



Kratky Hydroponics: Soil-Free Growing Method



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Net cup: Supports the plant and has slots or holes for the roots to enter the nutrient solution.

Available online and at specialty retail stores.

Grow media: Helps the roots to get started and anchors the plant.

Common materials: peat pucks, rockwool, clay balls, coco coir, perlite.

Reservoir: Watertight area that holds nutrient solution.

Can be made of plastic, Styrofoam, or glass, and can be any size (larger means little to no refilling).

Nutrient solution: Special hydroponic fertilizers come in powder or liquid forms and mix easily with water.

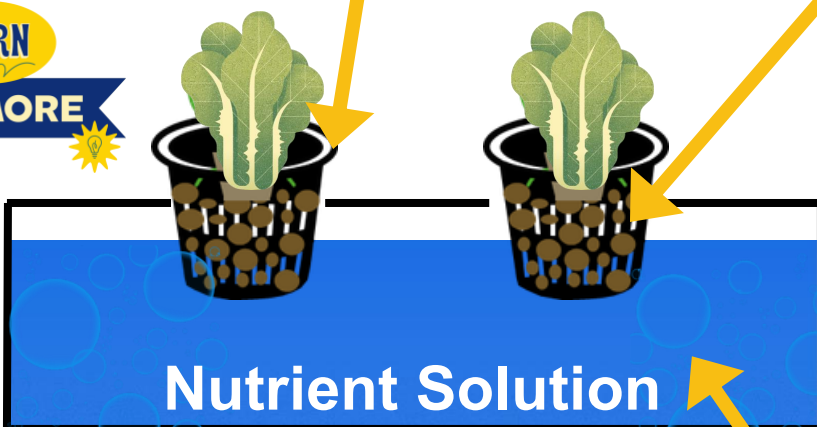
Available online and at specialty retail stores.

"Air roots" absorb oxygen directly from humid air in the air space.

"Water roots" absorb water and nutrients.

Key tips:

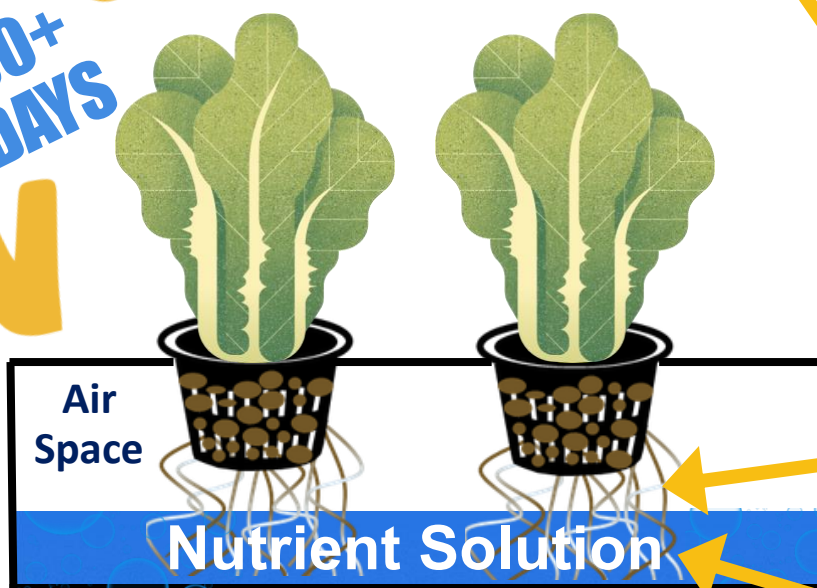
Leafy greens are ready to harvest after 30-45 days. Fruiting vegetables (tomatoes, peppers, cucumbers, etc.) take longer and will require maintaining nutrient solution levels over several months.



Nutrient Solution



30+
DAYS



Air
Space

Nutrient Solution

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The first Kratky hydroponic system diagram shows small plants growing in a container with a reservoir that is nearly full of nutrient solution. The diagram highlights the main system components.

The net cup supports the plant and has slots or holes that allow roots to grow into the nutrient solution. It can be purchased from online or specialty retail stores.

The grow media sits inside the net cup, helping anchor the plant and support early root development. Common materials include peat pucks, rockwool, clay pellets, coco coir, and perlite.

The reservoir is the watertight portion of the container that holds the nutrient solution. It may be made of plastic, foam, or glass and can vary in size. A larger reservoir can reduce or eliminate the need for refilling before harvest.

The nutrient solution is a mixture of water and hydroponic fertilizers, available in liquid or powdered form. In this stage, the solution level is high enough to contact the grow media.

The second Kratky hydroponic system diagram shows two larger plants after more than 30 days of growth. The nutrient solution level has dropped, creating a significant air gap between the solution and the net cup. Plant roots have extended both into the solution and into the air space.

Roots in the air space, called air roots, absorb oxygen from the humid air.

Roots submerged in the nutrient solution, called water roots, absorb water and dissolved nutrients.

Key tips: Leafy greens are typically ready to harvest in 30 to 45 days. Fruiting crops such as tomatoes, peppers, and cucumbers require a longer growing period and usually need the nutrient solution to be replenished over time.

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<https://ucanr.edu/site/uc-master-gardeners-orange-county/hydroponics-orange-county>