

## An Overview of *Mentha arvensis* Production

Japanese mint (or corn mint), *Mentha arvensis*, is the source of a major raw material for the flavours and fragrances industry. Distillation provides mint oil, and further processing (chilling) provides menthol crystals and dementholised mint oil. Production is now dominated by India, but in the first half of the 20<sup>th</sup> century production was dominated by Japan, providing around 70% of global requirements from an estimated annual production of around 800 tons of *arvensis* oil, with the remaining demand supplied by China. Brazil then took over the position of dominant supplier, with annual production reaching 5,000 tons in the mid 1960's. Extreme price and supply volatility resulted in the collapse of the Brazilian production sector and the re-entry of China as the major supplier during the 1980's and the first half of the 1990's. India entered the global market in the mid 1980's and by the mid 1990's production had reached 6,000 tons and India had taken over as dominant supplier to the market – which position it retains today.

In India, Uttar Pradesh accounts for around 90% of Indian mint production, with the remaining 10% coming from smaller areas in the Punjab, Rajasthan etc. Although India now produces a wider range of mint types (Peppermint oil from *Mentha piperita*, Spearmint oil from *Mentha spicata*, and Horsemint/Bergamot mint from *Mentha citrata*) production is dominated by *Mentha arvensis*. Mint is now grown on an area of around 300,000 ha, involving an estimated 800,000 ha. 2 cuts are taken during the season, yielding around 20-25 tons of green herb, and providing a yield of around 125 to 150 kg/ha of *arvensis* oil. Selected varieties have a menthol content of around 80%.

Indian production of *arvensis* rose rapidly from the start of the 2000's. From a production of around 10,000 tons in 2000, production is now estimated to be close to 50,000 tons. India dominates global production with around 80% of global supply, followed by China and Japan, each producing around 10%. India exports around 25 to 30,000 tons in a range of forms (menthol crystals and powder, dementholised mint oil, *arvensis* oil etc.), with the balance of production used domestically. India domestic consumption accounts for around 40% of global consumption, with China (20%), Europe (15%, with Germany and Netherlands the major users) and the USA (15%) accounting for the bulk of consumption.

Prices for *arvensis* oil and its derivatives have been relatively stable in recent years, but pressures for an increase in real prices are growing. Major production costs are labour, fertilizers for cultivation, and fuel for distillation (and irrigation). All these costs continue to rise, with farm wages rising rapidly in recent years.

Demand for mint and mint products is expected to continue to rise. Whilst demand is not growing in Europe and China, overall worldwide growth of the broad category of fast moving consumer goods (FMCG) in which mint is used – cosmetics (toothpaste, mouthwash, shaving creams, shampoos etc.), chewing gums, household cleaning products etc. – are continuing to show strong growth. Overall, it is estimated that global demand continues to increase by 3-5% a year. In this scale of market, this is a substantial additional volume that is required by the market each year, and creates significant opportunities for new entrants.

The continuing growth in demand for mint products, and price increases, has stimulated the production of synthetic menthol. Production had been static due to cost issues, but with the increase in prices of natural menthol prices and continuing growth in global demand, new investments have been made in synthetic menthol production. Takasago has increased its production to 3,000 tons/yr, Symrise has doubled production to 6,000 tons, and BASF has established a new plant with a production capacity of 10,000 tons. Compared to a production of less than 5,000 tons in 2000, this production now represents a very substantial proportion of the global menthol market.