

**Table S1.** Strengths identified by the truffle experts in the SWOT analysis of the truffle sector.

Strengths	1 <sup>st</sup> round (Average) (0-10) <sup>1</sup>	1 <sup>st</sup> round (Standard deviation) (0-10)	2 <sup>nd</sup> round (Average) (0-10) <sup>1</sup>	2 <sup>nd</sup> round (Standard deviation) (0-10)
The truffle is characterized by a very passionate dimension, also providing additional incomes	(not in 1st round)	(not in 1st round)	9.06	0.75
Truffles are very unique products, desirable for their organoleptic quality and highly appreciated in gastronomy	9.12	1.30	9.00	1.16
Increasing awareness of the truffle possibilities in the culinary world	(not in 1st round)	(not in 1st round)	8.76	0.56
There are strong business companies in the Mediterranean that are leading the sector	8.06	1.46	8.35	1.22
The cultivation of black truffles is compatible with environmental conservation as it is easily adaptable to organic farming requisites	7.94	1.65	8.24	1.49
<ul style="list-style-type: none"> <li>Regarding the previous statement, several experts are differentiating between countries. In the case of Italy (10 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	9.65	0.67
<ul style="list-style-type: none"> <li>Regarding the previous statement, several experts are differentiating between countries. In the case of France (9 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	8.33	1.00
<ul style="list-style-type: none"> <li>Regarding the previous statement, several experts are differentiating between countries. In the case of Spain (11 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	7.77	0.61
<ul style="list-style-type: none"> <li>Regarding the previous statement, several experts are differentiating between countries. In the case of Croatia (6 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	4.57	1.72
<ul style="list-style-type: none"> <li>Regarding the previous statement, several experts are differentiating between countries. In the case of Greece (4 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	0.50	-
Black truffle plantations are not competing with other highly valued crops. Plantations are a good alternative to other less-profitable crops (i.e.: cereals) or abandoned fields	7.50	2.53	8.13	1.41
<ul style="list-style-type: none"> <li>Regarding the previous statement, several experts split the sentence in two. The first one: "Black truffle plantations are not competing with other highly valued crops"</li> </ul>	(not in 1st round)	(not in 1st round)	9.63	0.61
<ul style="list-style-type: none"> <li>Regarding the previous statement, several experts split the sentence in two. The first one: "Plantations are good alternative to other less-profitable crops (i.e.: cereals) or abandoned areas"</li> </ul>	(not in 1st round)	(not in 1st round)	7.79	1.31
Truffle hunting is included in several other "environmental friendly activities" which is highly demanded by urban people	(not in 1st round)	(not in 1st round)	7.24	1.20
Truffle producers/hunters are very experienced in certain countries. The truffle sector is generally very professional (although there is a	6.25	1.75	6.75	1.48

<b>Strengths</b>	<b>1<sup>st</sup> round (Average) (0-10)<sup>1</sup></b>	<b>1<sup>st</sup> round (Standard deviation) (0-10)</b>	<b>2<sup>nd</sup> round (Average) (0-10)<sup>1</sup></b>	<b>2<sup>nd</sup> round (Standard deviation) (0-10)</b>
large number of small truffle farmers in France who do not consider themselves professionals)				
<ul style="list-style-type: none"> <li>Regarding the previous statement, several experts. Consider that we need to differentiate between truffle species, typology and country. In the case of truffle hunters in the wild.</li> </ul>	(not in 1st round)	(not in 1st round)	7.69	2.07
<ul style="list-style-type: none"> <li>Regarding the previous statement, several experts. Consider that we need to differentiate between truffle species, typology and country. In the case of black truffle producers</li> </ul>	(not in 1st round)	(not in 1st round)	7.19	1.91
<ul style="list-style-type: none"> <li>Regarding the previous statement, several experts. Consider that we need to differentiate between truffle species, typology and country. In the case of other truffle producers</li> </ul>	(not in 1st round)	(not in 1st round)	4.93	3.11
High black truffle economical yields per hectare makes this cultivation very profitable	6.42	1.99	6.33	1.78
<ul style="list-style-type: none"> <li>Regarding the previous statement, some experts say that this is dependent on the property size (small producers are not generally considering their own work costs), but also on the country, with the below marks. Italy (7respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	5.79	1.63
<ul style="list-style-type: none"> <li>Regarding the previous statement, some experts say that this is dependent on the property size (small producers are not generally considering their own work costs), but also on the country, with the below marks. France (9 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	5.56	1.45
<ul style="list-style-type: none"> <li>Regarding the previous statement, some experts say that this is dependent on the property size (small producers are not generally considering their own work costs), but also on the country, with the below marks. Spain (8 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	8.38	0.74
<ul style="list-style-type: none"> <li>Regarding the previous statement, some experts say that this is dependent on the property size (small producers are not generally considering their own work costs), but also on the country, with the below marks. Croatia</li> </ul>	(not in 1st round)	(not in 1st round)	No data	-
<ul style="list-style-type: none"> <li>Regarding the previous statement, some experts say that this is dependent on the property size (small producers are not generally considering their own work costs), but also on the country, with the below marks. Greece</li> </ul>	(not in 1st round)	(not in 1st round)	No data	-
The prices evolution pattern shows an increasing trend	5.59	2.48	5.19	1.91
<ul style="list-style-type: none"> <li>Several experts disagree with the previous statement, considering the prices evolution are highly dependent on the truffle species suggesting different price evolution patterns (always</li> </ul>	(not in 1st round)	(not in 1st round)	5.50	1.74

<b>Strengths</b>	<b>1<sup>st</sup> round (Average) (0-10)<sup>1</sup></b>	<b>1<sup>st</sup> round (Standard deviation) (0-10)</b>	<b>2<sup>nd</sup> round (Average) (0-10)<sup>1</sup></b>	<b>2<sup>nd</sup> round (Standard deviation) (0-10)</b>
dependent of the intrinsic seasonality of truffle production). In the case of <i>T. melanosporum</i> :				
<ul style="list-style-type: none"> <li>Several experts disagree with the previous statement, considering the prices evolution are highly dependent on the truffle species suggesting different prices evolution patterns (always dependent of the intrinsic seasonality of truffle production). In the case of <i>T. aestivum</i>:</li> </ul>	(not in 1st round)	(not in 1st round)	5.17	2.21
<ul style="list-style-type: none"> <li>Several experts disagree with the previous statement, considering the prices evolution are highly dependent of the truffle species suggesting different prices evolution patterns (always dependent on the intrinsic seasonality of truffle production). In the case of <i>T. magnatum</i>:</li> </ul>	(not in 1st round)	(not in 1st round)	6.08	1.73
<ul style="list-style-type: none"> <li>Several experts disagree with the previous statement, considering the prices evolution are highly dependent on the truffle species suggesting different prices evolution patterns (always dependent of the intrinsic seasonality of truffle production). In the case of <i>T. borchii</i>:</li> </ul>	(not in 1st round)	(not in 1st round)	6.44	2.19
<b>Limited production capacity worldwide</b>	5.94	3.26	5.00	2.89
<ul style="list-style-type: none"> <li>Regarding the previous statement, there is experts who consider that there is enough production capacity if we consider all the truffle species (it will be limited if we only consider individual species such as <i>Tuber magnatum</i>). In any case too many plantations will reduce the product price. Do you agree?</li> </ul>	(not in 1st round)	(not in 1st round)	9 yes and 6 not	-

<sup>1</sup> The mark ranges between 0, non-relevant to 10, highly relevant.

**Table S2.** Weaknesses identified by the truffle experts in the SWOT analysis of the truffle sector.

Weaknesses	1 <sup>st</sup> round (Average) (0-10) <sup>1</sup>	1 <sup>st</sup> round (Standard deviation) (0-10)	2 <sup>nd</sup> round (Average) (0-10) <sup>1</sup>	2 <sup>nd</sup> round (Standard deviation) (0-10)
Truffle growers have to contribute to the agricultural social security as soon as they start the activity whereas truffle production will only take place after 7 years or so	(not in 1st round)	(not in 1st round)	8.86	1.96
Consumers are not informed enough about truffles and truffle products and their use in gastronomy	8.59	1.93	8.62	1.95
In spite of associationism, the productive sector is atomized and non-professional. There is an increase of local initiatives, but a lack of cooperation for the development of greater scope projects	8.25	1.79	8.35	1.37
Imprecise management techniques (i.e. : irrigation management, weed control, fertilization, pruning) for truffle cultivation	8.31	1.07	8.18	0.73
The return-on-investment period is long for black truffle plantations (in comparison with other agricultural products)	7.87	1.87	7.88	2.03
High variability of the yearly truffle yields, due to the variable weather conditions and the dependence of the wild truffles on adequate rainfall	7.69	1.66	7.81	1.52
<ul style="list-style-type: none"> <li>Some experts consider that the variability is dependent on the truffle species, considering different impacts. Can you estimate the impact of the weather on truffle yields? <i>T. melanosporum</i> (10 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	9.60	0.70
<ul style="list-style-type: none"> <li>Some experts consider that the variability is dependent on the truffle species, considering different impacts. Can you estimate the impact of the weather on truffle yields? <i>T. aestivum</i> (10 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	6.10	1.85
<ul style="list-style-type: none"> <li>Some experts consider that the variability is dependent on the truffle species, considering different impacts. Can you estimate the impact of the weather on truffle yields? <i>T. magnatum</i> (10 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	8.10	1.20
<ul style="list-style-type: none"> <li>Some experts consider that the variability is dependent on the truffle species, considering different impacts. Can you estimate the impact of the weather on truffle yields? <i>T. borchii</i> (6 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	9.83	0.41
Lack of ongoing collaboration among sector players: growers, commercial entities, scientists, government figures	(not in 1st round)	(not in 1st round)	7.56	2.16

Weaknesses	1 <sup>st</sup> round (Average) (0-10) <sup>1</sup>	1 <sup>st</sup> round (Standard deviation) (0-10)	2 <sup>nd</sup> round (Average) (0-10) <sup>1</sup>	2 <sup>nd</sup> round (Standard deviation) (0-10)
The truffle ecology still remains a mystery with gaps of knowledge in the life cycle	7.73	1.49	7.43	1.50
Continuous decrease of wild truffle production in the Mediterranean area	7.19	1.82	7.34	1.78
<ul style="list-style-type: none"> <li>Regarding the previous statement, some experts differentiate between truffle species. Can you differentiate between truffle species? How about <i>T. melanosporum</i>?</li> </ul>	(not in 1st round)	(not in 1st round)	8.58	1.85
<ul style="list-style-type: none"> <li>Regarding the previous statement, some experts differentiate between truffle species. Can you differentiate between truffle species? How about <i>T. aestivum</i>?</li> </ul>	(not in 1st round)	(not in 1st round)	5.33	1.67
Lack of official statistics to define both wild truffle yields truffle production based on the plantation size (kg/hectare) prevents visualization of the sector and the design of support policies	7.41	1.74	7.24	1.48
Black truffle plantation establishment is expensive	7.067	2.07	6.88	1.75
Sometimes, it is difficult to find inoculated seedlings with good quality. This is linked to the lack of legal schemes for the commercialization of certified mycorrhizal seedlings	6.88	2.69	6.77	2.24
<ul style="list-style-type: none"> <li>Regarding the previous statement, some experts split the statement, considering that the difficulty in finding inoculated seedlings is not general. The first substatement was "Sometimes it is difficult to find inoculated seedlings with good quality in several regions"</li> </ul>	(not in 1st round)	(not in 1st round)	7.07	2.40
<ul style="list-style-type: none"> <li>Regarding the previous statement, some experts split the statement, considering that the difficulty in finding inoculated seedlings is not general. The second substatement was "There is a lack of common legal schemes for the commercialization of certified mycorrhizal seedlings"</li> </ul>	(not in 1st round)	(not in 1st round)	8.13	2.61
Small average size of the plantations. This situation makes the average productions cost high (i.e.: fixed costs of the irrigation systems) in areas with limited rainfall	6.60	2.20	6.75	1.65
Lack of continuing education focussed on producers and technicians	7.00	2.17	6.44	2.45
Lack of technical support for truffle farmers	7.13	1.74	6.38	2.10
<ul style="list-style-type: none"> <li>Regarding the previous statement, some experts suggest to create a list of accredited professionals with valid competences per country. It would be useful for the truffle growers</li> </ul>	(not in 1st round)	(not in 1st round)	6.59	2.69

<b>Weaknesses</b>	<b>1<sup>st</sup> round (Average) (0-10)<sup>1</sup></b>	<b>1<sup>st</sup> round (Standard deviation) (0-10)</b>	<b>2<sup>nd</sup> round (Average) (0-10)<sup>1</sup></b>	<b>2<sup>nd</sup> round (Standard deviation) (0-10)</b>
Legislation is not strictly adapted to the sector reality (i.e.: establishing a truffle picking period does not make sense in truffle plantations), provoking doubts and sometimes conflicts	6.09	3.35	5.85	2.86
<ul style="list-style-type: none"> <li>Regarding the previous statement and since the legislation varies within countries, the experts weighted the statement per country in the second round. Italy (7 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	3.86	0.38
<ul style="list-style-type: none"> <li>Regarding the previous statement and since the legislation varies within countries, the experts weighted the statement per country in the second round. Spain (9 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	6.50	1.00
<ul style="list-style-type: none"> <li>Regarding the previous statement and since the legislation varies within countries, the experts weighted the statement per country in the second round. France (7 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	6.86	0.38
<ul style="list-style-type: none"> <li>Regarding the previous statement and since the legislation varies within countries, the experts weighted the statement per country in the second round. Croatia (2 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	1.00	-
<ul style="list-style-type: none"> <li>Regarding the previous statement and since the legislation varies within countries, the experts weighted the statement per country in the second round. Greece 1 respondent)<sup>2</sup></li> </ul>	(not in 1st round)	(not in 1st round)	0.00	-
Scarce technical training in a large part of processing and trading companies due to the relatively small sector size	5.85	3.02	5.47	2.84

<sup>1</sup> The mark ranges between 0, non-relevant to 10, highly relevant. <sup>2</sup> In Greece, one expert stated that legislation is rating truffle commerce too expensive adding high taxation leading pickers to shadow market.

**Table S3.** Opportunities identified by the truffle experts in the SWOT analysis of the truffle sector.

Opportunities	1 <sup>st</sup> round (Average) (0-10) <sup>1</sup>	1 <sup>st</sup> round (Standard deviation) (0-10)	2 <sup>nd</sup> round (Average) (0-10) <sup>1</sup>	2 <sup>nd</sup> round (Standard deviation) (0-10)
Big potential for truffle associated touristic and gastronomic activities	8.71	1.14	8.91	1.00
Mediterranean countries still have high potential for truffle cultivation	8.38	1.50	8.44	1.09
Integration of the truffle with other products with high rural values that will be attractive for a luxury tourism (“terroir” concept) in several regions	8.00	1.56	8.41	1.24
Markets are still demanding more truffles, both fresh and processed	8.00	1.37	8.31	1.08
Increasing market trend of high quality, organic and proximity products (three of the main features of the truffles)	7.47	2.72	8.00	1.18
<ul style="list-style-type: none"> <li>Some experts clearly differentiate such concepts, assigning different weights. Can you rate the different concepts based on market trend? General increasing trend (15 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	7.33	1.05
<ul style="list-style-type: none"> <li>Some experts clearly differentiate such concepts, assigning different weights. Can you rate the different concepts based on market trend? Gourmet market (15 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	8.10	0.71
<ul style="list-style-type: none"> <li>Some experts clearly differentiate such concepts, assigning different weights. Can you rate the different concepts based on market trend? Organic market (15 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	4.60	1.68
<ul style="list-style-type: none"> <li>Some experts clearly differentiate such concepts, assigning different weights. Can you rate the different concepts based on market trend? Proximity market (14 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	4.11	2.69
Newly irrigated areas in suitable rural areas are available for truffle cultivation (mainly in Spain)	7.92	2.71	7.92	2.02
Potential for the development of quality branding, to better identify the product by the consumers	7.12	1.83	7.38	1.56
Potential for cultivation of other <i>Tuber</i> species with high market potential such as <i>T. brumale</i> or <i>T. aestivum</i>	6.66	2.47	6.69	1.82
<ul style="list-style-type: none"> <li>Regarding the previous questions, some experts differentially rate the potential of other <i>Tuber</i> species. Weight in the case of <i>T. brumale</i></li> </ul>	(not in 1st round)	(not in 1st round)	3.62	1.45
<ul style="list-style-type: none"> <li>Regarding the previous questions, some experts differentially rate the potential of other <i>Tuber</i> species. Weight in the case of <i>T. aestivum</i></li> </ul>	(not in 1st round)	(not in 1st round)	6.46	1.51
Innovation with new truffle-based products	6.82	2.05	6.41	2.15

<sup>1</sup> The mark ranges between 0, non-relevant to 10, highly relevant.

**Table S4.** Threats identified by the truffle experts in the SWOT analysis of the truffle sector.

Threats	1 <sup>st</sup> round (Average) (0-10) <sup>1</sup>	1 <sup>st</sup> round (Standard deviation) (0-10)	2 <sup>nd</sup> round (Average) (0-10) <sup>1</sup>	2 <sup>nd</sup> round (Standard deviation) (0-10)
Present pandemic and future global events might create economic crises in the tourism sector	(not in 1st round)	(not in 1st round)	9.32	0.85
Use of phytosanitary products in truffle cultivation is altering the image of an organic product	(not in 1st round)	(not in 1st round)	8.94	1.92
Large disturbances such as mega-fires could affect truffle yields	(not in 1st round)	(not in 1st round)	8.21	1.91
Increase of wild boar populations threatens mostly wild truffle populations (in spite of their ecological role spreading spores)	8.06	2.08	8.12	1.65
The chemical additives used as “truffle flavoring” in second tier restaurants decreases truffles’ prestige	8.25	2.35	7.65	2.98
<ul style="list-style-type: none"> <li>Regarding the previous statement, some experts suggested the legal requirement of having a minimum amount of truffle in truffle-labelled products in all the EU</li> </ul>	(not in 1st round)	(not in 1st round)	9.00	2.10
Land speculation and/or increase of land price in suitable areas for truffle cultivation	(not in 1st round)	(not in 1st round)	7.53	1.18
Several supply chain actors (mainly linked with trading operations) are not compliant with the law and are therefore uncontrolled	7.29	1.99	7.24	2.08
Decrease of truffle production due to climate change in Mediterranean Europe	6.76	2.28	6.75	1.65
<ul style="list-style-type: none"> <li>Some experts differentiate the effect of climate change on truffle yields decrease depending on the species. How about <i>T. melanosporum</i>? (11 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	7.36	0.67
<ul style="list-style-type: none"> <li>Some experts differentiate the effect of climate change on truffle yields decrease depending on the species. How about <i>T. aestivum</i>? (10 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	4.80	0.98
<ul style="list-style-type: none"> <li>Some experts differentiate the effect of climate change on truffle yields decrease depending on the species. How about <i>T. magnatum</i>? (8 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	5.00	1.77
<ul style="list-style-type: none"> <li>Some experts differentiate the effect of climate change on truffle yields decrease depending on the species. How about <i>T. borchii</i>? (7 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	6.14	0.36
The potential impact of pests and diseases affecting truffle plantations	5.64	3.82	5.31	2.98
<ul style="list-style-type: none"> <li>Some experts stated that the pests and diseases impact varies a lot among countries. Can you rate such potential impact in Italy?</li> </ul>	(not in 1st round)	(not in 1st round)	4.00	2.37

<b>Threats</b>	<b>1<sup>st</sup> round (Average) (0-10)<sup>1</sup></b>	<b>1<sup>st</sup> round (Standard deviation) (0-10)</b>	<b>2<sup>nd</sup> round (Average) (0-10)<sup>1</sup></b>	<b>2<sup>nd</sup> round (Standard deviation) (0-10)</b>
<ul style="list-style-type: none"> <li>Some experts stated that the pests and diseases impact varies a lot among countries. Can you rate such potential impact in Spain?</li> </ul>	(not in 1st round)	(not in 1st round)	7.90	1.10
<ul style="list-style-type: none"> <li>Some experts stated that the pests and diseases impact varies a lot among countries. Can you rate such potential impact in France?</li> </ul>	(not in 1st round)	(not in 1st round)	4.75	2.55
<ul style="list-style-type: none"> <li>Some experts stated that the pests and diseases impact varies a lot among countries. Can you rate such potential impact in Croatia?</li> </ul>	(not in 1st round)	(not in 1st round)	5.50	0.58
<ul style="list-style-type: none"> <li>Some experts stated that the pests and diseases impact varies a lot among countries. Can you rate such potential impact in Greece?</li> </ul>	(not in 1st round)	(not in 1st round)	2.00	1.00
Risk of contamination of the truffle orchards by other foreign truffles (coming from Asia)	4.93	3.61	4.09	3.01

<sup>1</sup> The mark ranges between 0, non-relevant to 10, highly relevant.

**Table S5.** Top ranked challenges of the truffle sector identified by the truffle expert panel.

Challenges	1 <sup>st</sup> round (Average) (0-10) <sup>1</sup>	1 <sup>st</sup> round (Standard deviation) (0-10)	2 <sup>nd</sup> round (Average) (0-10) <sup>1</sup>	2 <sup>nd</sup> round (Standard deviation) (0-10)
<b><i>Production/Harvesting</i></b>				
Common procedures for the certification of truffle inoculated seedlings (not only for <i>T. melanosporum</i> )	8.71	1.32	8.91	0.94
The improvement of the mechanization of truffle farms	(not in 1st round)	(not in 1st round)	7.88	1.96
How to keep the aromas when truffles are preserved before marketing?	(not in 1st round)	(not in 1st round)	6.94	2.95
Increase the research efforts in truffle plantation management	6.81	3.27	6.71	2.69
Foster cultivation of other truffle species, not necessarily black truffle in Spain and France or summer truffle in Italy	5.47	2.81	5.12	2.78
<b><i>Transformation</i></b>				
Promote the CMO (Common market organizations) for truffles in Europe	(not in 1st round)	(not in 1st round)	8.62	1.60
Common Quality Standards	8.20	1.32	7.93	1.62
Promote the traceability of truffle products	8.71	1.57	7.59	2.67
<ul style="list-style-type: none"> <li>Regarding the previous statement, some experts separate the statements. Can you weight product traceability?</li> </ul>	(not in 1st round)	(not in 1st round)	7.73	2.94
<ul style="list-style-type: none"> <li>Regarding the previous statement, some experts separate the statements. Can you weight chain of custody?</li> </ul>	(not in 1st round)	(not in 1st round)	4.00	3.46
Promote the phasing out of artificial “truffle” flavours	(not in 1st round)	(not in 1st round)	7.35	2.29
Research on manufactured products. How to increase the shelf life of fresh truffles	6.47	3.34	6.35	2.78
<ul style="list-style-type: none"> <li>Regarding the previous statement, some experts consider that in general there is enough knowledge that allow to reach 30-40 day truffle shelf life for black and summer and around 20 days for white and whitish</li> </ul>	(not in 1st round)	(not in 1st round)	Only 1 respondent who fully disagree	-
<b><i>Commercialization</i></b>				
Increase the communicative efforts focusing on countries which do not have a tradition in truffle consumption	(not in 1st round)	(not in 1st round)	8.94	0.77
Truffle tourism	8.65	1.73	8.62	1.47
Traceability, labels, regional and cooperative brands	8.53	1.28	7.68	1.94
<ul style="list-style-type: none"> <li>Regarding the last statement, some experts suggest to have a wild label for truffle</li> </ul>	(not in 1st round)	(not in 1st round)	5.53	3.62
Product profiling/commercial distinction aiming to add value to the product	7.18	2.43	7.00	2.45

<b>Challenges</b>	<b>1<sup>st</sup> round (Average) (0-10)<sup>1</sup></b>	<b>1<sup>st</sup> round (Standard deviation) (0-10)</b>	<b>2<sup>nd</sup> round (Average) (0-10)<sup>1</sup></b>	<b>2<sup>nd</sup> round (Standard deviation) (0-10)</b>
How to include the value of aroma in valorisation	(not in 1st round)	(not in 1st round)	6.88	1.59
<i>Other challenges</i>				
Education, training, and awareness	8.00	1.80	7.88	1.73
Minimize the fraud in truffle markets	(not in 1st round)	(not in 1st round)	7.41	1.66
Consolidation of the actor organizations, particularly the producers by adequate means, before an inter-professional integration	(not in 1st round)	(not in 1st round)	7.31	0.88
Integration of truffle supply chain actors-interprofessional integration	6.71	2.60	6.24	2.39

<sup>1</sup> The mark ranges between 0, non-relevant to 10, highly relevant.

**Table S6.** Actions to be taken by the truffle sector identified by the truffle expert panel.

<b>Prioritized actions to be taken</b>	<b>1<sup>st</sup> round (Average) (0-10)<sup>1</sup></b>	<b>1<sup>st</sup> round (Standard deviation) (0-10)</b>	<b>2<sup>nd</sup> round (Average) (0-10)<sup>1</sup></b>	<b>2<sup>nd</sup> round (Standard deviation) (0-10)</b>
Strengthen the link between truffles, tourism and gastronomy	9.24	1.03	9.09	0.94
Evaluate the role of truffles as important mycorrhizal symbionts in reforestation after large forest fires	(not in 1st round)	(not in 1st round)	9.06	1.24
Increase the effort at European level for the recognition of truffle production, helping to develop truffle culture, and marketing	(not in 1st round)	(not in 1st round)	8.88	1.17
Homogenize the international EU trade and taxation policies	(not in 1st round)	(not in 1st round)	8.85	1.60
Development of a common protocol for the certification of the mycorrhized seedlings	8.65	1.27	8.71	0.99
Increase of the awareness and consumption of truffles among consumers	8.53	1.33	8.13	1.08
Developing tourism courses for truffle farmers	(not in 1st round)	(not in 1st round)	8.24	1.54
Focus on how to evaluate overall quality of all the truffle products not just quality of fresh product	(not in 1st round)	(not in 1st round)	8.18	0.95
Supporting and educating local communities to start new plantations in less favorable-high nature value farmland/forest (i.e.: Greece), supported by CAP schemes	(not in 1st round)	(not in 1st round)	7.94	1.43
Improvement of the current legislation in the truffle sector	8.00	2.12	7.94	1.89
<ul style="list-style-type: none"> <li>Experts differentiate the needs of legislation improvement by country. Can you rate the need of changing truffle legislation in Italy (8 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	6.25	1.28
<ul style="list-style-type: none"> <li>Experts differentiate the needs of legislation improvement by country. Can you rate the need of changing truffle legislation in Spain (7 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	7.43	1.72
<ul style="list-style-type: none"> <li>Experts differentiate the needs of legislation improvement by country. Can you rate the need of changing truffle legislation in France (7 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	6.14	1.86
<ul style="list-style-type: none"> <li>Experts differentiate the needs of legislation improvement by country. Can you rate the need of changing truffle legislation in Croatia (3 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	6.67	5.77
<ul style="list-style-type: none"> <li>Experts differentiate the needs of legislation improvement by country. Can you rate the need of changing truffle legislation in Greece (2 respondents)</li> </ul>	(not in 1st round)	(not in 1st round)	5.00	5.00
<ul style="list-style-type: none"> <li>Experts differentiate the needs of legislation improvement by country. Can you rate the need of</li> </ul>	(not in 1st round)	(not in 1st round)	7.43	3.05

<b>Prioritized actions to be taken</b>	<b>1<sup>st</sup> round (Average) (0-10)<sup>1</sup></b>	<b>1<sup>st</sup> round (Standard deviation) (0-10)</b>	<b>2<sup>nd</sup> round (Average) (0-10)<sup>1</sup></b>	<b>2<sup>nd</sup> round (Standard deviation) (0-10)</b>
changing truffle legislation as a CMO in Europe (7 respondents)				
Management of truffle orchards aiming to increase the production and reduce the interannual production variability	7.00	2.14	7.44	1.15
Increase the expertise of black truffle producers and technicians	7.38	3.01	7.26	3.28
Restoration of wild truffle production	7.41	2.87	7.00	2.76
Interprofessional integration of the supply chain	6.47	2.35	6.27	1.75
Valuation of truffle species different from <i>T. melanosporum</i> such as <i>T. brumale</i> or <i>T. aestivum</i>	5.65	2.37	5.00	2.12
Domestication of new truffle species	4.31	3.70	3.53	3.10

<sup>1</sup> The mark ranges between 0, non-relevant to 10, highly relevant.