

# *‘Living barns’ can offer effective, low-cost shelter*

**By Brett Chedzoy**

The benefits of sheltering livestock from extreme weather are well documented. But do all effective shelters require a roof, on-going maintenance and a depreciation schedule?

As our Angus Glen Farms beef herd grew to more than 100 cows over the years, we were faced with difficult decisions on whether to invest many tens of thousands — and more likely hundreds of thousands — of dollars upgrading old barnyards and buildings, or building new ones.

As we struggled to justify these costs, the thought occurred that we had numerous mixed conifer plantations and small hemlock groves scattered around the farm that, if managed properly, could provide shelter during critical times.

Thus started our journey down the road of learning how to effectively use “living barns” as part of a broader outwintering/bale grazing strategy.

My definition of a living barn is a group of (preferably) evergreen trees large enough to comfortably accommodate the flock or herd during a winter storm, while perhaps also providing extra shade during summer heat waves.

These are not “sacrifice areas” and should not be treated as such if you expect the trees to remain healthy and productive over time.

Nor should continual winter feeding occur around the trees, as the excessive accumulation of waste hay and manure gradually smothers the tree roots. And bored livestock hanging around too long for hay may chew or rub the bark off trees.

Ideally, your farm will have more than one of these wooded shelter areas so that the use and impact can be spread around over the course of a winter.

Some of the advantages of a living barn compared to a roofed building include:

- **A much lower cost** per square foot. Although it may take at least 10 years after planting for a living barn to provide significant shelter for livestock, the “construction” costs amount to pennies per square foot. If natural stands or plantations of conifers already exist, that’s even better.
- **Living barns appreciate in value.** Roofed barns depreciate, and are sometimes taxed depending on your state’s tax regulations.
- **While living barns** require management such as periodic thinning, there is no expensive maintenance.
- **Living barns can have multiple** purposes, producing wildlife habitat, timber and an aesthetically pleasing landscape.
- **Living barns preserve** the permeable surface of your farm watershed.
- **Perhaps the best advantage** of all for someone who doesn’t like to muck manure is that living barns are self-cleaning and typically more sanitary than a semi-enclosed structure, thanks to good airflow, sunlight and soil microbial activity.

Some recommendations based on our experiences with living barns:

- **When planting**, mix a variety of tree species with different growth rates and shade tolerance. Forest researchers have clearly documented the productivity and health benefits of mixed plantations vs. monocultures.

A mix reduces the loss if a new pest takes out one or more of the species (which has happened multiple times on our farm). It will also provide some vertical structure to increase the stand's effectiveness in providing shelter.

An example would be to mix faster-growing pines with slower-growing and more shade-tolerant spruce, firs and cedars. With proper management and design, the slower-growing, densely foliated species will grow well beneath the pine overstory.

This multi-strata, deep-canopy plantation will intercept more precipitation and further reduce wind chill. And a dense overstory will retain more heat on cold winter nights.

- **Since living barns may be needed** when the ground is not frozen, to the extent possible they should be established on sites with good soil drainage. If you are planting on excessively drained or drought-prone sites like sand/gravel moraines or areas with exposed bedrock, be sure to use tree species appropriate for such sites.

A local forestry expert can help you avoid costly mistakes by recommending the best tree species for your site, and provide valuable advice on design, planting and management of the young plantation.

- **Although forage production** in the understory isn't a primary goal with living barns, maintaining enough sunlight for some herbaceous growth can improve the soil's resilience to winter traffic while aiding wildlife habitat.

As a rule of thumb, if there's too much shade at the ground level for at least some forage growth, then there's too much competition in the main canopy for good tree growth. The ideal tree in a living barn has a broad, deep crown because it has been well-thinned and managed.

- **To limit soil compaction** and nutrient deposition, keep livestock out of the living barn areas until the shelter is really needed. Healthy, well-fed livestock can handle normal winter weather without special shelter. If wind chill is a concern, try feeding animals on the downwind side of your living barn rather inside it.

We hold our living barns in reserve for winter storm events that bring potentially dangerous precipitation and temperatures. We also like to offer some extra hay of better quality in the living barns to help animals through the stress.

A living barn is in many ways similar to a silvopasture, with the main difference being that it has the very specific purpose of providing shelter rather than food for livestock.

For more tips and resources on planting and managing trees in grazing systems, see my recent series of *Graze* articles on silvopasturing.

Though my personal opinion is that living barns can meet the shelter needs of nearly all of our livestock nearly all of the time, it's never a bad idea to have a small, roofed shelter somewhere near the house to provide extra TLC for a sick animal or the "Oops! Where did those babies come from?" situation. We have several small, roofed shelters on the farm for such emergencies.

That said, building a new structure to adequately house our 100-plus cow herd and calves would cost an estimated \$300,000. No thanks!

## ***Our living barns***

We have six living barn areas that have been developed from mixed conifer plantations established in the late 1980s and early 1990s. They range from one to six acres, and each has been thinned at least once to favor the best trees.

Mulching the culled trees with specialized mowing machines like a FECON and skidsteer with a Loftness head was cost effective at about \$200/acre while keeping the understory clean. The next round of thinnings can probably be done by loggers at breakeven cost or perhaps a small profit to us.

We have utilized a broad mix of species in our plantings. Some of the better-performing species that have thus far resisted serious pest issues are white, red and ponderosa pines; red, blue and Norway spruces; and concolor fir.

We've avoided white cedar due to heavy deer pressure in our area, and red cedar due to apple-cedar rust concerns. Both species could be suitable for living barns in other locations.

We have also left groups of naturally occurring hemlock scattered throughout our silvopastures for extra animal comfort during less intensive winter storms when they are bale grazing in those areas. Over the past 20 years, our tree planting efforts have been focused more on deciduous tree species such as black locust to create silvopastures. But with more than a dozen years of pleasing results and big savings from our living barns, we'll soon be looking to "build" some more.