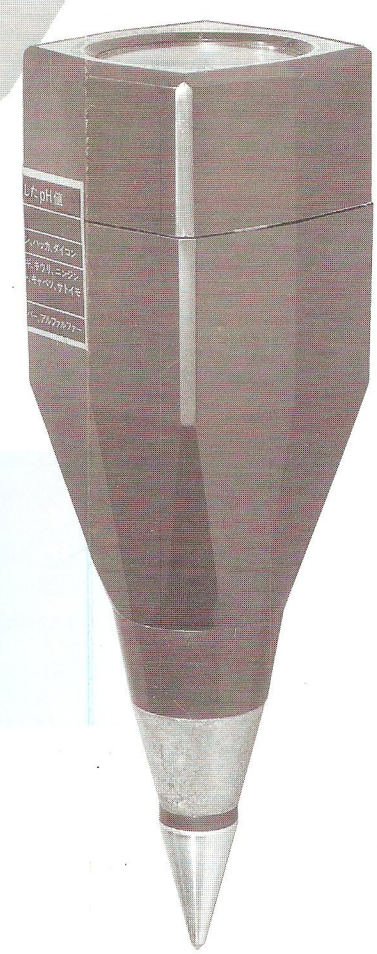
SOIL pH and MOISTURE TESTER
Model : DM-15

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 dificiencies will inhibit the effective absorbtion of nutriments, Therefore, to grow good crops, careful attention must be paid to the relationship between soil acidity and moisture.



SOIL pH TESTER
Model : DM-13

TAKEMURA ELECTRIC WORKS, LTD.
29-11, 2-chome Nishi-Ikebukuro, Toshima-ku, Japan
Phone:03-3984-1371
Fax:81-3-3988-1638
E-mail:takemura@demetra.co.jp

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 occure. As a result, the usefulness of the soil may be lost completely. Therefore, when liming, it is importanto to add only the proper amount for neutralization. Before the apllication of lime the pH value must be determined-the pH reading indicates its hydrogen ion concentration. To determine this value Takemura's simpklified pH Tester is recommended-it has been specifically manufactured of making on-site measuremnets.

*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 indepth.

soil claassi-fication / pH value of original soil	Sandy		Loam		Clay		Peat		Usage
	Brown with a small pro-portion of humus	Black with a large pro-portion of humus	Brown with a small pro-portion of humus	Dark brown with a large proportion of humus	Deep black with a very large pro-portion of humus	Brown with a small pro-portion of humus	Dark brown with a large proportion of humus	Deep black with a very large pro-portion of humus	Determine soil type by its appearance and touch, then measure can then be calculated by referring to the table.
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 it's 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 surfase.
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 sometimed register different values depending on soil condition,-such as, adhesion to the meter's metallic sur-face, moisture content, or the amount of manure it contains. It is threfore ideal to take an average of several measurements.
6) In order to determine wheter 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 wiht the white button on it's 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 extreme importance. Soil moisture is usually expressed in units termed pH, a generally unfamiliar term to pepole 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 electorode in the soil completely,while positioning the electrode as near crop roots as possible.
2) Scale divisions range from 1 to 8, eact 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 orchild	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		
Chrysanthemum	3~5	Lily	2~3	Potato	3~5	Eggplant	4~6	Lettuce	3~5		