Improving Round Bale Collection Productivity

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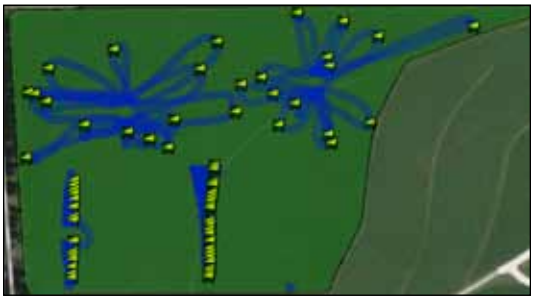
Once a round bale is dropped from the baler, the costs are just starting. Costs of collecting, transporting, and placing bales into storage can almost equal costs of making the bale. Round bales are often randomly set in the field and since they shed water, they do not have to be moved immediately like square bales. However, they should be removed before re-growth begins.

Figure 1. Location of randomly dropped and accumulated bales. Note differences in field traffic between the two collection methods.



The two most common methods to collect round bales are: single-person operation where a loader is used to pick and load individual bales onto a stationary trailer; or multi-person operation where the vehicle pulling the trailer is moved strategically to reduce loader travel distance. No matter the method, retrieving bales entails considerable field traffic and time. One strategy to reduce traffic damage and increase collection productivity is to accumulate bales on the baler and place them into strategically placed groups at the time of baling.

Collection productivity is influenced by variables like field shape, area, windrow spacing, yield, and operator skill. Current round bale accumulators hold 1-3 bales, so groups of 2-4 bales can be made when the bale in the chamber is ejected with bales on the accumulator. A recently introduced accumulator allows farmers to make lines of bales stretching across the field or to strategically place bales in small groups.

To quantify bale accumulation benefits, performance of a two-bale accumulator across a number of fields with varied shapes, slopes, and yields was quantified. Two gathering strategies were used: single-person where the transport trailer remained in a fixed position when loaded; and multi-person where the trailer was moved during loading. The baling and grouping strategy involved placing bales in lines across the field rather than randomly dropping them (Figure 1). With single-person collection, bale accumulation and grouping reduced collection time, travel distance, and fuel use by 31%, 47%, and 37%, respectively. With multi-person collection, bale accumulation and grouping reduced collection time, travel distance, and fuel use by 16%, 36% ,and 17%, respectively. Bale accumulation and strategic bale placement significantly improved bale collection productivity and reduced field traffic. Our economic analysis has estimated the cost of collecting bales can be reduced by almost 50% when bales are accumulated in small groups of three each.

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