



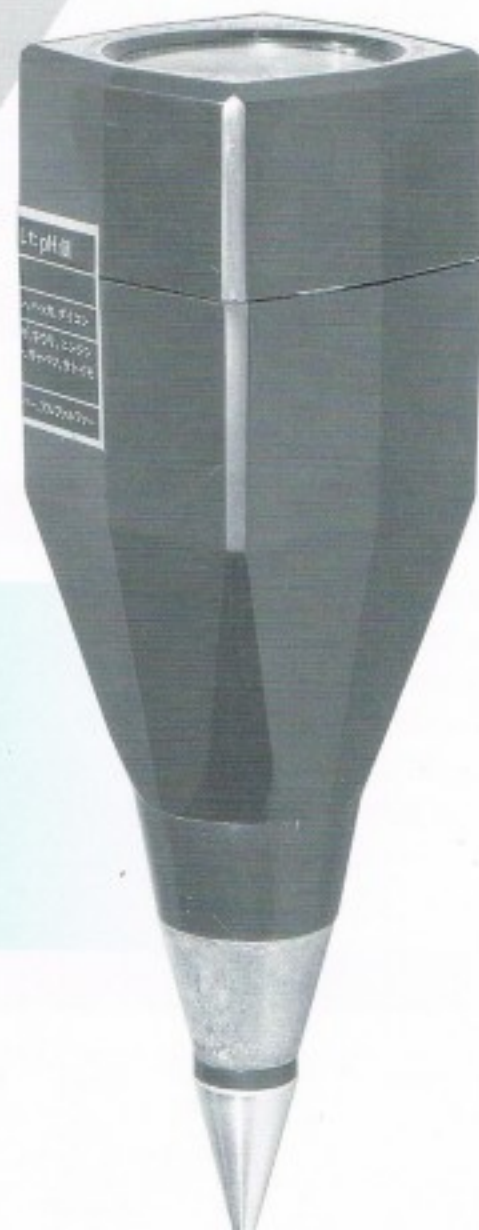
SOIL pH and MOISTURE TESTER Model : DM-15

FOR HOME AND GARDEN USE

SOIL pH and MOISTURE TESTER & SOIL pH TESTER

Although we are apt to think that proper amounts of manure and moisture added to the soil are sufficient for vegetable growth, excessive acidity or alkalinity or moisture deficiencies will inhibit the effective absorption of nutrients. Therefore, to grow good crops, careful attention must be paid to the relationship between soil acidity and moisture.

SOIL pH TESTER Model : DM-13



SOIL AND ITS RELATION TO CROP-PRODUCTION

In order to form soil which is able to absorb manure effectively, it is necessary to neutralize the soil, i.e., -by mixing lime with it. However, if soil liming is excessive, manganese will be depleted, and manganese deficiency will occur. As a result, the usefulness of the soil may be lost completely. Therefore, when liming, it is important to add only the proper amount for neutralization. Before the application of lime the pH value must be determined-the pH reading indicates its hydrogen ion concentration. To determine this value Takemura's simplified pH Tester is recommended-it has been specifically manufactured for making on-site measurements.

*pH values suitable for vegetable growth: these are attached to the tester proper.

*Amount of calcium carbonate necessary to provide soil with a pH value of 6.5, 10 ares in area and 15cm in depth.

| soil classification pH value of original soil | Sandy | | Loam | | Clay | | Peat | | Usage |
|--|--|--|--|---|--|--|---|--|-------|
| | Brown with a small proportion of humus | Black with a large proportion of humus | Brown with a small proportion of humus | Dark brown with a large proportion of humus | Deep black with a very large proportion of humus | Brown with a small proportion of humus | Dark brown with a large proportion of humus | Deep black with a very large proportion of humus | |
| 4.0 | 250 | 500 | 900 | 1200 | 1500 | 1000 | 1500 | 1800 | 2500 |
| 4.5 | 200 | 400 | 700 | 900 | 1200 | 800 | 1100 | 1300 | 1800 |
| 5.0 | 150 | 300 | 500 | 600 | 800 | 600 | 800 | 900 | 1200 |
| 5.5 | 100 | 200 | 300 | 400 | 500 | 400 | 500 | 600 | 800 |
| 6.0 | 50 | 100 | 150 | 200 | 250 | 200 | 250 | 300 | 400 |

HOW TO USE THE pH METER, common to the DM-13 and DM-15

- 1) If the soil to be tested is dry or contains much manure, the meter will not indicate a correct pH value. Therefore, sprinkle about a bucketful of water on the soil, and wait 20-30 minutes, before testing.
- 2) Before using the meter, be sure to thoroughly polish its metallic surface with a piece of whetting cloth or sandpaper. When using a brand-new meter, be sure to insert it into the soil a few times in order to remove the oily impurities from its metallic surface.
- 3) Insert the meter directly into the field or paddy soil under consideration. Completely embed the metallic surface and tamp down the surrounding soil so that it adheres closely to the meter's metallic electrode surface.
- 4) About one minute after inserting the meter in the soil, the pointer will cease to deflect-the pH value of the soil may then be read.
- 5) The meter may sometimes register different values depending on soil condition, -such as, adhesion to the meter's metallic surface, moisture content, or the amount of manure it contains. It is therefore ideal to take an average of several measurements.
- 6) In order to determine whether or not liming has been properly done, after one or two weeks mix the soil well and measure its pH value.

HOW TO USE THE DM-15, either as a pH or moisture meter.

When the DM-15 is inserted in the soil with the white button on its side left un-depressed, it works as an acidity (pH value) meter. When the white button is depressed after it has been inserted in the soil, it works as a moisture meter.

HOW TO USE THE DM-15, as a moisture meter.

Soil moisture control is of extreme importance. Soil moisture is usually expressed in units termed pH, a generally unfamiliar term to people who cultivate. However, Takemura's tester, which combines a pH with a moisture meter, is easy to use-soil moisture can be determined at a single glance.

- 1) Insert the meter's metallic electrode in the soil completely, while positioning the electrode as near crop roots as possible.
- 2) Scale divisions range from 1 to 8, each of which reads the moisture value accordingly to soil condition.
- 3) The need for water can be determined by the position of the pointer.

Suitable crops moisture levels

| Crop | Proper moisture | Crop | Proper moisture | Crop | Proper moisture | Crop | Proper moisture | Crop | Proper moisture | Crop | Proper moisture |
|-----------|-----------------|---------|-----------------|-----------------|-----------------|------------|-----------------|----------|-----------------|------------|-----------------|
| Iris | 3-5 | Tulip | 3-5 | Occidental | 2-3 | Watermelon | 4-6 | Pimiento | 4-6 | Strawberry | 4-6 |
| Carnation | 3-5 | Rose | 3-5 | Oriental orchid | 1-2 | Celery | 4-6 | Grape | 3-5 | pea | 3-5 |
| Foliage | 3-6 | Freesia | 1-2 | Cucumber | 4-6 | Tomato | 4-6 | Melon | 3-5 | | |