AST-YC Chlorophyll Meter

I. Applications

The Plant Nutrient Analyzer enables the instantaneous measurement of a plant's relative chlorophyll content (expressed in SPAD units) or "greenness" level, nitrogen content, and leaf surface temperature. This allows for an accurate assessment of the plant's actual nitrogen requirements, as well as an understanding of the degree of nitrogen deficiency in the soil—or conversely, whether nitrogen fertilizer has been applied in excess. By utilizing this instrument, the utilization efficiency of nitrogen fertilizers can be enhanced, thereby contributing to environmental protection. It is widely applicable in agricultural and forestry research institutions, as well as universities, for the study of plant physiological parameters and for guiding agricultural production practices.

II. Key Features

1. Rapid, non-destructive *in vivo* plant testing: Measurement requires only the insertion of a leaf into the device; there is no need to

pluck the leaf, ensuring that the crop's normal growth remains undisturbed. This allows for continuous leaf monitoring throughout the entire crop growth cycle, yielding more scientifically rigorous analysis results.

2. High measurement precision (Accuracy: ±1.0 SPAD; Repeatability: ±0.3 SPAD), featuring a built-in system designed to suppress strong light interference.

3. Simultaneous measurement of all parameters in a single operation: Chlorophyll content, nitrogen content, and leaf surface temperature are displayed concurrently on a single screen and can be saved simultaneously.

4. Large 16GB storage capacity: Data can be stored in organized groups, allowing for easy viewing and export.

5. Multi-functional USB interface: Supports both data export and device charging. The instrument can be connected directly to a computer for data export without the need for dedicated host software; alternatively, users may opt to export data directly via a memory card, ensuring simple and convenient operation.

6. Data Browsing: Users can review historical data directly on the instrument and delete any anomalous data points.

7. High-contrast LCD display: Ensures that data remains clearly visible even under conditions of strong ambient light.

8. Low-power consumption design: Features a built-in, high-capacity rechargeable lithium-ion battery with overcharge protection—promoting energy efficiency and environmental sustainability while facilitating convenient outdoor field operations.

9. Built-in dual-language support (Chinese and English): Allows for seamless switching between languages with the press of a single button.

III. Technical Specifications

1. Measurement Parameters: Chlorophyll Content, Nitrogen Content, Leaf Surface Temperature

2. Measurement Range: Chlorophyll: 0.0–99.99 SPAD; Nitrogen Content: 0.0–99.99 mg/g; Leaf Surface Temperature: -10–99.9°C

3. Measurement Area: 2 mm × 3 mm

4. Measurement Accuracy: Chlorophyll: Within ±1.0 SPAD unit (at room temperature, for SPAD values between 0 and 50);

Nitrogen Content: ±5%; Leaf Surface Temperature: ±0.5°C

5. Repeatability: Chlorophyll: Within ±0.3 SPAD units (for SPAD values between 0 and 50);

Nitrogen Content: ±0.5 mg/g; Leaf Surface Temperature: ±0.2°C

6. Measurement Interval: Less than 0.8 seconds
7. Data Storage: 16 GB (supports grouped storage based on user requirements)
8. Power Supply: 4.2 V Rechargeable Lithium Battery
9. Battery Capacity: 3000 mAh
10. Weight: 230g
11. Operating and Storage Environment: -10°C to 50°C; ≤85% Relative Humidity