

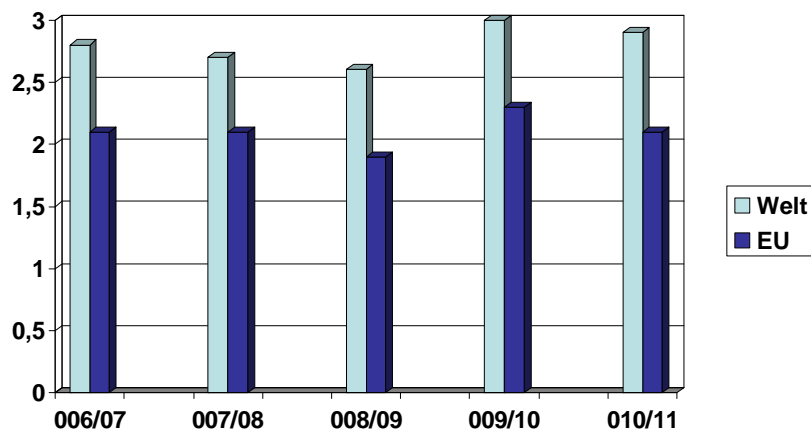


## Influence of the harmony value for the quality development of Extra Virgin Olive Oil

Dieter Oberg, Ass. for care and support of the value of EVOO;  
German Olive Oil Panel (DOP)  
[d.oberg@olivenoel-info.de](mailto:d.oberg@olivenoel-info.de) [www.olivenoel-info.net](http://www.olivenoel-info.net)  
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## World Production Olive Oil

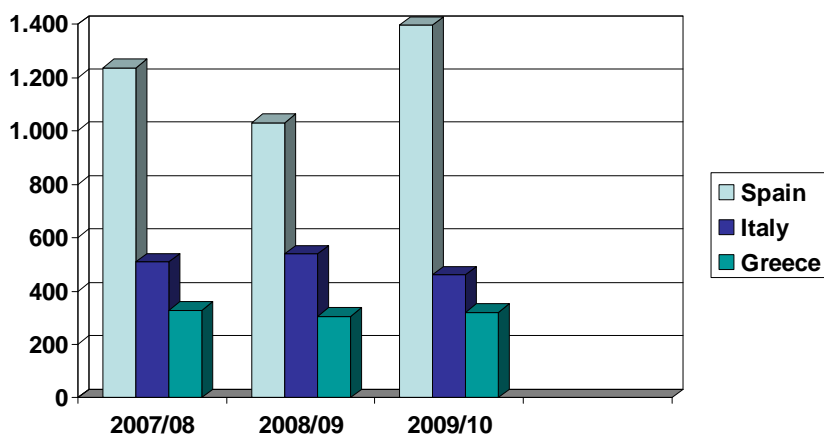
(in 1000 t, all fractions, Source: IOOC)



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## Important EC production countries

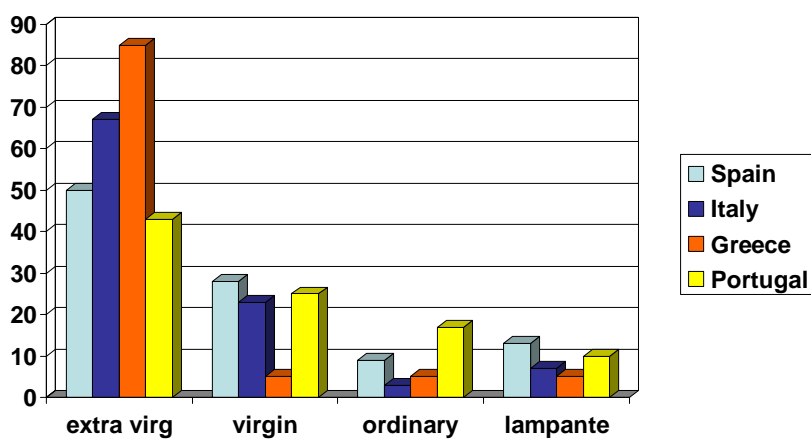
Source: IOC, Mio t, all fractions



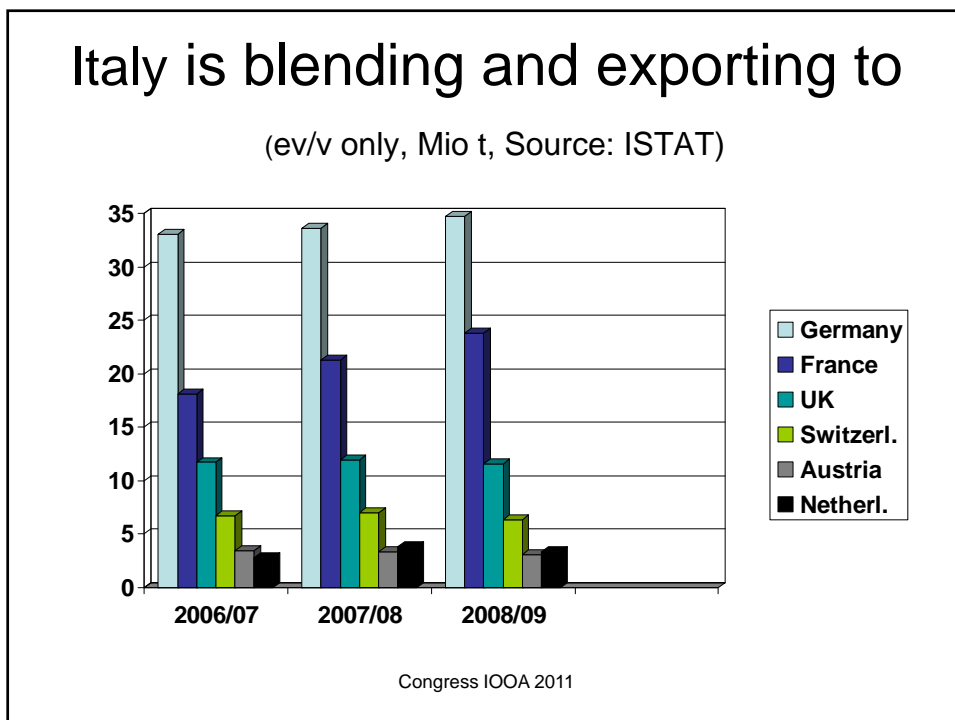
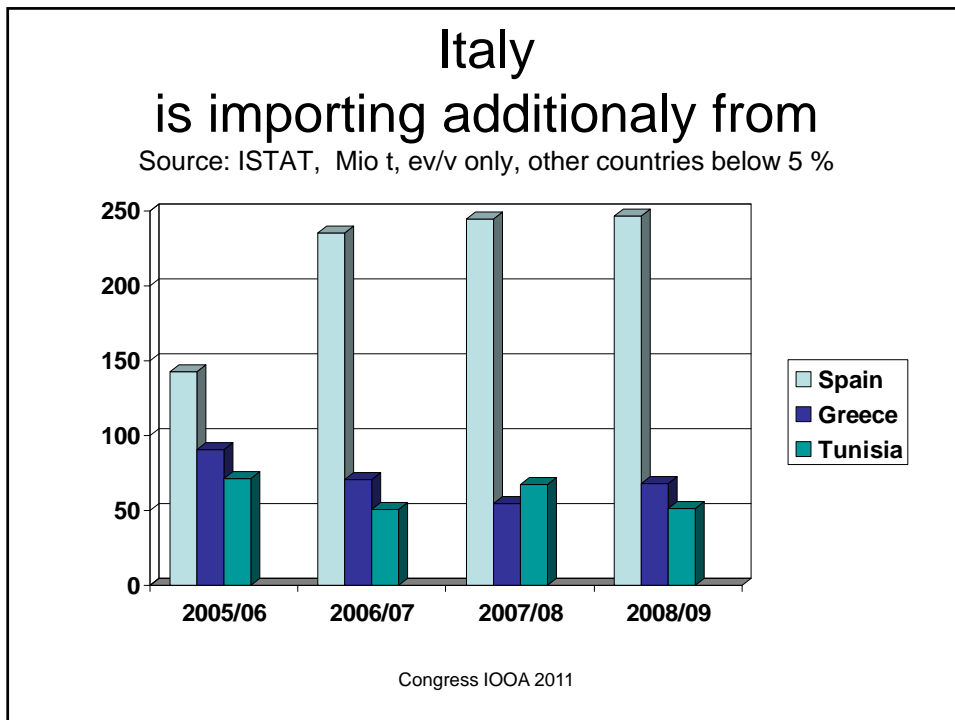
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## Product fractions

(In %, Source: off. Statistics of producing countries, 99/00)

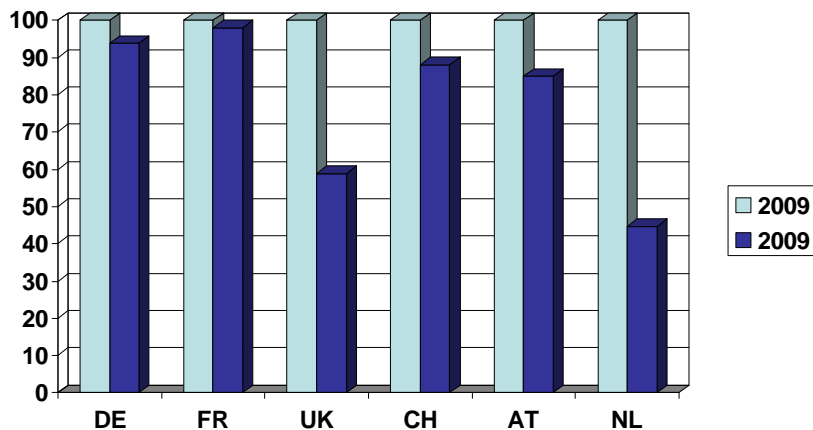


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## Export from Italy, Share of ev/v

Source ISTAT, ev/v, %

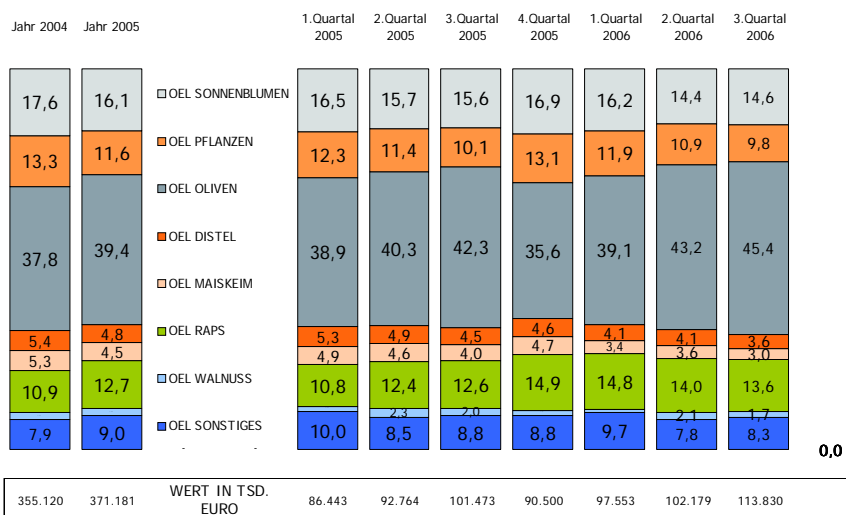


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## Zeitreihen - Oelsorten - SPEISEOEL

WERT IN TSD. EURO /%

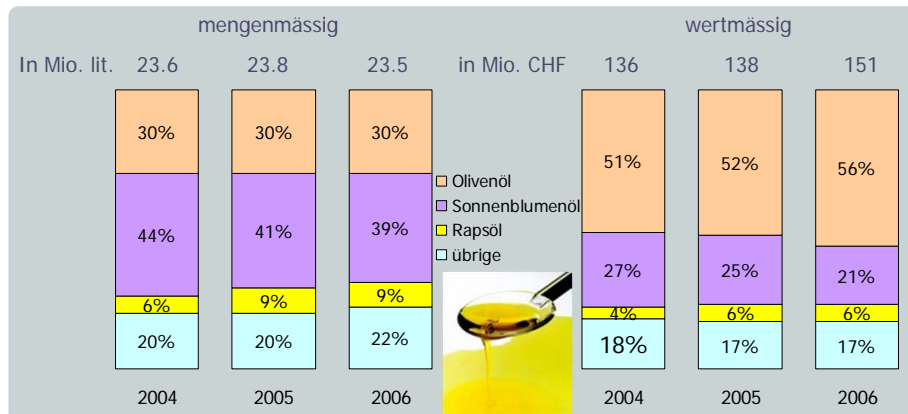
T\_CONSUMER SCAN; Jahr 2004 / Jahr 2005



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Quelle: GfK Haushaltspanel

## CH: Development of the market of Oils



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Quelle: RetailScan inkl. Tessin

## Statement 1

- Not all of the mentioned quantities have passed a paneltest
- The quality of EVOO is because of the influences during the agricultural- and production process and the blending generally rather complicated to describe.

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## Factor time for possible sensory assessments for EVOO

1. **Personal impression**
2. **Oriental sensory tasting**
3. **Consensus Sensory evaluation**
4. **Official analytical sensory assessment (Paneltest)= statistically relevant**

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## The official Paneltest

- Reg. (EC) 640/2008 or IOC Standard 21/95-V/07
  - The panel must be accredited along DIN EN ISO 17025 (2005)
  - The test needs: Min. 8, max. 12 well trained tasters
  - 1 experienced Panelsupervisor
  - Yearly experiences with ringtests
- >> **Aim: classification of the oil**

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## The IOC-Profilsheet for the performance of the classification



### Negativ attributes:

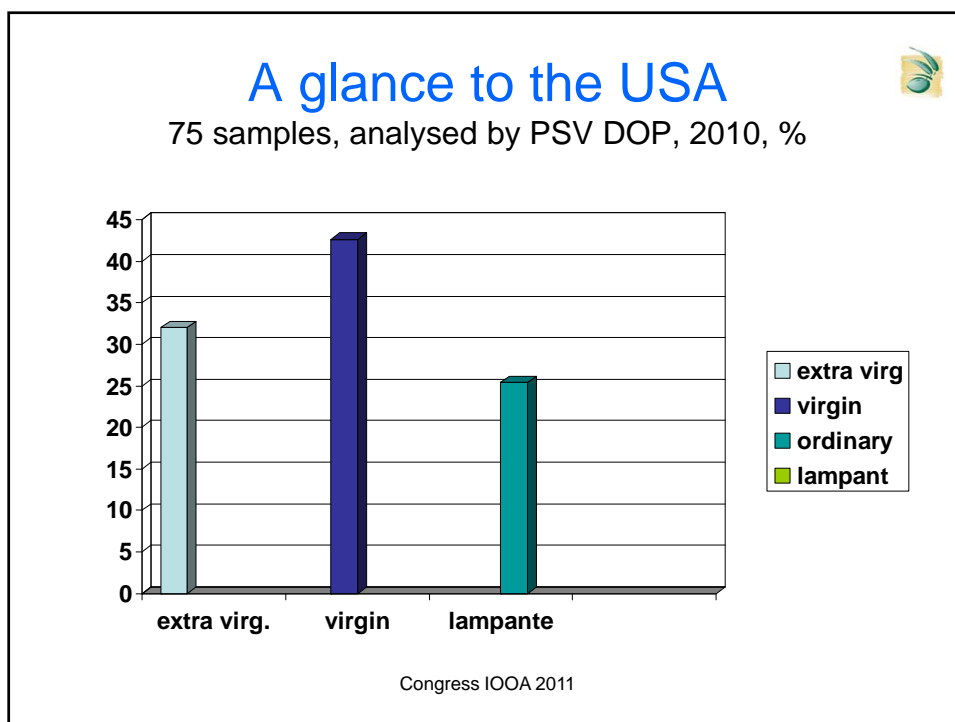
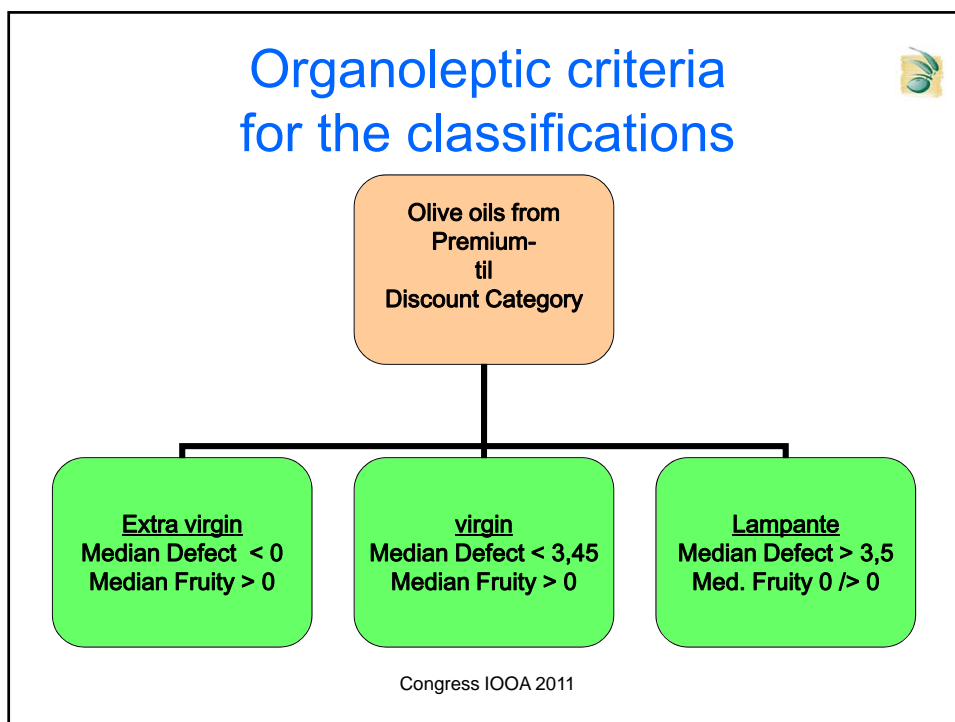
Fusty / muddy sediment (atrojado)	Fruity
Musty	Bitter
Winey-vinegar-acid	Pungent
Metallic	Name of taster
Rancid	Code-No.
others (specify)	Date

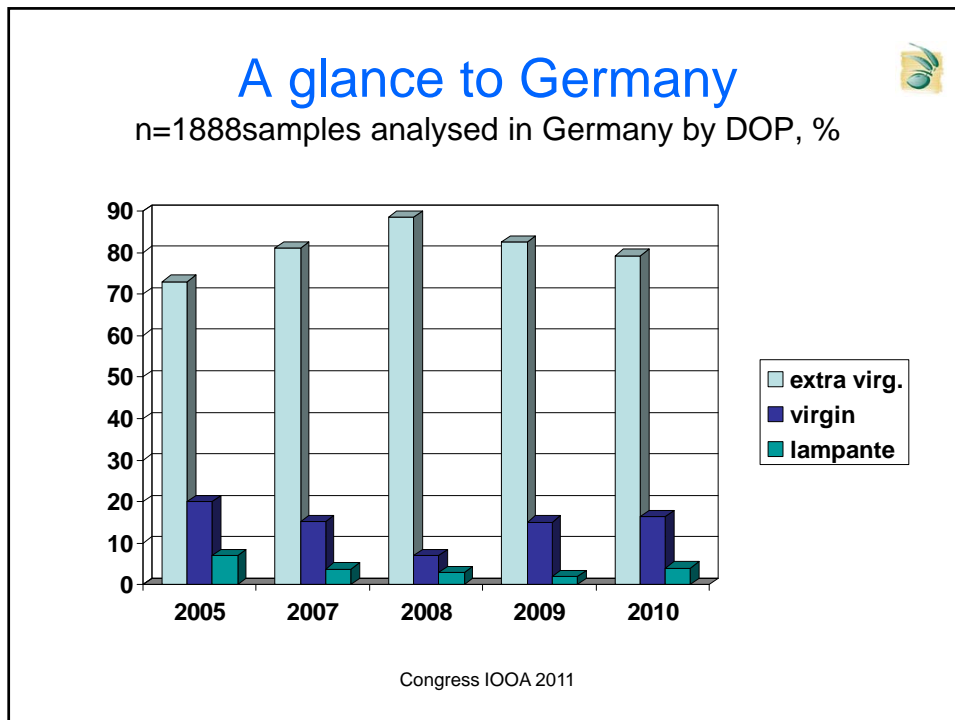
### Positive attributes incl green/ripe

Fruity	Name of taster
Bitter	Code-No.
Pungent	Date

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S 5		German Olive Oil Panel (DOP)												
Taster	Fusty	fusty muddy	Musty	Winey	Metallic	Rancid	Other	Sp ec.	Fruity	g r	r e	Bitter	Pungent	
1		0,0	0,0	0,0	0,0	0,0	0,0		4,2			2,5	2,4	
2		0,0	0,0	0,0	0,0	0,0	0,0		4,1	x		2,3	2,1	
3		0,0	0,0	0,0	0,0	0,0	0,0		4,2		x	2,8	2,5	
6		0,0	0,0	0,0	0,0	0,0	0,0		2,7			1,4	1,6	
8		0,0	0,0	0,0	0,0	0,0	0,0		3,9		x	1,8	2,5	
9		0,0	0,0	0,0	0,0	0,0	0,0		4,0		x	2,0	3,0	
11		0,0	0,0	0,0	0,0	0,0	0,0		4,1		x	3,1	3,2	
13		0,0	0,0	0,0	0,0	0,0	0,0		3,4		x	2,5	3,4	
15		0,0	0,0	0,0	0,0	0,0	1,0	roh	3,4		x	1,6	1,6	
16		0,9	0,0	0,0	0,0	0,0	0,0		2,8		x	1,4	3,3	
17		0,0	0,0	0,0	0,0	0,0	0,0		4,4	x	x	3,0	3,8	
Median		<b>0,00</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>	<b>0,00</b>		<b>4,00</b>			<b>2,30</b>	<b>2,50</b>	
Mean														
Rel. Robust std. dev. (%)							Congress IOOA 2011		<b>5,23</b>			<b>11,53</b>	<b>11,17</b>	<b>1,78</b>





## Statement 2

- The paneltest separates EVOO from not EVOO
- The classification as EVOO leads still to a broad range of defect-free but sensory very different qualities - simply from excellent to bad or almost no taste.

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## Discrimination with the extended Paneltest

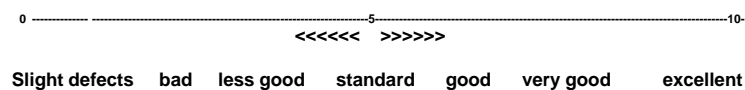
### Aims:

- Sensory differentiation of EVOO with the factor harmony/persistency
- Top training for the tasters
- Definition of quality levels within the category “Extra Virgin” !
- Repeatability

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## Harmony/Persistency is marked by the taster on a 10 cm scale at the end of the profilsheet



### Validation for this parameter

- The valid Median must have a robust coefficient of variation (CVr) below 10 %
- Single results that exceed standard deviation by 1,5 and more have to be eliminated
- At least 6 from 8 tasters need to have a valid result

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S 5		German Olive Oil Panel (DOP) Extended Result												
Taster	Fusty	fusty muddy	Musty	Winey	Metallic	Rancid	Other	Sp ec.	Fruity	g r	r e	Bitter	Pungent	 (Median)
1		0,0	0,0	0,0	0,0	0,0	0,0		4,2			2,5	2,4	4,9
2		0,0	0,0	0,0	0,0	0,0	0,0		4,1	x		2,3	2,1	5,7
3		0,0	0,0	0,0	0,0	0,0	0,0		4,2		x	2,8	2,5	4,9
6		0,0	0,0	0,0	0,0	0,0	0,0		2,7			1,4	1,6	4,6
8		0,0	0,0	0,0	0,0	0,0	0,0		3,9		x	1,8	2,5	4,7
9		0,0	0,0	0,0	0,0	0,0	0,0		4,0		x	2,0	3,0	5,2
11		0,0	0,0	0,0	0,0	0,0	0,0		4,1		x	3,1	3,2	4,6
13		0,0	0,0	0,0	0,0	0,0	0,0		3,4		x	2,5	3,4	4,6
15		0,0	0,0	0,0	0,0	0,0	1,0	roh	3,4		x	1,6	1,6	4,3
16		0,9	0,0	0,0	0,0	0,0	0,0		2,8		x	1,4	3,3	3,5
17		0,0	0,0	0,0	0,0	0,0	0,0		4,4	x	x	3,0	3,8	4,8
Median		0,00	0,00	0,00	0,00	0,00	0,00		4,00			2,30	2,50	4,70
Mean														
Rel. Robust std. dev. (%)								Congress IOOA 2011	5,23			11,53	11,17	1,78

## Differentiation of EVOO in relation to results for harmony/persistency

Harmony Median	Description
0	Defect
< 3,0	Not acceptable
3,1 – 4,4	Not sufficient
4,5 – 5,4	Sufficient/standard
5,5 – 6,4	Good
6,5 - 10	Very good/excellent

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Feature/Benefit Influence 1

## Setting and controlling of aroma profiles (example)



- Request by a distributor/detailist for the aroma profile over one year (evaluation by DOP)

Fruity 3,5 til 4,5  
Bitter 2,0 til 3,2  
Pungent 3,0 til 4,0

**Harmony 4,7 til 5,2**

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Feature/Benefit Influence 2

## 2. Preselection for a tender



6 samples, Italian blend, orientation by PSV DOP (n=1), 2010

Sample	ID. No	Defects	fruity	green	ripe	bitter	pung.	Harm.
E 01	FE1	< 0	4,2	x	x	2,4	2,9	5,4
E 02	FE2	< 0	3		x	1,8	2,7	5,1
E 03	FE3	2,4 grubby (slightly fusty or burnt)	3			1,9	2,2	2,6
E 04	FE4	1,4 grubby (burnt)	3,5			2,4	3,1	2,9
E 05	FE5	< 0	4,5		x	2,6	3,3	4,5
E 06	FE6	< 0	4,9	x	x	2,4	3,4	5,7

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## Feature/Benefit Influence 3

### 3. Ranking in a testmagazin



12 samples, CH, analysed by DOP 2010  
 Ranking, Red. K-Tipp, EVOO, April/May 2010

No.	Origin	Test-Code	Result DOP (n=8-10)								Note	
			Defect	fruity	green	ripe	bitter	pungent	Classif.	Harmony		
# 10	Novello di Macina	K 08	< 0	4,8	x			1,8	2,9	ev	<b>5,8</b>	good
# 06	Migros	K 04	< 0	4	x	x		1,8	2,5	ev	<b>5,5</b>	good
# 05	Monini-Migros	K 22	< 0	4,2	x			2,7	3,4	ev	<b>5,4</b>	standard
# 08	Sabo	K 23	< 0	3,3				2	2,5	ev	<b>5,4</b>	standard
# 03	Naturaplan	K 03	< 0	3,9				2,6	2,8	ev	<b>5,3</b>	standard
# 09	Bertolli	K 19	< 0	3,6				2	2,4	ev	<b>4,5</b>	standard
# 12	Denner	K 17	< 0	3,8				2	2,5	ev	<b>4,1</b>	not sufficient
# 11	Primadonna	K 07	< 0	3,8	x	x		3,5	3,5	ev	<b>3,9</b>	not sufficient
# 07	Morga	K 05	2,0 stichig	2,6				2,1	1,6	v	<b>0</b>	not good
			2,7 ranzig									
# 14	Crudigno	K 09	2,0 muffig	3				1,5	2,5	v	<b>0</b>	not good
			1,5 ranzig									
# 04	M-Budget Migros	K 14	1,9 stichig	3,4				2,1	2,3	v	<b>0</b>	not good
# 13	Bellasan	K 20	1,9 stichig	3				2,8	2,8	v	<b>0</b>	not good
# 01	Filippo Berio-Coop	K 21	2,0 stichig	3,5				2,6	3,1	v	<b>0</b>	not good
# 02	Coop aus ESP	K 13	3,7 stichig	2,2				2,7	2,1	lamp	<b>0</b>	not good

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### 4. Controlling of supplier lots

continuous tasting, 2010 by DOP (modified)



	fruity	harmony
Lot CT 23	3,3	0 (defect)
Lot CT 22	4,2	<b>3,8</b>
Lot CT 21	3,5	<b>3,9</b>
Lot CT 20	3,6	<b>3,9</b>
Lot CT 17	3,9	<b>5,1</b>
Lot CT 15	4,2	<b>4,7</b>
Lot CT 14	4,3	<b>5,0</b>

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## 5. Pretests for a tender of PDO EVOO



4 samples, 2010 analysed by DOP

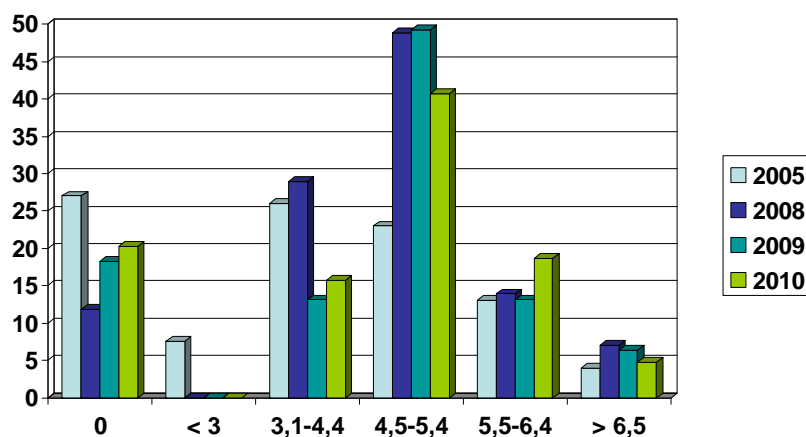
Defects	fruity	green	ripe	bitter	pung.	Harmony
<b>&lt; 0</b>	<b>4,7</b>	<b>x</b>	<b>x</b>	<b>2,6</b>	<b>3</b>	<b>6,7</b>
<b>&lt; 0</b>	<b>5,7</b>	<b>xx</b>		<b>3,3</b>	<b>4,3</b>	<b>6,4</b>
<b>&lt; 0</b>	<b>5,2</b>	<b>xx</b>	<b>x</b>	<b>3</b>	<b>3,6</b>	<b>6,5</b>
<b>&lt; 0</b>	<b>5,2</b>	<b>xx</b>	<b>(x)</b>	<b>2,9</b>	<b>4,1</b>	<b>7,3</b>

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## Positive quality development Example Germany in 5 years in %



based on general market input (n=1888), DOP, %



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## Statement 3

- The extended Paneltest is more realistic and practical for quality discrimination and for using by decision makers
- Continuous controlling gives pressure and helps to increase the quality

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## Acknowledgement



- Our Partner during the final and the Sdevelopment and validation of this organoleptic test methodology for Olive Oil was the University of Applied Sciences in Wädenswil/Zurich (CH). We do thank especially **Annette Bongartz** and the members of SOP for their permanent and very helpful support.

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Thanks for your attention



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