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About Patchouli

Patchouli is a vital essential oil sourced in Indonesia that is used in the production of fragrances including perfumes, cosmetics, hygiene products, cleaning supplies and many other products. The oil is extracted from the patchouli shrub and distilled in the countries of origin.

Patchouli cultivation and distillation is a source of income for thousands of smallholder producers and their families across Indonesia. Indonesia produces over 80% of the world’s patchouli oil with around 75% of national production coming from the island of Sulawesi.

The average Indonesian patchouli farmer has just one hectare of land, however, with a harvest cycle of just 6 months, farmers can reap the rewards of patchouli a lot sooner than their other crops.

Once distilled, the prized patchouli oil provides substantial income for smallholder households. Just half a hectare of well-maintained patchouli farmland can produce similar revenue as one hectare of other prominent cash crops such as cocoa and coffee. However, producers still lack the knowledge and skills to produce patchouli oil efficiently.

Lack of understanding about best agricultural practices means that farmers are not producing optimally. After several years, farmers that do not apply best practices see their production fall significantly due to soil nutrient depletion and pest and disease outbreaks.

Additionally, distillation machines are not optimal and burn excessive fire wood. This means less income for the patchouli oil producers due to rising fuel costs when wood becomes scarcely available.

How Patchouli Oil is Made

At The Farm

A farmer plants patchouli cuttings

After 6 months the patchouli is harvested

The branches are dried under shade for 2-3 days

The dried patchouli is chopped up, ready for distillation

At The Distillation Machine

Water is heated, creating steam

The oil rises with the steam

The condenser cools the steam

In the separator, the oil rises to the top of the water and is extracted

Distillation graphic adapted and simplified from McGill University website
The Sustainable Indonesian Patchouli Production (SIPP) program aims to reduce the environmental impact of patchouli production and improve the livelihoods of the communities.

Implemented by Swisscontact, SIPP is funded by the Givaudan Foundation and received public co-funding from the Millennium Challenge Account – Indonesia. Collaborating with Givaudan, the world’s largest flavors and fragrances company, ensures that program beneficiaries have a reliable off-taker that is committed to responsible sourcing.

The program combines activities related to research, training, and new technology to address issues within Givaudan’s patchouli supply chain. SIPP delivers capacity development training that can support producers to increase production and income, improve household health, while also mitigating environmental impact. Furthermore, SIPP understands the important role that women play in patchouli producing households and encourage their participation in all program activities.

Through collaboration with Givaudan technical staff, research institutions, and other partners, Swisscontact has developed 4 high-quality and comprehensive training modules. The topics include Good Agricultural Practices (GAP), Good Nutritional Practices (GNP), Good Financial Practices (GFP), and Good Distillation Practices (GDP).

The program is also designing and trialling innovative distillation technology. The goal of this research was to identify ways to reduce pressure on environmental resources without compromising on yield and quality. Distillation machines will be renovated to not only conserve natural wood supplies, but also reduce the amount of wood farmers need to purchase.

Farmer Field School

SIPP promotes knowledge transfer and skills development through the Farmer Field School (FFS) approach. Swisscontact’s ‘field facilitators’ deliver training to farmer groups in a practical farmland environment and other familiar settings, rather than in a classroom.

Training activities are designed to be interactive and allow the participants to utilize their experience with patchouli. In sub-groups, participants are asked to make observations in the field. They then analyze their findings and present their recommendations to the other sub-groups. Discussion continues and the facilitator elaborates on ideas not yet discussed and gives feedback to the groups. An important role of the facilitator is to address any misconceptions that emerge during discussion.

The FFS is comprehensive and spread over several days. Patchouli farmer households receive training on Good Agricultural Practices, Good Nutritional Practices and Good Financial Practices, which amounts to 6 full days of training. Distillers receive a 2-day training on Good Distillation Practices.

Measuring Program Impact

A cloud-based web and smartphone application was developed to track beneficiary data. Before training begins, the field facilitators use tablets to collect data on farm geography, production, and current cultivation practices. This data is stored online and used as a baseline reference. Each following year, the training participants will be visited and surveyed again to track adoption, program impact, and how perceptions change over time.
The program applies a holistic approach to address economic, environmental and social issues within the community. It targets seven of the 17 United Nations Sustainable Development Goals (SDGs) through knowledge transfer and innovation. At the centre of this approach is the concept of **Sustainable Consumption and Production**, which is a goal that underlines the importance of responsible sourcing.

By delivering thorough capacity development measures, SIPP provides producing communities with the knowledge and skills to improve their economic standing through their own effort. In doing so, communities will be able to promote **Decent Work and Economic Growth**, which can improve food security and ensure that the community can reach the goal of **Zero Hunger**.

From an environmental perspective, SIPP aims to conserve **Life on Land** through biodiversity preservation in Givaudan’s sourcing communities. The program works with local supply chain actors to support **Climate Action** by promoting efficient and environmentally friendly production methods.

SIPP understands the importance of women in producing communities and encourages their participation in program activities. By promoting **Gender Equality**, the program supports women having equal access to resources and education. **Good Health and Wellbeing** is also promoted at the household level and at the patchouli distillation machines.
While farmers do not have control over external risks, they do have control over the agricultural practices on their farm. In partnership with Givaudan, Swisscontact developed a training manual that addresses the main cultivation issues on patchouli farms. The 3-day Good Agricultural Practices (GAP) training covers multiple topics in depth, including:

- Farm sanitation
- Compost and fertilization
- Crop rotation
- Integrated pest and disease management
- Post-harvest processing

When farmers are taught how to properly care for their plants and evaluate their own farm, they can increase the earning potential from their land.

Pest and disease outbreaks present a significant risk for patchouli leaf yield and often farmers do not know how to handle these outbreaks. GAP teaches farmers how to prevent pests and diseases from emerging, and how to handle outbreaks when afflicted. Less plants lost to pest and disease results in minimized income losses.

Farmers tend to lack understanding about soil health. As patchouli is a crop that requires abundant soil nutrients to yield optimally, farmers are trained on how to maintain nutrient levels and rotate crops effectively in order to sustain soil fertility and income from patchouli years after first planting.

Additionally, the program helps farmers reduce post-harvest losses by teaching them how to correctly process patchouli after harvest. The way patchouli is dried and cut can affect the oil. When producers understand how to handle their patchouli leaves, they can get the most out of their plants by improving yield and quality.

Financial Literacy

To improve farm profitability, farmers need to make the right investments in agri-inputs. First, farmers need to be financially literate to make the right business decisions and improve their income.

SIPP trains farmer households on Good Financial Practices (GFP) training so that they can better manage their household funds and anticipate future expenses. GFP training covers budgeting and cash flow planning, record keeping, and emphasizes the importance of savings rather than loans.

This training, along with the other modules, show participants how purchasing a sufficient amount of agri-inputs such as fertilizer and compost can improve their farm production over time and show a good return on investment. The training is currently organized as one full day of training and targets the family member who manages household finances.

924 households trained on GFP to date

Good Farm Management

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927 households trained on GAP from 37 farmer groups to date
Agriculture remains a significant contributor to global environmental degradation. With natural resources being increasingly depleted, smallholder producers need to be made aware of actions that they can take to reduce their environmental footprint. SIPP works with both farmers and distillers to promote sustainable agriculture by encouraging better practices and technology transfer.

Climate-smart Agriculture

Good Agricultural Practices (GAP) training is not just to help farmers intensify production. GAP encourages farmers to reorient their practices from a linear production system to a circular system. Farmers are taught how to manage biodiversity by prioritizing environmentally friendly agri-inputs. GAP teaches farmers how to make organic compost and pesticides so that they have an alternative solution to their problems and can reduce the total amount of chemicals used. Organic agri-inputs can be made from foliage and plant waste found on the farm. Also, the distillation process creates upwards of 400 kilograms of organic patchouli waste that can be made into compost or applied as mulch. This creates a full sustainable cycle.

Adding organic matter such as compost to the soil helps restore depleted nutrients. In addition to using compost, farmers are also taught to avoid continuous planting and rotate patchouli-planting cycles to allow the land to rest.

Distillation Innovation

Wood remains the main source of fuel for distillation machines because alternative fuels are unavailable or impractical for the area. Distillation machines are not optimal and burn excessive wood.

To address this issue, SIPP conducted research into improving distillation machines with the ultimate goal of reducing firewood consumption. The key to a successful design is to understand communities’ needs and avoid introducing a machine that is unaffordable or too obscure for the community. The design had to be appropriate for the local context and easily adoptable.

The resulting prototype design not only reduces the amount of firewood used, it also makes the distillation process safer and more comfortable for operators. A major advantage of the design is that it can be retrofitted to existing distillation machines, meaning that it is easily adoptable by the community.

The prototype improved fire efficiency and heat transfer while also reducing heat loss with insulation. Givaudan technical staff will continue to support and oversee distillation trials. To date, 5 stills have been retrofitted with the new design and the program intends to rollout the design in other areas.

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Agriculture is traditionally seen as a sector dominated by men. SIPP aims to ensure women are recognized in their community by involving both men and women in the program’s activities. To encourage female participation, gender is considered in all stages of the project cycle from baseline assessment, through implementation to evaluation. The program will continue to collect family insight to support the team in designing better methodologies and approaches to promote gender equality in the program.

From the first phase of program implementation, it was observed that women play a significant role in patchouli cultivation activities on the farm. Activities include general farm maintenance, harvesting, and post-harvesting. Given how prominently women are involved in patchouli cultivation, the program will continue to revise its approaches to include women whenever possible.

This could mean in practice, for example, that Farmer Field School will not be held in a time or location that would prohibit women from participating, the format of the training would not be so physically demanding that women will not participate, that specific roles for women in GAP will be identified and promoted to give women more opportunities and control over the income generated by patchouli production.

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