Crop cultivation systems

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ABOUT THE STUDY

Crop cultivation systems evolved under the influence of several factors: the social mode of production, natural conditions, and thus the event of agricultural techniques and agronomy. Their evolution has gone hand in hand with the intensification of crop cultivation generally. Four kinds of crop cultivation systems, from less intensive to more intensive, could even be distinguished: primitive, extensive, transitional, and intensive.

Monoculture is that the practice of growing one crop during a given area, where polyculture involves growing multiple crops during a neighborhood. Monocropping (or continuous monoculture) could also be a system during which an equivalent crop is grown within the same area for sort of growing seasons. Many modern farms are made up of sort of fields, which can be cultivated separately and thus are often utilized during a crop rotation sequence. Crop rotation has been employed for thousands of years and has been widely found to increase yield and stop harmful changes to the soil environment that limit productivity within the future.

Although the precise mechanisms regulating that effect aren't fully understood, they're thought to be associated with differential effects on soil chemical, physical, and microbiological properties by different crops. By affecting the soil in several ways, crops during a rotation help to stabilise changes within the properties. Another consideration is that a lot of agricultural pests are species-specific and so having a given species present during a field just some of the time helps to stop populations of pests from growing.

Microalgal cultivation systems can use artificial or natural (sun) light sources. Obviously, for practical, economic, and environmental reasons, natural sunlight is to be preferred for mass-scale production of biomass for energy production purposes. This case are going to be explored here. Solar production adds a degree of complexity to the optimization and control of the cultivation system, compared with the synthetic illumination case. The method is fully dynamic and driven by an uncontrolled input: the solar incident flux.

The organisation of individual plants during a field is additionally variable and typically depends on the crop being grown. Many vegetables, cereals, and fruits are grown in contiguous rows, which are wide enough to allow...