

Yunnan: Production Trends with Special Reference to Geranium, Medicinal Eucalyptus and Citronella

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Yunnan Province is one the least economically developed areas of China and is located in the far west, sharing borders with Burma Laos and Vietnam. It is a major source of a number of essential oils, including geranium, medicinal eucalyptus, citronella and wintergreen, for which Yunnan holds a major share of the international market. Annual production numbers are presented in Table 1.

The production and trading systems for essential oils in Yunnan changed during the 1990s in response to the impact of the economic reform program and a number of other factors.

Geranium Oil

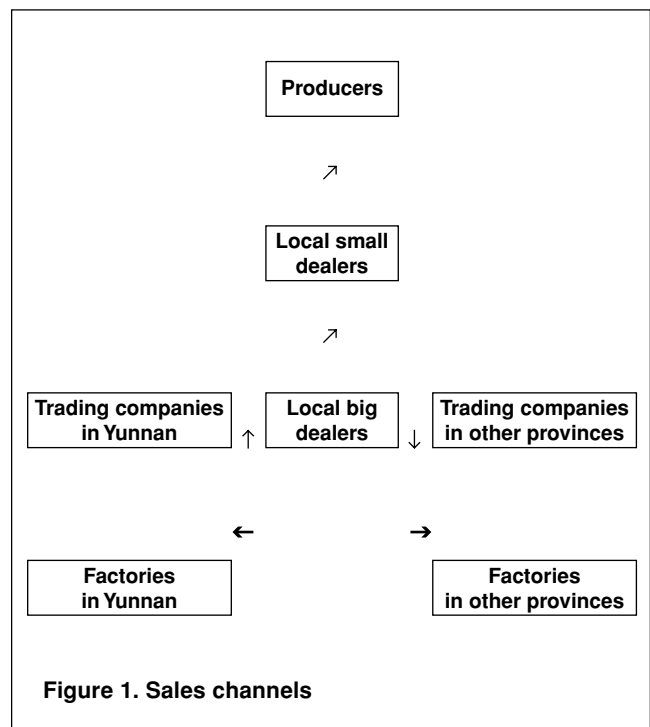
Location and the system of production: Prior to 1990, production of geranium oil was undertaken in several areas in Yunnan. Today, however, the comparatively remote Binchuan Valley has become the pre-dominant source. The county of Binchuan lies to the northwest of the provincial capital, Kunming, at an altitude of 1,450 m above sea level. The climate is dry in summer and moist in winter but without distinctive four seasons; the annual rainfall is around 582 mm. The combination of climate and soil are ideal for cultivation of geranium. The population of the county is around 300,000, of which eighty percent grow geranium.

Two methods of harvesting are practiced by the farmers in Binchuan:

- The traditional system is similar to elsewhere in world, and involves cropping all of the leaves on a plant at each of the three harvests each year, with three months between crops.
- During the 1990s, a new cropping technique was adopted by many farmers to increase oil yields. When sufficient labor is available, mature leaves are harvested semi-continually throughout the season. Immature leaves are left on the plant and are harvested only at maturity, some 20 days later. Oil yields from the traditional method are 3–4 kg/mu (46-60 kg/ha) while the new harvesting system provides 6-7 kg/mu (90-105 kg/ha).

Table 1. Annual production of some essential oils by Yunnan, 1997/99 (tonnes)

Geranium	60 - 80
Medicinal eucalyptus (cineole rich)	2,500 - 3,000
Citronella	800 - 1,000
Wintergreen	50
Lemongrass	10 - 30
Sassafras	60



Most farmers do not possess distilleries. Processing is carried out by local still owners on a toll-payment system.

Marketing

Farmers sell their oil into the local network of dealers, who then sell on to local large dealers. The final part of the marketing chain is sale by large local dealers to exporters or factories in Kunming and other provinces. The length of

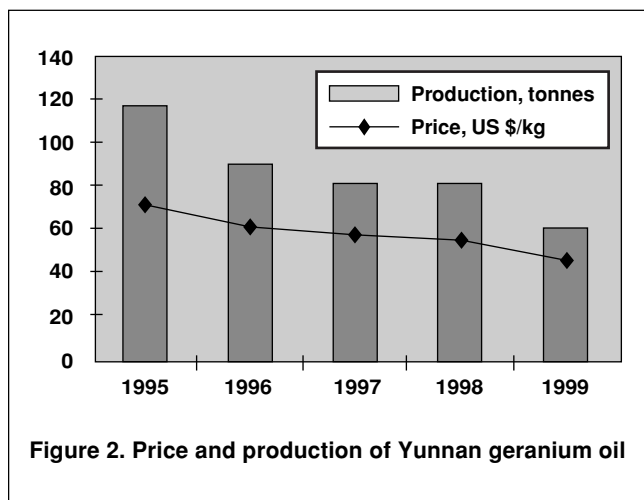


Figure 2. Price and production of Yunnan geranium oil

the marketing chain from farmer to exporter cannot be ignored when calculating the costs of geranium oil. Figure 1 details this process.

Factors influencing production: Price is the most important factor influencing the scale of geranium production in any given year, and this is governed by the international demand and supply balance. Farmers in Binchuan are free to decide on which crops to grow and, today, they are very responsive to the market. If they believe at planting time that the geranium oil price will be attractive, they

may devote most of their land to the crop. However, they may reduce the acreage by a half or down to one third when prices appear unfavorable. The price/production relationship is clearly demonstrated in Figure 1.

Other factors of significance on production levels in recent years include:

- Greater unpredictability in the weather and rainfall. Geranium does not thrive under continuous heavy rain and is destroyed by flooding. In the current year (1999), heavy rain lasted in Binchuan for three months and half over June to mid-September. The crop was seriously ruined and production almost ceased. Consequently, the 1999 production fell to about 60 tonnes, or forty percent, below the normal annual average.
- Because of flooding in recent years, many farmers have relocated their cultivation sites from the valley floor to better-drained sites on hillsides. This is the main factor which prevents accurate calculation of the planted area and, hence, of the expected oil production.

Production Trends

The price of geranium oil in 1999 was not encouraging for farmers. Additionally, the adverse weather reduced the plant stock available for the multiplication for the next season. Consequently, the future supply situation might not be very optimistic.

A number of uncertainties exist over longer-term production of geranium oil. Changes in weather patterns could be significant. However, the more important factor is probably the fragility of the local market. Oil producers are very responsive to international market price movements and there is a high degree of competitiveness between local traders and exporters. It is important that overseas buyers select reliable exporters in order to assist the creation of a stable local market.

Medicinal Eucalyptus Oil

Production of medicinal (cineole type) eucalyptus oil in Yunnan is based on harvesting of leaf of *Eucalyptus globulus* plantations. Individuals who live close to the forest areas undertake collection and distillation of the leaf. Some people regard this as their regular job, while others will switch to this task only when the oil price is attractive. The annual production of crude oil usually ranges between 2,500 to 3,000 tonnes annually.

Producers of the crude oil sell, usually via intermediaries, to one of the four or five factories that are currently active in rectifying the oil in Yunnan. Their total installed processing capacity is around 2,500 tonnes/year. The supply and demand situation for eucalyptus oil has been stable in recent years. The price fluctuates within a narrow range.

However, in 1999, the weather adversely influenced production. In spring, the weather was arid and leaf production was below normal while the extended period of heavy rain in the summer hindered leaf collection and

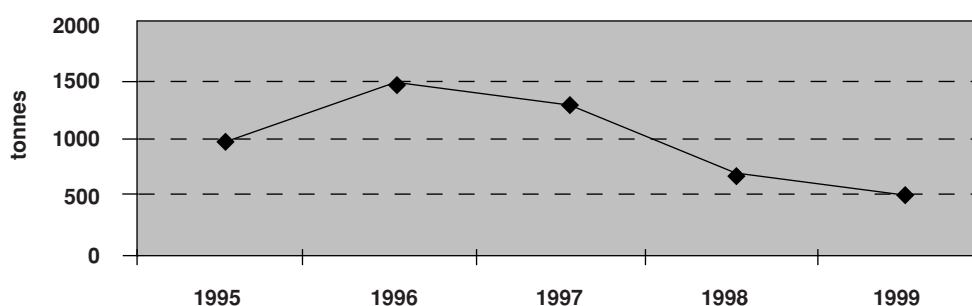


Figure 3. Production of Yunnan citronella oil 1995/99 (tonnes)

distillation operations. The weather in the months of September and October was good but this was a busy period in the farming year and few collector/distillers had time to attend to eucalyptus work. Hence, production of crude oil up to the end of October was below the norm.

Citronella Oil

LuChuan, a county in south Yunnan on the Sino-Vietnam border, became the main producing area of Chinese citronella oil in 1993. However, production has been decreasing since 1996 in the face of price competition from Indonesia and Vietnam. One of the important factors influencing production has been the price of firewood for distillation; coal is not employed as fuel in this area. The forest around LuChuan has been cut down at a rate of 1,500 acres a year and the firewood price has been increasing annually. Prices of crude oil for most of the time in recent years only covered the costs of firewood and many farmers have let their citronella grass grow wild.

The supply situation for citronella oil in 1999 was almost the same as that of eucalyptus. The weather, arid in the earlier period and wet in the later period, resulted in a decrease of production by at least forty percent. The only difference is that eucalyptus leaves are still on the trees and had possibilities to become oil, while the grass of citronella was unsuitable for distillation in the later part of 1999.

Other Oils

A number of other essentials are produced by Yunnan. Table 2 provides a five-year series for some for which the province is currently or was formerly a significant supply source.

The output of both lemongrass and sassafras oils were formerly much higher. In the case of sassafras, the decline is the result of over-exploitation of the wild forest tree resource. Production of *Litsea cubeba* oil in Yunnan declined progressively from an annual level of over 100 tonnes in 1990 but it is expected to revive in the coming years.

Table 2. Production of some other oils in Yunnan, 1995/99 (tonnes)

Oil	1995	1996	1997	1998	1999
Lemongrass	5	10	10	20	30
Wintergreen	30	30	50	50	50
Sassafras	60	60	60	60	60

References

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