The Price of a Flower:
Jasmine, Perfume
and the People in Between

1. Where Jasmine Grows and Who Picks It

Most of the world's perfumery jasmine comes from a few concentrated regions, with Egypt's Gharbia governorate at the centre of global production. Here, jasmine is harvested in the hours before dawn, when its aromatic compounds are most potent. Families wake at two or three in the morning to pick the flowers by hand, working through heat, insects, and exposure to agricultural chemicals. Despite the intensity of the labour, wages remain extremely low. Investigations have documented pickers earning the equivalent of a single dollar for an entire night's work, and children as young as five participating in the harvest despite laws prohibiting night work for minors. India and Grasse also contribute to global jasmine supply, but Egypt's labour conditions have become emblematic of the structural inequities embedded in the fragrance industry.

2. From Flower to Absolute: The First Value Jump

Once picked, jasmine flowers must be processed immediately. They are delivered to local factories where they are transformed first into concrete and then into absolute, the concentrated extract used in fine perfumery. This is the moment when the value of jasmine multiplies. Thousands of kilos of fresh flowers are required to produce a single kilo of absolute, and the resulting material can sell for thousands of pounds. Yet the people who harvested the flowers see almost none of this value. Their earnings remain tied to low farm-gate prices, while processors and intermediaries capture the first major financial gains. Recent initiatives, such as the ILO-supported "Harvesting the Future – Jasmine in Egypt," aim to raise picker incomes and standardise pricing, but these efforts highlight how deeply the system has relied on underpaid labour.

3. Fragrance Houses: Where IP and Opacity Concentrate

After processing, jasmine absolute enters the world of global fragrance houses — companies like Givaudan, dsm-firmenich, IFF, Symrise, MANE, and Robertet. These firms blend jasmine with other natural extracts and synthetic aroma-chemicals to create proprietary accords. At this stage, the material becomes intellectual property. The exact formula is protected as a trade secret, and the jasmine itself becomes only one component in a complex mixture. Brands commissioning fragrances impose strict cost ceilings, which pressure fragrance houses to source jasmine at the lowest possible price while still meeting olfactory expectations. This is the point where the flower's origin becomes abstracted into chemistry and IP, and where the labour that produced it disappears entirely from the narrative.

4. Brand Ownership and Manufacturing

Once a fragrance formula is approved, it moves into the domain of global beauty conglomerates. These companies license fashion houses or celebrity names, commission the fragrance concentrate, and oversee its dilution, bottling, and packaging. Manufacturing takes place in efficient facilities where labour is better paid than in the fields, but still represents a small fraction of the final retail price. The concentrate containing jasmine absolute becomes only one line item in a budget dominated by marketing, packaging, licensing fees, and distribution. By the time the perfume reaches the shelf, the flower has been transformed into a luxury object whose value is defined more by brand equity than by the cost of its raw materials.

A Mathematical Model of Retail Price Versus Picker Wage

The imbalance between the value of jasmine in the field and the value of jasmine in a perfume bottle can be expressed mathematically. Let the picker's wage per kilogram of flowers be W_p, the number of kilograms required to produce one kilogram of absolute be Q_f, and the cost of flowers entering the factory be $C_f = W_p \cdot Q_f$. With pickers earning around twenty pence per kilogram and factories requiring roughly seven thousand kilograms of flowers to produce a single kilogram of absolute, the total picker-labour cost embedded in that kilogram is approximately £1400. Yet jasmine absolute can sell for £5000 to £8000 per kilogram, creating a processing value multiplier of more than four.

Only a tiny amount of jasmine absolute is used in a bottle of perfume. If two grams of absolute are used per thousand bottles, the jasmine cost per bottle becomes $C_{j,b} = \frac{c_{a \cdot R}}{1000}$, which, at £6000 per kilogram, yields just over one penny of jasmine per bottle. Even when the fragrance concentrates cost a few pounds and manufacturing adds a few more, the base cost remains low. Brand markup and retail markup then multiply this base cost dramatically. A £5 base cost becomes £25 after branding and £100 after retail markup. The picker's share of the final retail price is therefore $S_p = \frac{C_{j,b}}{P_r}$, which, using these values, equals 0.012%. For every £100 bottle sold, the picker receives roughly 1.2 pence. The inequality ratio — $\frac{P_r}{W_p}$ — shows that for every £1 a picker earns; a brand earns £150 per bottle. The model makes visible what the supply chain works hard to obscure: the picker's contribution is foundational yet economically negligible.

5. Retail Price Versus Picker Wage

The contrast between the wages of jasmine pickers and the retail price of jasmine-based perfumes is stark. A worker in Egypt may earn a dollar for a night's labour, while a bottle of perfume containing Egyptian jasmine can sell for £100 to £300. Even accounting for legitimate costs — extraction, formulation, packaging, logistics, retail margins — the share that reaches the people who physically harvest the flowers is vanishingly small. The structure of the supply chain ensures that the most physically demanding and precarious labour sits at the bottom, while the highest value is captured at the top through branding, intellectual property, and marketing narratives. The flower is inexpensive; the story built around it is what consumers pay for.

6. Opacity as a Feature, Not a Flaw

Several layers of opacity protect this imbalance. Ingredient lists allow brands to hide jasmine behind the single word "fragrance," making it impossible for consumers to know how much natural jasmine is actually present. Supply-chain opacity means brands can claim ethical sourcing while relying on audits that often miss or under-report child labour and poor working conditions. Intellectual-property protections ensure that formulas remain secret, preventing any scrutiny of how much natural material is used versus synthetics. These forms of opacity are not accidental; they are structural features that maintain the profitability of the system.

7. What an Honest Jasmine Supply Chain Would Look Like

A transparent jasmine supply chain would require brands to disclose the origin of their jasmine, publish wage baselines for pickers, and demonstrate how those wages compare to a living income. It would involve revealing the proportion of natural jasmine used in a formula, clarifying the role of synthetics, and committing to long-term purchasing agreements that stabilise incomes for farmers and pickers. It would also require fragrance houses to open up parts of their supply chains without compromising proprietary formulas. Such transparency would not diminish the artistry of perfumery; it would simply align the beauty of the final product with the dignity of the people who make it possible.

A Mathematical Model of Retail Price Versus Picker Wage in Jasmine Perfume

1. Defining the Core Variables

Let the jasmine picker's income, the cost of raw flowers, the value added at each stage, and the final retail price be expressed as a chain of transformations.

We define:

- (W_p): picker wage per kilogram of jasmine flowers
- (Q_f): kilograms of fresh jasmine required to produce 1 kg of absolute
- (C_f): cost paid to farmers/pickers per kilogram of flowers
- (C_a): cost of 1 kg of jasmine absolute after processing
- (R): proportion of jasmine absolute used in one bottle of perfume
- (C_c): cost of the fragrance concentrates per bottle
- (C_m): manufacturing + filling + packaging cost per bottle
- (M_b): brand markup (marketing, licensing, overhead)
- (M_r): retail markup
- (P_r): final retail price of the perfume

This gives us a structure where the picker's wage is the smallest input into a chain that multiplies value at every stage.

2. From Flower to Absolute: The First Transformation

Pickers are paid by weight of flowers.
The cost of flowers entering the factory is:

C_f=W_p ▪Q_f

To produce 1 kg of absolute, factories require approximately:

Q_f≈ 7000 – 8000 kg of flowers}

Thus, if a picker earns the equivalent of:

W_p = £0.20 per kg

then the total picker-labour cost embedded in 1 kg of absolute is:

C_f = 0.20 x 7000 = £1400

Yet the market price of jasmine absolute can reach:

C_a≈ £5000 – £8000 per kg}

The **value-addition ratio** at the processing stage is therefore:

Processing Value Multiplier} $= \frac{C_a}{C_f}$

Typically:

$\frac{6000}{1400} \approx 4.3$

Meaning the value increases more than fourfold between picker and processor.

3. From Absolute to Fragrance Concentrate

A perfume formula uses only a small amount of jasmine absolute.
Let:

R = 0.002 kg of absolute per 1000 bottles

Then the cost of jasmine absolute per bottle is:

$C_{j,b} = \frac{C_a \cdot R}{1000}$

If C_a= £6000, then:

$C_{j,b} = \frac{6000 \, xO \cdot 002}{1000} = £0.012$

So the jasmine in a £150 perfume bottle may cost **just over one penny**.

The fragrance concentrate cost per bottle (including all materials) is typically:

$C_c \approx$ £1 – £5

4. From Concentrate to Retail: The Markup Cascade

The total cost before branding is:

$C_{base} = C_c + C_m$

If manufacturing and packaging cost:

C_m = £3

and concentrate cost:

C_c= £2

then:

C_{base} = £5

Brand markup is applied:

$C_{brand} = C_{base} \cdot (1 + M_b)$

If M_b = 400%:

C_{brand} = 5 x 5 = £25

Retail markup is then applied:

$P_r = C_{brand} \cdot (1 + M_r)$

If M_r= 300%:

P_r = 25 x 4 = £100

This is how a bottle with **£0.012 of jasmine** becomes a **£100–£150 retail product**.

5. Picker Wage Share of Retail Price

The picker's share of the final retail price is:

$S_p = \frac{C_{J,b}}{P_r}$

Using our values:

$S_p = \frac{0.012}{100} = 0.00012$

Expressed as a percentage:

S_p x 100 = 0.012%

Meaning the jasmine picker receives **0.012% of the retail price** of a jasmine perfume.

Or put differently:

For every **£100** bottle sold, the picker receives **1.2 pence**.

6. The Inequality Ratio

To express the imbalance mathematically:

Inequality Ratio = $\frac{P_r}{w_p}$

If a picker earns £1 per night and the perfume sells for £150:

Inequality Ratio = $\frac{150}{1}$ = 150

For every **£1** the picker earns, the brand earns **£150** per bottle.

This ratio becomes even more extreme when scaled to annual production.

7. What the Model Shows

This model makes the structural imbalance visible:

- The picker's labour is the **foundation** of the supply chain.
- Their wage is **decoupled** from the value created downstream.
- The jasmine content in a luxury perfume is **economically negligible**.
- Branding, IP, and retail markups capture almost all the value.
- The picker's share is mathematically close to **zero**.

The flower is real.
The labour is real.
The value is captured elsewhere.

Rose, Oud, and Sandalwood

1. Rose: The Arithmetic of a Luxury Illusion

The economics of rose mirror jasmine in their imbalance, but the scale is even more extreme. Damask rose from Bulgaria or Turkey requires tens of thousands of petals to produce a single gram of rose oil. Pickers are paid by the kilo, often earning only a few pounds for a day's labour during the short harvest window. The transformation from petal to oil multiplies value dramatically: a kilo of rose oil can sell for tens of thousands of pounds, yet the picker's contribution remains a fraction of a percent of the final price.

The mathematical structure is similar. If a picker earns £0.50 per kilo and five thousand kilos of petals are needed for a kilo of oil, the embedded picker-labour cost is £2500. If the oil sells for £20,000, the processing multiplier is eight. A perfume may use only a fraction of a gram, reducing the rose cost per bottle to pennies. The retail price, however, climbs into the hundreds. The picker's share collapses to near zero, while the brand captures the narrative of rarity and romance. The flower becomes a symbol; the labour becomes invisible.

2. Oud: The Economics of Scarcity and Substitution

Oud is the most extreme case in the fragrance world, where scarcity, mythology, and market engineering collide. True oud — the resinous heartwood of Aquilaria trees infected by a specific fungus — is rare, slow to form, and labour-intensive to harvest. In regions like Assam, Laos, and Cambodia, harvesters may earn modest wages for dangerous work that involves climbing, cutting, and sometimes poaching trees. Meanwhile, a kilo of high-grade oud oil can sell for tens or even hundreds of thousands of pounds.

The mathematical distortion is amplified by substitution. Most "oud" perfumes contain no real oud at all. Instead, they rely on synthetic aroma-chemicals that mimic oud's smoky, leathery profile at a cost of pennies per bottle. The inequality ratio becomes almost abstract: the picker's wage is tied to a material that rarely enters the bottle, while the brand sells the fantasy of oud at a luxury price point. The model collapses into a paradox — the labour is real, the scarcity is real, but the product is often an imitation. The value captured is not in the material but in the myth.

3. Sandalwood: The Long Arc of Depletion and Control

Sandalwood sits between rose and oud in its economic structure, shaped by decades of overharvesting and strict regulation. In India, where Mysore sandalwood was once abundant, government control and scarcity have driven prices upward. Harvesters and smallholders often receive a fixed, regulated payment per tree, while the processed oil commands far higher prices on the global market. In Australia, where plantation sandalwood has become a major industry, workers are better protected, but the value chain still concentrates profit in processing and export rather than in cultivation.

The mathematical model reveals a familiar pattern. If a farmer receives a few hundred pounds for a tree that yields oil worth several thousand, the value multiplier sits between five and ten.

A perfume may use only a trace amount of sandalwood oil, reducing its cost contribution to a few pence per bottle. Yet the retail price climbs into the luxury tier, justified by the language of heritage, purity, and rarity. The picker or grower remains at the bottom of a chain that transforms a slow-growing tree into a high-margin narrative.

Unified comparative model: jasmine, rose, oud, sandalwood on the same inequality curve

We can place jasmine, rose, oud, and sandalwood on a single inequality framework by treating each material as a point on a curve that relates labour income at the extraction level to the final retail price of a perfume that uses that material.

1. Core structure of the model

For each material m ∈ [jasmine, rose, oud, sandalwood], define:

- (W_m): effective labour income per unit of raw material (picker/harvester/grower)
- (C_m^{raw}): cost of raw material entering processing
- (C_m^{abs}): cost of processed aromatic material (absolute, oil, or resin)
- (C_m^{bottle}): cost contribution of that material per perfume bottle
- (P_m): retail price of a perfume marketed around that material

Two key ratios describe inequality:

$$S_m = \frac{C_m^{bottle}}{P_m}$$

$$I_m = \frac{P_m}{W_m}$$

S_m is the share of the retail price represented by the material itself. I_m is the inequality ratio: how many units of retail price correspond to one unit of labour income at the base.

2. Jasmine: low wage, modest material cost, high markup

For jasmine, picker wages are very low and the jasmine cost per bottle is around pennies, while retail prices sit in the £100–£150 range. This yields a very small $S_{jasmine}$ and a high $I_{jasmine}$. The curve here shows a steep gap between base labour and final price, driven by cheap labour, moderate raw-material value, and heavy brand and retail markups.

3. Rose: higher raw value, similar suppression of labour share

Rose has a higher intrinsic raw-material value than jasmine, because the oil is more expensive per kilo. However, the structure is similar. Pickers earn low daily wages; the oil price is high; the dose per bottle is tiny. C_{rose}^{bottle} *are still only pennies, while* P_{rose} can be £150–£300. Thus S_{rose} remains very small, and I_{rose} is comparable to or higher than jasmine. On the inequality curve, rose sits slightly "higher" in raw value but in almost the same zone of labour marginalisation.

4. Oud: extreme scarcity, extreme substitution, extreme distortion

Oud is structurally different. True oud has an extremely high C_{oud}^{abs}, *but most "oud" perfumes use synthetics, so* C_{oud}^{bottle} in mainstream products is often negligible. Harvesters of real oud may receive modest wages for dangerous, scarce work, but their material rarely appears in mass-market bottles. For luxury oils that do use real oud, P_{oud} can be enormous, and W_{oud} remains low, making I_{oud} extremely high. On the inequality curve, oud occupies two positions at once: one where labour and scarcity are real but almost absent from the product, and another where both are present, but the price explosion makes the inequality ratio the most extreme of all.

5. Sandalwood: regulated scarcity and plantation control

Sandalwood sits between rose and oud. Scarcity and regulation raise C_{sandal}^{abs}, *but plantation models and state control can stabilise prices. Growers or harvesters receive more than jasmine or rose pickers in some contexts, yet the oil still undergoes a strong value jump at processing and export. The dose per bottle is small, so* C_{sandal}^{bottle} remains low relative to $P_{sandal} \cdot S_{sandal}$ is slightly higher than jasmine's but still small; I_{sandal} is high, though often less extreme than oud's most distorted cases.

6. Reading the inequality curve

If we imagine a curve where the horizontal axis is labour income at source W_m and the vertical axis is retail price P_m, all four materials cluster in a region where small changes in W_m correspond to large changes in P_m. Jasmine and rose occupy a band of low wages and high but not astronomical prices. Sandalwood sits slightly above them in raw value but with a similar pattern of labour under-compensation. Oud stretches the curve: at one end, real oud with extreme scarcity and extreme prices; at the other, synthetic oud where labour and material are almost absent, but the price remains high because the story is valuable.

Across all four, the inequality ratios I_m are large, and the price shares S_m are small. The curve does not describe four different systems; it describes one system with four different flavours of the same extraction logic.

Conclusion

Across jasmine, rose, oud, and sandalwood, the same pattern emerges with mathematical precision: the closer one is to the land, the less one earns; the closer one is to the brand, the more one captures. The numbers change, the materials shift, and the stories differ, but the structure does not. Whether it is a jasmine picker in Gharbia earning a dollar for a night's work, a rose harvester racing the sunrise in Isparta, an oud cutter risking injury in Assam, or a sandalwood grower navigating state controls in Karnataka, the labour that begins the chain remains the least valued part of it.

The inequality curve makes this visible. At the base sits labour income so small it barely registers; at the top sits a retail price inflated by processing, IP, branding, and narrative. The raw material — whether a flower, a resin, or a tree — becomes economically negligible once it enters the machinery of perfumery. What the consumer ultimately buys is not the material

itself but the story constructed around it. The flower becomes a symbol; the resin becomes a myth; the tree becomes a heritage claim. The labour becomes invisible.

This is not an accident. It is a system designed around opacity: ingredient lists that collapse hundreds of chemicals into a single word, supply chains hidden behind NDAs, formulas protected as trade secrets, and marketing that replaces material truth with emotional fantasy. The industry's greatest innovation has not been in extraction or chemistry but in the ability to turn scarcity, romance, and nature into high-margin narratives while keeping the economics that underpin them out of sight.

Yet none of this is inevitable. The same precision that reveals the imbalance also points toward its remedy. Transparency — real transparency, not the curated version — would allow consumers to see the true cost of a flower, the true value of labour, and the true structure of the supply chain. It would not diminish the artistry of perfumery; it would anchor it in honesty. A system that acknowledges its workers, names its materials, and reveals its economics is not a weaker system. It is a fairer one.

The price of a flower should not be measured only in the luxury it creates, but in the lives it touches along the way. Until the industry is willing to confront that truth, the most powerful ingredient in every bottle will remain the one that never appears on the label: inequality.