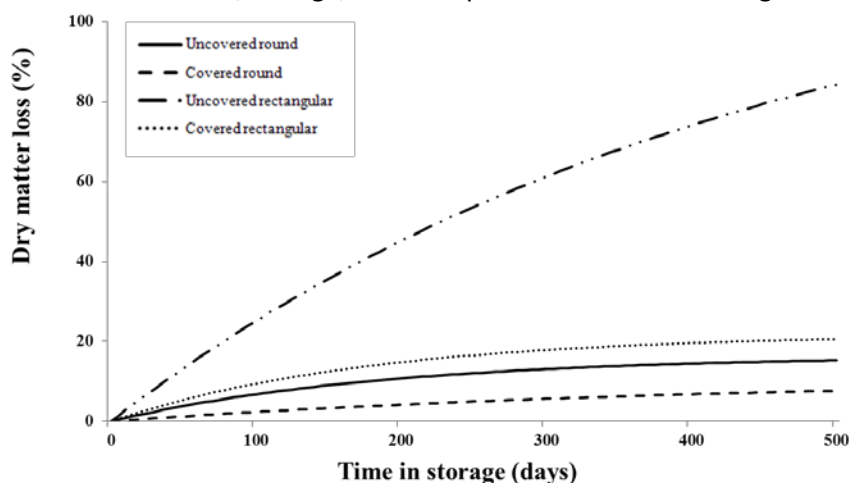


Effects of Outdoor Storage on the Composition of Switchgrass

In this study of switchgrass bales, an evaluation of storage dry matter losses was conducted and the chemical composition & biofuel yield of switchgrass bales was analyzed under alternative storage methods & weather. Switchgrass harvest & storage costs were evaluated under alternative storage methods & weather. A final objective still underway is an evaluation of the samples with regard to chemical composition. The studies have taken place in both east and west Tennessee. In West Tennessee, the experiment focused on baled material. Bales were either round 4x5's or rectangular 4x4x8's. They were stored either under tarp or with no cover and either on well drained ground, gravel pad, or wood pallets. An inside control was stored for 529 days. Every hundred days or so bales were weighed and sampled using procedures that destroyed the bales. Pictures were taken of the bales and weathered areas were assigned samples were taken from each weathered area. The study found that round bale dry matter loss was less than the square bales. Over the 500 day sample period, round lost an average of 9.8 % dry matter and rectangular lost nearly 42 percent dry matter. However, the dry matter loss of the rectangular bales was significantly less than when they were left uncovered. Harvest, storage, and transportation cost for rectangular bale is



estimated at \$15 less than the round. Savings are generated by the package and time savings. The shape of the package allows cost savings in the transportation of the bale as more weight can be transported per trip. The decreased baling cost results because of increased rate of collection 12 acres/hour instead of 5.5 acres/hour.

In the east Tennessee experiments, information on traditional round bales with alternative methods of packaging – Twine, Mesh, Triple mesh, and plastic tarp were examined. In this study, chemical composition in addition to dry matter loss was analyzed. The information for this part of the study has yet to be completed.

Harvest, Storage & Transportation Costs

Cost Item	Round bales	Rectangular bales
	----- \$ dry Mg ⁻¹ -----	
Baling	23.38	16.28
Storage		
Tarp	7.13	3.78
Pallets	5.98	4.69
Transportation	16.87	13.63

For additional information:

see [Effects of Outdoor Storage on the Composition of Switchgrass](#)

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