

Grain Bins vs. Bags

Specialist Compares Storage Systems For Cotton Farmers Raising Grains

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The economics of using grain bins vs. grain bags was broken down in dollars recently by Chuck Danehower, University of Tennessee area farm management specialist serving eight counties in West Tennessee and headquartered in Ripley, Tenn.

“There has been a lot of interest in grain bins and grain bags particularly in cotton country,” he said. “Cotton acreage in Tennessee has declined from 700,000 in 2006 to just around 300,000 in 2009. We do expect it to be a little up in 2010.”

However, that decline in cotton acreage has gone to grains and soybeans. Grains and soybean prices have provided the incentive for many cotton farmers to switch to those commodities.

“There’s a good reason for doing that,” Danehower continued. “In 2006, corn was probably \$2.50 to \$3; soybeans was in the \$6-\$7 range; and cotton at that same time was probably below 50 cents on the cash market. Since that time soybeans have hit a high back in 2008 of \$15 to \$16 on futures. Corn got up as high as \$7. Now those prices have come down some and soybeans is anywhere from \$9 to \$10.50. Corn

Photo by John LaRose, Jr.

Chuck Danehower, University of Tennessee Area Farm Management Specialist, compares the economics of using grain bins vs. grain bags

bushel it would be about 4 cents over the life of the equipment, or 8 cents over the loan.”

He compared the 50,000 bushels as equivalent to 400 acres at 125 bushels per acre for corn. Then 800 acres on 100,000 bushels, 1,200 acres on 150,000 bushels would also be equivalent.

“It seems that’s where I’m getting questions, from producers who raise over 1,000 acres of corn and want some kind of storage alternatives,” he added.

Grain bags themselves cost about \$700 per bag, and hold around 10,000 bushels plus or minus depending on the crop. That amounts to a fixed cost of about 7 cents per bushel, no matter how many bushels.

“So, comparing that, on a 50,000 bushel bin the cost is about 25 cents over the useful life; grain bags will cost about 19 cents,” he reasoned. “On a loan for both those systems, it’s



not much difference; it’s about 29 cents for the bins and 30 cents for the bags.”

There is a cost savings in the bag system when they’re used for more bushels. On 100,000 bushels over the useful life the cost drops from 25 cents on the bins to 13 cents on the bags; and then at 150,000 bushels the cost drops from 25 cents to 11 cents. So the bag system essentially can cut the cost in half.

Conclusion

“To wrap up the grain bin and bag comparison, the grain bags can offer a lower cost alternative to producers,” Danehower said. “The more bushels you run through the system, the lower the cost.”

Bins are a fixed asset, however, and if a producer retires they can be leased to another farmer.

“Bagging equipment is not really a fixed asset; it’s more of an intermediate asset, like machinery,” he added. “If you decide to get out of grain production, you can sell that and recoup some of the investment.”

Bags, however, are not without management issues. Several things can affect the bag system.

“You do have to consider insect problems,” he warned. “We’ve had some studies that looked at those issues and treating the grain that goes into the bags has worked. Other issues that affect grain bags are animals like rodents, coyotes, deer, raccoons; they can take a big bite out of that bag and open it and expose and ruin some of the grain.”

Location of the grain bags can be a concern.

“The first year we had some located in four areas where they got pooling of water so that’s something that has to be considered,” Danehower said. “However, many cotton producers have gotten used to locating their modules so I think they can easily adapt to locating grain bags. Then, of course, you have the vandal issue where somebody walks or stomps on them, shoots at them, rides four wheelers on them – just anything along those lines that you think can’t happen could probably happen to a grain bag. So again, it’s not without it’s own issues.”

The first year of the study in 2007 was a perfect harvest year. There was dry weather, and the grain was dry.

“Last year was just the opposite,” he noted. “It was a wet year, with high moisture going into the bags and that’s been some concern. I don’t know that the grain coming out of the bags has been any worse for wear than what’s gone in storage, but that could be an issue. If you have a bin you can dry it down with heat or fans or with a drier system in your bin so that certainly would be a plus to the grain bin situation.”

There is no drying system for the grain bag. Some people may have a portable batch dryer. Danehower has seen that in other states. The batch dryer can dry it before it goes into the bag, but other than that the grain bags are probably a pretty good alternative.”

A government loan program can be used on the bins, but not on the bags, which are not eligible for that. That’s another thing to consider when they’re looking at grain storage.

“Also, somebody doing seed production if they’re going to keep seed for a very long time, they might want to stick to the grain bin rather than the bag; although it might be easier to segregate some different varieties, different seeds in a bag than it might be in a bin, so it may be a toss up on that.”

To wrap it up, Danehower said bags can offer a little flexibility to cotton producers, allowing them go whichever way the profit is.

“If it’s more profitable to raise cotton they can go back into some cotton acreage and not have quite as much in a fixed investment; whereas if they want to stick with the grains they’ll have the bagging system as a short term storage. Bags are a short term storage whereas grain bins can be short and long term storage,” he added.

Grain bags originated out of South America where they use them for grain storage for about 18 months.

“We don’t feel comfortable keeping it that long and most cases the grain has probably come out within 6 to 10 months. The bags will last, but we have concerns about keeping it in that long,” Danehower summed. Δ

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is projected anywhere from probably low \$3 to \$4.25. So the prices of grains have come up considerably since 2006, whereas cotton prices have really stayed stagnant, they just haven’t moved very much.”

This year that may change with the recent increase in cotton prices. However, cotton producers who want to transition to grains have run into several problems.

“There are long lines at the elevator, they have to wait to get their grain unloaded, basis is generally the weakest at harvest time, so that puts pressure on prices,” Danehower said. “So they are looking at ways to improve the efficiency of their operation as well as improve their pricing, so that’s why there’s a question of the economics of bins vs. bags.”

A grain bin is a fixed asset attached to the ground; it has a strong foundation and is a permanent fixture. Farmers who make that investment are committed to grain production. So cotton producers need to consider if that’s what they want to do.

“If cotton prices were to go up 75 or 80 cents and they want to go back into cotton, they’ve got this grain bin out there,” he reasoned. “So do they go back to cotton or do they stick with the grain because they’ve got that investment?”

That’s why some may want to consider using grain bags. Grain bags have been used in Tennessee since 2007 and they work. At the time, some cotton producers raised quite a bit of grain and that trend has continued.

“Therefore, we’re looking at a cost comparison, using partial budgeting, looking at some of the differences in the cost in the two systems, grain bins vs. a grain bag,” Danehower said.

Grain Bins

The initial setup for a 50,000 bushel grain bin is about \$78,000 to \$81,000. That includes the site preparation, foundation, augers to load and unload the grain, and the grain bin itself.

“On a per bushel basis, that’s about \$1.63 per bushel cost on that 50,000 bushel grain bin,” he said. “If we amortize that expense over the 25-year life of that grain bin, 12 year useful life for the augers and other equipment, we come up with a fixed cost of about 18 cents a bushel. If we were to borrow the money for that set up, that \$81,000, amortized at 10 years, 9 percent interest, the cost is actually \$81,400. I come up with about a fixed cost of 22 cents a bushel, which is not a lot different than the useful life of the grain bin.

“We have about seven cents in variable costs of things like repairs, taxes and insurance on that grain bin, so that gives us about a 25 cent per bushel cost on that grain bin over the life of it; over about 29 cents if we look at using a loan to purchase that grain bin.”

Grain Bags

The grain bag system has three components, a bagger, a bag and an extractor which moves the grain from the bag into a truck or grain cart for hauling to the grain elevator.

“The cost of the bagger and the extractor is estimated about \$48,600; that is probably about \$8,000 higher than what it was three years ago,” he explained. “Seems like three years ago we could get in this system with about \$40,000 on that equipment.”

There has been advances in some of this equipment. There are about four or five different types of manufacturers of bagging equipment; a few years ago there were only one or two.

“So there are several different options and alternatives producers have on this equipment and some of it has more features than others,” he said. “The newest extractor has a feature that helps fold the grain bag for disposal and that disposal of the plastic sometimes can be an issue.

The more bushels you run through a grain bag system the lower the cost will be; however the grain bin is a fixed asset with the same per bushel cost.

“The grain bag system gets cheaper as you go along,” Danehower continued. “Spreading the cost over the life of that system on 50,000 bushels it would cost about 12 cents. If you borrowed the money at five years at 6 percent interest, that would be about 23 cents a bushel. But if we go to 100,000 bushels the cost goes down to 6 cents a bushel over the life of it, or 12 cents using a loan; and if you have 150,000