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Procedures for Evaluating Variable-Rate Granular Material Application Accuracy

American Society of
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Procedures for Evaluating Variable-Rate Granular Material Application Accuracy of Broadcast Spreaders

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1 Purpose and scope

1.1 The purpose of this Standard is to provide a method to evaluate application accuracy of granular materials applied using variable-rate application systems including spinner-disc broadcast spreaders or similar equipment that distribute fertilizers. Specifically, this standard will facilitate the collection and reporting of map-based application accuracy of both single and multiple granular products.

1.2 Testing of equipment commonly used to support site-specific management, machinery guidance, and other precision agriculture practices forms the basic scope of this Standard.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies unless noted. For undated references, the latest approved edition of the referenced document (including any amendments) applies.

ASAE S341, Procedure for Measuring Distribution Uniformity and Calibrating Granular Broadcast Spreaders

ASAE EP371, Procedure for Calibrating Granular Applicators

ASAE S327, Terminology and Definitions for Chemical Application

ANSI/ASABE AD3600:2016 MAY 2016, Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Operator's manuals — Content and format

3 Definitions

3.1 Global positioning system (GPS) or global navigation satellite system (GNSS) receiver: an instrument capable of determining the position of its antenna in geographic coordinates and in near real-time

3.2 Variable-rate technology (VRT): a system of controls, positioning device, and a task computer integrated into application equipment capable of varying inputs to crop production systems based on a predetermined prescription map or sensor (individual or array) evaluating crop, soil or other in-field variability. This control system details how the inputs are to be varied across the soil landscape to include at a minimum, an application rate tied to geographic entities in either raster or vector format.

3.3 Prescription (Rx) map: a map with spatial features such as polygons called zones that spatially describe unique application rates of various soil amendment and other inputs to crop product systems. A single layer prescription map includes information for an individual product or input whereas a multiple layer prescription