luster leaf®

No. 1835

rapitest® Digital 3-WAY ANALYZER

The Rapitest Digital 3-Way Analyzer Takes the Guesswork Out of Gardening!

FOR USE IN SOIL ONLY. DO NOT USE IN LIQUIDS.

Important Information Regarding Your New Digital Analyzer

These instructions cover all aspects related to the analyzer's function and will help guide you to experiencing the proper temperature, pH and fertility range for the plants you intend to grow.

Before Testing the Soil

If you are preparing to plant a bed of plants or shrubs, or to plant a crop of fruits and vegetables, or to put out grass seed, you will find it beneficial to sample and test the soil in a number of locations in the area to confirm that the soil is warm enough for what you want to plant, that the soil's pH is generally consistent over the entire area and that it is within the plant's pH range.

Basic Operating Instructions

Step 1. Press the power button to turn the meter on and off.

Step 2. Press the arrow keys to change the test function.

Step 3. The test function in use is indicated by the blinking arrow on the meter face.

Step 4. When not in active use, the meter will turn itself off after about four (4) minutes to preserve battery life.

How to Use Your Meter to Measure pH

Step 1. Remove the top 2" of the surface soil. Break up any soil clumps to a depth of 5". Remove stones or organic debris such as leaves and twigs because they can affect the final result.

Step 2. Thoroughly wet the broken up soil with water (ideally distilled or de-ionized water) to a mud consistency.
Step 3. Tamp the wet soil to compact thoroughly.
Step 4. Using the supplied pad, lightly shine 4"-5" (10-12 cm) of the probe, carefully avoiding the bullet shaped tip, to remove any oxides that may have formed on the surface of the metal. Wipe the probe clean using a cotton ball or tissue. Always wipe away from the probe tip, toward the probe handle.
Step 5. Use the arrow buttons to move the indicator arrow to point to pH.
Step 6. Take the initial reading: Push the probe directly into the moistened soil to a depth of 4"-5". If it does not slip into the soil fairly easily, select a new position. Never force the probe! Twist the probe clockwise and counter-clockwise between your fingers several times to ensure that muddy soil is well distributed over the surface of the probe. Wait for 60 seconds for the probe to acclimatize and note the LCD reading. Remove the probe from the soil.
Step 7. DO NOT SKIP THIS LAST STEP!
Based on the results of the initial reading, take the final reading:
a. If the initial reading is pH 7 or higher, wipe any soil particles from the surface of the probe. Re-shine the probe and insert back into the soil at a different point, avoiding the first hole made by the probe. Twist the probe two or three times between the fingers, as before, and wait 30 seconds before taking the final reading.
b. If the initial reading is below pH 7, wipe any soil particles from the surface of the probe. Do not re-shine the probe. Insert the probe back into the soil at a different point, avoiding the first hole made by the probe. Twist the probe two or three times between the fingers, as before, and wait 60 seconds before taking the final reading.

In order to obtain an even more accurate result when measuring soil pH with your unit, take the sample of soil to be tested from the ground. Prepare the sample by breaking the soil into small particles, removing stones and organic debris. Measure two cups of soil from the prepared sample. Fill a clean glass or plastic container with two cups of distilled or de-ionized water and add the measured soil sample. Ensure the soil and water are thoroughly mixed and compact the sample firmly. Drain off any excess water. Proceed to step 4 above.

Adding Lime to Increase pH
Lime can be added at any time of year but it does need time to take effect – which is why the autumn, winter and early spring are the preferred times. The two main types of lime are ground limestone and hydrated lime. Ground limestone is slower acting but more pleasant to handle. Hydrated lime may take effect in two or three months but ground chalk or limestone may take up to six months. The amount of lime needed to raise a spade's depth of top soil by 1 pH varies from 5.5 oz. of hydrated lime or 7.5 oz. ground limestone on sandy soil to 11 oz. of hydrated lime or 15 oz. ground limestone on heavy clays or peaty soils per square yard. So do not expect pH correction to be too precise! Avoid adding lime at the same time as sulfate of ammonia, superphosphate, basic slag or animal manures. Lime may be used in combination with sulfate of potash or muriate of potash. It is because of the natural drop in pH that there is such an emphasis on adding lime. While lime stimulates the availability of most plant foods, you will see from the "pH and Plant Nutrient" table that soils should not automatically be limed because large amounts of plant food become increasingly "locked up" over pH7.

Benefits of Liming
- Reduces acidity, increases pH.
- Binds the fine particles of clay into larger particles and so helps aerate and drain the soil.
- Helps to retain moisture and plant foods in sandy soils.
- Balances the addition of acidic fertilizers.
- The lime content of soil will sometimes affect flower and foliage color. Blue & red hydrangea flowers are the most common examples.
- Supplies the plant food calcium.
- Makes nitrogen available by stimulating the micro-organisms that help decompose organic matter.
- Increases the earthworm population.
- Protects against a few diseases, such as club root in brassicas (but causes scab in potatoes) and is disliked by organisms that help decompose organic matter.

Adding Chemicals and Organics to Reduce pH
The best way to reduce pH is to use the compost heap and farmyard manure to regularly introduce decaying humus. This not only reduces pH gradually but helps hold plant foods and moisture. Peat, relatively inert and usually only about 4% nitrogen content, is another useful soil conditioner of an acid nature.

Sulfate of ammonia and flowers of sulfur are chemical treatments that help reduce soil pH. Sulfate of ammonia also adds nitrogen.

While the tiny bacteria and micro-organisms work unseen in the soil, breaking down fresh organic matter into plant food, they produce acids. If this process eventually creates too low a pH, the organisms will work less efficiently. Lime is then needed as a balance and stimulant It is sensible to progress gradually towards a reduced pH and certainly not to expect to be able to be precise in exactly how much of a material will reduce pH by a given amount.

Avoid adding animal manures or sulfate of ammonia at the same time as lime or basic slag (a phosphate food).

How Much to Apply
How much to apply depends on the particle size of your soil. A sandy soil needs less lime for an equivalent pH change than a heavy clay but will not hold its pH as long. **Refer to Chart A.**

Soil Types
Sandy Soils: A light, coarse soil comprised of crumbling and alluvial debris.
Loam Soils: A medium friable soil, consisting of a blend of coarse (sand) alluvium and fine (clay) particles mixed within fairly broad limits with a little lime and humus.
Clay Soils: A heavy, clinging, impermeable soil, comprised of very fine particles with little lime and humus and tending to be waterlogged in winter and very dry in summer.

Excessive acidity in the soil causes calcium, phosphorous and magnesium to be changed into forms that plants cannot use, causing them to suffer a deficiency of these elements. Plants won't tolerate highly acid conditions. Slowdown of beneficial bacterial action is part of the reason; increased toxicity from certain trace elements like aluminum is another. Deficiency of calcium and magnesium is a third possibility. The best explanation is that in acid soils, chemical reaction can lock up major nutrients, especially phosphorous, making them unavailable to plants. Heavy use of inorganic, high-analysis fertilizers causes soil to become more acid, as does heavy use of sulfur-containing fungicides. The same result can stem from using organic fertilizers that have an acidifying effect. Acidity and alkalinity are measured in pH units, the pH being a symbol for the relative amount of hydrogen in a substance. On a pH scale from I to 14, 5 and below are extremely acid and 10 or more extremely alkaline. Soil alkalinity or acidity, then, is determined by the reaction of various minerals and organic compounds with moisture in the soil. Plants are often listed according to their pH preference. Some plants respond differently to pH in different soils. Other plants tolerate a comparatively wide range of pH. Obviously, for high yields, the gardener or farmer must know the soil's pH. Then the gardener/farmer can either grow the kinds of plants that do best in soil of that particular pH, or steps can be taken to change the soil pH to within the preferred range for the plants desired. For the majority of common plants, a pH of 6.5 to 7 is optimum. Soils in this pH range offer the most favorable environment for microorganisms that convert atmospheric nitrogen into a form available to plants. It also offers the best environment for the bacteria that decompose plant tissue and form humus. In this pH range, all of the essential mineral nutrients are available to plants in sufficient quantities, and generally in a much greater amount than at any other pH. Also, soil having a pH within this range is more workable, because a good crumb structure is more easily maintained. Too acid a soil means the bacteria which decompose organic matter cannot live. Manganese & aluminum are so soluble in very acid soil that they become present in amounts toxic to plants. Strong acidity also decreases nutrient availability, and plants may literally starve to death for one essential mineral nutrient while having so much of another that it poisons them. This becomes accelerated the more you fertilize. On the other hand, too alkaline a soil decreases nutrient availability. It causes loss of soil structure and development of "puddling". Strong alkalinity dissolves and disperses humus. "Black alkali" is caused by the accumulation of alkali and humus at the surface of the soil. Strong alkalinity causes a concentration of salts that completely inhibit plant growth.

To Raise or Lower pH of Your Soil

Raising and lowering pH is not an exact science and most plants have a reasonably wide tolerance, certainly to within 1 pH point. Consult plant pH preferences in this booklet and you will see that the majority can manage well on a pH around 6.5 but some need an alkaline soil and some a particularly acid soil. Altering pH takes time so do not expect rapid changes; rather, work steadily towards giving a plant its ideal conditions. **Refer to Chart B.**

Chart A. Application of Lime, Chemical and Organics to Increase or Decrease pH

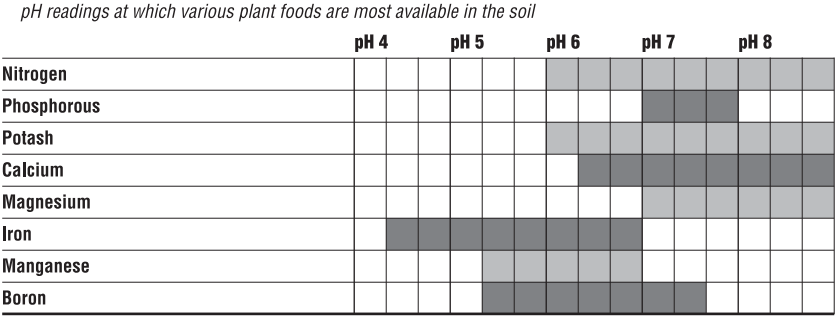
Amounts listed are pounds per 100 square feet. Do not add more than 5 lbs. of lime or sulfur in one application.

Material	ph Change	Sandy	Loamy	Clay
Dolomitic or	+ 0.5 unit (0.5 pH)	2.5	5	5.5
Calcic Limestone	+ 1.0 unit (1.0 pH)	5.0	8.5	11
Hydrated Lime	+ 0.5 unit (0.5 pH)	1.5 - 2.0	3-4	4.0 - 4.5
	+ 1.0 unit (1.0 pH)	3.5 - 4.0	6.0 - 6.5	8.0 - 8.5
Iron Sulfate	- 0.5 unit (0.5 pH)	0.75	1.5	2
	- 1.0 unit (1.0 pH)	1.5	3	4
Aluminum Sulfate	- 0.5 unit (0.5 pH)	0.5 - 0.75	1 - 1.25	1.5
	- 1.0 unit (1.0 pH)	1.0 - 1.25	2.25	3

Please note: To use Sphagnum Peat Moss to increase soil acidity, mix in up to one third total soil volume when planting acid loving plants.

Chart B. pH and Plant Nutrient Availability

pH readings at which various plant foods are most available in the soil



Fertility
A fertile soil is one which produces satisfactory yields of crops and, because of the incorporation of plant and animal residues, contains an abundance of organic matter or humus. It has good texture, not too loose and light nor too heavy and stiff, is well drained and has a proper pH for best plant growth. A fertile soil has sufficient amounts of the three major elements, nitrogen, phosphorous and potassium (potash). It also contains a sufficient supply of the micronutrients such as boron, copper, iron, sulfur, magnesium and molybdenum and consists of an abundance of organic matter and humus. The fertility portion of the instrument measures the soil's Nitrogen, Phosphorous and Potash (NPK) content, in combination.

How To Use Your Meter To Measure Fertility

Step 1. Remove the top 2" of the surface soil. Break up any soil clumps to a depth of 5". Remove any stones or organic debris such as leaves and twigs because they can affect the final result.
Step 2. Thoroughly wet the broken up soil with water (ideally distilled or de-ionized water) to a mud consistency.
Step 3. Use the arrow buttons to move the indicator arrow to point to Fertility.
Step 4. Wipe the meter probe clean with a tissue or paper towel. Insert probe into soil up to the probe base.
Step 5. Wait one minute and take reading.
Refer to Chart C.

Chart C. Soil Fertility Ranges

The standards by which the instrument is calibrated are as follows:

	Too Little **0-2**	Ideal **3-7**	Too Much **8-9**
Nitrogen	50 ppm	50 - 200 ppm	200 ppm
Phosphorous	4 ppm	4 - 14 ppm	14 ppm
Potash	50 ppm	50 - 200 ppm	200 ppm

If the Tester Reads "Too Little"
- Liquid feed with a brand of soluble fertilizer that is recommended for the plants you intend to grow.
- Liquid feed within 3 weeks after planting or potting and do this every month whenever you water your plants.

If the Tester Reads "Ideal"
- Water once a month with a soluble fertilizer that is recommended for the plants you are growing.

If the Tester Reads "Too Much"
- Water thoroughly to leach out the excess fertilizer from the soil.
- For potted plants, repot with new soil.
- For greenhouse plants water thoroughly to leach excess fertilizer from the soil.
- Do not add any fertilizer. You can add manure, compost, clippings, plant wastes, residues, leaves and any other organic matter to the soil.

How to Increase Soil Fertility

There are many ways to increase and maintain the valuable nutrients of your soil which contribute to its fertility. Just as some plants need a rather acid soil, while others need a slightly alkaline soil, they also need varying amounts of nitrogen, phosphorous and potash known as NPK. Each plant brings about changes in the soil and has soil needs different from other plants. You won't need to worry much about having exactly the right amount of each element for each plant you grow. As long as your soil is well balanced and rich in organic matter your plants will not suffer.

Fertilizer
Fertilizer is a substance added to the soil to improve fertility. Since a variety of elements contribute to the fertility of the soil, many individual elements and combinations of elements are considered fertilizers.

The Value of Nitrogen
Nitrogen is synonymous with plant nutrition. It is directly responsible for producing leaf growth and green leaves. A deficiency causes yellow leaves and stunted growth. Too much nitrogen causes overabundant foliage with delayed flowering; the plant becomes subject to disease and its fruit is of poor quality. Soil deficient in nitrogen can be corrected by adding compost, manure or other nitrogen-rich fertilizers such as dried blood, tankage, cottonseed meal and peanut shells. Grass clippings, weeds and garden wastes returned to the soil will increase its humus and nitrogen content.

The Value of Phosphorous
Growing plants need phosphorous. It is the major constituent of plant genetics and seed development. A deficiency causes stunted growth and seed sterility. Phosphorous aids plant maturity, increases the seed yield, increases fruit development, increases vitamin content and aids the plant's resistance to disease and winterkill. The best source of phosphorous is phosphate rock, when it is finely ground. Bacteria that thrive in pH 6.5 to pH 7 help breakdown the phosphorous making it available to plants. Other sources of phosphate are bone meal, cottonseed meal and activated sludge. Barring any great deficiencies, a pound of phosphate rock for every ten square feet of your garden space is a goodly amount to apply once every two or three years. Phosphorous has the tendency to "grab" hold of the soil. In this manner, phosphorous is not easily leached from the soil as is nitrogen and potash.

The Value of Potassium (Potash)
Potash strengthens the plant. It helps form carbohydrates and promotes protein synthesis. It further aids early growth, stem strength and cold hardiness. Plants deficient in potash are usually stunted and have poorly developed root systems. Leaves are spotted, curled and appear dried out at the edges. Yields for potash deficiency are low. Sources for potash are plant residues, manures, composts and natural sources like granite dust, basalt rock or greensand, wood ashes, leaves and seaweed.

How to Use Your Meter to Measure Soil Temperature

Step 1. With the unit turned on, and in temperature mode, insert the probe to a minimum depth of 2" to 3" (5-8 cm) into the soil.

Step 2. Wait 60 seconds to acclimatize the probe and note the LCD reading. Remove the probe from the soil. **Refer to Chart D.**

Chart D. Soil Temperature Ranges

Vegetable	Will Germinate	Ideal Germination	Transplanting Seedlings Out
Asparagus	50F - 90F	70F	
Beans	60F - 90F	80F	
Beets	40F - 90F	80F	
Broccoli	40F - 90F	80F	50F
Cabbage	40F - 90F	80F	45F
Cantaloupe	60F - 100F	90F	65F
Carrot	40F - 90F	80F	
Cauliflower	40F - 90F	80F	
Celery	40F - 80F	70F	45F
Chard	40F - 90F	80F	
Corn	50F - 100F	80F	60F
Cucumber	60F - 100F	90F	65F
Endive	40F - 75F	75F	
Lettuce	40F - 75F	75F	
Okra	60F - 100F	90F	70F
Onion	40F - 100F	90F	45F
Parsley	40F - 90F	80F	
Parsnip	40F - 90F	70F	
Peas	40F - 80F	70F	45F
Pepper	60F - 90F	80F	65F
Pumpkin	60F - 100F	90F	65F
Radish	40F - 90F	80F	
Spinach	40F - 80F	75F	
Squash	60F - 100F	90F	65F
Tomato	50F - 100F	80F	60F
Watermelon	60F - 110F	90F	65F

Testing for Plants Potted in Soil or Potting Soil

Only test at the beginning of, or during, the growing season, never in the dormant period. Do not test the soil for a plant that has been recently repotted as the plant will be in a delicate state and not yet reestablished. For established plants a pH reading should be taken just after watering. First, water each plant (without adding plant food). Rainwater should always be used for houseplants as calcium present in domestic water systems can adversely affect acid loving plants, see pH preference list. Leave the pot to drain to ensure the soil is thoroughly moistened. Proceed to step 4 of "How to Use Your Meter to Measure pH". If you are testing the soil in a planter and the reading is not reflecting the plant's desired pH range, you should repot the plant. Do not try to add a balancing agent to the top of the soil in an attempt to alter the soil's pH. Note: If you have a healthy, thriving plant (despite a reading that does not conform to the pH preference chart) do not disturb the plant as it may have acclimatized itself.

Meter Tips

- Do not leave probe in soil longer than necessary.
- Always clean the probe immediately after using.
- Be sure to keep the probe away from metal objects.
- The tester is intended for measuring soils. DO NOT PLACE THE PROBE INTO ANY OTHER SOLUTION, INCLUDING WATER.

Gardening Tips

- Altering the pH takes time. Do not expect instant changes, but work steadily towards the ideal range. Most plants have a "range" of pH. Consult your "tables" for the pH range of your plants.
- Adding lime before planting is most beneficial because it takes time to take effect. Liming in the fall, winter or early spring is preferred.
- Avoid adding lime at the same time as fertilizers whether they are organic or chemical.
- Use lime sparingly. It encourages weeds and worms. Worms then attract moles.
- Save clippings, vegetable & fruit wastes for compost.
- Bone meal is an excellent fertilizer to be used at the time of planting.

Special Cleaning Pad

The cleaning pad supplied with this analyzer has been specially selected for its compatibility with the meter probe metals. Other types of cleaners may cut or otherwise damage probe surfaces and / or adversely affect readings. Additional pads are available at a cost of $2.00 for 3 pads, plus $1.00 for postage and handling to the address at the end of these instructions. Checks only please payable in US funds. No phone orders.

Plant pH Reference List

Fruit	
Apple	5.0 - 6.5
Apricot	6.0 - 7.0
Avocado	6.0 - 7.5
Banana	5.0 - 7.0
Blackberry	5.0 - 6.0
Blueberry	4.0 - 6.0
Cantaloupe	6.5 - 7.5
Cherry	6.0 - 7.5
Cranberry	5.5 - 6.5
Current:	
Black	6.0 - 8.0
Red	5.5 - 7.0
White	6.0 - 8.0
Damson	6.0 - 7.5
Gooseberry	5.0 - 6.5
Grapevine	6.0 - 7.0
Grapefruit	6.0 - 7.5
Hazelnut	6.0 - 7.0
Hop	6.0 - 7.5
Huckleberry	4.0 - 6.0
Lemon	6.0 - 7.0
Lychee	6.0 - 7.0
Mango	5.0 - 6.0
Melon	5.5 - 6.5
Mulberry	6.0 - 7.5
Nectarine	6.0 - 7.5
Peach	6.0 - 7.5
Pear	6.0 - 7.5
Pineapple	5.0 - 6.0
Plum	6.0 - 7.5
Pomegranate	5.5 - 6.5
Quince	6.0 - 7.5
Raspberry	5.0 - 7.5
Rhubarb	5.5 - 7.0
Strawberry	5.0 - 7.5
Watermelon	5.5 - 6.5

Vegetables & Herbs	
Artichoke	6.5 - 7.5
Asparagus	6.0 - 8.0
Basil	5.5 - 6.5
Bean	6.0 - 7.5
(Runner, Broad, French)	
Beetroot	6.0 - 7.5
Broccoli	6.0 - 7.0
Brussels Sprouts	6.0 - 7.5
Cabbage	6.0 - 7.5
Calabrese	6.5 - 7.5
Carrot	5.5 - 7.0
Cauliflower	5.5 - 7.5
Celery	6.0 - 7.0
Chicory	5. 0 - 6.5
Chinese Cabbage	6.0 - 7.5
Chives	6.0 - 7.0
Corn - Sweet	5.5 - 7.0
Cress	6.0 - 7.0
Courgettes	5.5 - 7.0
Cucumber	5.5 - 7.5
Fennel	5.0 - 6.0
Garlic	5.5 - 7.5
Ginger	6.0 - 8.0
Horseradish	6.0 - 7.0
Kale	6.0 - 7.5
Kohlrabi	6.0 - 7.5
Leek	6.0 - 8.0
Lentil	5.5 - 7.0
Lettuce	6.0 - 7.0
Marjoram	6.0 - 8.0
Marrow	6.0 - 7.5
Millet	6.0 - 6.5
Mint	7.0 - 8.0
Mushroom	6.5 - 7.5
Mustard	6.0 - 7.5
Olive	5.5 - 6.5
Onion	6.0 - 7.0
Paprika	7.0 - 8.5
Parsley	5.0 - 7.0
Parsnip	5.5 - 7.5
Pea	6.0 - 7.5
Peanut	5.0 - 6.5
Pecan	4.0 - 6.0
Pepper	5.5 - 7.0
Peppermint	6.0 - 7.5
Pistachio	5.0 - 6.0
Potato	4.5 - 6.0
Potato - Sweet	5.5 - 6.0
Pumpkin	5.5 - 7.5
Radish	6.0 - 7.0
Rice	5.0 - 6.5
Rosemary	5.0 - 6.0
Sage	5.5 - 6.5
Shallot	5.5 - 7.0
Sorghum	5.5 - 7.5
Soybean	5.5 - 6.5
Spearmint	5.5 - 7.5
Spinach	6.0 - 7.5
Swede	5.0 - 7.0
Thyme	5.5 - 7.0
Tomato	5.5 - 7.5
Turnip	5.5 - 7.0
Water Cress	6.0 - 8.0

House & Greenhouse Plants	
Abutilon	5.5 - 6.5
Acorus	5.0 - 6.5
Aechmea	5.0 - 5.5
African Violet	6.0 - 7.0
Aglaonema	5.0 - 6.0
Amarylis	5.5 - 6.5
Anthurium	5.0 - 6.0
Aphelandra	5.0 - 6.0
Araucaria	5.0 - 6.0
Asparagus Fern	6.0 - 8.0
Aspidistra	4.0 - 5.5
Azaela	4.5 - 6.0
Baby's Breath	6.0 - 7.5
Baby's Tears	5.0 - 6.0
Begonia	5.5 - 7.0
Bird Of Paradise	6.0 - 6.5
Bishop's Cap	5.0 - 6.0
Black-eyed Susan	5.5 - 7.5
Blood Leaf	5.5 - 6.5
Bottlebrush	6.0 - 7.5
Bougainvillea	5.5 - 7.5
Boxwood	6.0 - 7.5
Bromeliads	5. 0 - 7.5
Butterfly Flower	6.0 - 7.5
Cacti	4.5 - 6.0
Calcaolaria	6.0 - 7.0
Caladium	5.0 - 6.0
Calla Lily	6.0 - 7.0
Camelia	4.5 - 5.5
Campanula	5.5 - 6.5
Capsicum	5.0 - 6.5
Cardinal Flower	5.0 - 6.0
Castor Oil Plant	5.5 - 6.5
Cantury Plant	5.0 - 6.5
Chinese Evergreen	5.0 - 6.0
Chinese Primrose	6.0 - 7.5
Christmas Cactus	5.0 - 6.5
Cineraria	5.5 - 7.0
Clerodendrum	5.0 - 6.0
Clivia	5.5 - 6.5
Cockscomb	6.0 - 7.0
Coffee Plant	5.0 - 6.0
Coleus	6.0 - 7.0
Columnea	4.5 - 5.5
Coral Berry	5.5 - 7.5
Crassula	5.0 - 6.0
Creeping Fig	5.0 - 6.0
Croton	5.0 - 6.0
Crown Of Thorns	6.0 - 7.5
Cuphea	6.0 - 7.5
Cyclamen	6.0 - 7.0
Cyperus	5.0 - 7.5
Dieffenbachia	5.0 - 6.0
Dipladenia	6.0 - 7.5
Dizgotheca	6.0 - 7.5
Dracaena	5.0 - 6.0
Easter Lily	6.0 - 7.0
Elephant's Ear	5.0 - 6.0
Episcia	6.0 - 7.0
Euonymous	6.0 - 8.0
Ferns:	
Bird's Nest	5.0 - 5.5
Boston	5.5 - 6.5
Button	6.0 - 8.0
Christmas	6.0 - 7.5
Cloak	6.0 - 7.5
Feather	5.5 - 6.5
Hart's Tongue	7.0 - 8.0
Holly	4.5 - 6.0
Maidenhair	6.0 - 8.0
Rabbits Foot	6.0 - 7.5
Spleenwort	6.0 - 7.5
Fig	5.0 - 6.0
Fittonia	5.5 - 6.5
Freesia	6.0 - 7.5
Gardenia	5.0 - 6.0
Genista	6.5 - 7.5
Geranium	6.0 - 8.0
Gloxinia	5.5 - 6.5
Grape Ivy	5.0 - 6.5
Grape Hyacinth	6.0 - 7.5
Grevillea	5.5 - 6.5
Gynura	5.5 - 6.5
Hedera (Ivy)	6.0 - 8.0
Heliotropium	5.0 - 6.0
Hens And Chickens	6.0 - 7.0
Herringbone Plant	6.0 - 6.0
Hibiscus Plant	6.0 - 8.0
Hoya	5.0 - 6.5
Impatiens	5.5 - 6.5
Ivy Tree	6.0 - 7.0
Jacaranda	6.0 - 7.5
Japanese Sedge	6.0 - 8.0
Jasminum	5.5 - 7.0
Jerusalem Cherry	5.5 - 6.5
Jessamone	5.0 - 6.0
Kalanchoe	6.0 - 7.5
Kangaroo Thorn	6.0 - 8.0
Kangaroo Vine	5.0 - 6.5
Lantana	5.5 - 7.0
Laurus (Bay Tree)	5.0 - 6.0
Lemon Plant	6.0 - 7.5
Mimosa	5.0 - 7.0
Mind Your Own	
Business	5.0 - 5.5
Monstera	5.0 - 6.0
Myrtle	6.0 - 8.0
Never Never Plant	5.0 - 6.0
Nicodemia	
(Indoor Oak)	6.0 - 8.0
Norfolk Island Pine	5.0 - 6.0
Oleander	6.0 - 7.5
Oplismenus	5.0 - 6.0
Orchid	4.5 - 5.5
Oxalis	6.0 - 8.0
Palms	6.0 - 7.5
Pandanus	5.0 - 6.0
Peacock Plant	5.0 - 6.0
Pellionia	5.0 - 6.0
Peperomia	5.0 - 6.0
Philodendron	5.0 - 6.0
Pilea	6.0 - 8.0
Plumbago	5.5 - 6.5
Podacarpus	5.0 - 6.5
Pointsettia	6.0 - 7.5
Polyscias	6.0 - 7.5
Pothos	5.0 - 6.0
Prayer Plant	5.0 - 6.0
Punica	5.5 - 6.5
Sanserieria	4.5 - 7.0
Saxifraga	6.0 - 8.0
Scindapsus	5.0 - 6.0
Shrimp Plant	6.0 - 7.0
Spanish Bayonet	6.0 - 7.5
Spider Plant	6.0 - 7.5
Succulents	5.0 - 6.5
Synogonium	5.0 - 6.0
Tolmiea	5.0 - 6.0
Tradescantia	5.0 - 6.0
Umbrella Tree	5.0 - 7.5
Venus Flytrap	4.0 - 5.0
Weeping Fig	5.0 - 6.0
Yucca	6.0 - 7.5
Zebrina	5.0 - 6.0

Flowers, Trees & Shrubs	
Abelia	6.0 - 8.0
Acacia	6.0 - 8.0
Acanthus	6.0 - 7.0
Aconitum	5.0 - 6.0
Adonis	6.0 - 8.0
Ageratum	6.0 - 7.5
Ailanthus	6.0 - 7.5
Ajuga	4.0 - 6.0
Althea	6.0 - 7.5
Alyssum	6.0 - 7.5
Amaranthus	6.0 - 6.5
Anchusa	6.0 - 7.5
Androsace	5.0 - 6.0
Anemone	6.0 - 7.5

Plant pH Reference List

Anthyllis	5.0 - 6.0	Fuchsia	5.5 - 7.5	Prunus	6.5 - 7.5	Tulip	6.0 - 7.0
Arbutus	4.0 - 6.0	Gaillardia	6.0 - 7.5	Pyrethrum	6.0 - 7.5	Vibernum	5.0 - 7.5
Arenaria	6.0 - 8.0	Gazania	5.5 - 7.0	Red Hot Poker	6.0 - 7.5	Viola	5.5 - 6.5
Aristea	6.0 - 7.5	Gentiana	5.0 - 7.5	Rhododendren	4.5 - 6.0	Virginia Creeper	5.0 - 7.5
Armeria	6.0 - 7.5	Geum	6.0 - 7.5	Roses:		Wallflower	5.5 - 7.5
Arnica	5.0 - 6.5	Gladioili	6.0 - 7.0	Hybrid Tea	5.5 - 7.0	Water Lily	5.5 - 6.5
Asperula	6.0 - 8.0	Globularia	5.5 - 7.0	Climbing	6.0 - 7.0	Weigelia	6.0 - 7.5
Asphodoline	6.0 - 8.0	Godetia	6.0 - 7.5	Rambling	5.5 - 7.0	Wistaria	6.0 - 8.0
Aster	5.5 - 7.5	Golden Rod	5.0 - 7.0	Salvia	6.0 - 7.5	Zinnia	5.5 - 7.5
Aubrita	6.0 - 7.5	Gypsophilia	6.0 - 7.5	Scabiosa	5.0 - 7.5		
Azalea	4.5 - 6.0	Hawthorn	6.0 - 7.0	Sedum	6.0 - 7.5	**Turf & Ornamental Grasses**	
Balloon Flower	6.0 - 6.5	Heather	4.0 - 6.0	Snapdragon	5.5 - 7.0	Bahai	6.5 - 7.5
Bayberry	4.0 - 6.0	Helianthus	5.0 - 7.0	Snowdrop	6.0 - 8.0	Bent	5.5 - 6.5
Bergenia	6.0 - 7.5	Helleborus	6.0 - 7.5	Soapwort	6. 0 7.5	Bermuda	6.0 - 7.0
Bleeding Heart	6.0 - 7.5	Holly	5.0 - 6.5	Speedwell	5.5 - 6.5	Canada Blue	4.5 - 6.4
Bluebell	6.0 - 7.6	Hollyhock	6.0 - 7.5	Spiraea	6.0 - 7.5	Clover	6.0 - 7.0
Broom	5.0 - 6.0	Honeysuckle	6.0 - 7.5	Spruce	4.0 - 5.0	Kentucky Blue	6.0 - 7.5
Buddleia	6.0 - 7.0	Hyacinth	6.5 - 7.5	Stock	6.0 - 7.5	Meadow	6.0 - 7.5
Buphthalum	6.0 - 8.0	Hydrangea - Blue	4.0 - 5.0	Stonecrop	6.5 - 7.5	Pampas	6.0 - 8.0
Butterfly Bush	4.0 - 6.0	Hydrangea - Pink	6.0 - 7.0	Sumack	5.0 - 6.5	Red Top	6.0 - 6.5
Calendula	5.5 - 7.0	Hydrangea - White	6.5 - 8.0	Sunflower	5.0 - 7.0	Rye	6.0 - 7.0
Camassia	6.0 - 8.0	Hypericum	5.5 - 7.0	Sweet Pea	6.0 - 7.5	St. Augustine	6.5 - 7.5
Candytuft	6.0 - 7.5	Iris	5.0 - 6.5	Sweet William	6.0 - 7.5	Tall Fescue	6.0 - 7.0
Canna	6.0 - 8.0	Ivy	6.0 - 7.5	Tamarix	6.5 - 8.0	Velvet Bent	5.0 - 6.0
Canterbury Bells	7.0 - 7.5	Juniper	5.0 - 6.5	Trillium	5.0 - 6.5		
Cardinal Flower	4.0 - 6.0	Kalmia	4.5 - 5.0				
Carnation	6.0 - 7.5	Kerria	6.0 - 7.0				
Catalpa	6.0 - 8.0	Laurel	6.5 - 7.5				
Celosia	6.0 - 7.0	Lavender	6.5 - 7.5				
Centaurea	5.0 - 6.5	Liatris	5.5 - 7.5				
Cerastium	6.0 - 7.0	Ligustrum	5.0 - 7.5				
Chrysanthemum	6.0 - 7.0	Lilac	6.0 - 7.5				
Cissus	6.0 - 7.5	Lily Of The Valley	4.5 - 6.0				
Cistus	6.0 - 7.5	Lithospermum	5.0 - 6.5				
Clarkia	6.0 - 6.5	Lobelia	6.5 - 7.5				
Clianthus	6.0 - 7.5	Lupinus	5.5 - 7.0				
Clematis	5.5 - 7.0	Magnolia	5.0 - 6.0				
Colchicum	5.5 - 6.5	Mahonia	6.0 - 7.0				
Columbine	6.0 - 7.0	Marigold	5.5 - 7.0				
Convolvulus	6.0 - 8.0	Molinia	4.0 - 5.0				
Coreopsis	5.0 - 6.0	Moraea	5.5 - 6.5				
Coronilla	6.5 - 7.5	Morning Glory	6.0 - 7.5				
Corydalis	6.0 - 8.0	Moss	6.0 - 8.0				
Cosmos	5.0 - 8.0	Moss, Sphagnum	3.5 - 5.0				
Cottoneaster	6.0 - 8.0	Myosotis	6.0 - 7.0				
Crab Apple	6.0 - 7.5	Narcissus	6.0 - 8.5				
Crocus	6.0 - 8.0	Nasturtium	5.5 - 7.5				
Cynoglossum	6.0 - 7.5	Nicotiana	5.5 - 6.5				
Daffodil	6.0 - 6.5	Pachysandra	5.0 - 8.0				
Dahlia	6.0 - 7.5	Paeonia	6.0 - 7.5				
Day Lily	6.0 - 8.0	Pansy	5.5 - 7.0				
Delphinium	6.0 - 7.5	Passion Flower	6.0 - 8.0				
Deutzia	6.0 - 7.5	Pasque Flower	5.0 - 6.0				
Dianthus	6.0 - 7.5	Paulownia	6.0 - 8.0				
Dogwood	5.0 - 7.0	Penstemon	5.5 0 7.0				
Edelweiss	6.5 - 7.5	Periwinkle	6.0 - 7.5				
Elaeagnus	5.0 - 7.5	Petunia	6.0 - 7.5				
Enkianthus	5.0 - 6.0	Pinks	6.0 - 7.5				
Erica	4.5 - 6.0	Polygonum	6.0 - 7.5				
Euphorbia	6.0 - 7.0	Polyanthus	6.0 - 7.5				
Everlastings	5.0 - 6.0	Poppy	6.0 - 7.5				
Firethorn	6.0 - 8.0	Portulaca	5.5 - 7.5				
Forget-me-nots	6.0 - 7.0	Primrose	5.5 - 6.5				
Forsythia	6.0 - 8.0	Primula	6.0 - 7.5				
Foxglove	6.0 - 7.5	Privet	5.0 - 7.5				
Fritillaria	6.0 - 7.5	Prunella	6.0 - 7.5				

Replacement Batteries
Three (3) #357 silver oxide, 1.55 volt.

This unit will operate for approximately 1,000 – 1,200 tests per battery set.

Limited Warranty
The tester is warranted free from defects for one year from date of purchase. During this period the unit may be returned to Luster Leaf Products, Inc. with proof of purchase and $5.00 to cover postage and handling. It will be repaired or replaced. During the initial 90 days of this warranty period the selling dealer is also authorized to replace a defective meter.

This warranty does not cover abuse, accidental damage, repair by anyone other than Luster Leaf Products, Inc., or consequential loss or inconvenience resulting from use of the meter. This warranty gives you certain specific legal rights and you may also have other rights which vary from state to state.

Service
If adjustment or repair becomes necessary after the warranty expires, return the meter to Luster Leaf Products, Inc. with $10.00 to cover postage, handling and service. Service includes labor & parts as required, except for replacement of externally damaged or lost components. For service, or information regarding other Luster Leaf Products, Inc. items, please address:

Luster Leaf Products, Inc.
2220 Techcourt
Woodstock, Illinois 60098

Engineered and designed in the US. Made in China.