Clemson University Research Foundation

Crop Yield Monitor for Round and Square Hay Balers (2015-052)

Improves Accuracy of Farm Management by Enabling on-the-go Yield Mapping of Hay Fields

Market Overview

This approach to creating crop yield maps results in better management and increased production efficiency on farms. Yield monitoring technologies have been commercially available for corn and grain crops for at least twenty years and have since become stock equipment for most corn, grain, and cotton harvesters. Growers have grown to depend on yield monitors for making and evaluating management decisions, developing management zones, prescribing variable rate input applications, and for evaluating crop insurance values. Currently, hay is among the only major crops that does not have a widely implemented yield monitor. In order to transform this market, researchers at Clemson University have developed a hay yield monitor consisting of ultrasonic distance sensors that can be universally mounted on any hay baler. As developed, Clemson's hay yield monitor utilizes inexpensive and robust sensors to monitor the mass flow intake of the baler, allowing farmers to utilize precision agriculture to foster economic efficiency and improved management practices.

Application

Precision Agriculture

Stage of Development

Preliminary Prototype

Advantages

- Enables on-the-go yield mapping of hay fields, producing an easy and more precise alternative to any existing methods
- Precision farming invention, leading to economic monetary savings
- Precise crop yield monitoring, creating evaluation of crop management strategies, specific management zones, and numerical evaluation of hay crops for insurance purposes

Technical Summary

This yield mapping technology incorporates ultrasonic distance sensors mounted in front of the pickup on a hay baler to accurately measure windrow size (volume) during on-the-go harvest. The measurement is then correlated to bale weight. In addition, it allows for the creation of crop yield maps – spatially quantifying low- and high-yielding areas – to be used for making management decisions. Ultimately, this approach produces improved evaluation of crop management strategies, creation of management zones within a farm, and evaluation of hay crops for insurance purposes.

For More Information Contact: Chris Gesswein | agesswe@clemson.edu | (864) 656-3607| CURF Reference No. 2015-052

App Type	Country	Serial No.	Patent No.	CURF Ref. Number	Inventors
Provisional	United States	62,192,298	NA	2015-052	Kendall Kirk, H Guy Ramsey

About the Inventor

Dr. Kendall Kirk is a Precision Agriculture Engineer and Assistant Professor in the Edisto Research and Education Center at Clemson University. He earned his Ph.D. in Biosystems Engineering from Clemson University. He is a member of several professional societies including the American Society of Agricultural and Biological Engineers, World Aquaculture Society, and Aquaculture Engineering Society. Dr. Kirk's research interests focus on precision agriculture, agricultural power and machinery, control systems, and computer modeling.

For More Information

To learn more about this technology, please contact:

Chris Gesswein
Director of Licensing for Technology Transfer
agesswe@clemson.edu
(864) 656-3607