



Designation: E550 – 87 (Reapproved 2014)

# Standard Guide for Preparing Granular Pesticide Ground Applicator Calibration Procedures<sup>1</sup>

This standard is issued under the fixed designation E550; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This guide is for those who prepare granular pesticide ground applicator calibration procedures. The purpose is to encourage methods that will improve uniformity and accuracy of application with granular applicators.

1.2 The values stated in SI units are to be regarded as standard. The values given in parentheses are mathematical conversions to inch-pound units that are provided for information only and are not considered standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For specific hazard statements see Section 4.

## 2. Significance and Use

2.1 This guide covers the calibration of row, band, and broadcast applicators. Attainment of accurate and more uniform application can reduce the quantity of active ingredient required for a given degree of control, thus improving environmental quality and safety at a more economical cost. A single-calibration procedure applicable in all situations is not feasible because of the nature of the variables involved in chemical applications.

## 3. Apparatus

3.1 Apparatus needed will depend on the method of calibration. Common equipment items include the following:

3.1.1 *Measuring Device*—Tape of at least 25 m (50 ft) in length, or other suitable measuring device.

3.1.2 *Marking Devices*—Stakes or flags for marking a measured course.

3.1.3 *Containers*—Paper, cloth, or plastic bags to collect granules.

3.1.4 *Weighing Device*—A scale for weighing granules in grams (or ounces) or kilograms (or pounds).

## 4. Hazards

4.1 A cautionary statement for the safe handling of agricultural chemicals shall be included with applicator calibration procedures.

## 5. Recommendations

5.1 The amount of granular material applied to a given area is dependent on six factors. It is recommended that each of the following variables be given consideration when developing specific calibration procedures:

5.1.1 *Orifice Area*—The area of the metering orifice must be adjusted to regulate the flow rate. The orifice area is determined by the orifice setting. Adjustments in the orifice setting should always be made in one direction only such as from closed to open to reduce variability in output for a particular setting.

5.1.2 *Ground Speed*—A constant speed of the applicator must be maintained for uniform application.

NOTE 1—The flow of granules through the orifice is not necessarily proportional to ground speed, even on applicators that use a rotor whose speed varies with ground speed.

5.1.3 *Product*—Each agricultural chemical applied requires a separate calibration since there is a wide variation in size, density, and shape of the granules. In addition, the nature of the inert materials varies.

5.1.4 *Width of Treatment*—Calibration procedures should be used to determine the amount in kilograms (or pounds) applied per unit area of surface in hectares (or acres) actually covered with the agricultural chemical. For band application, the area actually treated is the area in the band and not the area of cropland covered. Some row crop recommendations are based on treating “in-the-row” rather than the area actually covered. In these cases, recommendations are generally based on the amount of granules per row length (grams per 100 m or ounces per 1000 ft of row).

5.1.5 *Rotor Speed*—Consult the manufacturer’s literature for recommended rotor speeds that will give maximum efficiency.

5.1.6 *Climatic Conditions*—Calibration adjustments must be made for changes in flow due to temperature and humidity variations.

<sup>1</sup> This guide is under the jurisdiction of ASTM Committee E35 on Pesticides, Antimicrobials, and Alternative Control Agents and is the direct responsibility of Subcommittee E35.22 on Pesticide Formulations and Delivery Systems.

Current edition approved Aug. 1, 2014. Published November 2014. Originally approved in 1975. Last previous edition approved in 2008 as E550–87(2008). DOI: 10.1520/E0550-87R14.