

The environmental changes during field preparation in Amazonas require an ecologically adapted agricultural production system to reach economical stability

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The slashing and burning during the initial phase of the Amazonian field preparation procedure destroys the primeval rainforest vegetation. This destruction followed by pedological degradation and climatic changes guarantees only a short time use and leads to the abandonment of the fields. Abandonation is one of the main reasons for the migration of farmers to new areas with primary vegetation where the cycle starts again.

Only an ecologically adapted agricultural production system can be sustainable and can overcome the problems created by this destructive form of shifting cultivation. A plant production system therefore has to fulfill the following items:

1. An adapted agroecosystem in the Amazon basin has to be a polyculture with the use of mainly indigenous trees.
2. Degraded areas have only very few essential, symbiotic organisms. This occurs at least after several years of fallow, too. In the initial phase of a recultivation effective symbionts, especially mycorrhizal fungi, have to be introduced to the plant production system.
3. A high soil-microbiological stability and high diversity of effective, adapted soil microorganisms is supported by a high number of different host-species. That means that the inclusion of the natural secondary vegetation should have high importance for the stabilization of populations of soil-microorganisms and therefore for the introduced hosts - the utilizable plants -, too.
4. The management of the plantation has to take into account that a high diversity of soil-microorganisms remains in the soil. That means a low input of pesticides and a controlled amount of fertilizers (normally much less than without mycorrhization of the plants).
5. A high diversity of utilizable plants/natural vegetation probably will enhance the disease tolerance of the whole system by changing the microclimate and giving the possibility to establish natural controlling systems.