

# Ecological Control of Coffee Leaf Rust in Latin America



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## Study aim:

To find methods to combat and control coffee leaf rust in organic coffee cultivation in Latin America.

## Methodology:

Naturland organic coffee growers in Latin America comprising 16,249 organic coffee farmers with 67,573 ha of land, whereof 6,161 farmers (organization and producers) as well as experts and organic inspectors, were asked to mark measures for control methods of coffee leaf rust that they think are of high, middle or low relevance. According to the farmers there are six key methods that are of high relevance to combat the disease.

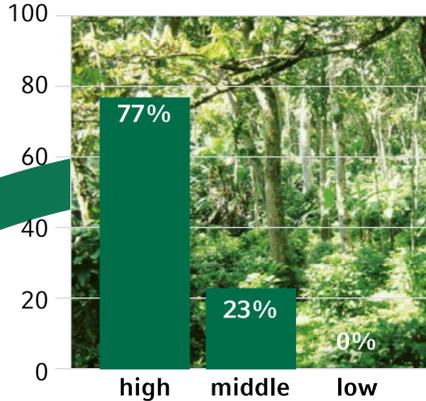
## Study side:

Mexico, Honduras, Nicaragua, Peru, Ecuador and Bolivia.

## Background:

The epidemic of coffee leaf rust caused by the fungus *Hemileia Vastatrix*, with an incidence of 53 % in the crop year 2012/2013, was the worst seen since the disease appeared in Central America in 1976. Crop failures and low producer prices for coffee resulted in an income loss and unemployment among the coffee farmers. More drastic yield losses and socio-economic consequences await the coffee producers for the crop year 2013/2014 as the basis in coffee cultivation is placed in the previous season.

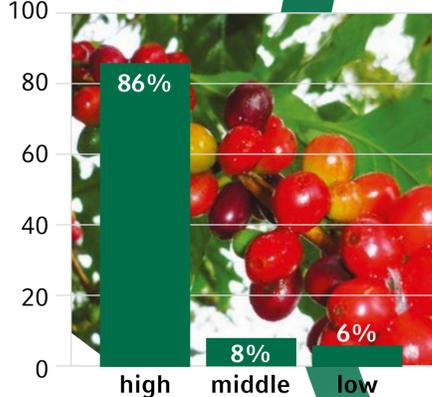
### Shade diversification



#### ▲ 1. Coffee cultivation in agroforestry systems with shade trees.

Indigenous species are to be used to encourage the variety of tree species. Shade trees and coffee grow in tiers and create a wide variety of structures. Healthy vegetation can be achieved by striving for ecological equilibrium between pests and beneficial insects.

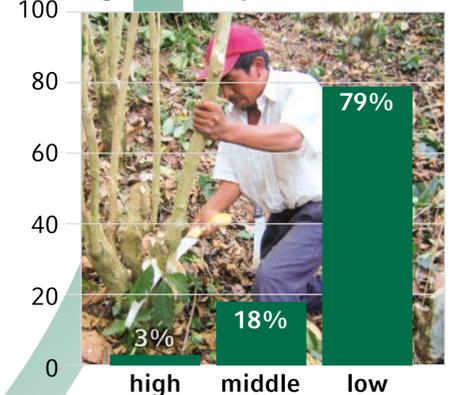
### Coffee Varieties



#### ◀ 6. Selection of resistant coffee varieties.

Preventing diseases means to cultivate healthy and resistant/tolerant coffee plants. Coffee taste has to be considered.

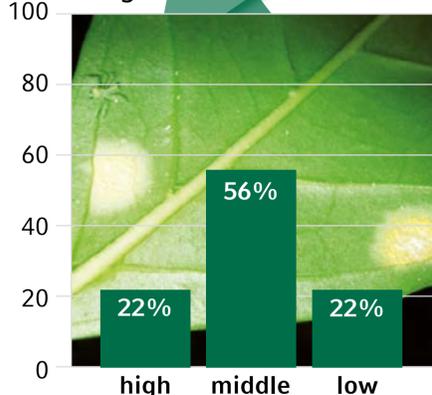
### Aged coffee plants



#### ▶ 2. Coffee renovation and trimming.

The coffee plants should be renewed every 8-15 years depending the varieties and the cultivation system or be trimmed regularly to have young branches.

### Fungicides



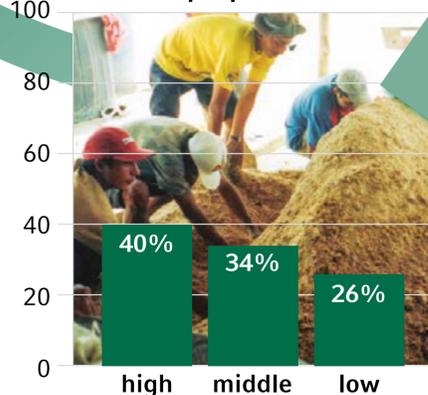
#### ▲ 5. Application of fungicides authorized under organic standards.

Copper preparations only can use prophylactic and copper quantity is limited to 3 kg per hectare and year. Best agriculture practice (adequate equipment, competent formulation and application, ecological monitoring) as well as costs for inputs have to be considered.

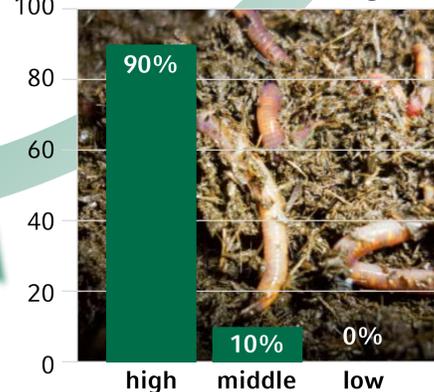
#### ▼ 4. Use of bacteria and pathogenic fungus preparations.

The fitness of the coffee plants should be improved. Preparations made of bacteria can stimulate the activity of positive soil micro-organism and pathogenic fungus (e.g. *Lecanicillium lecanii*) prevent the prevalence of pathogens like the coffee rust.

### Bacteria preparations



### Plant nutrition with organic fertilizers



#### ◀ 3. Balanced nutrition.

Good humus balance is needed by adequate measures such as permanent soil coverage, undersown crops and catch crops (like leguminous plants) and application of organic fertilizers like compost (e.g. coffee pulp), vermicompost, bocashi or biol (liquid, organic fertilizer).

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## Literature:

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