

GROW YOUR OWN: FOOD & WATER

- REVIEW:** a. You can grow plants from either _____ or _____.
- b. Transplant when two to three ' _____ ' leaves have developed.
- c. When watering make sure the water falls on the _____ not the _____.

By now you may have prepared your planting area, and you may have planted some seeds or transplanted some plants into your containers or yard.

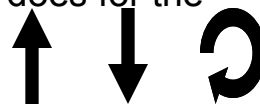
To keep growing, your plants need? Food and water

FEEDING YOUR PLANTS

The nutrients or food that plants need the most are nitrogen, phosphorus and potassium. Or N - P - K.

An easy way to remember what each nutrient does for the plant is:

“Up, Down, All Around”



N - nitrogen is used for green (leafy) growth, or **upward** growth.

P - phosphorus is used for root growth, or '**down**' growth (and increases fruit and vegetable production).

K - potassium helps to build the systems in the plant that move water and nutrients **around** the plant (all around).

When you see a fertilizer in the store, the three numbers you see on the bag, are the amounts of NPK mixture in the fertilizer.

E.g. a 10-20-10 fertilizer is:

10 parts Nitrogen (N) : 20 parts Phosphorus (P) : 10 parts Potassium (K)

If a fertilizer contains all three nutrients it is called a 'complete' fertilizer.

If a fertilizer has been mined or made by a chemical process, it is called 'synthetic' fertilizer.

If a fertilizer is 0 - 20 - 10 it contains: *(read carefully)* 😊

___ parts Potassium (K): ___ parts Nitrogen (N) : ___ parts Phosphorus (P)

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A soil test can help you find out how much P and K are available to plants, so you can decide how much you need to add as fertilizer. N usually needs to be added in most gardens.



SOIL TESTS: If you want to have your soil tested, check out:
<http://www2.ctahr.hawaii.edu/oc/freepubs/pdf/SCM-9.pdf>

SLOW-RELEASE FERTILIZERS

Plants can absorb nutrients all the time, so it is good to give them a mixture of all three nutrients throughout their growth. An efficient way to do this is to apply a slow-release fertilizer. This releases nutrients so that they are available to the plants over a long period of time. Slow-release fertilizers contain one or more nutrients. These are best for growing vegetables in containers.

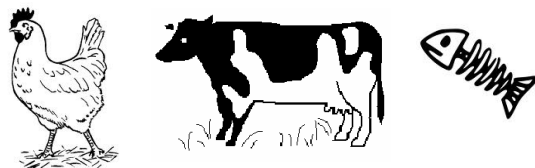
ORGANIC FERTILIZERS

Organic fertilizers are fertilizers that come from animal or vegetable matter. Examples are: chicken manure, steer manure and bonemeal. They vary slightly in the amounts of NPK, but usually contain:

Chicken manure:	3 - 2½ - ½	all nutrients
Steer manure:	1- 1- 1	balance of all nutrients
Bonemeal:	4 - 12 - 0	richest in phosphorus

Although organic fertilizers contain quite small amounts of actual nutrients compared to 'synthetic' fertilizers, they perform other important jobs which the synthetic ones do not. For example: they increase the organic content of the soil; improve the structure of the soil; and increase the soil bacterial and fungal activity which encourages bugs and worms.

Organic fertilizers release nutrients over a fairly long period. But one problem is that they may not release enough of their nutrients at a time that the plant needs it for best growth.



Answers to question on bottom page 1: Fertilizer = 10 parts K, 0 parts N, 20 parts P

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WHEN TO ADD FERTILIZER

Add organic fertilizers when you prepare the soil or planting mixture and then use compost or manure tea or synthetic fertilizers during plant growth.

If you use a slow release fertilizer or synthetic fertilizer, follow the directions on the package.

MANURE OR COMPOST TEAS

Soaking compost or manure in water extracts plant nutrients and micronutrients, plant growth compounds and beneficial microorganisms.

To make compost or manure tea:

- Fill a cloth sack, old sock or pillow case with finished compost or manure and tie up the open end.
- Put the sack in a tub, barrel, or watering can filled with water. Shake it around for a few minutes and then let it soak for a few days. The mixture will be the color of tea.
- Pour the tea around plants. You can re-use the bag of compost or manure several times. Afterwards, empty what is left in the bag onto the garden.

WATER

Plants need water to grow well. A healthy plant is made up of 75% - 90% water. This water is needed for the plant:

- to photosynthesize (make food with energy from the sun),
- for support (help it stay upright)
- to carry nutrients and sugars to various parts of the plant.

Usually water is most needed during the first 2 weeks of growth when plants are starting to grow and must have water to build their root systems. It is also needed immediately after transplanting, and during the growth of fruits.

While growing, vegetable crops need about an inch of water per week. This can be as rainwater, irrigation water, or both.

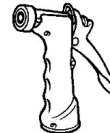


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WATERING

The home gardener has several options for applying water to plants

- a jar, can or other container
- a watering can,
- a garden hose with a fan nozzle or spray attachment,
- portable lawn sprinklers,
- a plastic soaker hose,
- drip or trickle irrigation,
- a semi-automatic drip system



The expense increases as you go down the list.

Put a check mark beside the watering option you want to try.



WHEN TO WATER

- ☹ Morning watering is preferred: earlier is better.
- ☹ Do not get foliage wet in the evening; this can encourage diseases.
- ☹ Generally it is a good idea to let the soil dry between watering but not so much that the plants wilt.
- ☹ Be consistent with your watering. Depending on the season and where you are located, this can mean watering every other day in leeward areas, or watering every 3 days in some windward areas.
- ☹ The feel of the soil should be used as a guide in watering your container plants. Stick your index finger about 2 inches into the soil (to the second joint of finger). When the top ½ inch of the soil feels dry, the plant probably needs watering. If the soil feels damp, don't water.

SAVING WATER

Mulching: Adding 2-3 inches of organic mulch can cut down the amount of water your plants need by as much as half. Mulches stop water being lost from the soil through evaporation. (See lesson 6 for more on mulching)

Shade: is another way to save water. Plants that wilt in very sunny areas can do better with partial shade during the afternoon, especially in summer.

Answers to questions on page 1: a. seeds and seedlings b. true leaves c. soil not plant

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