

South Carolina Manure Application Calibration Training Field Days

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Situation

The increasing cost of commercial fertilization products over the past several years has made the utilization of animal manure as a nutrient source a very attractive alternative. Due to this growers would like to apply animal manure as accurately as possible to their land to obtain the maximum benefit from this nutrient source. In addition, South Carolina Regulation R.61-43 Sections 100.100.B.5 and 200.100.B.5 require the following:

"The land application equipment, when used more than once per year, shall be calibrated at least annually by the producer. A permit may require more frequent calibrations to ensure proper application rates. The two most recent calibration records should be retained by the producer and made available for Department review upon request. If the land application equipment has not been used in over a year, then the equipment shall be calibrated prior to use."

Calibration of application equipment is therefore required by State regulation, and the accurate calibration of the equipment is desired by growers in an attempt to maximize their nutrient investment. However, many South Carolina growers have little background or hands-on training in the proper calibration of liquid or solid manure application systems.

Response

Brian Beer saw the initial need to provide calibration training for South Carolina growers. Brian Beer and Bryan Smith worked with the SC Department of Health and Environmental Control, and the Natural Resources Conservation Service, and local growers to develop an application calibration field day for solid manure in Lancaster County, SC. The field day was advertised to the local area and surrounding counties. Lee van Vlakte later worked with Brian Beer, Bryan Smith, local growers, and the Natural Resources Conservation Service to develop an application calibration field day for liquid manure in Marion County, SC, which was also advertised to surrounding areas.

The solid manure application field day first provided a basic review on determining the proper application rate based on crop needs and manure nutrient content. Next growers were given basic instruction on the placement and usage of a disposable plastic sheet (referred to as the sheet method) and multiple plastic containers (referred to as the container method) for equipment calibration. Teams of growers were then provided sheets and containers, which they placed in the travel path of the application equipment. After the equipment applied manure the teams collected the sheets and containers, and utilizing calculation sheets, a postal scale, and calculators determined the actual application rate of the equipment.

The liquid manure application field day followed the same basic methodology using only the container method, with the main difference being that the actual depth of liquid was measured in the containers rather than a manure weight.



Results

To date three calibration field days for liquid manure systems and seven calibration field days for solid manure systems have been held in eight locations in South Carolina, training 144 growers and manure brokers in proper calibration techniques. An on-line solid manure calibration factsheet has also been developed, and step-by-step calibration procedures are included in the Confined Animal Manure Manager manual. Those attending indicated that they had learned a great deal from the hands-on experience and would be able to calibrate their own equipment much more accurately due to their participation.



Program Committee

Jesse Adams, Regional Director, Clemson Extension Service (Ret.)
Brian Beer, Area Livestock Agent, Clemson Extension Service
Bill Chaplin, Agricultural Water Quality, SC Department of Health & Environmental Control
John Chastain, Professor, Agricultural Mechanization & Business, Clemson University
Julie Helm, Veterinarian, Livestock Poultry Health, Clemson University
Stephen Henry, Environmental Engineer, USDA-Natural Resource Conservation Service
Tonya O'Cain, Agricultural Water Quality, SC Department of Health & Environmental Control
Bryan Smith, Area Agent – Agricultural Engineer, Clemson Extension Service
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Resources

South Carolina Confined Animal Manure Manager Program
<http://www.clemson.edu/camm>

Smith, W. B., B. Beer, J. Chastain, and L. van Vlakte, 2017. Solid Manure Spreader Calibration. Clemson University Livestock and Forages Factsheet (LF 15). Available at <http://www.clemson.edu/extension/publications/index.html#livestock>