



Life Sciences und  
Facility Management

zh  
aw

# The Harmony- Index

Turning Sensory  
Science into Market  
Opportunity

Waedenswil, May 22, 2026  
Future of Olive Oil Summit - Zurich Edition  
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# Food Perception → Methodological Approach



Analytical  
(objective)



Hedonic  
(subjective)



# Official Regulations → Panel-Test & Classification

## EU 2022 / 2104

→ Classification Criteria



- ✓ **Absence of defects**
- ✓ **Fruitiness > 0**
- ✓ Around 30 chemical parameters

### Median of defects

The median value of the negative attribute (defect) that is most pronounced in all cases is relevant for assessing marketability.

### Median of fruitiness

The median value of the positive attribute 'fruity' is relevant for assessing marketability.

The attributes 'bitter' and 'spicy' do not contribute to the assessment of marketability.

# Profile Sheet

→ EC / IOC (Panel-Test)

**PROFILE SHEET FOR VIRGIN OLIVE OIL**  
**INTENSITY OF PERCEPTION OF DEFECTS**

**Fusty/muddy sediment** \_\_\_\_\_

**Musty/humid/earthy** \_\_\_\_\_

**Winey/vinegary  
acid/sour** \_\_\_\_\_

**Frostbitten olives  
(wet wood)** \_\_\_\_\_

**Rancid** \_\_\_\_\_

**Other negative  
attributes:** \_\_\_\_\_

**Descriptor:**      **Metallic**    **Dry hay**    **Grubby**    **Rough**   
                         **Brine**    **Heated or burnt**    **Vegetable water**   
                         **Esparto**    **Cucumber**    **Greasy**

**INTENSITY OF PERCEPTION OF POSITIVE ATTRIBUTES**

**Fruity** \_\_\_\_\_  
                         **Green**       **Ripe**

**Bitter** \_\_\_\_\_

**Pungent** \_\_\_\_\_

# Official Regulations → Panel-Test & Classification

Intensity of Defect	Intensity of Fruitiness	EU / IOC	Classification
$X = 0.0$	$X > 0.0$	EU / IOC	EVOO / Extra Virgin Olive Oil
$0.0 > X < 3.5$	$X > 0.0$	EU / IOC	VOO / Virgin Olive Oil
$0.0 > X < 3.5$ $3.5 \geq X < 6.0$	$X = 0.0$	IOC IOC	OV / Ordinary Virgin Olive Oil
$0.0 > X < 3.5$ $X \geq 3.5$ $X \geq 6.0$	$X = 0.0$	EU EU IOC	LO / Lampant Olive Oil



# The EVOO Paradox

Basic Classification  
hides massive  
Quality Differences

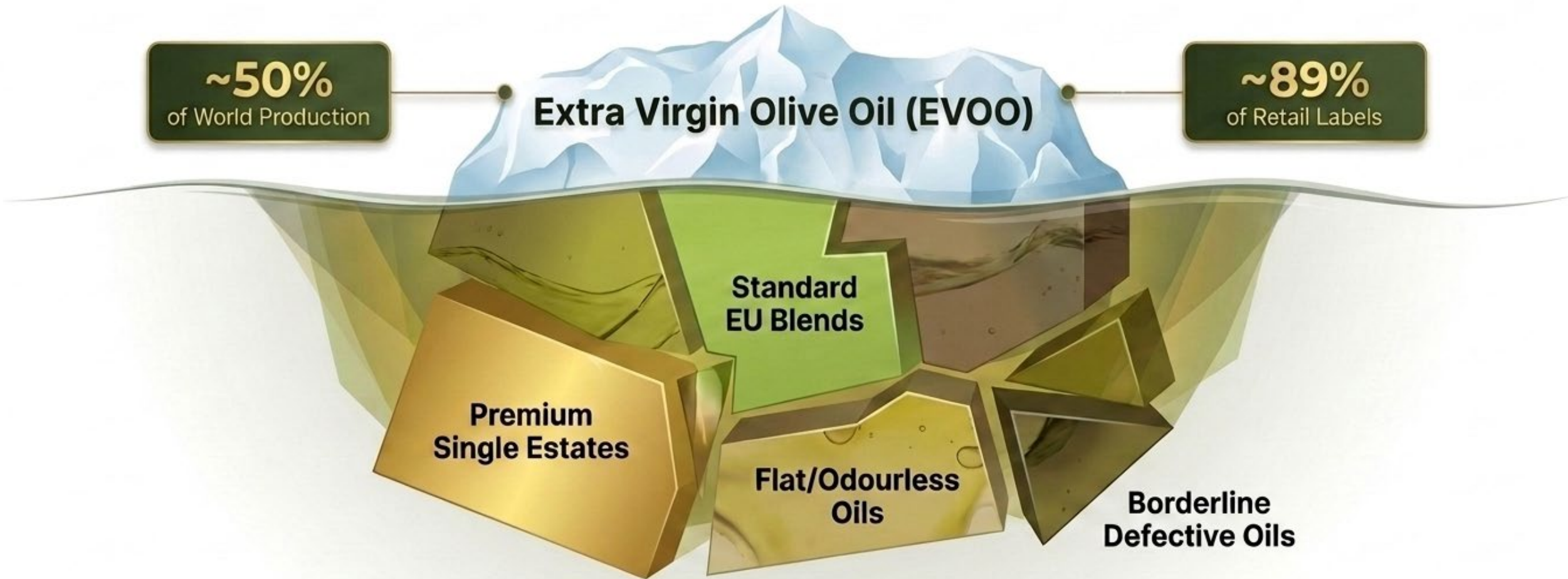


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# The 'Extra Virgin' Iceberg Hides Massive Quality Differences

The global olive oil market suffers from an illusion of uniformity. Because threshold regulations are incredibly broad, a massive spectrum of sensory qualities are merged together under one identical "Extra Virgin" label.



**Key Insight: Without a tool to differentiate within the EVOO grade, producers cannot justify premium pricing, and consumers are left guessing.**

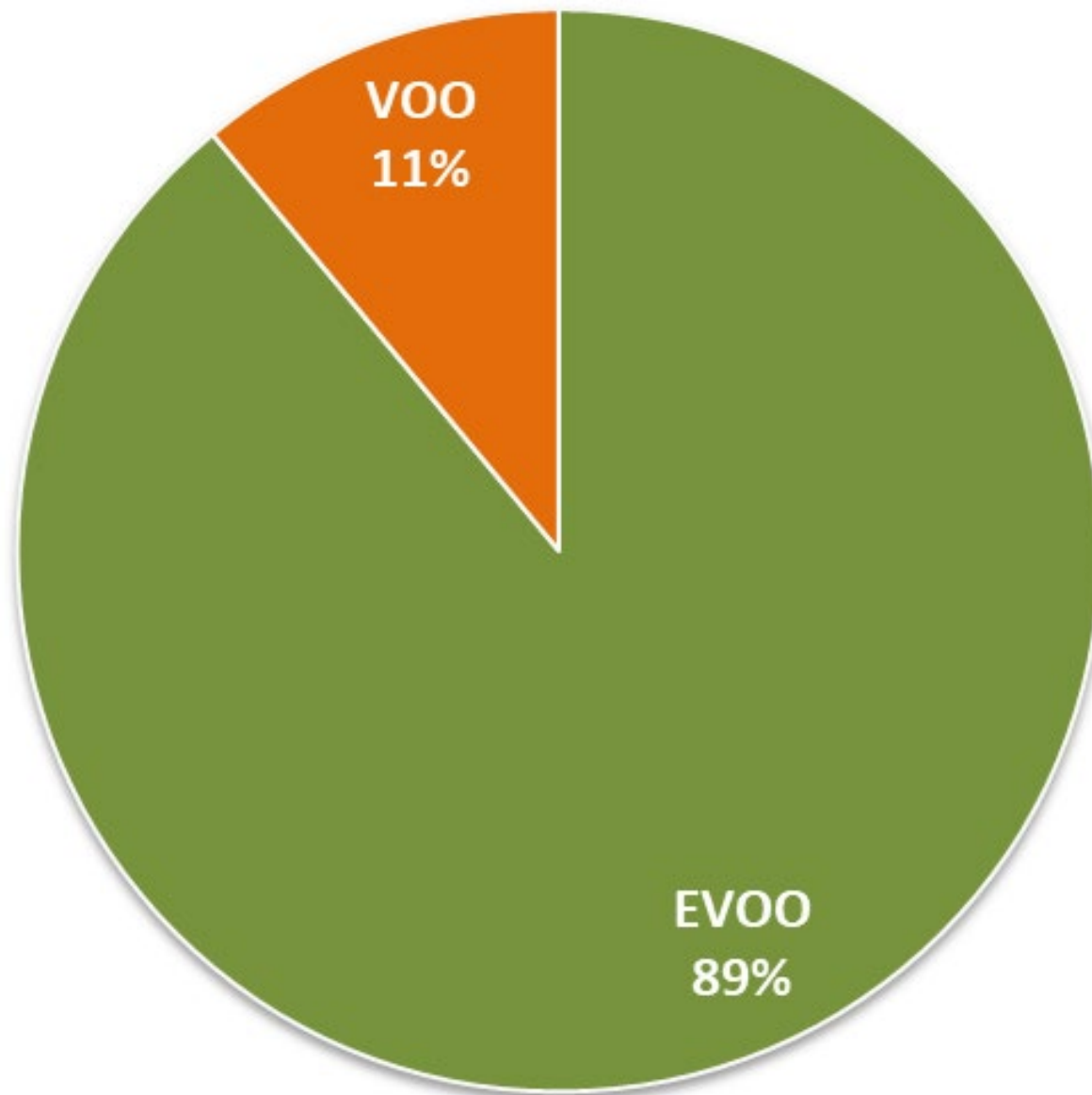
# Market Insight

Example: DE/CH

Overall **n = 2736 Olive Oil samples from the market** (100%) were evaluated by the German and Swiss Olive Oil Panel during the years 2011-2015.

**Panel-Test** (Classification), followed by partition into the official quality categories, showed the following results ...

❖ <b>EVOO</b>	n = 2434	(89%)
❖ <b>VOO</b>	n = 302	(11%)

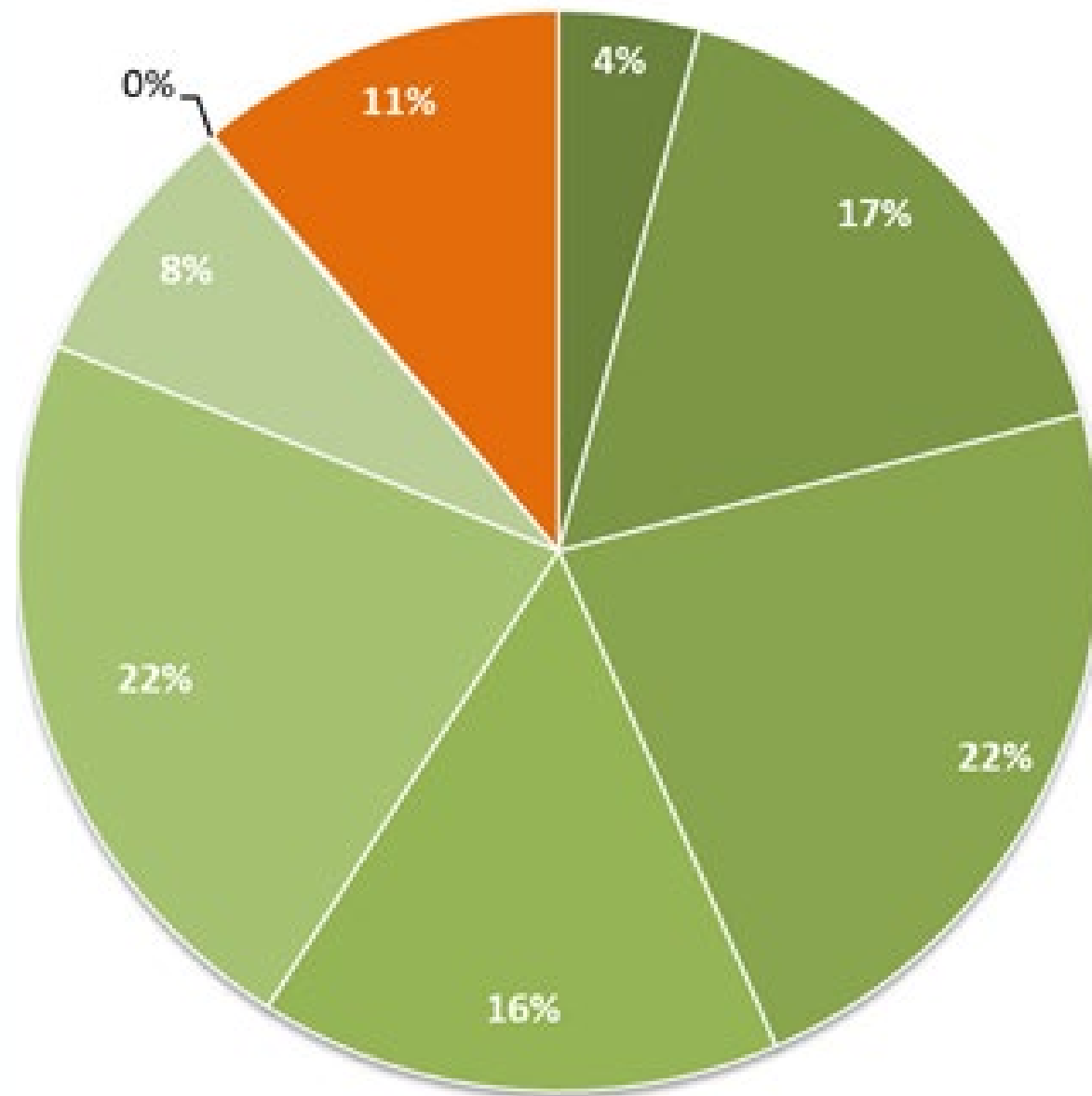


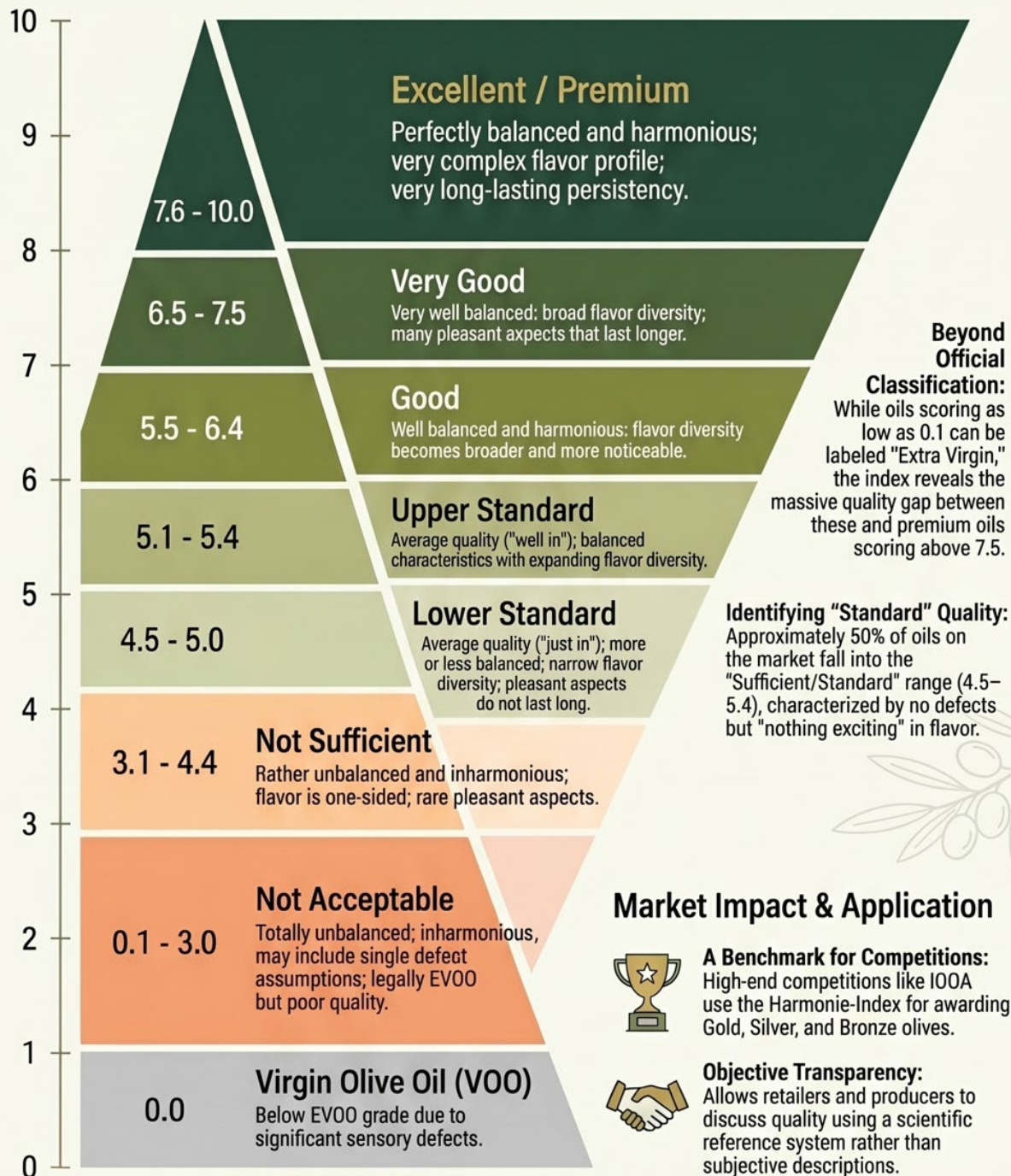
# Market Insight

Example: DE/CH

**Additional sensory discrimination** of all n = 2434 EVOO classified oil samples was possible, using the **Harmony-Index**.

- EVOO / harmony excellent (7.6 – 10.0)
- EVOO / harmony very good (6.5 – 7.5)
- EVOO / harmony good (5.5 - 6.4)
- EVOO / harmony upper standard (5.1 - 5.4)
- EVOO / harmony lower standard (4.5 - 5.0)
- EVOO / harmony not sufficient (3.1 - 4.4)
- EVOO / harmony not acceptable (0.1 - 3.0)
- VOO / harmony (= 0)





# The Harmony-Index

Scientific Approach for objective Quality Differentiation

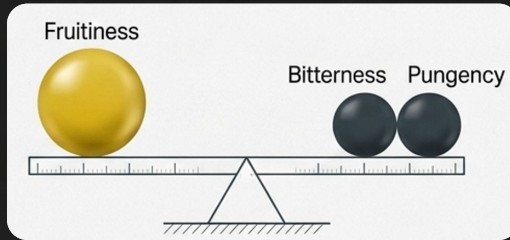
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# The Architecture of Harmony

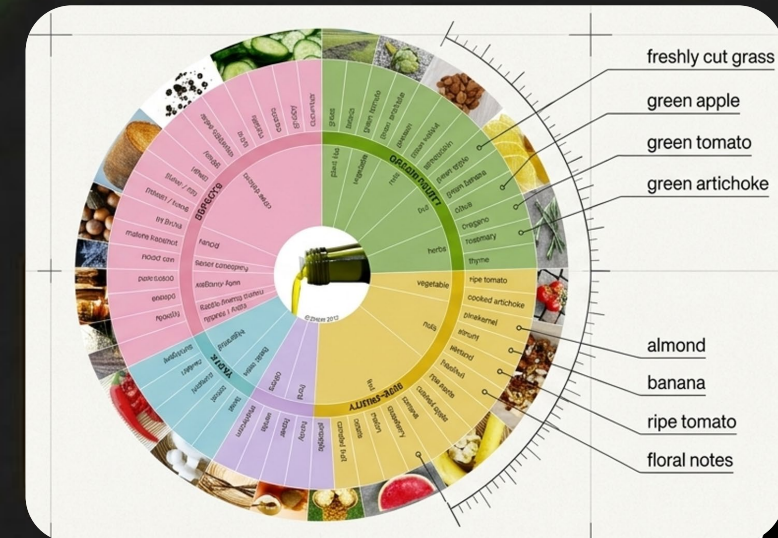
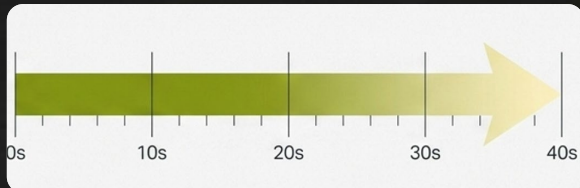
**Balance:**  
The degree of equilibrium between the three positive attributes: Fruitness, Bitterness, and Pungency. No single trait should overpower the others.



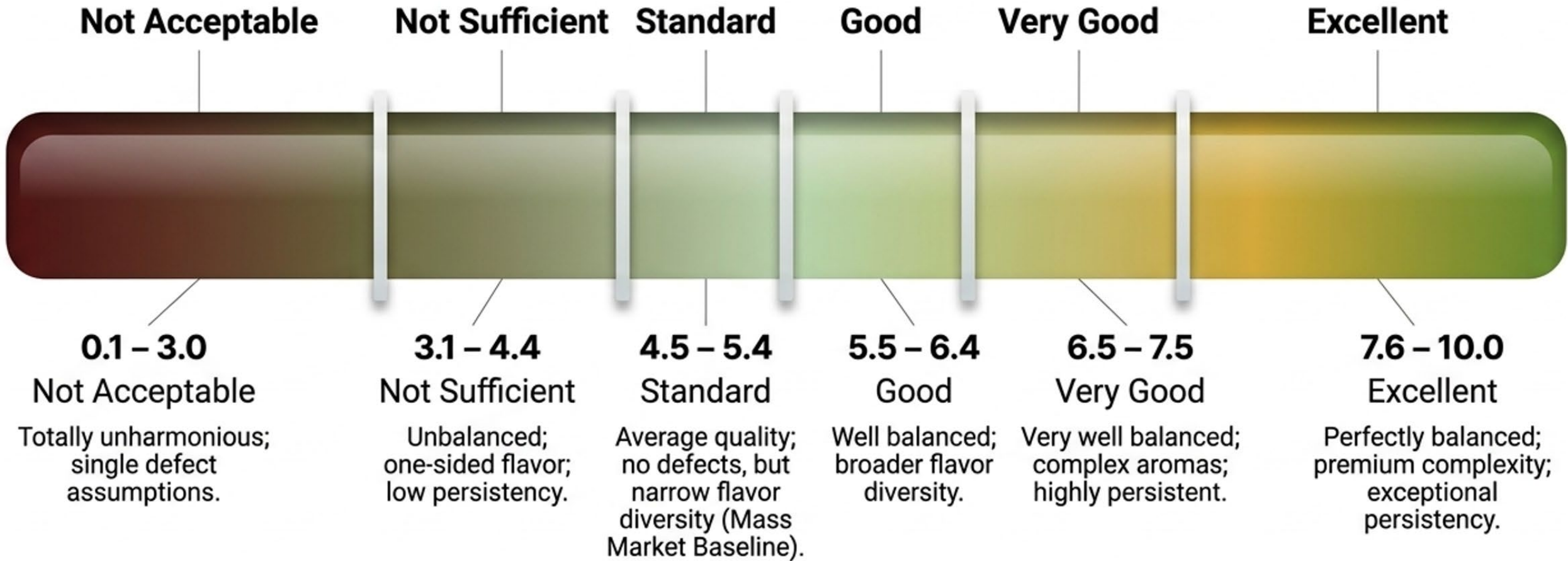
**Aromatic Complexity:**  
The presence, pureness, intensity and diversity of perceived green and ripe aromatic compounds (ortho- and retronasal).

**Harmony-Index**

**Persistency:**  
The duration of time that positive retronasal sensations last in the mouth and senses.



# Harmony-Index Scale



# Industry Application: Producer Quality Control



## Step 1: Pre-Bottling Lab Analysis

Producers submit batches to accredited panels (like DOP/SOP) prior to bottling to receive an objective Harmony score.



## Step 2: Internal Benchmarking

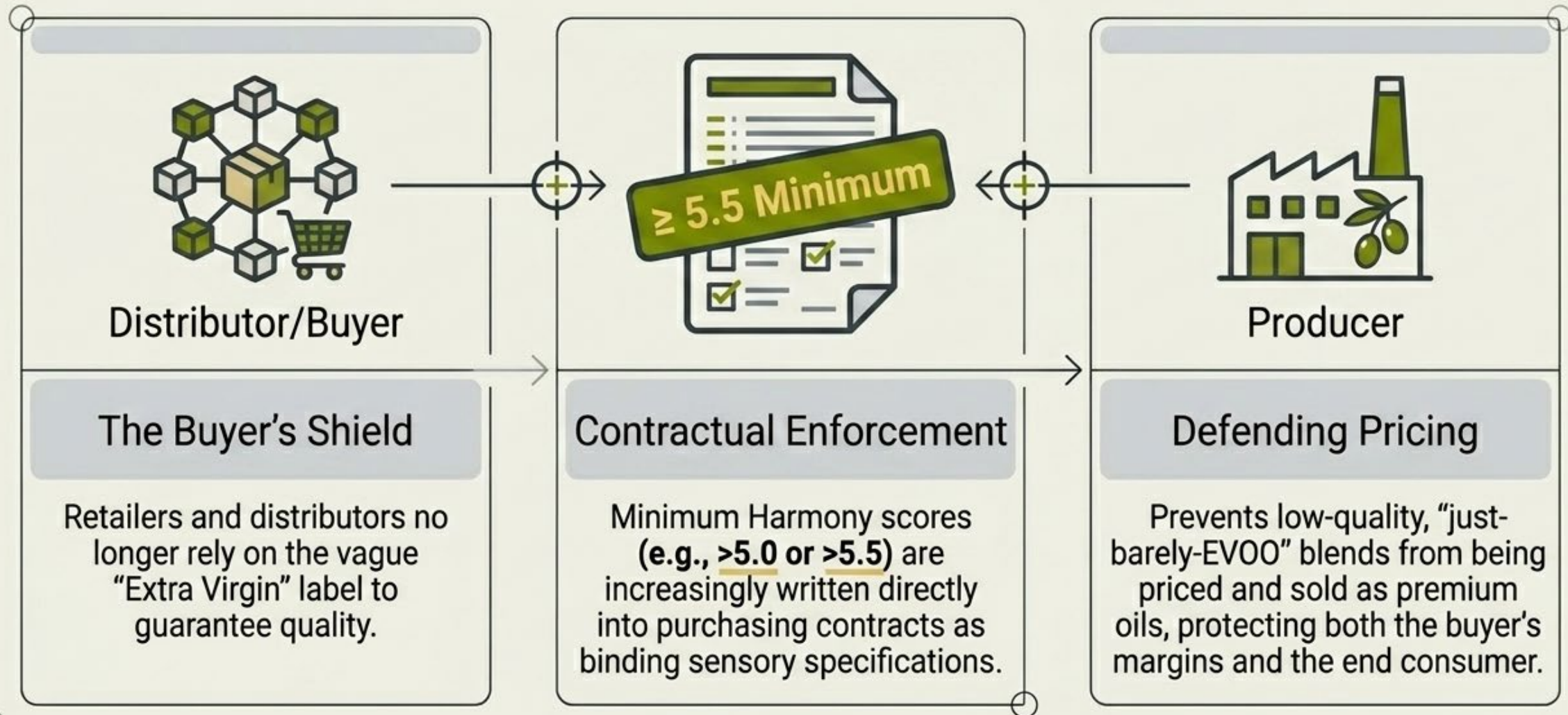
Scoring reveals whether a batch should be allocated to a standard mass-market line or reserved for a premium, high-margin label.



## Step 3: Continuous Improvement

Over time, producers map harvest timing and blending techniques against Harmony scores to consistently target >6.5 Very Good profiles.

# Market Transparency: Securing Quality via Contracts



# Take-Home-Messages

1. The **Harmony-Index** is an extended sensory tool on top of the existing EC/IOC-profiling approach
2. The **Harmony-Index** allows to identify and differentiate quality-levels within EVOOs
3. The **Harmony-Index** enables all stakeholders to better understand and communicate different quality-levels within EVOOs

