



Merwin Larsen's round bale barn is warm in winter, cool in summer.



Rodney Brandt has four straw barns still in use.

SIMPLE TO CONSTRUCT AND DURABLE

By Dexter W. Johnson

Build Yourself A Low-Cost Straw Bale Barn

After four years of observation on North Dakota farms, straw bale barns are earning high marks for durability and all-around performance, depending on straw type, building use, protection and weather.

Weathering seems to be minimal. Tightly packed flax bales tied with plastic twine have proved most durable.

Charged electric fence wires attached by insulators are effective in keeping livestock away. Better yet are strong, moveable gates.

So far, no straw buildings have burned, even though operators have used tractors to clean or do inside repair.

Here's a look at several straw barns now in use throughout North Dakota:

Merwin Larsen, Flaxton: He constructed a round barn for dairy heifers with round flax straw bales in 1987. Rafters were made from two used oilfield drillstem pipes (2.8 in. dia. by 31 ft. long) welded into an A-frame. The 6 ft. wide rafter base rests atop the wall. The point is attached to an anchor ring at the top of the center pole.

The barn is 44 ft. across, with 12 ft. high walls. A woven wire inside liner is tied through the bales to outside wire bands. Estimated cost: About \$500 for the pipe.

Larsen says the building is not only the warmest one on his farm in winter, but the coolest in summer.

Rodney Brandt, Maxbass: Rodney, one of the first livestock producers to try straw bale barns, built a 30 by 60 by 12 ft. structure in 1984. It still functions as a cattle shelter. His newest building is a 30 by 40 ft. pole straw barn. Poles are spaced 10 ft. off center in the walls and 15 ft. through the center to support oilfield drillstem pipe rafters (2.375 in. dia.) 5 ft. apart.

Brandt, who has four straw barns still in use, has tried different straw types. He feels flax straw is the best.

Greg Ankenbauer, Kenmare: He used conventional (18 by 18 in. by 3 ft.) flax straw bales set on edge to build cow-calf barns at two ranches in 1987. The 40 ft.

wide barns have roof supports poles 8 ft. off center that support 2.8 in. dia. oilfield drillstem pipe rafters. No. 9 ga. reinforced mesh wire was used in the roof and over the walls. Out-of-pocket cost: \$1,000 for mesh and pipe in one barn. Poles, straw, twine and construction labor were on hand.

Alvis Beaver, Rolette: Alvis made a 28 by 84 by 12 ft. barn for 65 sows out of cattail-sloughgrass-kochia bales in the fall of 1988. The barn is centered over an automatic waterer divider to serve four pens. Each pen has a small doorway to an outside feedyard.

Alvis spaced used 35 ft. electric poles 3 ft. apart for rafters. They rest on a 2 by 10 in. plate atop the walls.

Pigs preferred the cattail bales. Estimated cost: About \$900 for the poles. Other materials were on hand and the Beaver family supplied the labor.

Arden Moline, Rugby: He notes that sheep ate through and over a snow fence in a 32 by 48 ft. barn he made of 6 by 4 ft. round bales.

Moline spent \$100 for poles, door framing and three balls of plastic baler twine for the barn in 1987. He stretched woven wire and stapled it to electric pole rafters spaced from 4 to 6 ft. apart.

Straw-barn owners report that disease, bird and rodent problems in straw barns are similar to conventional buildings containing feed, bedding and insulation.

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The author is professor emeritus at North Dakota State University. While there is no formal research project at NDSU, straw bale buildings will continue to be monitored informally to determine optimum roof slope, construction design, straw type, bale protection and rafter design. Dexter would like to hear from FARM SHOW readers who have had experience with straw-bale buildings. Contact: FARM SHOW Followup, Dexter W. Johnson, PE, Agricultural Engineer, 1237 3rd Street North, Fargo, N. Dak. 58102 (ph 701 232-2915).



Greg Ankenbauer built two 40 by 120 by 14-ft. high cow calf straw barns.



Alvis Beaver used flax big round straw bales to build this barn for 65 sows.



Straw Sheep Shelter

This past winter, a 26 by 49 ft. straw building has been used for lambing and ewe housing at North Dakota State University's Research Extension Center at Hettinger.

"Our aim is to see how many years the straw shelter will last," says Tim Faller, superintendent. "Straw barns should be most useful for ewes with nursing lambs. Usually, an operator has an enclosed, existing building space large enough for lambing but not large enough for ewes with lambs.

Thirty-two flax straw bales, each 32 by 32 by 98 in. and tied with four plastic twines, were used for the walls. Construction took three man-days, including site leveling, putting up the bale walls with a skid-steer loader, setting four center roof support posts, installing 2 by 4 in. rafters on 6 in. centers and rolling out and anchoring the plastic roof tarp.

Total cost was about \$1,000 for bales, posts, rafters, tarp, hardware and a wood-slat snow fence.

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