value of EUR 1400 per ha (NW), whereas it amounts to EUR 822 per ha in the Italian sample (i.e., the national IST). Conversely, when considering the 20% threshold, the average fee per hectare ranges from EUR 398 per ha (ISL) to EUR 1480 per ha (NW) and EUR 932 per ha for ITALY. Therefore, in line with Regulation no. 1305/2013, such values are reduced by 65% in the case of public contribution to the fund provided by the EU. With the exception of CEN only when considering the threshold at 30%, the coefficient of variation that has been calculated along the period both for the average fee (%) and the average fee per hectare (calculated by dividing the standard deviation in each year by the average of fees along the four-years) is always lower in the Italian sample (25.5% and 27.6%, respectively, with 30% threshold; 17% and 17.8% with 20% threshold), compared to MRs samples. This shows that the hypothesis of a national IST in Italy would significantly reduce the variability of risk intensity, rather than smaller funds as the macro-regional ISTs analysed in this study.

#### 9.4. Summary and conclusions

The purpose of this research is to explore the more suitable geographical dimension of the IST in Italy, according to both the current rules provided by CAP Regulation on Rural Development and the new rules introduced by the Omnibus Regulation, in the context of the adaptation of the agricultural sector to production and market risks. Because of the absence of IST experiences and the lack of a wide empirical literature on this specific topic, we can only summarize some comments from our findings related to the viticulture sector in Italy. Even if this could increase management costs (mainly against moral hazard risk), the unification of different geographical areas (the five Italian macro-regions in this study) into a single national IST fund could potentially reduce the systemic risk that is notoriously linked to mutual funds; indeed, this could make the level of risk homogeneous among farms that participate in the fund and reduce the variability of income (VA) losses. Our findings justify the establishment of a double national and macro-regional (or regional) IST, in line with the idea that risk diversification can reduce the risk of insolvency. In line with this, a good solution would be to set different fees for farmers belonging to different MRs, so that these reflect area-specific level of risks. In addition, it would be desirable to create also a national fund as this could provide resources in case of local insolvency of MR funds. In this way, the national fund would be more stable against the risk of insolvency, representing a potential buffer for MRs' funds, and could also reduce reinsurance costs. Our results contribute to the current policy debate on the implementation of new publicly funded Income Stabilisation Tools that, in line with the new CAP mid-term review (i.e. Omnibus Regulation), can be also sector-specific. In particular, this research provides useful information to support the design of the more suitable geographical dimension for such new tool. However, the limited number of farms in many MRs (CEN, SOU and ISL) and the short period of time that we observed prevents to consider the investigated sample as representative of the entire population of Italian farms.

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