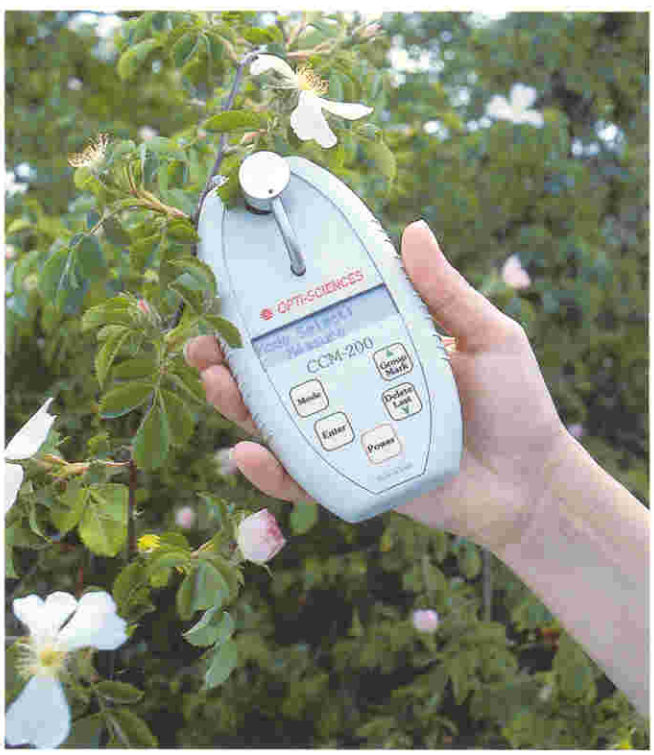
OSI CCM200

Chlorophyll Content Meter

A lightweight hand-held device for the accurate and easy determination of chlorophyll content

- **Large integral data storage**
- **Large sampling area (1cm diameter)**
- **Lightweight, fully portable**
- **User friendly operation – rapid screening**
- **Non destructive**



Reliable chlorophyll content determinations

The new CCM-200 Chlorophyll Content Meter accurately determines chlorophyll content in plants and crops. Especially useful for improving Nitrogen management programs, the CCM-200 is an ideal instrument for both research and teaching. The CCM-200 provides agronomists, researchers and teachers with reliable, repeatable and easy to perform chlorophyll content determinations. The ample on-board data storage and hand-held design make the CCM-200 the most field efficient and affordable chlorophyll content meter on the market.

Changes in chlorophyll content can occur as a result of nutrient deficiencies, exposure to environmental stress, exposure to certain herbicides and differences in sunlight regimes (shading) during growth. Chlorophyll content can be used to manage nutrient optimisation programs that both improve crop yield and help protect the environment. Testing for herbicide damage can indicate the need for a change in herbicide selection or application methods in order to maintain good weed control while having minimum impact on crop health.

Large internal memory

The large sample area of a 1cm diameter circle ensures that the CCM-200 offers the best possible repeatability and averaging of determinations. Specifically designed for rapid field screening, each measurement takes only 2 – 3 seconds to perform.

4,000 chlorophyll content measurements can be stored in the internal memory. There is no requirement for an external data logger or computer. Stored data can be reviewed on the display, while still in the field. On returning to the laboratory, data is quickly and easily transferred to a PC via an RS232 port. Data transfer cable and user friendly transfer software is supplied as standard.

APPLICATIONS INCLUDE

Nutrient requirements and management • Environmental stress

Herbicide activity • Leaf senescence

Non destructive and rapid determinations

Observations of changes in chlorophyll content have applications in basic photosynthesis research. The CCM-200 illustrates changes in chlorophyll content that can be correlated to plant health and condition. This data can even be used to compliment chlorophyll fluorescence and gas exchange measurements.

Laboratory methods for determination of chlorophyll content are both time consuming and destructive to the sample. Typically, a sample must be detached, ground up in a solvent, then assayed in a spectrophotometer. A sample can be measured only once, precluding the monitoring of trends in chlorophyll content over the growing cycle. The CCM-200 provides non-destructive, rapid measurements of relative chlorophyll content without the need to detach the leaf.

Proven scientific principles

Chlorophyll has several distinct optical absorbency characteristics that the CCM-200 exploits to measure relative chlorophyll concentration without destructive sampling. Strong absorbency bands are present in the blue and red but not in the green or infrared bands, hence the green appearance of a leaf. By measuring the amount of energy absorbed in the red band, an estimate of the amount of chlorophyll present in the tissue is possible. Measurements in the infrared band show absorbencies due to cellular structure materials. By using this infrared band to quantify bulk leaf absorbency, factors such as leaf thickness can be taken into account in the CCI (Chlorophyll Content Index) value.

Technical Specification

Measured parameters:	Optical absorbency in two wavebands
Measured area:	1 cm diameter circle
Accuracy:	+/- 1 CCI Unit
Sample acquisition time:	2-3 seconds
Source:	Two LEDs
Detectors:	Two silicon photo diodes with integral amplifiers for absorbency measurements and source power monitoring for temperature compensation.
Storage capacity:	4,000 data points
User interface:	16 x 2 alphanumeric LCD, 5 keys for control and data manipulation, beep signal for status and warnings.
Output:	RS-232 automatic transfer with PC software included.
Operating temperature range:	0-50^{o}C
Temperature drift:	Temperature compensated source and detector circuitry for minimum drift over full range.
Battery:	9V alkaline cell
Auto off interval:	4 minutes (with no key press or download)
Weight:	180g
Dimensions:	150 x 82 x 25 mm

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