

Fall Harvesting Switchgrass Experiences in Quebec

1. Fall harvesting, he gets 10-11 t/ha and spring harvesting he gets about 15% less.
2. He bales the material late October/early November at about 30% moisture and produces 700 lb round bales with an over-the-edge net wrapping as opposed to a to the edge wrapping). Cost of the net wrap about \$2/bale or ~\$6/tonne. He bought the NH baler used for \$12000. He says pay attention to net wrap quality as it varies.
3. His baling operation processes 12 t/hr and including the cost of net wrapping he figures bales are produced (not including mowing and raking) at ~\$11/tonne.
4. He picks up the bales with a used round bale automated transporter and can do 300 bales per day or 100/tonne. His old system he did 30-35 tonne per day. Another operator places bales dropped by the transporter into rows with 1' spacing around each bale to maximize air circulation. Bales are stored on a well drained site. The bales dry outdoors to less than 10% moisture.
5. He likes his fall harvest and outdoor round bale storage system as it gives him higher yields, earlier revenue from harvest, less tire punctures from fall harvesting, less fire risk from harvesting (another Quebec grower had a 25-acre spring harvest fire), cheap outdoor storage and drying, alternera fungus free material for bedding and feeding. He said for people wanting indoor storage leave the bales outdoors for several weeks to enable adequate dry down from 30% moisture for secure indoor storage. He said he has a pretty small equipment and building investment.
6. He has a Tomahawk grinder (bought used for \$22K) that he uses to grinds material. He said for large clients like a broiler producer he will chop the material and fill a transport.
7. He has had about 30 flat tires over 18 years of harvesting. He thinks fall harvesting reduces flats as the fibre less rigid. He uses silicon fill in small tires and buy used commercial radials with deep treads and 10-12 ply or more to also reduce the problem. He said older used tires have rubber hardened by the sun. He says new tires with 6 ply are the most vulnerable to puncture. He keeps his tires very well inflated as side wall flats are a big problem.
8. He has some bales stored more than 3 years. he has noted that the cave in rock bales have less decomposition than Summer (RC Tecumseh parent) or big bluestem. (my theory on this is it might be leaf width related and that cave in rock has wide leaves that enables it to shed water better from the bale, Kevin Shinnars CC'd on this email also wrote me this morning that a good thatch makes for better bale conservation and fall switchgrass should store better than spring harvested as more leaves are present). Normand said even old bales are usable that have a blackened bottom. He simply cuts strings at the top before he picks the bale with the loader and the blackened part of the bale remains behind.

Markets

He said for Quebec switchgrass producers there are two main market. Biggest market is as a high fibre feedstuff for lactating dairy cows for sale in Quebec and Vermont being developed by Daniel Clement (grower with 600 acres of switchgrass). Its used a lot by producers with heavy corn silage feeding programs. Daniel Clement works closely with the TMR company Keenan and they do mutual promotion of the mixer and the switchgrass component. Normand is also trying to develop products for the horse bedding industry as he has a small pelletizer.

He said his local dairy farmers have developed preferences for certain switchgrass varieties he is growing. One producer likes the Carthage the best as its leafier and finer stemmed and he felt provided the most comfort under cows (perhaps less udder abrasion). Another producer only wants baled material that has been passed through his combine (Normand harvests switchgrass seed). Normand thinks that prior to processing he ranks his cultivars Carthage, summer (parent of RC Tecumseh), and then cave in rock which is coarsest under cows. I think for fall harvesting we could try a macerator which would accelerate field drying and smash stems to make the material less coarse. I have a video clip below of a macerator being used on switchgrass in Wisconsin (Kevin Shinner interviewed).

<http://farmenergymedia.extension.org/video/optimizing-harvest-perennial-grasses-biofuel>

In Quebec for Normand Caron (a switchgrass seed producer) he thinks most of his clients are dairy farmers that want to grow switchgrass for feeding and bedding and that his harvest system could work well for those producers.

Other Notes

I checked his 19-year-old field for head smut quickly and there seemed to be a bit more than last year. I suggested he cut it and destroy the field to be safe as his other fields seemed free and he is a seed producer. I didn't do a full scouting of his fields but think the rest are good. I will make another visit and try and get to Daniel Clement to make a report.

REAP is selecting all the switchgrass and big bluestem germplasm to have wider leaves to improve establishment and yield. We are optimistic it will also help enable outdoor storage to be more successful as it will make a better thatch on the outside of bales. You can see in this unedited video clip the leaf width of the switchgrass germplasm is wider than normal.

<https://youtu.be/Pgd317tSFZg>