## IMPORTANT INFORMATION ABOUT YOUR NEW METER

## WHAT IS SOIL FERTILITY?

Soil fertility is simply living soil, rich in organic life and nature's nutrients. It has the power to produce. The use of fertilizers is almost as old as agriculture itself. Early farmers learned by observation that the application of manure from sheep, cattle, ox and horse resulted in larger crops and improved yield. Later experiments led to the use of commercial fertilizers. Although deficiencies of one or more elements have been observed in various soils, it has been commonly necessary to replenish regularly only those utilized in greatest amounts: Nitrogen, Phosphorus and Potash. Low crop production has resulted more commonly from the deficiency of these elements than a lack of any other constituents. Compounds containing only these elements may be applied for soil enrichment. The most important constituent is nitrogen. An abundant supply results in dark green foliage and active vegetative growth.

#### HOW TO USE YOUR METER TO MEASURE FERTILITY

- 1. Remove the top 2" of the soil. Break up and crumble the soil underneath to a total depth of 5".
- 2. Thoroughly wet the soil with water (ideally rain or distilled water) to a mud consistency.
- 3. Wipe the meter probes clean with a tissue or paper towel.
- 4. Insert the probes into the soil to within 1" of the casing. Allow approximately 10 seconds for the reading to stabilize.
- 5. Record the reading. Remove the probes from the soil and clean thoroughly.

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

	Too Little	Ideal Range	Too Much
Nitrogen	50 ppm	50 to 200 ppm	200 ppm
Phosphorous	4 ppm	4 to 14 ppm	14 ppm
Potash	50 ppm	50 to 200 ppm	200 ppm
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ppm is defined as parts-per-million

#### HOW TO INTERPRET YOUR RESULTS

#### IF THE TESTER READS "TOO LITTLE"

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

#### IF THE TESTER READS "IDEAL"

1. Water once a month with a soluble fertilizer that is recommended for the plants you are growing.

## IF THE TESTER READS "TOO MUCH"

- 1. Water thoroughly to leach out the excess fertilizer from the soil.
- 2. For potted plants, repot with new soil.
- 3. For greenhouse plants water thoroughly to leach excess fertilizer from the soil.
- 4. Do not add any fertilizer. You can add manure, compost, clippings, plant wastes, residues, leaves and any other organic matter to the soil.

#### 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.

## **TOO MUCH NITROGEN**

- Softness of tissue
- Overall weakness
- Retardation of flower and seed formation
- Too rapid a growth

## **TOO LITTLE NIGROGEN**

- Yellow leaves
- Stunted growth
- Spindly stems
- Fruit quality reduced
- Lodging of grains
- Resistance to disease drops

Loss of nitrogen is caused by leaching, crop removal, grazing and soil erosion. Nitrogren can be restored by application of fertilizers, crop residues, green manure and the action of nitrogen fixing bacteria. Nitrogen fixing bacteria convert organic nitrogen into a form that the plant can use. The bacteria are most prolific in a soil pH slightly below 7. So, we can readily see that living soil is our goal. Grow your soil and your plants will grow themselves.

## 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 pH7 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, promotes protein synthesis and aids early growth, stem strength & 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.

## 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:

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