



## Physiology of Crops and Crop Production in Agriculture

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### Description

Community of plants growing together in a particular area and with a certain goal is called crop. Crop physiology is the study of how physiological processes in plants are combined to affect collective responses in communities of plants [1]. Crop physiology is the study of how to manage crops more effectively by using our understanding of plant physiology.

A deeper understanding of plant physiology can provide assistance with many aspects of horticulture and agriculture as well as provide solutions that are applicable to both industries. A solid scientific foundation for effective monitoring and beneficial manipulation of these phenomena is provided by knowledge of the physiological processes involved in seed germination, seedling development, crop establishment, vegetative growth, flowering, fruit and seed setting, crop maturity, plant hormone interaction, nutrient physiology, stress (biotic/abiotic) physiology, etc [2]. Since we are interested in plant health and economic output, which are the outcomes of these events, plant physiology provides a foundation for enhancing crop production. In order to develop more effective crop management methods, crop physiology researches these occurrences.

Cutting, gathering, or reaping crops are all examples of crop harvesting. The aforementioned process begins when crops reach maturity and turn golden yellow or brown. The time of year, crop type, crop maturity period, and season are typically determining variables for crop harvesting. Festivals like Baisakhi, Bihu, Holi, Pongal, etc., are celebrated in India around the time of the harvest. Specifically, there are two sorts of harvesting techniques used in agriculture: manual and mechanized. The manual gathering method is more time-tested and labor-intensive. To harvest mature crops, farmers frequently employ sickles and cutlasses. On the other hand, mechanical harvesting, which involves using equipment like harvesters to harvest mature crops, is a good illustration of modern farming techniques.

### Growth measurement of crops

In order to boost crop yields, there is a basic requirement for high total dry matter output per unit area. High dry matter production is correlated with the ideal leaf area index and net absorption rate [3]. (CGR=NAR × LAI) This idea of good canopy management is the

foundation for trimming operations in horticultural crops like mango.

Row crops including soybean, maize, cotton, wheat, and tobacco are among the crops that can be produced and managed for a profit. Extension programmers in this field concentrate on issues like marketing, integrated pest management, sustainable cultural practices, threats to the environment and public health, invasive species, legislation, and profitability that crop growers and related sectors must deal with [4]. Producing crops for food and fiber is the focus of this area of agriculture. In order to better manage their crops, many farmers around the world regularly apply this knowledge. This method involves having a thorough awareness of all the feed sources needed to care for and grow crops [5]. Through better crop production and management, this particular field of research enables us to farm more effectively and efficiently to enhance our food output.

The following is a list of the key variables affecting crop production:

- Preparing the soil.
- Sowing seeds.
- Irrigation.
- Usage of manure, fertilizer, and pesticides.
- Harvesting crops.
- Storage of crops.

Since it aims to describe and anticipate the intricate connections between relevant traits and/or between traits and the environment, crop physiology can establish important correlations between phenotypic traits and crop performance. Therefore, this field of study is essential for comprehending and extrapolating mechanisms and processes operating at various organizational levels. Breeders have questioned the early idea of an ideotype because of both its technical challenges and its apparent simplicity.

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