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In nature, there are laws that determine the decreasing yield capacity of soils and that must be observed in arable farming and pasture management. Those who disregard these laws cause degradation and a loss of soil productivity. It is therefore essential to observe these laws if sustainable agricultural production is to be achieved.

Any cultivation system that constantly depletes the soil's humus reserves is not sustainable and results in the impoverishment of the soil and people.

In tropical and subtropical agriculture, repeated and intensive tillage leads to rapid mineralization of organic matter at rates that are generally higher than the possibility of replacement. Over the years, this leads to decreasing levels of organic matter in the soil and to declining soil yields.

Due to the exposure of the soil and the climatic conditions of the tropics and subtropics, repeated and intensive tillage in arable farming leads to wind and/or water erosion and thus to soil losses that are generally higher than natural soil regeneration. Over the years, this leads to a decline in soil yield.

In the tropics and subtropics, intensive tillage generally leads to damage to the soil structure, increased soil temperatures and reduced soil moisture. This has a negative effect on root growth, soil flora and fauna and soil biological processes, resulting in a decline in soil yield over the years.

Any cultivation system in which important nutrient reserves occur through harvesting or through soil depletion (extraction without replacement), through volatilization (e.g. through repeated burning) and/or through leaching (e.g. through fallow land without plant growth) is not sustainable and results in the impoverishment of the soil and people.

Moreover, after intensive tillage, soil carbon is released very quickly (as carbon dioxide) into the atmosphere. Instead of the carbon being accumulated in the soil and helping to improve soil fertility, it escapes into the Earth's atmosphere in gaseous form (as CO<sub>2</sub>) as a result of tillage, contributing to the greenhouse effect and global warming.

Conclusions:

The unavoidable adverse effects of intensive and repeated soil cultivation in warmer climate zones on organic matter, erosion, soil structure, soil temperature, soil moisture, water infiltration, soil flora, soil fauna and soil biological processes result in chemical, physical and biological soil degradation. Over the years, this leads to a decline in yield capacity and a loss of the soil's yield potential, as well as to the impoverishment of the people who cultivate it.

As a consequence of the laws of diminishing productive capacity of tropical soils, sustainable agriculture cannot be achieved as long as the soil is worked intensively and repeatedly. Nor can sustainable agriculture be achieved as long as soil depletion occurs, or the nutrients removed through leaching and harvesting are not replaced, or nutrient reserves evaporate through repeated burning.

In order to maintain and improve soil fertility and achieve sustainable agriculture in the tropics and subtropics, it is necessary to stop tillage and keep the soil covered with plant residues all year round. At the same time, sufficient quantities of plant residues must be added to the system (more than 6 tons/ha/year in semi-arid climates and more than 10 tons/ha/year in humid climates). Plowing and intensive tillage are antagonistic to sustainable land management in the tropics and subtropics! It is an illusion to want to achieve sustainable agriculture and at the same time work the soil intensively and repeatedly.

The use of the no-till system with crop rotation and green manure is the only known cultivation system in extensive agriculture that enables truly sustainable agriculture in the tropics and subtropics.