

Plant Science 2018: Ecological farming-how to cultivate healthy plants- Houskova Beata, Makovnikova Jarmila and Slinsky Jan- National Agricultural and Food Centre

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Soil, air and water are the basic components for life on the Earth. For many years, the function of soil has been understood only as a mean for production. Nowadays the soil is considered as an integral part of environment which must be preserved for future generations. This is soil awareness but we cannot be satisfied with present situation as it still needs a lot of work in soil issues promotion in the society. Soil is considered as non-renewable resource according to several soil protection documents, thus soil awareness is becoming stronger. One, very effective way, how to contribute to soil protection in praxis is ecological farming. Soil is subjected to several external factors which can influence its properties. The cause of soil degradation directly lies in the way of soil use, which affects its ecological functions and consequently the stability of the land. Sustainable soil use must keep equilibrium with the other parts of environment and ecological farming is also the way to realize it. At present time, people are more and more interested in healthy food. Also healthy vegetables cultivated without high doses of fertilizers are in high demand. One of the ways how to produce such crop is ecological farming which has specific criteria for soil cultivation. Good example is soil cultivation in spirals where individual fields have circle shape. Such cultivation is based on low soil surface disintegration without turning the soil layers and without heavy machinery and fertilizers. It is realized by a rotating arm fixed in the middle of the field. Soil cultivating tool is mounted on a chain and is guided along the arm. It is possible to fix interchangeable tools that can serve as a spade, rotary tiller and seeder or for drip irrigation. The circular fields are located side by side and one working arm can be easily moved to an adjacent field. In these fields, it is already possible to see the change of soil properties. This is noticeable in the amount of stable soil aggregates proportion in comparison with fields cultivated in traditional way. Due to low soil disturbance also amount of earthworms is higher in circle fields. Improvement in soil structure tends to

grow from the fields with one year to the fields with five years of ecological cultivation, thus with years the effects are more and more visible. Ecological farming is soil awareness in praxis and can significantly contribute to soil protection and sustainable use according to A2030 SDG's, especially goal 15 which aims to: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

According to the meaning of the United States Department of Agriculture (USDA) study group on natural cultivating "natural cultivating is a framework which maintains a strategic distance from or to a great extent avoids the utilization of manufactured information sources, (for example, composts, pesticides, hormones, feed added substances and so forth) and to the most extreme degree possible depend upon crop revolutions, crop deposits, animal excrements, off-ranch natural waste, mineral evaluation rock added substances and organic arrangement of supplement preparation and plant insurance". FAO proposed that "Natural agribusiness is an exceptional creation the board framework which advances and improves agro-environment wellbeing, including biodiversity, organic cycles and soil natural movement, and this is practiced by utilizing on-ranch agronomic, organic and mechanical techniques in rejection of all engineered off-ranch inputs".

With the expansion in populace our impulse would be not exclusively to balance out agrarian creation however to expand it further in supportable way. The researchers have understood that the 'Green Revolution' with high information use has arrived at a level and is presently continued with reducing return of falling profits. In this way, a characteristic equalization should be kept up at all expense for presence of life and property. The undeniable decision for that would be progressively applicable in the

current period, when these agrochemicals which are delivered from petroleum product and are not sustainable and are lessening in accessibility. It might likewise cost vigorously on our remote trade in future.

Ensuring the drawn out fruitfulness of soils by keeping up natural issue levels, empowering soil organic movement, and cautious mechanical intercession. Giving harvest supplements in a roundabout way utilizing moderately insoluble supplement sources which are made accessible to the plant by the activity of soil miniaturized scale creatures. Nitrogen independence using vegetables and natural nitrogen obsession, just as compelling reusing of natural materials including crop deposits and domesticated animals excrements. Weed, illness and vermin control depending principally on crop pivots, common predators, assorted variety, natural manuring, safe assortments and constrained (ideally negligible) warm, organic and synthetic mediation. The broad administration of domesticated animals, paying full respect to their developmental adjustments, social needs and creature government assistance issues as for nourishment, lodging, wellbeing, reproducing and raising. Cautious consideration regarding the effect of the cultivating framework on the more extensive

condition and the preservation of untamed life and regular living spaces. One, compelling way, how to add to soil insurance in praxis is environmental cultivating. Soil is exposed to a few outer components which can impact its properties. The reason for soil corruption straightforwardly lies in the method of soil use, which influences its environmental capacities and thus the solidness of the land. Economical soil utilize must keep balance with different pieces of condition and environmental cultivating is likewise the best approach to acknowledge it. At present time, individuals are increasingly more intrigued by sound food. Additionally sound vegetables developed without high portions of manures are sought after. One of the manners in which how to deliver such yield is biological cultivating which has explicit rules for soil development. Genuine model is soil development in spirals where individual fields have circle shape. Such development depends on low soil surface breaking down without turning the dirt layers and without substantial hardware and composts. It is acknowledged by a turning arm fixed in the field. Soil developing device is mounted on a chain and is guided along the arm. It is conceivable to fix exchangeable apparatuses that can fill in as a spade, revolving turner and seeder or for trickle water system.