



# MACHINERY STORAGE—PUT IT AWAY CLEAN, DRY AND LUBRICATED

Farm Machinery Fact Sheet FM-17

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As a service manager dealership partner and a farmer, Ed Weaver is also very much aware of the maintenance problems caused by leaving machinery unprotected. “I’ve found that problems with farm machinery are sometimes like bananas - they come in bunches,” he says. “And a lot of the problems are caused either by not storing machinery or by not storing it properly.”

The first step is, of course, to have a “good home” for your machinery when it’s not working in the field. But Ed emphasizes that “it’s not enough to drive a tractor or combine into the shed, shut it down, and leave it for the winter.”

“First thing is to make sure a machine is in good repair before you put it away,” Ed says. “After that, it’s pretty much a matter of following three simple rules: Put it away clean, put it away dry, and put it away lubricated.”

All three of these rules are aimed at keeping rust producing moisture away from bearings and other vital parts. Let’s start with “putting it away clean.” A little dirt and chaff in the dark corners of a combine may look relatively harmless. But dirt and chaff attract and hold moisture, which can do plenty of damage.

Moisture causes rust and corrodes shafts and bearings and other moving parts, including engine components. It also hardens seals on bearings, causing them to eventually fail.

Best weapons for getting rid of dirt and chaff are high pressure air and high-pressure water. “If You have very much machinery at all, it’ll pay to have both high pressure air and water,” Ed stresses. “It’s an investment that’ll pay for itself many times over in reduced repair bills and in longer machinery life.”

Both the air and the water have their uses. With air there’s no chance of getting moisture into bearings and other critical areas. So use air when you can—when dirt and crop residue is loose. Use the high-pressure washer to remove stubborn, caked-on dirt. But never aim the stream of water directly at a bearing seal. And when you’re through washing the machine,

make sure it dries thoroughly in the sun before you put it in the shed.

The goal, of course, is to clean every part of the machine as thoroughly as possible. Ed points out, however, that there are certain areas on each machine that are more critical than others. On a combine, for example, it's important to remove caked-on dirt from around bearings. And make sure you remove moisture-attracting stalks and other debris that wrap around shafts during harvest. Other critical (and often neglected) areas include the grain tank, the grain pan on the side of the combine, and the engine compartment.

“Make sure you remove all crop residue,” Ed cautions. “Soybeans are especially harmful if left in the combine over winter; soybean trash really seems to draw the moisture.”

Ed notes that farmers often fail to clean out the engine compartment of a combine. Here, trash is especially serious. It can draw moisture, but it can also create a very real fire hazard.

“It's not likely to cause a fire while the combine is in the storage shed,” Ed explains, “but it may cause one when you go in the field next season. In this area, we see an average of two or three combine fires a year. And most of them are the result of letting trash build up in the engine compartment.”

Unless a baler is cleaned properly before winter storage, you can just about count on having problems when you take it to the field next summer. “The knotter is the most critical mechanism on a baler,” Ed explains. “Unless it's cleaned thoroughly and protected with grease or spray on rust preventive, it can cause a lot of headaches when you take it out of storage.”

On a forage harvester, areas that need special attention are the cutter knives and the cylinder pan. Remove debris and coat bare-metal areas with grease or rust preventive.

Ed's second rule for storing machinery— “put it away dry”—seems rather obvious. After all, the major reason for storing machinery is to protect it from moisture. The trick is not only to “put it away dry,” but to “keep it dry.” Even if you put a dry machine in a good dry shed, you still have to deal with humidity and condensation. It's a good idea to protect unpainted surfaces like plow bottoms or sickle blades with grease or rust preventive solvent.

During long storage periods, condensation inside a tractor or combine engine (caused by changes in temperature) can produce rust on pistons, rings, cylinder liners and other parts.

To keep this to a minimum, Ed suggests sealing exhaust and crankcase breather outlets with masking tape. Just don't forget to remove the tape when you start the engine.

The third rule— “put it away lubricated”—is equally important. Be generous with the grease when you're getting ready to store a machine for the winter. Make sure you get all the fittings. A bearing that's full of grease has no big air space where moisture can collect.

Even though the practice is somewhat controversial, Ed recommends using a “hypo needle” to relube sealed bearings in combines two years old and older. If you've never used a needle, discuss the procedure with your machinery dealership's service manager.

After you've recharged sealed bearings and greased all conventional fittings, run the combine for 15 minutes or so to distribute grease inside the bearings.

On tractors, it's a good idea to repack front wheel bearings before storing for the winter. Ed emphasizes that “repacking” doesn't mean just taking the wheel cap off and putting grease in the cap. In most cases it's a matter of taking the wheel off so you can apply grease to the bearings.

In order to keep bearings and cylinder liners and other internal engine parts lubricated during long storage periods, it's a good idea to start a tractor or combine engine every six weeks or so. It's especially important if you have questionable storage and a lot of humidity. “If you do start an engine, make sure you run it at least 15 or 20 minutes—long enough to get it up to operating temperature,” Ed cautions. “Otherwise, you'll do more harm than good.”

Following are other tips for successful machinery storage:

1. If you leave the table on the combine, lower it and block it up to take pressure off the hydraulic system. If you remove the table, put it on blocks to keep it off damp floor.
2. Retract all hydraulic cylinders on tractors and combines to prevent rusting of rods. This also fills the hydraulic reservoir so there's a less chance of condensation forming in the reservoir. Make sure all dirt plugs are inserted in external couplings.
3. When you store a combine, Ed advises loosening belt tension slightly but not completely. When you remove all the tension, you'll get some shrinkage during the winter—then you'll spend most of your first day in the field adjusting and readjusting belts. Remove all oil and grease from belts.
4. You can protect chains with spray-on rust preventive. Or you can also take them off and leave them in a container of crankcase oil during the storage period.
5. Make sure tires have recommended air pressure. No need to jack wheels up unless tires will be on damp ground. Remove oil and grease from rubber.
6. Make sure batteries are fully charged and that fluid is covering plates. Disconnect cables. Check charge—and recharge if necessary—every six weeks or so.
7. Fuel tanks should be full to prevent sweating or condensation inside the tank.
8. If you've added water to the radiator during the summer, drain it and refill with coolant.
9. Use a piece of wood to block a dry clutch in the disengaged position during storage. If it's left engaged, corrosion may “glue” the clutch plate to the fly wheel.
10. Check operator's manuals for their storage recommendations.

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