

Extension Activity #1

Preserving Our Barns

This lesson plan is courtesy of the Barn Again! Museum on Main Street—Smithsonian Museum

Lesson Objectives

- Discuss the value of preserving historic barns from several points of view,
- Investigate the risk factors for historic barns and keys to successful renovations,
- Analyze the renovation needs of an historic barn in their community,
- Develop a renovation plan for the barn,
- Present their plan to the barn owner.

Suggested Grade Levels

8

Time Frame

Approximately six 45-minute periods, including a field trip to a barn

Teacher Preparation

Before beginning this lesson, you will need to identify an historic barn in your community that has not been renovated and is either unused or under-used. Contact the barn owner to ask if he/she would be willing to participate in a project in which students develop a renovation plan for putting the barn back into use or enhancing its use.

If you cannot secure a barn for this project, consider adapting this lesson to create a barn preservation awareness campaign in your community. The “stage setting” activities and steps 1-3 of the Activity Procedure will provide good background for designing such a campaign.

Included are also photographs of a barn that is need of renovation if you would choose to use the photographs as a jumping off point for a renovation.

Handouts

What is Happening to Our Barns? (one overhead)

Barn Issues 1: Worrisome Trends (one copy for one-third of class)

Barn Issues 2: A Long-time Farmer’s Perspective (one copy for one-third of the class)

Barn Issues 3: A Barn Owner’s Dilemma (one copy for one-third of the class)

Renovation Plan Components (one copy per student)

Supplies

“Barn Again! A Guide to Rehabilitation of Older Farm Buildings” available for \$5.00 in the Barn Again! store at www.agriculture.com/barnagain.

page 2 [Introduction] (one copy per student)

pages 3 &4 (one copy for one-third of class)

pages 5 & 6 (one copy for one-third of class)
pages 7 & 8 (one copy for one-third of class)
Clipboards
Camera (at least one)

Setting the Stage

1. Show overhead of What is Happening to Our Barns? and review quotes with students. Explain that both of these quotes point to a problem: many of America's historic barns have been lost or are at risk of being lost.
2. Ask students: Does it matter if historic barns are demolished or collapse? Will Americans lose something of value if many historic barns cease to exist? Why or why not? After students share their opinions, ask them to think about this question from the point of view of three different groups: farmers and ranchers, historians, and future residents of your community. Ask students to think about what interests or values these groups might share.
3. Explain that your class is going to investigate some of the issues involved in preserving historic barns and then develop a plan to help the owner of an historic barn in your community. Briefly introduce the barn and barn owner to the class. If possible, show a photo of the barn. Explain that students will develop plans that will both preserve the barn and make it a useful building for the barn owner.

Activity Procedure

1. Explain that before students can begin creating a plan to help preserve an historic barn, they need to investigate some of the reasons that historic barns are at risk. Divide students into three groups. (If your class is large, you may want to divide into six groups and have two groups examine each set of information.) Distribute a copy of Barn Issues 1 to each member of the first group, a copy of Barn Issues 2 to each member of the second group, and a copy of Barn Issues 3 to each member of the third group. Explain that each group will be examining different factors that put historic barns at risk. Each group should read its story carefully and create a list of factors that pose a threat to barns to share with the rest of the class. As groups share their lists, compile a master list of risk factors to use during the barn project. Ask students if they have observed any of these risk factors in your community.
2. Explain that your class won't be able to address every threat to historic barns. Ask students to look at their list of risk factors and identify problems they could help solve. Help students understand that while trends in economics, demographics, and farming practices may be difficult to influence, students can help a barn owner adapt his/her old barn to new realities. Tell students old barns are saved one at a time.
3. Now that students have learned about the threats to historic barns, they also need to know some of the keys to a successful barn renovation project. Ask students to reassemble in their three groups. Give each student a copy of page 2 (Introduction) from "Barn Again! A Guide to Rehabilitation of Older Farm Buildings." Give the members of the first group copies of pages 3 & 4 from this guide; the second group copies of pages 5 & 6 from the guide; and the third group

copies of pages 7 & 8 from the guide. Explain that these materials were developed by the National Trust for Historic Preservation for a program called Barn Again! designed to help preserve historic barns. Each group will review its

materials to identify factors that contribute to a successful barn renovation project.

Groups will share their findings with the class. Again, compile a master list of student findings.

4. Keeping the risk factors and keys to success in mind, the class will develop a list of questions to ask the barn owner they will be helping. Encourage students to think of questions that will help them find out as much about the barn and the barn owner's needs as possible so they will be prepared to create a useful renovation plan. Questions might include: What is the condition of the barn? How is it used now? How would you like to use it? What are some other possible uses for the barn? What has prevented you from fixing up your barn in the past? What would you need to make renovating your barn possible? Also, make sure students ask about the dimensions of the barn. Compile a master list of all the final questions. Distribute copies to students. Each student should be responsible for finding the answer to at least one question. Either allow students to choose their question or assign them if needed.
5. Arrange a time with the barn owner when students can tour the barn. (If this is not possible, the barn owner can visit your class with a set of photos he/she can leave for students' use.) Students will bring a clipboard, paper, and pencil for taking notes. At least one student will take photos of the barn. Tell students that during the barn tour they should take careful notes of the condition and features of the barn and other useful information shared by the barn owner. Some of the students' questions will be answered during the tour. Students should ask their remaining questions after the tour. Remind students that the barn owner may have valuable information that they had not thought about. Students should not be afraid to ask additional questions to pursue new information.
6. After returning to the classroom, ask students to brainstorm a list of challenges and opportunities for renovating the barn. Record student ideas on the board.
7. Divide the class into renovation teams of three or four students. Distribute a copy of the Renovation Plan Components to each student and review the components with the class to insure students understand the requirements of the project. Make the "Barn Again! A Guide to Rehabilitation of Older Farm Buildings" available to groups to use as a resource. Remind students they can also use the resources list at the bottom of their Renovation Plan Components sheet for assistance. Set a deadline for teams to complete their renovation plans. You may wish to create a schedule for turning in different components to prevent students from being overwhelmed. Monitor teams' progress and provide guidance as needed. Remind students that the teams are not in competition with each other. They all share the same goal of preserving the barn. At the same time, teams should respect each other's original ideas.
8. When the plans are complete, ask each team to present its plan to the class. The class can make suggestions for strengthening the plans. If the plans developed by

two or more teams are quite similar, the teams may wish to combine the best ideas from both plan into one plan. Allow teams to make revisions based on the class' suggestions to prepare a final plan to present to the barn owner.

9. Invite the barn owner to the class and allow each team to present its plan. When arranging an appointment with the barn owner, encourage him/her to ask questions about each of the plans. Tell students before the barn owner arrives that he/she may not choose to implement any of the plans. Their presentations, however, are a chance to provide information and encouragement to the barn owner. Students can also offer to provide assistance in the future should the barn owner decide to pursue one of their plans.
10. Submit a copy of students' renovation plans to your local Barn Again! hosts for inclusion in the exhibition.

What is Happening to Our Barns?

In 1920 there were 6,454,00 farms in the US. Farmers made up 27% of the labor force. The average farm size was 148 acres. Each of those 6 million plus farms had at least one barn, as well as a granary, chicken coop, hog house, and other farm outbuildings. In 1990 there were 2,143,150 farms, farmers made up 2.6% of the labor force and the average farm size was 461 acres? What has happened to those 6.4 million barns?

An Assessment of Barn Preservation in the United States, Prepared for the National Trust for Historic Preservation by Mary Humstone, July 2001.

The barn on our farm near Danville, Indiana is truly our family's. The very first owner was one of our mother's ancestors. And when her family sold the farm around the turn of the century, our father's ancestors bought it!

The barn was built in the 1850's. It had a special threshing floor where the wheat was scattered for colts to run over and thresh it.

The huge beams in the loft were hand-hewn and held together with wooden pegs.

After 140 years, they still feel solid under the feet of climbing children.

As youngsters, we were always fascinated by the old stuff stored in the barn. Iron-rimmed wagon wheels and an old sleigh buried under a pile of hay provided plenty of fuel for active imaginations.

Sadly, all this is a thing of the past. There has been no livestock on the place for over 10 years, and our barn, like so many others, is falling into disrepair.

- Pam Dunaway and Cheri Freeman, Clayton, Indiana

Wysocky, Ken, ed., This Old Barn. Greendale, WI : Country Books, 1996.

Barn Issues 1: Worrisome Trends

I am a professor of agricultural engineering and a person who loves historic barns. In my research over the last few years, I have noticed some trends in agricultural economics and demographics (demographics is the study of the characteristics of human populations) that have made me worry about the future of America's historic barns.

First, let's look at the economic trends. The number of farms in the United States is decreasing at an average rate of about 22,000 per year. In 1982 there were 2,241,000 farms. In 1997, there were 1,921,000. That's a decrease of almost 15%. While farms are decreasing in numbers, they are also increasing in acreage. Because prices for agricultural products have been very low, farmers need to have larger farms to make a profit. In 1997, the average farm size was 487 acres, up 10.7% from an average 440 acres in 1982. As existing farms are combined into larger farms, historic barns are likely to be demolished so the land underneath them can be plowed. Or the old barns are simply left to fall down. Low prices for agricultural products have other effects on historic barns. Because of these low prices, more farm families are having a difficult time making a living on their farms. That means they have little extra money for projects like fixing up an old barn. Moreover, many farmers are taking jobs off their farms to earn extra money and get good health care benefits. Only half of U.S. farmers list farming as their main occupation and 37% report that they work off the farm 200 or more days a year. This means many farmers only have time for the most essential farm chores. Repairing old barns tends to get put off until later. Eventually, barns that aren't maintained deteriorate to the point where they can't be used.

There are some troubling demographic trends too. Fewer young people are choosing farming as a career. In 1978 there were approximately 350,000 farmers and ranchers 35 years old or younger in the United States. In 1997, there were fewer than 150,000. The fastest growing segment of farmers and ranchers is those 70 years old or older. Farmers who are nearing retirement and don't have any children to take over their farm are not likely to invest their money in older farm buildings. They will probably sell their farm in the near future.

The way our cities are spreading out into farmlands also poses a threat to historic barns. Each year about 3.6 million acres of farmland in the U.S. is taken out of agricultural production. Most of this land is used for new developments on the edges of cities. When farmland is developed, the buildings on it are usually demolished. The spread of new developments also affects farmers' long-term views about their farms. Many farmers who live relatively close to cities are not investing in their farm buildings because they know they might end up selling them to developers in the next ten years.

The opposite of development isn't good for old barns either. Some isolated rural areas are losing population as people move to urban areas in search of opportunities. My friend in southeast Nebraska reports that one in every four or five farmsteads there has disappeared. He sees clumps of trees, but no buildings.

There are a few economic and demographic trends that may help preserve historic barns. One economic trend is the development of “niche,” or specialty, farms. These farms produce specialized products, like organically raised vegetables or herb and flowers, and sell them to consumers. An historic barn can be a good marketing tool for niche farmers who sell their products directly to the public. People want to buy their farm-fresh good from a place that looks like grandma’s farm.

An interesting demographic trend is the growth of “hobby” farms. Some people who work in cities are moving to rural areas and buying small farms with historic barns. They may keep a few animals on their farm, but they do not make their living from their farms. They just want to enjoy “country living.” Hobby farmers don’t need their barns to be hard-working, income-producing buildings like most farmers do. They are more likely to keep and fix up an old barn because they like it.

What will be the fate of America’s historic barns? Much will depend on how the trends I have mentioned play out. And those trends will be effected by the choices made by all of us in our communities, in national elections, and in our daily lives.

The source of the information in this piece, including all the statistics, is: *An Assessment of Barn Preservation in the United States*, prepared for The National Trust for Historic Preservation by Mary Humstone, July 2001. Copies of this report can be obtained through The National Trust for Historic Preservation.

Barn Issues 2: A Long-time Farmer's Perspective

I have been farming in this county for 50 years. During that time, I have seen huge changes in farming practices. I've also noticed many barns that were once the center of a farm's activity standing neglected and crumbling. I think the two things are related. Let me tell you how.

One important change in farming has been a decrease in livestock operations, especially the smaller ones. I read recently that the total number of hog operations in the United States dropped 78% in just 15 years, from 388,570 in 1985 to 85,760 in 2000. The number of dairy farms dropped 60.8% in the same period. The number of beef cattle operations is down by 18%. Most of the small dairy farms in my county have gone out of business. Those that remain are much larger than in the past. Instead of 50 cows, they have 500.

This change in livestock operations has not been good for historic barns. Most older barns were built to house at least some livestock. Sheltering animals and storing their feed made a barn a necessity. If a farmer sells his animals, the barn can lose its importance in the farm operation.

The farmers who have stayed in livestock and increased the size of their herds tend to need larger buildings. For example, a traditional 40 x 60 foot dairy barn might provide room for milking 80 cows, but certainly not 500. It can also be difficult to install new labor-saving mechanisms farmers want, like automatic feeding and watering systems and liquid manure handling systems, into older barns.

The way farmers store feed for their livestock has also changed. Farmers used to store hay in a barn's hay mow (or second story) either loose or in small square bales. Now most hay is shaped into huge round bales that are wrapped in plastic and left in the field. These new large bales won't fit in the hay mow. So even those farmers who have stayed in livestock are less likely to use their historic barn for feed storage.

The equipment farmers use has changed too. It has gotten larger and larger and very expensive. Farmers need a good place to store their valuable equipment. But these machines are so large they won't fit through a historic barn's doors. And even if they did, they wouldn't fit under a typical barn's hay mow floor.

Farming practices have changed so much that it seems many historic barns can no longer serve the functions for which they were built. This puts historic barns at risk. Farmers simply can't afford to keep and maintain a building that isn't useful to them.

I don't think we need to give up on historic barns. We just need to think about them in new ways. If they can't be used for livestock, feed, or equipment storage right now, could they be changed so they could serve one of these purposes? For example, cutting a larger door opening and raising the hay mow floor might make enough space to store a combine. Or if historic barns can't be changed to serve their traditional purposes, is there some new way they could be useful on the farm? For example, an old dairy barn could be used to shelter young calves and cows about to have calves instead for milking cows.

Take it from me – being old doesn't mean you can't be useful!

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Barn Issues 3: A Barn Owner's Dilemma

There is a beautiful old barn on my farm. It was built 70 years ago by my great-grandfather and is an important part of my family's heritage. I would very much like to save this barn, but I don't know if I can. There are some factors in favor of preserving the barn, but others that seem to argue against it.

Unfortunately, I have not spent much time repairing my barn in recent years and its condition has deteriorated. Like many older barns, my barn has foundation damage. Over the years, seeping water has caused the foundation to crack and shift. This is a serious problem because the foundation supports the rest of the barn. I think the foundation can be strengthened with anchor rods and a new concrete support wall. But if the damage requires lifting the barn up with jacks and rebuilding the foundation underneath, the job could be very expensive.

My barn has another common problem: a leaky roof. The water from the leaks is damaging other parts of the barn. Thus fixing the roof is a top priority. I'm not sure if I can patch the roof or if the whole roof needs to be replaced.

One thing the water leaking into the barn has damaged is the framing. The framing is made up of large posts and beams that form the skeleton of the barn. It is another important part of the structural system that supports the building and therefore must be repaired for safety reasons. I think the rotten parts of the framing can be cut out and new pieces of lumber spliced onto the remaining solid wood.

The siding of the barn needs to be repaired and then the whole barn must be painted to protect the wood. Utilities are another concern. I will need to update the barn's electrical wiring and plumbing. How much will all this cost?

My barn was built for horses, but I would like to use it as a workshop where I can repair machinery and work on building projects. If I could get the exterior fixed, it will be just right for this new use. My barn is conveniently located on my farm with good access to other buildings and the right size for a workshop. I will have to make some changes to the inside, like pouring a new concrete floor, raising the haymow floor, and installing insulation. I don't think these changes will be too hard to make. But when you're dealing with an old building, you never know what surprises await you.

I really want to do the right thing. I want to save this barn, but I am not sure how to proceed. I wish I had more information about repairing historic barns so I could be sure this project won't cost more than I can afford. It would also help if I could find a contractor with experience with older barns so I can be sure the work is done correctly. Finally, I'd like to know if there are any financial incentives, like grants or tax breaks, to help me pay for this project.

Maybe I'll have some more time next year to investigate repairing my barn. I just hope it can make it through another winter.

Renovation Plan Components

1. Proposed Use

What do you think is the best use of for the barn? Explain your idea in detail.

2. Required Work

What work will need to be done on the barn so it can be used in this way? Be as specific and thorough as possible. Your description should address, at a minimum: foundation, framing, roof, exterior siding, doors, plumbing and electrical systems, and interior spaces. Be sure to mention any other work necessary for your proposed use.

3. Floor Plan

Draw a floor plan to showing how the barn will look when your project is complete. A floor plan shows what a building looks like from above if you cut away the top halfway between the floor and the ceiling. You will need to draw a floor plan for each story of a barn if it is more than one story tall. Floor plans are usually drawn to scale. That means that while objects are drawn smaller than they are in real life, they are still the same size in relation to each other. A common scale used by architects is: 1/4 inch on the floor plan equals one foot in the building. Using graph paper and a ruler will help you keep the lines on your floor plan straight and draw your plan to scale.

4. Schedule of Work

What work has the highest priority and must be done right away? What jobs can wait until later? Explain the reasons for your decisions.

5. Cost Control

What can be done to keep the cost of this project as low as possible? For example, are there materials that can be reused? Can the barn owner do some of the work? Are there any financial incentives available? What creative ideas can you think of?

6. Evaluation

Provide an honest evaluation of the advantages and disadvantages of your proposed project.

Online Renovation Resources

Barn Again! web site: www.barnagain.org In the Barn Talk section of this site, you can ask for advice about renovating an historic barn.

State Historic Preservation Office (SHPO): Find your SHPO by looking at the list at www.sso.org/ncshpo/shpolist.htm. The staff at your SHPO can tell your about financial incentives for renovating historic barns in your state. This information might not be on their web site, so you may have to call.