

PAPERS

Olive oil quality and EEC regulations

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SUMMARY

Olive oil quality and EEC regulations

The law-makers' growing interest in the quality of olive oil is presented with comments on the modifications in the law in recent years.

The Panel testing method by the International Olive Oil Council was initially considered by the EEC as a good instrument for ensuring an improved quality in virgin olive oils. Panel testing is discussed as a method useful for obtaining information that chemical and physical methods cannot give, and as a legal test.

After some years of experience, we know the weakness of the C.O.I. method and it is also possible to discuss its legal and economic consequences.

A better knowledge of the quality of olive oils is needed in order to establish:

- what to do to improve our understanding of consumer demands and to obtain a better olive oil quality;
- the kind of modification needed to improve the legal reliability of the panel test.

KEY-WORDS: Legislation - Olive oil - Panel test.

OLIVE OIL QUALITY AND EEC REGULATIONS

Mr. Chairman, Ladies and Gentlemen, firstly I would like to thank the organisers of this Symposium who invited me to be here today to present the point of view of the Italian Olive Oil Industry on the "quality and regulation" theme.

The legal arguments are sometimes irritating to scientists, so I will try to avoid entering into too many details.

Olive oil regulation is very complex: year after year a lot of rules and analytical methods were introduced to guarantee product authenticity against frauds.

The result is that we now have more than 25 parameters to check in every olive oil batch: it's a very high cost for our Companies, but it's necessary.

On the other hand, if we consider the "quality" aspect, we can see that very little was done until 2 or 3 years ago. There were some standards linked to the state of preservation of the oil, (Spectrophotometry, Peroxides) and limits for some contaminants (Solvents, pesticides) but, if we consider the "quality", the old regulation considered only one parameter: acidity.

Figure 1 shows the standards set by the Italian law which was valid until 3 years ago: the sensory

characteristics are considered only in terms of "edible" and "non edible" (lampante). Edible oils are classified only according to their acidity.

"EDIBLE" OLIVE OIL

- ACIDITY LESS THAN 4%
- WITHOUT DISGUSTING FLAVOURS

EXTRA VIRGIN

- EDIBLE OIL
- ACIDITY LESS THAN 1%

Figure 1
Standards of olive oil according to the Italian law,
Nov. 13th, 1960 NR.1407

We could find similar situations in the old International Agreement on olive oil (fig. 2) or in the 1985 I.O.O.C. rule (fig. 3): it is important to note that no sensory differences are indicated between Extra Virgin and Virgin Olive Oil. Both should be "perfectly irreproachable".

I don't want to open a philosophical discussion about the meaning of the word "irreproachable": does it mean merely "without defects" or "with some positive aspects", too?

For me, it is more important that Extra Virgin and Virgin standards have the same sensory definition and that they are differentiated only through acidity. In practice, the law was really generic on the taste of olive oil. But taste is important for virgin olive oil.

Who is concerned with taste? Obviously the consumer and our Companies, which are pushed to choose the raw materials and to blend different virgin oils in order to meet market requests.

<p>EXTRA VIRGIN</p> <ul style="list-style-type: none"> • “PERFECTLY IRREPROACHABLE” TASTE • ACIDITY LESS THAN 1% <p>VIRGIN</p> <ul style="list-style-type: none"> • “PERFECTLY IRREPROACHABLE” TASTE • ACIDITY LESS THAN 1.5% <p>“CORRENTE”</p> <ul style="list-style-type: none"> • GOOD TASTE • ACIDITY LESS THAN 3.3% <p>“LAMPANTE”</p> <ul style="list-style-type: none"> • TASTE WITH DEFECTS OR • ACIDITY MORE THAN 3.3%
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Figure 2

Standard of olive oil according to the International Agreement of 1979

<p>EXTRA VIRGIN</p> <ul style="list-style-type: none"> • “PERFECTLY IRREPROACHABLE” TASTE AND FLAVOUR • ACIDITY LESS THAN 1% <p>VIRGIN</p> <ul style="list-style-type: none"> • “PERFECTLY IRREPROACHABLE” TASTE AND FLAVOUR • ACIDITY LESS THAN 1.5% <p>“CORRENTE”</p> <ul style="list-style-type: none"> • GOOD TASTE AND ACCEPTABLE FLAVOUR • ACIDITY LESS THAN 3.3% <p>“LAMPANTE”</p> <ul style="list-style-type: none"> • TASTE AND / OR FLAVOUR WITH DEFECTS OR • ACIDITY MORE THAN 3.3%
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Figure 3

Standards of olive oil according to I.O.O.C., 1985

In the past, in every Company an expert was charged with tasting the oils. In many cases the expert was the Company owner.

And the experts, in a pragmatic way, learned the rules of the game: *the consumer wants an Extra Virgin (not a Virgin) oil, with a sweet taste.*

For the consumer, “Extra Virgin” is authentic, pure and natural. “Virgin” is a second class product.

Some players were not satisfied with the experts’ judgement:

- Big Companies soon introduced trained panels looking for a more reliable method to judge taste.
- The EC Commission, which is a big buyer of olive oils through the intervention: too often in the past the oil was extra Virgin when arriving and “lampante” when leaving EC storehouses. Someone mischievously suggested that the EC intervention, along with time, light and warmth, should be considered as a factor of deterioration of olive oils. EC officials were not convinced and were looking for something different from the traditional judgement of “experts”.
- The farmers were often outraged by the “low” prices the market payed for their oil and considered as rubbish the content of many bottles offered on the shelves however getting good scores from the “experts”.

Therefore, it’s not surprising that, when the I.O.O.C. published the panel testing method, the farmers and the EC officials considered it as a good solution of their problems and a way of assuring olive oil quality.

It was useless to ask for a better evaluation of the method and to remind the farmers that every oil is good to its producer and that perhaps the market is the best judge of quality. The regulation soon changed and it is now that we are all familiar with.

I have told you the story of olive oil regulation to show you that the panel test was not required by regulation. On the contrary, the regulation was changed to make the panel testing necessary.

Second important point: the definition “Extra Virgin” was changed in 1989, without knowing fully the economical and marketing consequences of that change.

Third point: it is a totally new experience. I don’t know of any other case in food legislation in which panel testing is used as a legal method for quality evaluation.

After some years of experience, we have now a better knowledge of the I.O.O.C. method. We know that panel testing gives a lot of information on olive oil quality, in addition to instrumental methods. In this sense, it must be considered a positive instrument in the hands of market operators.

But what can we say about it as a *legal* instrument?

Ring analyses were made by the I.O.O.C. and by other public and private bodies: the results were always that its reproducibility seemed to be insufficient.

We can see in the examples of figure 4 that the reproducibility in the samples considered varied from 1.1 to 3.7. This means that the reproducibility is much higher than the intervals that divide one quality from another. This

explains why the same oil may be judged as Extra Virgin by some panels, and Virgin or even "corrente" by others.

SAMPLE	PANELS N.	MEAN VALUE	R
1	10	7.3	1.18
2	10	5.0	2.49
3	10	7.1	2.10
4	10	5.9	2.45
5	10	5.1	3.70
6	10	7.2	1.68
7	7	6.2	2.17
8	7	5.9	1.86
9	7	4.5	2.17
10	7	6.5	1.28
11	7	7.0	1.12
12	7	4.7	1.82
13	17	4.6	1.31
14	17	4.5	1.33
15	17	6.4	1.48
16	17	6.5	1.31
17	17	6.2	1.46
18	17	6.3	1.34
19	17	5.7	2.00
20	17	5.7	2.45
21	17	3.3	1.55
22	17	3.1	1.16
23	17	3.7	1.17
24	17	3.5	1.12

SAMPLES 1/6 = I.O.O.C. 91
 SAMPLES 7/12 = TECH. GOVERNMENT COMM. I/92
 SAMPLES 13/24 = I.O.O.C. 92

Figure 4
 Reproducibility (R) of the scores assigned to olive oil samples by different panels (FEDELI 1993).

We can see in figure 5 the results of a study carried out by the Italian Government Technical Commission in 1993. The standard deviation is a very high (0.64) and the consequence is that the same oil is classified differently by the different panels. For example, the first sample was considered to be "Virgin" in 8 tests and "Extra Virgin" in the other 8 tests. It was rated 7.5 (a very good extra virgin) by one panel, and 5.5 (practically "corrente") by another!

SAMPLE	PANEL RATINGS	CLASSIFICATION		
		Extra Virgin	Virgin	Corrente
1	5.5 - 7.5	8	8	
2	4.5 - 6.4		6	10
3	5.5 - 7.1	11	5	
4	5.5 - 7.1	7	9	
5	5.0 - 6.6	1	12	3
6	5.4 - 6.9	4	12	

• STANDARD DEV. 0.64
 • REPROD. 2.42

Figure 5
 The result of a ring test carried out in Italy by 10 different panels in 16 tests per sample.

The comparison of results obtained in different countries shows that the judgement may be even more widespread. The same oil was considered Extravirgin, Virgin or "Corrente" (fig. 6). This test carried out by I.O.O.C. is also interesting because the panels judged the oils twice and, in some cases, changed the classification! (see, for example, samples 2 and 3).

SAMPLE	PANEL RATINGS	CLASSIFICATION			
		Extra Virgin	Virgin	Corrente	Lampante
1	3.2-5.4			16-16	1-1
2	5.0-7.5	9-11	6-5	2-1	
3	5.1-7.4	7-7	8-10	2-__	
4	3.9-7.1	5-5	4-5	8-7	
5	2.5-4.6			7-4	10-13
6	2.7-4.5			12-8	5-9

R = 2.36

Figure 6
 The result of a ring test carried out in different Countries in double by 17 panels (I.O.O.C., 1992)

Figure 7 shows some other information we obtained from the 1992 I.O.O.C. test. The rating of 3 samples by 5 panels are presented. We can see that there is a good agreement between the first and the second result in the panels. At the same time there is a complete disagreement among the different panels: panel 1 considers oil 2 as Extravirgin and oil 4 as "Corrente"; on the other hand, panel 5 considers oil 2 as Virgin and oil 4 as Extravirgin. Panel 17 says neither oil 2 nor 4 is Extravirgin! It is clear that the panels are judging according to preferences!

SAMPLE	PANEL 1	PANEL 4	PANEL 5	PANEL 12	PANEL 17
2	7.0/7.4	7.4/7.5	5.9/6.0	6.2/6.8	5.2/5.0
3	6.6./6.5	5.2/5.4	6.7/6.7	7.4/7.4	5.9/6.2
4	5.0/5.3	5.6/5.5	6.7/6.7	6.7/7.0	6.0/6.2

Figure 7
 The result of different panel test judgement of sample 2, 3 and 4 from previous figure (I.O.O.C., 1992)

The I.O.O.C. didn't publish the Country in which each panel was located and so we can't see if the preferences are related to the Country of origin of the oil.

We obtained some further information from a test done by the Italian Associations of producers and traders of olive oil, in 1991 (fig. 8).

Some "fresh" and "old" oils taken from the Italian market were judged by some so-called experts, 3 Italian panels and a panel in Spain.

ITALY'S LABORATORIES			UNSTRUCTURED "EXPERTS" JUDGES	SPAIN PANEL
PANEL 1	PANEL 2	PANEL 3		
2 Extra Virgin	2 Extra Virgin	7 Extra Virgin	9 Extra Virgin	1 Extra Virgin
8 Virgin	6 Virgin	7 Virgin	2 Extra Virgin	1 Virgin
6 Corrente	8 Corrente	2 Corrente	5 Corrente/Lampante	7 Corrente
-	-	-	-	4 Lampante

Figure 8

The result of the sensory analysis carried out by different panels on 16 olive oil samples taken from market shelves and including both "fresh" and "old" samples (Assitol/Federolio test, 1991).

The Spanish panel clearly down-rated all the oils: 4 were considered "lampante" and only one (a very costly Extravirgin, generally considered one of the best Italian oils) was judged Extra Virgin, but with a low rate!

Furthermore, another study made in Spain showed that the panel rating goes down very quickly with the time of storage in the presence of light; the rating becomes less than 6.5 well before the spectrophotometric index and the peroxide value start indicating any deterioration.

If we consider that the best fresh Extra Virgin can't have a rating higher than 8.0-8.5 (the hypothesis that all panelists rate an oil 9.0 is only theoretical) we can conclude that there is no single oil free from the risk of being downgraded by a panel. Obviously this is more likely to happen with the greater part of the Extra Virgin oils, which are normally rated between 6.5 and 7.5.

As a consequence, a Company can be accused of fraud and, if the oil is rated below 5.5, the financial aid to consumption cannot be paid.

I am anxious to hear the results obtained in the Flair study. If they confirm our worries, what can we propose?

I think that we have to re-study the entire problem and we have to agree on what "quality" is. I would like to remind you that, according to the ISO definition, quality is not an absolute value, but it must be considered in relation to the consumer. Quality is what satisfies consumer requirements. It is a characteristic whole: not only taste, but also colour, aspect, the fact of being "natural", presentation, packaging, labelling, image and price.

Not only the farmer produces quality; everyone producing, blending, bottling and marketing olive oil has this duty. But we have to accept that the quality we are looking for is the quality asked by the consumer.

We must recognize that different consumer groups in the same Country, and more often in different Countries, have different views on quality, and different taste preferences.

I think that the problems we have with the I.O.O.C. panels are due to the fact that it was conceived as a method of assessing an ideal, absolute quality.

I can try to clarify this point with a simple example presented in figure 9.

It is clear that the first oil is preferred by the majority of panelists, while a minority prefers the second one. Both are Extra Virgin and perhaps there is an interesting niche in the market for the second oil.

According to the I.O.O.C. panel method the second one is not Extra Virgin.

I think that this ideological position is in contrast with the fact that panels are composed of human beings, with their own personal, regional and national ideas about "good taste": this probably explains the low reproducibility.

PANELIST	OIL 1	OIL 2
1	7	6
2	7	6
3	7	6
4	7	6
5	7	6
6	7	6
7	7	6
8	7	6
9	6	7
10	6	7
PANEL RATING	6.8	6.2

Figure 9

Score comparison of two olive oil samples by ten panelists.

Mr. Chairman, it is difficult to solve problems in the olive oil sector because the olive oil is such a part of our history and culture that we are not only confronted with facts, but also with emotions. Olive oil is an emotion.

Only a better scientific knowledge can help us in getting over our emotions and finding solutions.

We need, I think, a better knowledge in three directions:

- better methods of evaluating the oil sensory profile, in order to understand our consumer's wishes and to prepare correctly our blends;
- an improved legal method, that probably must put aside the idea of judging the positive aspects of the oil and must consider only the defects;
- a new legal method with a better repeatability and reproducibility, to avoid chaos in our work.

I hope that this Symposium will help us in achieving these results.