



SUSTAINABLE TEA

**Good Agricultural
Practice For Farmers**



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Sustainable Tea

Introduction

Sustainable agriculture is productive, competitive and efficient, while at the same time protecting and improving the natural environment and conditions of local communities. This guide is produced under the Unilever Sustainable Agriculture Initiative to provide some guidance on the farming practices which will support sustainable tea production. The recommendations are set out under ten headings - the range of factors contributing to good practice in sustainable production:

- Soil Fertility
- Nutrients
- Biodiversity
- Energy
- Social/Human Capital
- Soil Loss
- Pest Management
- Product Value
- Water
- Local Economy.

If tea is cultivated in accordance with these guidelines it should yield well for many years and your land should remain productive. This should ensure that your farms can be passed on to the next generation and continue to provide food and income for your families.

1. Soil Fertility

Soil organic matter is important to provide nutrients and water to the crop.



- Retain tea prunings in the field. Do not take them away for fuel or any other use.
- Leave leaf fall and prunings from shade trees in the field.
- Keep the ground covered by a crop or a mulch, including prunings, whenever possible.
- Add manure and plant litter after pruning where organic matter is low.
- Consider growing Guatemala grass or legumes to rehabilitate soils for 2 years before planting tea.

Soil compaction can lead to water-logging and poor plant growth.

- Avoid using heavy machinery (tractors/ bulldozers) on the land, especially when it is wet.
- Maintain plant cover, such as short grass, on unpaved paths and tractor ways.

Tea requires the appropriate **soil acidity** (pH between 4 and 5.5) for good growth.

- Only plant tea in soils with a pH in this range. Suitable soils may be indicated by good tea growth in adjacent fields or the presence of Bracken ferns, Button weed and Kikuyu grass.
- Where young plants show stunted growth, crinkled leaves or roots growing into a ball, the pH is likely to be unsuitable for tea. Ask the local advisory service for a recommendation on remedial treatment or plant an alternative crop.

2. Soil Loss

Soil erosion is one of the major reasons for decline in agricultural productivity. Tea land is particularly vulnerable to soil loss at the time of planting and after pruning.



- Plant a cover crop as soon as land is cleared. Suitable crops include beans, finger millet or maize, which can continue to grow between the tea bushes and then be slashed before flowering for fodder.
- Nursery soil should be taken from areas to be planted (not from forests) so that soil is returned to the field during planting.
- Plant along the contours if land slopes significantly. On steep land (slopes greater than 25 degrees) plant a single row of napier grass after every ten rows of tea. Napier grass can also be slashed for mulch or for fodder.
- Construct silt pits (short trenches in between tea rows) in newly planted areas to arrest run-off and encourage water retention. Maintain the pits until the crop covers the land.
- Construct drains to avoid rapid flows which cause erosion, using stones at vulnerable corners and planting grass along the sides to hold the soil. A drain across the slope will have lower flow velocity and result in less erosion than a drain directly down hill.
- Use tea prunings and other mulches, including litter from maize stocks, finger millet stocks, agro-forestry trees and prunings from other perennial crops, to cover all bare soils that could be liable to significant erosion.

3. Nutrients

Use a combination of **mulches** and **fertilisers** to maintain the health of the crop.



- Use organic matter and compost to reduce the need for inorganic fertiliser application.
- Local fertiliser recommendations should be used, but always taking into account the actual condition of the crop. A low yield of green leaf, compared to your neighbours' or advisory service forecasts, may be an indication of inadequate fertiliser. Dark green, fleshy and succulent shoots throughout the plucking table may indicate excess application of Nitrogen.
- Where inorganic fertiliser is required, carefully placed compound fertiliser under the tea canopy is likely to give the most efficient uptake by the crop.
- If you plant shade trees, use leguminous species which will help to improve Nitrogen availability. However, avoid contamination of green leaf with leaves from shade trees when harvesting.
- Do not use ash from fires on tea fields because it will reduce the soil acidity. Use ash on fuelwood plantations or other crops (e.g. maize) that grow well in less acidic (higher pH) soils.

Applying inorganic fertiliser in excess or at the wrong time will lead to **waste** and **damage to the environment**.

- Do not apply fertiliser at a time of year when heavy rains are likely and avoid applying fertilisers within 3-4 metres of watercourses. This will reduce losses by run-off.
- Algal blooms in ponds within the farm should be investigated, as they indicate nutrient leakage to surface water.

4. Pest Management

The use of **pesticides** on mature tea should be avoided. Well grown tea in East Africa will always outgrow any short-term pest infestations, such as red spider mites, without the need for pesticide application. In other geographical locations, where serious pest infestations can occur seek advice on Integrated Pest Management (IPM). The use of pesticides may kill the natural enemies of pests and allow an epidemic to develop.



- PESTICIDES MUST NOT BE USED if workers are not trained, proper use procedures are not in place, or appropriate application equipment and protective clothing is not available.
- Careful attention to operator safety is vital. Pesticides must always be stored in a safe and secure store, and appropriate protective clothing and handling procedures used.
- If pesticides are used, their application must be restricted to those products recommended by the national tea research institutes and approved under national regulations.

Weed Control

In preference to applying herbicides, manual weed management is recommended for small farms.

- Use cost effective mechanical methods, including the use of mulches.
- If weeds are a problem in mature tea, consider whether this is a result of pruning policy. A longer pruning cycle, or a taller pruning height, results in less light penetration through the tea crop and thus less weeds.

If herbicide use is necessary it must not be applied without access to appropriate herbicides, application equipment and protective clothing.

- Ensure that the safer compounds, such as glyphosate, are used wherever practical.
- Use ultra low volume or similar technology to minimise discharge chemical levels.
- Spot spray with proper targeting of the weeds and do not spray areas unnecessarily.

5. Biodiversity

Conservation of a wide range of plant and animal species on farms and adjacent areas helps maintain the natural balance which should support future generations of farmers. Growing a range of crops will support biodiversity (and provide alternative income, or food, if the profit on tea is low).



- Consider the impact of any new planting before land preparation starts. Will it reduce the variety of plants and animals on the property? Might it lead to major changes in local environment, reducing vegetation, causing erosion or altering watercourses. If so, decide on measures to be taken to reduce this impact.
- Maintain areas of land with native plant species and where wildlife can live. Native trees can be planted throughout farms without hurting the other agricultural activities. Also plant trees that can be used to control pests (for example Neem) where possible.
- Plant woodlots that will produce firewood, while maintaining a diversity of native species.

6. Product Value

Manage your crop to achieve the best balance of **quantity** and **quality** of leaf, minimising costs and waste.



- Maintain healthy bushes and harvest them to achieve maximum yield of the leaf quality defined by the factory. Deliver the leaf to the factory or collection point quickly with minimal damage.
- Foreign matter, including leaves from adjacent trees and wind-breaks, must never be present in harvested leaf.
- Pesticide residues should never be present in harvested leaf.

7. Energy

Use **renewable** energy resources wherever possible.

- All firewood used on your farm and in your home must be derived from sustainable sources (commercial plantations) and not natural forest.
- Smaller farms should seek to develop co-operative fuelwood growing schemes if they do not have sufficient of their own land.
- Biofuels derived from waste (e.g. bio-briquettes and sugarcane bagasse) should be considered to supplement fuelwood use.
- Larger farmer groups may consider hydro-electricity or wind-power schemes to support power needs.



8. Water

Water is used on farms for both **irrigation** and for **domestic purposes**.

- Ensure that irrigation water is applied to maximise availability to the bush with minimal run-off. Consider the use of drip irrigation rather than sprinklers for economy of water use.
- Consider the impact on down-stream users when extracting water from rivers.
- Use buildings with appropriate roofing to feed water tanks, collecting rain water for domestic use.



9. Social and Human Capital

Good relationships with your workforce, local community, suppliers, customers and local Government are vital for long-term success of any business.



- Terms and conditions should be such that the turnover rate amongst permanent employees and seasonal labour is low enough to ensure that skill levels are maintained.
- Ensure that employee grievance procedures are fair and that your employees are confident to use them should the need arise.
- Be a good customer, citizen and supplier - pay and supply on time and at the agreed price.
- Group together with other farmers to obtain bulk discounts and joint transport for inputs such as fertiliser or safety equipment. Farmer groups will also find it easier than individuals to gather and share information on subsidies, tax benefits, agronomic and health benefits and to lobby for infrastructure improvements.
- Maintain good relationships with local Government and others in your local community who use land for amenity or traditional purposes.

10. Local Economy

Rural communities are dependent on sustainable agriculture. As a farmer you can build and sustain these communities by **buying and resourcing locally**.



- Use reliable local suppliers wherever practical.
- Use local employees as much as possible.
- Encourage employees to send their earnings to their home and family.

Bibliography

Sustainable Tea Publications from Unilever

- **Tea: A Popular Beverage - Journey to a Sustainable Future.** Providing further background to our approach to tea and sustainable agriculture.
- **Sustainable Tea: Good Agricultural Practice Guidelines.** A framework for the sustainable management of tea production based on good practice identified on Unilever's tea estates in Kenya, Northern India (Assam), Southern India and Tanzania.
- **Sustainable Tea: Methods for Sustainable Agriculture Indicator Assessment.** A detailed technical guide to the methodologies recommended for the measurement of sustainability indicators.

Copies of these booklets can be obtained from the Unilever companies mentioned below or from <http://www.unilever.com>.

For more general background on Unilever and Sustainability visit <http://www.unilever.com> or visit <http://www.growingforthefuture.com> for specific information on the Unilever Sustainable Agriculture Initiative.

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