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virginia home food production



FACT SHEET

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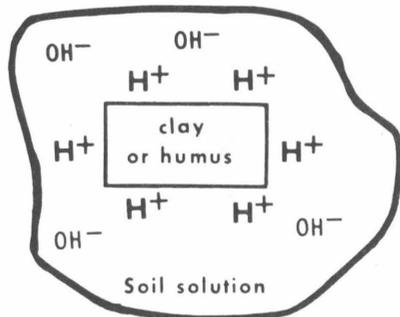
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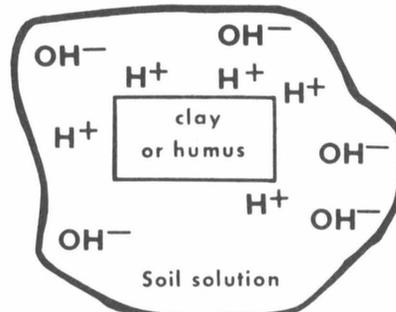
BLACKSBURG, VIRGINIA

SOIL pH

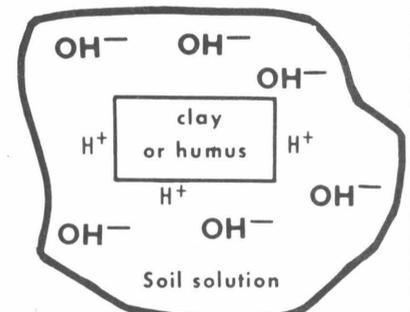
Soil pH is a measure of the degree, or strength, of the acidity or alkalinity level in a soil. It does not measure the total amount of soil acidity or alkalinity. pH is measured on a scale of 0 to 14. 7 is neutral. Any number below 7 indicates that a soil is acid (sour); any number over 7 indicates that a soil is alkaline (sweet).



Acid



Neutral



Alkaline

Left. In an acid soil the concentration of hydrogen ions (H^+) is greater than the concentration of hydroxyl ions (OH^-). **Center.** In neutral soil, pH7, the concentration of hydrogen (H^+) and hydroxyl ions (OH^-) is equal. **Right.** In alkaline soil, the concentration of hydroxyl (OH^-) ions is greater than the concentration of hydrogen ions (H^+).

Number units on the pH scale are in multiples of ten. As a result, the degree of soil acidity changes very rapidly as the pH value moves away from 7.0. For example, while a pH of 5.5 is 10 times more acid than a pH of 6.5, a pH value of 4.5 is 100 times more acid than a pH of 6.5.

Ideal soil for gardening purposes has a pH between 6.2 and 6.8. This is important because a fertile soil, that is a soil with adequate nutrient levels, may be unproductive when the pH level is too extreme. Nutrients are fixed in the soil and become unavailable to the plants.

Vegetables vary in their tolerance to soil acidity. Some crops, like potatoes, may grow better in slightly lower pH ranges due to decreased presence of disease organisms.

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Vegetable Tolerance to Acid Soil

Slightly tolerant
(pH 6.0 to 6.8)

Asparagus
Beet
Broccoli
Cabbage
Cauliflower
Chard, Swiss
Chinese cabbage
Lettuce
Muskmelon
New Zealand Spinach
Okra
Onion
Peanut
Spinach

Moderately tolerant
(pH 5.5 to 6.8)

Bean
Bean, lima
Brussels Sprouts
Carrots
Collard
Corn
Cucumber
Eggplant
Garlic
Kale
Kohlrabi
Parsley
Pea, English
Pepper
Pumpkin
Radish
Rutabaga
Soybean
Squash
Sunflower
Tomato
Turnip

Very tolerant
(pH 5.0 to 6.8)

Potato, Irish
Sweet Potato
Watermelon

Adapted from: Knott, J.D., HANDBOOK FOR VEGETABLE GROWERS, John Wiley & Sons,
NEW YORK, 1957

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