It's time to take turns from mono-cropping to crop rotation

by Akshara Samarasuriya.

source-https://images.app.goo.gl/5xNC419VXr8YjTZV7

Mono-cropping is the practice of growing one type of crop continuously for a long period on the same land. This cropping pattern is practiced for many annual crops including rice, maize, and plantation crops like coconut, tea, and rubber. Mono-cropping requires the same set of management practices and machinery, year after year which makes it convenient for farmers.

However, there are a number of ecological and economical disadvantages associated with mono-cropping. Cultivation of the same crop leads to removal of some plant nutrients in high quantities as the harvest. This occurs in the same soil layer where roots occupy resulting in nutrient imbalances in the soil and gradual decline in soil fertility. Many studies have found a loss of soil carbon as a result of mono-cropping. Nutrient imbalances along with reduction in soil carbon negatively affect the diversity of soil microorganisms that is essential to maintain the fertility of the soil. Therefore, the yield of the crop is also gradually declined if mono-cropping is practiced for many years. In sloppy areas, the practice of the same land preparation method season after season leads to soil erosion. As a consequence, farmers tend to apply excessive amounts of chemical fertilizers to boost fertility, increase yields and thus the income. Growing the same crop on a land provides a favorable environment for a certain parasitic, pest and weed species and it causes crop vulnerability to such insects, plants, and microorganisms. In a situation where a pest outbreak of a crop occurs, a farmer could lose his entire harvest at once, and therefore his income for the whole season will fail, which is a quiet risk for a farmer. Thus, farmers tend to use excessive amounts of agrochemicals such as pesticides and weedicides. Therefore, mono-cropping poses a great threat to the environment.

Crop rotation is a very viable alternative for mono-cropping. In crop rotation, different types of crops are grown sequentially on the land. A farmer can achieve several benefits by practicing crop rotation. Among them, crop rotation improves soil qualities, particularly physical properties. As an example, cultivating a root crop that produces a lot of air space in the soil in one season will be beneficial for a crop that grows in the same area next season. It avoids selective removal of plant nutrients, thus a balanced state is maintained in terms of its fertility and composition. In crop rotation, a farmer can use fertilizers more smartly as there is no need to apply the same amount of fertilizer to each acre every season. If a farmer grows a legume crop in one phase of the rotation, he can improve the soil nitrogen pools. It will automatically reduce the nitrogen fertilizer requirement for the next crop. Crop