

Lavandin Abrialis, lavandin Grosso: what is their future?

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A brief history of lavandin will help in explaining the recent changes in the market for this important perfumery plant. Lavandin grows in the southern part of France, mostly in the hot barren mountains of Haute Provence, northwest of Grasse, four hours away by car. It is a cross between spike and lavender.

The spike grows at a low altitude, the lavender at a higher one. There is an altitude between 1,500 and 2,100 feet where both spike and lavender can grow. Cross pollination may happen and lavandin is the result.

It is a sterile hybrid. It cannot be reproduced by seed; only by cuttings, which makes its planting less delicate. It is more sturdy than the lavender and its yield in oil is better. The farmers became very interested in the hybrid after the first World War. They took cuttings from the healthiest plants found in nature and started cultivation on a large scale. This lavandin with an ester content of 20 to 22% was called *ordinaire*.

It was inexpensive, had a good odor value, and rapidly became an important oil in the perfume and soap industry. By 1930, the production had reached a level of 100 tons.

In the meantime, studies were undertaken to improve the lavandin. In the early 1920s Professor Abrial discovered a new hybrid, the Abrialis, with a higher ester content of 30 to 32%. Progressively the Abrial gained ground and by 1960 represented 80% of the production, at that time amounting to 1,000 tons—ten times more than in 1930.

Unfortunately, the Abrial was multiplied too fast and too carelessly. In the early sixties, the fields started showing signs of fatigue. The plants were yellowing and the life span of the plantations decreased from 10 to 15 years to 5 to 6 years or even less in the regions where the Abrial was planted first, like the Basses Alpes. There was no specific reason for this decaying, and there was no remedy either.

It became imperative to develop another hybrid. This time, nature provided the answer. Mr. Grosso, a farmer from a small village in the Vaucluse District, noticed flourishing plants in the middle of otherwise decaying fields. Intrigued,

he took some cuttings and planted them in a field. The plants were sturdy, the yield better than Abrial at its peak.

The grapevine working very well, it did not take long for the news to spread. Neighboring farmers went to Mr. Grosso asking for cuttings of this new hybrid. The Grosso was born. From being almost nonexistent in 1972, the Grosso represented 10% of the crops in 1975, 55% this year.

You have to see the point of view of the farmer to understand this extremely rapid expansion. Up to last year, there was no noticeable difference between the price of the Abrial and the price of the Grosso. What costs money is planting the fields. Between the time you plant the cuttings and the time you get a full yield, it takes 2½ years. After that, the field is good for as long as the life of the plant. So, the longer the life-span of the plant, the better yield in oil you have, the better return on your initial investment. This is why the Grosso became so popular.

The Grosso does not smell exactly like the Abrial and, so far, there is no practical inexpensive way to abrialize the Grosso. I guess that if there were, we would never have heard of the Grosso. As far as the odor is concerned, the Grosso is more weedy, more aggressive, more grassy than the Abrial.

Chemically, the Grosso has a lower level of ocimene and octamone 3 and a higher content of terpineol-4. Though it is easy to add a missing product, it is not so easy to remove the excess of terpineol.

So here we are, faced with the Grosso expanding at a steady pace. But the transition does not go painlessly. Changes take time and consumers are reluctant to switch from one to another. The result is that the Grosso piles up while there is an increasing demand for whatever Abrialis is available.

Consequently, since last year, the price of the Grosso has declined, while the price of the Abrial is firming up. This year, the price difference between the two is reaching a level of 20 to 25%. This gap makes the Grosso very interesting for an industry that is constantly struggling to

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meet the price demand of their customers for finished compounds.

Does this mean that the Abrial is condemned to death in the near future? Until last year, the future of the Abrial was bleak. But this year, the price difference between the two lavandins was big enough to persuade farmers to plant Abrial again, in new regions where decaying is not as bad. But it will take another three years before we see the result. These new plantations and the progressive switching from Abrial to Grosso

by consumers should eventually ease off the pressure on the Abrial. But, for the time being, the situation is tight.

For the years to come, it is safe to assume that the Grosso will be the backbone of lavandin production. It is not expensive, around \$6.00/lb. compared to \$7.50 to \$8.00 for the Abrial. It is available. It may not be as pleasant at first smell as the Abrial but, depending on what project you are working on, the heaviness and aggressiveness of the Grosso may be an asset.

In a way, by bringing the price down to an attractive level, by insuring continuity in the availability of the product, the Grosso gave a new life to the lavandin. It is up to you to decide what fits your needs the best, taking into account price, availability, and quality, keeping in mind that for the next three years, the situation of Abrial is going to be tough and that even when it gets better, the Grosso will still remain the most important part of the total production.

Acknowledgment

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Comparative Composition of Lavandins*

	Lavandin Abrial	Lavandin Grosso
Alpha-pinene	0.52	0.6
Camphene	0.46	0.35
Beta-pinene	0.49	0.45
Sabinene	0.17	0.15
Delta-3-carene	0.02	0.08
Myrcene	0.55	0.65
Limonene	0.68	0.67
Eucalyptol	8.17	5.2
Cis-ocimene	2.30	1.15
Gamma-terpinene	0.1	0.15
Trans-ocimene, octanone-3	3.97	0.6
Paracymene	0.32	0.35
Terpinolene	0.26	0.25
Isobutyrate d'hexyle	0.13	0.2
Acetate d'octenyle	0.48	0.45
Butyrate d'hexyle	0.35	0.40
Trans-linalol	0.21	0.25
Octene-1-ol-3	0.34	0.50
Cis-linalol	0.1	0.98
Camphre	9.54	6.95
Linalol	33.5	32.25
Acetate linalyle	27.1	31.9
Terpinene-1-ol-4	0.5	2.77
Caryophyllene	2.35	1.47
Acetate de lavandulyle	1.76	1.95
Lavandulol	0.96	1.50
Terpineol	0.48	1
Borneol	2.59	2
Acetate geranyle	0.21	0.3

* Extracted from "Parfums, Cosmétique, Aromes" Jan/Feb 1979 issue. Note: Within the same types of Lavandin, variations occur from one lot to the other. Therefore, the results above are to be used for reference only.

Physical-Chemical Characteristics

	Lavandin Grosso	Lavandin Abrial
Density	0.892 - 0.897	0.885 - 0.897
Solubility alcohol 70°C	2.2 - 2.8 Vols.	4 Vols.
Optical rotation at 20°C	-4°50 - 5°50	-2°50 - 3°50
Refractive index	1.4602 - 1.4622	1.4580 - 1.4660
Ester content	38 - 45	30 - 36
Acid index	0.2 - 0.4	0.2 - 0.8
Linalyl acetate	28 - 32	20 - 25
Camphor	5 - 9%	7 - 10%
Ocimene	Less than 0.5%	3 - 5%
Terpineol-4	2 - 3%	Less than 0.2%