

NEAT

High-tech Farming -Fact Sheet

Geponics

- Growing plants in normal soil (traditional farming). Nutrients in the soil are dissolved in water and the roots absorb the nutrient rich water.

Hydroponics

- Growing plants in using nutrient solutions in water without soil. The roots may be in the nutrient solution only or in gravel, perlite, mineral wool, or coconut husk.
- No soil is needed, and because the water remains in the system it is able to be reused. This conserves water and lowers water costs. Also, nutrition levels can be controlled, and the crop yields are stable.
- Pests and diseases are less likely to be a problem with this method of farming as compared to traditional farming.



Aeroponics

- Growing plants in an air/mist environment without soil. The roots of the plants are in an enclosed area and are misted with a nutrient-rich water solution. The stem and leaves are not enclosed.
- Growing plants in this kind of controlled environment helps reduce the threat of pests and disease. Growing plants aeroponically conserves water and energy and allows for rapid food production.
- These systems can reduce water usage by 98%. NASA has even experimented with growing plants using aeroponics in space.



When growing plants using hydroponic or aeroponic methods, it is important to make sure that the nutrient solution being used contains all the nutrients the plants need. Some of the nutrients that plants need are nitrogen, phosphorus, potassium, calcium, magnesium, and sulfur. They also need trace elements like iron, copper, and manganese, but in smaller amounts. Hydrogen, oxygen, and carbon are needed in large amounts but can be found in air and water.