

# An Introduction to Hydroponic Farming and Its Advantages

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## OUTLINE

Hydroponic farming is a method in which plants are grown in water instead of soil. The roots of the plants are supported by an inert medium such as rock wool or coconut coir and immersed directly in nutrient solution, supplying all the essential elements for healthy growth. The word hydroponics is derived from the words “hydro”, meaning water, and “ponics”, meaning labour. The water is the labour that does all the necessary hard work.

## THE MAIN ADVANTAGES OF HYDROPONIC FARMING

**No soil needed** Physical and chemical factors such as pollution and deforestation are the main reasons of land degradation. Conventional agriculture accelerates this process through the use of farming equipment used and the intensive use of fertilizers and pesticides. Since hydroponics does not rely on soil, it offers an alternative can help to slow land degradation.

**Conserves water** Hydroponics uses less water than conventional farming because the water is recycled repeatedly in recirculation systems. Proper filtration and treatment keep the water usable for longer periods of time. In contrast, outdoor farming often results in significant water loss through evaporation and runoff.

**Higher yields in a smaller area** Pests and contaminants are rarely an issue in hydroponics due to the controlled and fully or partially enclosed environment. Plants benefit from optimal nutrient and climate conditions, which accelerates their growth. Additionally, space utilization is maximized and even increased as many hydroponic systems allow for vertical farming.



Figure 1: Growing lettuce in a hydroponic system.

**Predictability and seasonality** Most crops only grow in certain climates and at certain times of the year, requiring additional effort to import food from around the world to meet demand. In contrast, plants in closed hydroponic systems grow all year round, regardless of weather and climate conditions. This eliminates the problem of harvest predictability, as indoor cultivation is not dependent on climatic factors such as frost and drought.

**Shorter supply chain** Hydroponic cultivation helps to overcome the challenges of the supply chain. In conventional agriculture, food has to travel long distances after harvest before it ends up on store shelves. Hydroponic farming offers the opportunity to grow fresh food that can be delivered to the consumer fast, ensuring maximum freshness and reducing transport and storage needs.

## References:

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## CONCLUSION

Although hydroponic farming offers many advantages, it also has some drawbacks, such as high initial set-up costs, ongoing power consumption, high maintenance and monitoring requirements and the need for specialized knowledge.