Individual & Tube Line Wrapping of Large Square Bales

Mike Lauwers, producer - Capac, MI

When putting up high quality baleage, what is done prior to wrapping is equally as important as what is done when wrapping the bale.

On the Lauwers' farming operation, the hay is cut with a 16' discbine which lays the hay out in a nice wide swath. The following morning, when the dew is off, the hay is merged into the windrow. A Phiber double merger brings each swath to the center and makes a large square windrow on the dry ground. When doing lighter cuttings, the position and direction of the back merger belts are changed to bring two swaths to one side. After turning at the end of the field, the next two swaths are brought over to combine all four onto the dry ground in a big square windrow. A windrow should be uniform and at least a foot wider than the bale width so the completed bale will be square and hard. The denser the bale is, the better the feed. A merger is used because it is gentle on the hay and will not pick up stones or dirt which is critically important. A lesson learned over time – one of the best ways to get moldy baleage is to put dirt in it.

The goal is to put baleage up at 25-35% moisture, which may seem dry for baleage, but it makes excellent feed when done correctly. By baling the hay drier, it can replace dry hay in the feed ration and it will fall apart and mix better. The hay is easier to bale at this moisture and makes a more square and dense bale. The bales contain less water; therefore, more hay is delivered with each truckload.

When the hay is dry enough, it is baled with a 3x4 Hesston baler with RotoCut. A dry inoculant, which is very important in improving fermentation in dry baleage, is blown in at the front of the RotoCut. There is always a possibility of mold when tube lining hay, however, inoculants help by allowing a greater period of time before the baleage starts to heat after opening.

After baling is complete, the bales are wrapped with either a McHale 998 individual wrapper or a Stinger tube-lined wrapper. When individually wrapping the bales, a 1 mL, 30" five-ply high quality plastic is used. Individually wrapping big square bales is definitely a test for the plastic wrap, especially when wrapping a drier bale. The bale's sharp corners and stems poke out and can potentially tear the plastic when wrapping begins. If good plastic is not used, a lot of time is spent getting off of the tractor and restarting the wrapping process after the plastic tears. Four layers of wrap are used if the bales will be stored less than six months, and six layers are used if they will be stored longer. With six good layers of plastic, the bales can be stored for two years with no loss of quality.

When tube lining, the bales can be made up to 8' long. The Stinger wrapper will wrap up to three bales stacked on top of one another. Our experience has been best with the bales stacked two high. Because of the square edges, it is much harder to eliminate air pockets when tube lining square bales than round bales. If the bales are not lined up perfectly, there will be a little gap between the bale and the plastic and surface mold will form. When tube lining the bales, it is best to use 8-10 layers of plastic. A lesser quality plastic can be used when tube lining because there are not as many corners to tear the plastic.

When stored, bales are stacked in rows and each row is marked with a number to specify which field it was harvested from. After about three weeks, fermentation is complete and each lot is randomly tested for feed quality. Lauwers' feed is guaranteed to meet feed tests when delivered. The bales are core sampled when loaded for delivery and dried using a Koster tester to get accurate dry matter (DM). All hay is sold on a 15% DM basis.

Advantages to individually wrapping are that less storage space is needed (as the bales are stacked 3-4 high); the tighter wrapping of individual bales produces less mold and higher feed quality. With a greater ability to pick and choose bales, the customer's feed requests are more readily met and the product arrives sealed upon delivery. It is advantageous to be able to wrap in the field right behind the baler so if it happens to rain, the hay is wrapped and can be picked up later. Disadvantages to individually wrapping are that more plastic wrap is used and more expensive, high tech equipment is used. Bale squeezers are needed to handle the bales to avoid tearing or putting holes in the plastic when handling.

Advantages to tube lining the hay are that less plastic is used and less equipment is needed. Moving the bales is done with spears which is simpler and uses less expensive equipment to operate. Once the tube liner is set up, large amounts of hay can be wrapped in a short amount of time. The disadvantages of tube lining are that once opened hay must be delivered soon before spoilage sets in, it takes more storage space as it is not stacked as high, and there is more mold since the seal is not as airtight as with individual wrapping. However, when done correctly, there is a minimal amount of mold.

To individually wrap using four layers of plastic, it costs the Lauwers about $7.20/ton and using six layers it costs $10.20/ton. Tube lined hay stacked two-high is $3.40/ton.

To better meet the feed value needs of their customers, the Lauwers prefer to individually wrap the bales. The product and packaging is more consistent and they are able to guarantee a high quality feed. Tube lining is used more in emergency situations. If they were baling feed for their own livestock, however, they would tube line large round bales.

This article was adapted from a presentation at the Annual Conference of the American Forage & Grassland Council held January 2012, in Louisville, KY, comparing the advantages of tube line vs. individual bale wrapping techniques given by Mike Lauwers, producer – Capac, MI.