

Commentary

The assessment of the cropping system and management types

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DESCRIPTION

Cropping systems refer to the crops, crop sequences, and management strategies utilised on a certain agricultural land over the course of several years. It encompasses all spatial and temporal aspects of agricultural system management. Cropping methods have traditionally been designed to maximise output, but modern agriculture is increasingly concerned with cropping systems that promote environmental sustainability.

Monoculture refers to the practise of growing only one crop in a particular area, whereas polyculture refers to the technique of cultivating many crops in a given space. Monocropping is the practise of planting a single crop on the same area year after year in agriculture. Maize, soybeans, and wheat are three popular monocropped crops. Continuous cropping, as in “continuous corn,” is another term for monocropping. It helps farmers to have consistent crops across their entire farm. They can only plant the most profitable crop and apply the same seed, pest control, machinery, and growing method across the board, potentially increasing total farm profitability. Many contemporary farms consist of multiple fields that can be cultivated individually and so used in a crop rotation cycle. Crop rotation has been used for thousands of years and has been shown to boost yield while also preventing negative changes to the soil environment that limit long-term output. Although the exact mechanisms governing that effect are unknown, they are assumed to be linked to differences in chemical, physical, and microbial qualities of soil caused by different crops. Crops in a rotation assist to stabilise changes in the qualities of the soil by altering it in different ways. Another factor to consider is that many agricultural pests are species-specific, so having a

specific species present in a field just part of the time helps to keep pest numbers in check.

Individual plant organisation in a field is also varying, and it often relies on the crop being farmed. Many vegetables, cereals, and fruits are grown in continuous rows that are wide enough to allow cultivation or, in the case of fruits, moving without harming the crop plants. Other systems have no such organisation and aim for maximal plant density. Because animal traffic is expected, and maximum plant density is required for nutrition, forages and cover crops are cultivated in this manner, as is the case with cover crops, whose goal of competing with weeds and avoiding soil erosion is primarily dependent on density.

Nutrients are exhausted during crop growth and must be replenished or supplied if agriculture is to continue on a given piece of land. Fertilisers, which can be organic or synthetic in nature, are commonly used to achieve this. The preference for organic-source fertilisers is a big part of the organic farming movement. Excessive fertilisation is not only expensive, but it can also hurt crops and have a variety of negative environmental effects. As a result, designing nutrient management strategies for specific plots that seek to optimise fertiliser application rates has piqued interest.

The moisture level of the soil is a critical aspect in plant development, and it must be kept within a certain range during the growing season. From crop to crop, the ranges of acceptable moisture conditions vary. Irrigation and fine-textured additions can help increase soil moisture, while coarser-textured amendments and technology like tile drainage can help reduce it.

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