

## The socio-economic importance of the essential oil production sector<sup>1</sup>

While global agriculture is increasingly dominated by large scale industrial production, the production of most essential oils is still dominated by small farmer production, and as such makes an important contribution to the incomes, and livelihoods of relatively poor rural populations in developing countries. Although 'naturals' – plant extracts and essential oils – are minor products compared with the major commodities and staples that dominate world agricultural production, they have become an integral part of everyday life, used in a vast range of consumer products, and it is estimated that their usage continues to increase year on year. It is estimated that the flavour and fragrance industry currently uses around 0.01% (250,000 ha) of total world agricultural land to produce 200 to 250 different botanicals for the production of these naturals. In addition to their socio-economic importance to the communities that produce them, these crops also play an important environmental role. Many are short or long term perennial crops so providing stable environments; cultivation of many of the crops is based on long established traditional varieties in balance with the surrounding flora; wild crafted crops support the maintenance of natural vegetation and its complex of flora and fauna.

The major consumer of naturals, especially essential oils of citrus origin, is the soft drinks industry. No 'cola' soft drinks can be produced without essential oils like lemon or lime. The alcoholic beverage industry is a major user, as is the food sector, notably in the manufacture of sweet, dairy, confectionary and dessert products. They are also important in the fast food and processed food industry. The naturals are an integral constituent of fragrances used in alcoholic perfumery (fine fragrance), soaps, detergents, candles, and cosmetics of all kinds from skin softeners to shower gels and body lotions. They are widely used in the ever expanding area of aromatherapy. They are also used in air fresheners and deodorisers, as well as in branches of medicine such as pharmacy massage and homeopathy. Many naturals have long traditional usage for their antibacterial and antifungal properties, and as digestive aids. Different naturals, especially all kinds of mints, eucalyptus and some other herbal and fruity products are used in oral care products such as chewing gums, and all kinds of mouth refreshing preparations.

Continually increasing legislative and regulatory requirements place the continued production of many naturals – particularly the small volume high value products – at risk. Consumer demands for continually decreasing prices are not compatible with traditional production and processing methods where there is little scope for significant increases in yields or efficiencies. In response to these pressures, the industry felt it important to highlight and exemplify the importance of these crops to the producer communities and the production environments – to ensure that regulators and consumers were aware of the potential impact of their demands, which could see the loss of many products and the consequent damage to economies and environments.

IFEAT and IFRA agreed to work together to investigate the true, full importance of naturals to the livelihoods of those producing the raw materials used in their production. Twelve products have been chosen for analysis, selected because of their high impact on the lives of those involved in producing them, and the large number of people affected. The first 2 products to be analyzed are patchouli, and cornmint, and a summary of the results is given here. The summaries show clearly that while essential oils are typically categorized as 'minor crops', they are of major economic, social and environmental importance to the communities that are involved in their production – and frequently represent the key cash crop (family income generator) in their farming mix that supports improvement in social indicators – notably health and education. It is important that the final consumer, as well as regulators and legislators, are made aware of these attributes.

### **Patchouli (*Pogostemon cablin*)**

Patchouli oil is a key ingredient in the fragrance industry. It is widely used in fine fragrance and other products from toiletries, soaps and detergents to candles and incense. It is also used in pharmacy as a very efficient anti-microbial ingredient in preparations against acne, dandruff, psoriasis and other skin infections. It is also used as an insect repellent. Indonesia is the major supplier of patchouli oil to the

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<sup>1</sup> Reporting studies undertaken by IFEAT and IFRA

world market, accounting for around 90% of international trade. China and India also produce, but all production is taken up by their domestic markets. Indonesia produces around 1,200 tonnes per year, with a value of around US\$70 to US\$100 million.

Patchouli oil is mainly obtained by steam distillation of shade dried leaves to cultivated patchouli plants. The plant is cultivated as a short term perennial. The first harvest is taken 6-7 months after planting, with subsequent harvests every 3-4 months until the plant is 2 years old. Patchouli can be grown as an intercrop. Distillation of patchouli is still mostly carried out at the farm level – by small farmers using simple distillation equipment. Distillation time is long – typically 8 hours or longer.

The supply chain for patchouli oil is long and complex, comprising farmers, farmer-distillers, collectors, agents and exporters. A typical farmer family in Indonesia owns in the range 0.25 to 1 ha of land, and produces 25 to 100 kgs of patchouli oil per year. Typical dry leaf yields are around 4-5 tonnes/ha. Around 12,000 farmer families are involved in the cultivation of patchouli. With an average of 4 people in a family, around 50,000 people get their livelihoods from patchouli. In addition it is estimated that a further 2,000 people are employed in distillation (425 distillation units, each employing 5 people), and 300 in the collection trade.

### **Cornmint (*Mentha arvensis*)**

Cornmint oil is a key component in the food, pharmaceutical, perfumery and flavouring industries. It is extensively used as a fragrance component in products such as soaps, detergents, cosmetics and perfumes, toothpastes and industrial fragrances. It is also used as a flavouring agent in food products such as confectionary, liquors, and chewing gums. It is also a key ingredient in cough syrups, lozenges and herbal teas in the form of menthol or oil as well as in creams, ointments and nasal sprays for colds and infections. Both oil and menthol are used as active ingredients in cosmetics due to their 'cooling' effect on skin as well as for their antimicrobial properties.

India is the most competitive global supplier of *Mentha arvensis* products and accounts for over 90% of global crude oil production, having grown from just 20% in 1977. World production of cornmint oil was estimated in 2009 at around 32,000 tonnes, with India accounting for 30,000 tonnes, followed by China with 2,000 tonnes. The 2012 production figure for India had risen to 34,500 tonnes, with estimates for 2013 rising to around 50,000 tonnes.

In India, mint species are mainly cultivated in Uttar Pradesh, Haryana and Punjab, in more than 162,000 ha, or which over 90% is used for cornmint. It is estimated that 90% of cornmint production is controlled by rural farmers on areas between 0.2 and 2 ha. Mint is grown in India as a seasonal 3<sup>rd</sup> crop after rice-wheat, or rice-potato. Nurseries have to be maintained for every season, with most farmers planting to the field between January and March. Mint is harvested and distilled twice during the season between April and August – and if the monsoon is late so that farmers are not able to plant rice, a late harvest of mint will be taken in compensation. Distillation of mint is carried out both by farmers, and by non-grower distillers.

In 2010, the Central Institute of Medicinal and Aromatic Plants in India reported that there were 12,750,000 people involved in the production of cornmint oil in India. At that time, total production was around 24,000 tonnes. With current production levels around 45,000 tonnes, it is likely that the number of people involved has now rise to around 15,000,000. An important characteristic of the production of cornmint is that it is largely grown by poor and underprivileged farmers, as wealthy farmers tend to grow sugarcane which has more than a one year cycle. However, for small and poor farmers mint is preferable as it can give them a cash return within 4 months of planting. In addition, cornmint oil is sold by farmers at the collection centers of the large menthol companies (the end users of the oil) which allows them to be paid immediately for their oil. This is in contrast to the marketing of their rotation crops which are sold through middlemen, thus reducing direct profit to the farmer.

Production of cornmint oil can be seen to be a key income generator for a very substantial number of the poorer, underprivileged farm families in northern India. The expansion of cornmint oil production has helped rural farmers to invest in their children's education and family health care.