

ASAE EP542 FEB1999 (R2013)

Procedures for Using and Reporting Data Obtained with the Soil Cone Penetrometer



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Developed by the ASAE Soil Dynamics Committee; approved by the Power and Machinery Division Standards Committee; adopted by ASAE February 1999; reaffirmation extended for one year February 2004; reaffirmed June 2004, February 2009; reaffirmed December 2013.

Keywords: Compaction, Penetrometer, Soil

1 Purpose and Scope

1.1 This Engineering Practice establishes standard methods for planning, using, and reporting data obtained with a soil cone penetrometer, which is defined by ASAE S313. Although data are relatively simple to obtain with the soil cone penetrometer, the described procedures should be followed in obtaining and reporting the data to minimize measurement variability.

2 Normative References

The following standards contain provisions which, through reference in the text, constitute provisions of this Engineering Practice. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Engineering Practice are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Standards organizations maintain registers of currently valid standards.

ASAE EP236.1 DEC98, Guide for Planning and Reporting Tillage Experiments

ASAE S313.2 FEB99, Soil Cone Penetrometer

ASTM D3441-94, Standard Test Method for Deep, Quasi-Static, Cone and Friction-Cone Penetration Tests of Soil

3 Definitions

3.1 cone penetrometer: A 30° circular stainless steel cone with driving shaft as defined by ASAE S313.

3.2 base area: The cross-sectional area at the base of the cone expressed in mm² (in.²).

3.3 cone index (CI): The force per unit base area required to push the penetrometer through a specified small increment of soil. Cone index was originally defined to mean the average penetration resistance for the top 150 mm of soil, but the term has since been broadened to include penetration resistance values at any depth. Values may be reported as:

(X MPa) cone index at (Y m) depth (abbreviated CI_Y) or (X MPa) average cone index in the (Y to Z m) depth (abbreviated CI_{Y-Z}). Cone base size should be stated.