Agroecological practices for cacao cultivations: examples, principles and key benefits

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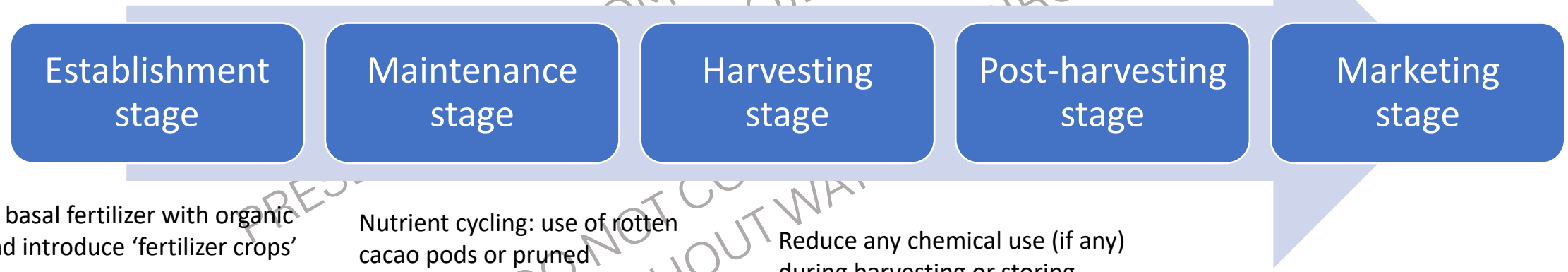
What are agroecological practices?

Agriculture practices that apply ecological principles and have been gaining prominence as a response to expansion of intensive agricultural practices that have been causing environmental degradation, concern on food safety, and loss of biodiversity.

Agroecological principles help build agricultural practices to become more environment friendly, safer for human, and climate resilient.

Agroecological principles can be applied to any agricultural practice with any type of commodity crops.

Agroecological practices by production stage



Contour planting, 'green infrastructure' for sloping lands to reduce soil loss

Introduce shade trees for cacao, deep rooted, clone diversification, income diversification with appropriate spacing

Appropriate and regular pruning (shade management)

Combine fertilizer with organic inputs, composting, vermiculture

Link with private sector as buyer, not only for cacao but other products from the cacao agroforestry farm

Combine basal fertilizer with organic inputs and introduce 'fertilizer crops'

Half-moon or zai pit for water harvesting

Trees at border, multi-strata

Introduce crops which can be habitat of pest predators

Nutrient cycling: use of rotten cacao pods or pruned branches as nutrient inputs

Integrated pest and disease management, bio-pesticide

Mulching to reduce impact of drought

Reduce any chemical use (if any) during harvesting or storing

Involve women and youth for packaging, labelling, advertising

Agroecological practices by purpose

For soil health and fertility

- Introduce nitrogen-fixing crop species
- Use of damaged and fungus-infected cacao pods
- Use of pruned branches of cacao or shade trees
- Mulching to thicken soil organic matters
- Composting to increase organic inputs
- Litterfall from shade trees increases soil nutrient
- Vermiculture for improved soil aeration and nutrient status

For soil and water conservation

- Introduce strips of fodder grass or natural vegetation along contour lines
- Use of pruned branches to reduce surface run-off and erosion
- Introduce suitable cover crops
- Soil water conservation
- Circle or half-moon area around cacao trunk for water harvesting
- Mulching to maintain soil humidity
- Introduce deep-rooting tree species to improve soil porosity and infiltration
- Introduce shade tree species

For pest and disease control

- Integrated Pest and Disease Management
- Appropriate and regular pruning regime to improve micro-climate
- Reduce chemical inputs using a combination with biopesticides

Benefits: how agroecological practices can make cacao cultivations more environmental-friendly?

- Reduced chemical inputs (fertilizer, pesticide) and risk of soil and air pollution.
- In sloping soils, reduced risk of soil erosion and sedimentation into nearby water bodies.
- Increased population of useful soil biota thanks to more abundant supply of organic matters.
- Better presence of pollinators or natural predators which prevents pest and disease outbreak.
- Minimal use of chemical inputs also reduces greenhouse gas emission.

Benefits: how agroecological practices can make cacao farmers more market resilient?

Crop diversification also means a possibility for income diversification and stability, and more resilient to market uncertainty

Benefits: how agroecological practices can make cacao farmers more climate resilient?

- Trees provide shade for cacao and reduce impact of climate threats such as drought, heat, and strong wind.
- Shade trees improve micro-climate within cacao farms which can prevent pest and disease outbreak.
- Income diversification and stability increase farmer's capacity to cope with impacts of unfavorable climates for cacao.

Many different types of agroecological practices: what are the key principles?

1. Recycle organic materials
2. Reduce chemical inputs
3. Secure and enhance soil health
4. Ensure animal (livestock) health
5. Maintain or increase agrobiodiversity
6. Synergize various components
7. Promote economic diversification
8. Co-create knowledge (local wisdom, scientific findings)