Better Baling in Less Time
Density & Speed Comparisons

A study* by Penn State University's College of Agricultural Sciences found bale density directly impacts baleage quality and feed value. The study also corrected the common misconception that a denser bale requires operating at a slower speed. Tests evaluated four leading round balers and concluded bale density is more dependent on the equipment being used than the speed of the baler.

Denser bales, faster

According to the study results, the New Holland Roll-Belt™ 450 Silage Special produced the highest density bales at all three speeds tested (4, 8 and 12 miles per hour). The highest density (9.2 lbs/ft^3 on a DM basis) was recorded at 8 miles per hour. This proves that density comes down to the type of baler, not necessarily the speed at which you bale.

Designed for density

Study findings show the New Holland Roll-Belt 450 Silage Special produced 4x5 bales that were up to 39% denser than the competition. The design of the New Holland Roll-Belt baler utilizes heavy-duty steel rolls in the front of the baler as well as a floor roll to support the bale as it is being formed. The rolls are combined with short, tough, endless belts to deliver fast, consistent core formation and tight, uniform bales—the densest bales in the industry.

MODEL				
	New Holland Roll-Belt 450 Silage Special	John Deere 450M Silage Special	Kubota BV4160 Premium	Vermeer 504R Premium
BALE DENSITY *(LBS/FT^3) BY SPEED*				
4 mph	**7.5**	6.6	6.3	7.1
8 mph	**9.2**	6.6	7.2	8.3
12 mph	**7.7**	6.3	6.0	6.3
Chamber Design	**Starter Roll, Floor Roll + 3 Sledge Rolls + 6 Endless Belts**	Starter Roll + 6 Laced Belts	Starter Roll, Floor Roll + 1 Fixed Roll + 5 Laced Belts	Starter Roll, Floor Roll + 6 Laced Belts

** Study completed by Penn State University from May to June 2018 comparing the New Holland Roll-Belt 450 Silage Special, the John Deere 450M Silage Special, the Kubota BV4160 Premium, and the Vermeer 504R Premium.*

Advantages of a denser bale

Another Penn State University study looking at the New Holland Roll-Belt™ 450 round baler at 6 different density settings (1000, 1200, 1400, 1600, 1800, and 2000 PSI) found that denser bales had greater total acid production and stayed cooler during the fermentation process. Bales stabilized in temperature by Day 21 regardless of the PSI at which they were baled and internal temperatures fluctuated based on external environmental temperature. However, even as environmental temperatures changed, bales did not exceed 76 degrees internally after the completion of the fermentation process.

Wrapping the bale as quickly as possible after baling removes the oxygen from the bale and ensures the internal bale temperature remains below 120° F, the critical threshold for helping to ensure proper fermentation as well as maintaining forage quality. Eliminating oxygen from high-density bales initiates the fermentation process, increasing forage quality and stability. This leads to longer whole-bale bunk life for round bales through reduced spoilage. Penn State observed up to 25 more hours of bunk life, a 42% increase in whole-bale bunk life as bale density increased (Figure 2). Lower fermentation temperatures also result in increased available crude protein for livestock.

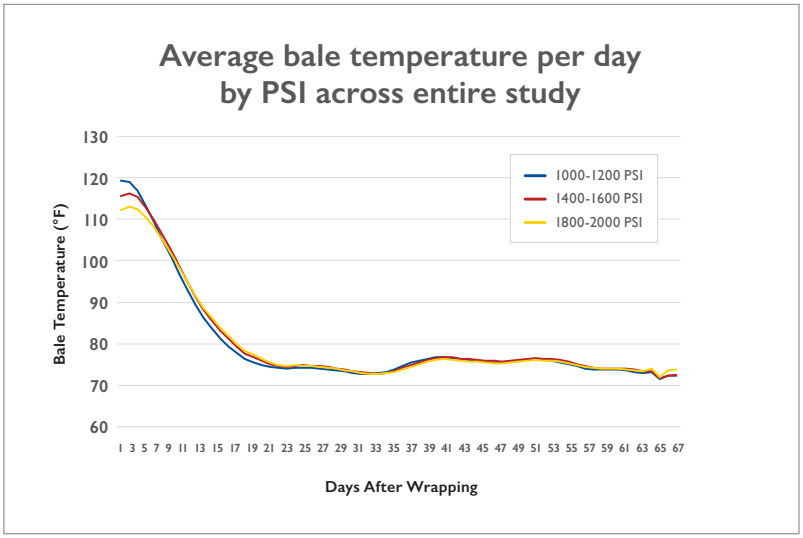

Figure 1

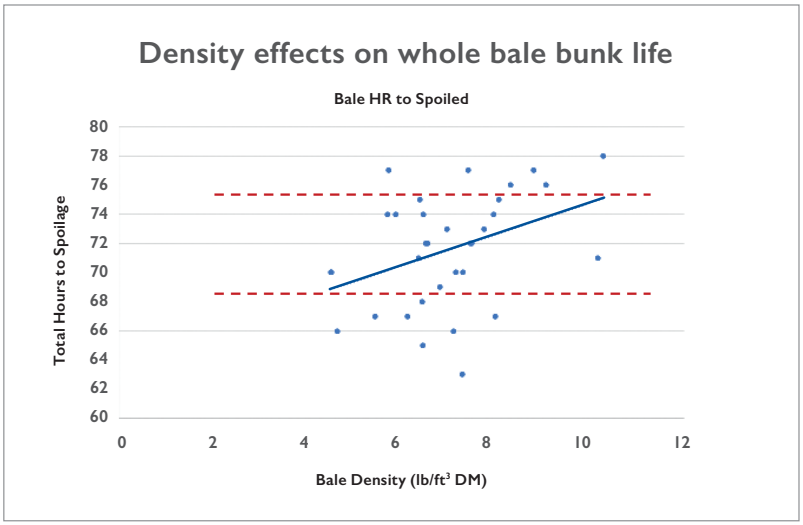

Figure 2

SUMMARY

Preserve the highest baleage feed value, extend whole-bale bunk life and reduce feed waste while improving herd health and animal production. Always harvest crops at the ideal maturity and bale during optimum moisture levels at the greatest possible density. Wrap bales soon after baling to ensure low fermentation temperatures and greater total acid production.

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