

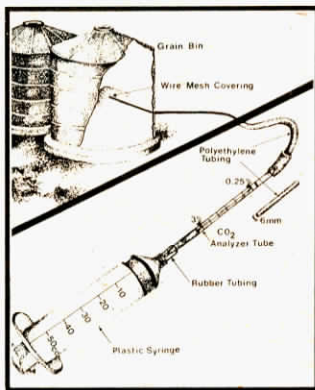
RISE IN CO₂ LEVEL INDICATES WHEN MOLDS OR INSECTS ARE DAMAGING GRAIN

Fast, Simple Test Detects Grain Spoilage

"It eliminates the need for temperature monitors and moisture testers for stored grain," says Ron Sinha, who, along with researchers Bill Buir and Colin Demianyk, developed a testing kit that detects spoilage in grain by mold or insects much easier than conventional methods, completely preventing damage in most cases.

"Any biological process gives out CO₂ so, if high concentrations of mold or insects are present, CO₂ levels rise. Because this can be measured very precisely, we can now discover problem areas much earlier than ever before," says Sinha, who first began monitoring CO₂ in grain bins in 1973 and discovered the link between spoilage and the gas in 1981. Since then he and his fellow researchers have been able to virtually eliminate spoilage in about 70 monitored bins. The scientists are just now preparing to "go public" with the idea at several scientific conferences and one company has expressed an interest in producing a commercial test kit, although all components can be purchased separately.

The kit consists simply of a piece of



Syringe is used to pull gas from bin and special analyzer tube lets you determine if a problem exists.

flexible 1/4-in. dia. plastic tubing, a 50 milliliter plastic syringe and needle, two short pieces of rubber tubing 2 in. long and a CO₂ analyzer cylinder roughly 1/4-in. dia. by 5-in. long.

The plastic tubing is shoved down into the grain. The end is covered by wire mesh to keep grain out and a rubber stopper placed in the other

end. The syringe needle is pushed through the rubber stopper just like sticking a needle into a drug bottle. One short rubber tube connects the top end of the syringe to the CO₂ analyzer and the second rubber tube connects the bottom of the CO₂ analyzer to the bottom of the plastic syringe.

"The analyzer cylinder contains a material that changes color, depending on the amount of CO₂ gas present. You can tell precisely the percentage of CO₂ present by how far down the color extends down the tube," says Sinha.

For best results, Sinha recommends testing at several spots in the bin. Tubes can be installed permanently by drilling holes in bin walls

when the bin is empty or you can simply attach a tube to a long pole and shove it down into the grain.

Sinha says that under normal, stable conditions CO₂ levels in grain range from 0.03% to 0.04%. Grain that tests from 0.08% to 0.1% may have low level spoilage just beginning and no hot spots can be detected. However, as CO₂ levels increase up to 1%, steps should be taken to stop the spoilage or damage will occur.

Sinha says the CO₂ test kit is being evaluated by researchers throughout Canada and the U.S.

For more information, contact: FARM SHOW Followup, Ron Sinha, Ag Canada, 195 Defoe Road, Winnipeg, Canada R3T 2M9 (ph 204 269-2100).

Bale Tree Leaves With Your Hay Baler

"It's a flat, belt-type header that gets low to the ground like the pickup headers used on some grain combines in Western states," says Cliff Kunes, Seneca Castle, N.Y., manufacturer of an add-on baler attachment that fits over the conventional hay pickup on a baler to get low to the ground to pick up tree leaves.

The add-on leaf header fits over the existing hay pickup, which stays in place. No modification of the baler is necessary. To bale leaves requires a baler with an auger type cross feed — as found on Deere balers — rather than a finger type feed. The header consists of a flat rubber belt 60 in. wide and 60 in. long with flexible teeth bolted to the belt. The teeth rake the ground and can even pick leaves up off paved city streets, says Kunes. He notes that the Wellsville, N.Y. department of public works bought a leaf harvesting header from him several years ago and they use it extensively each year.

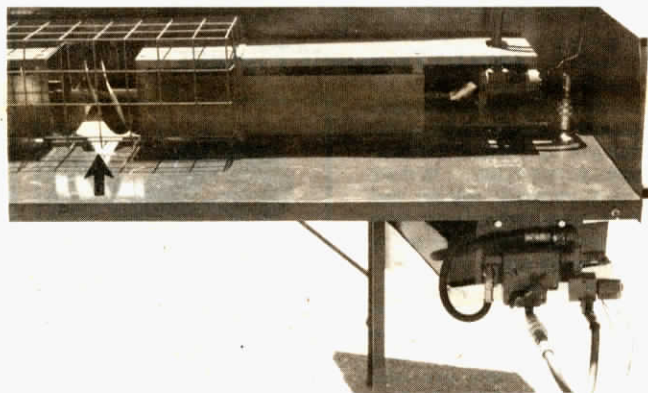
"People rake their leaves into the street and after we bale, they pick them up again for use as compost. Or, local farmers haul them home for

bedding," says John Palmer of the Public Works Department, who adds that the department first tried using an unmodified baler to handle leaves 15 years ago. "It couldn't pick them up off the street. Then, we tried a vacuum mechanism but that didn't work well either. Finally, we simply had to wait till it rained to load them with a tractor loader. That put us at the mercy of the weather. Now, we can bale when we have time and we don't ever have to haul leaves away."

Palmer says the city mounts the Kunes leaf header permanently on an old Deere twine tie baler. The baler is generally set to make bales about 2 ft. long. When damp, the small bales can weigh as much as 50 to 60 lbs.

"It's an economical, smart way for cities to handle the problem of leaves. Farmers who already own a baler could buy the attachment and bale up city leaves on contract," notes Palmer.

For more information, contact: FARM SHOW Followup, Cliff Kunes, Castle Harvester Co., Orleans Rd., Seneca Castle, N.Y. 14547 (ph 716 526-6238).



Cutaway model demonstrates how auger installs at rear of truck box, pulling grain to one side for easy dumping. Grain can also be dumped out center (see flow-through screen over auger) when necessary.

"Box Auger" For Trucks Makes Unloading Easy

With the new "Box Auger" in your truck, you can drive right alongside an auger hopper and empty the truck without having to back up and maneuver the truck into position.

The box auger, invented by Wayne O'Connell, Regina, Sask., mounts in the back of your grain truck, bolting to the floor. The 7-in. auger comes in two sections and easily adjusts to fit any truck box. It sits inside a 9-in. square box and moves grain to the left side (driver's side) of the truck bed. From there, grain is dropped through a damper-style 7 by 12-in. door cut into the truck bed, and through a spout into the hopper.

The spout swivels 360° so you can aim it straight behind the truck, or to

the side so you can drive alongside the auger hopper or elevator.

An added feature of the box auger is that it cleans out grain left in the box so you don't have to do any shoveling. A pivotal hinge allows easy final clean-out of a handful of kernels when changing from one crop to another.

If needed, you can still use the truck's center dump hole. The Box Auger doesn't interfere with operation of a drill fill auger. It's powered off truck hydraulics.

Sells for \$995 (Canadian).

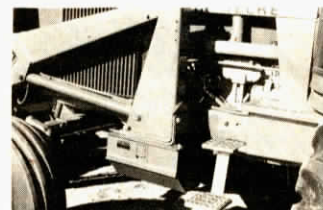
For more information, contact: FARM SHOW Followup, Wayne O'Connell, 15 Noonan Rd., Regina, Sask. S4V 0J5 (ph 306 569-3857).

Tractor Toolbox

"It's out front where you need it," says Gary Sonnek, an Easton, Minn., farmer who's begun marketing his new loader-mounted toolbox.

It mounts at the side of the tractor just below the side arm on Deere 148, 158 and 168 tractor loaders. The box is 2 ft. wide and 1 ft. deep, big enough to hold log chains, grease guns, large wrenches, hammers and other tools. It's made from heavy 12 ga. steel and is fitted with a strong piano hinge and a tightly locking paddle latch.

The box mounts quickly using existing mounting bolts on the loader. Sells for \$89.50.



Toolbox mounts at base of tractor loader.

For more information, contact: FARM SHOW Followup, Gary Sonnek, RR, Box 21, Easton, Minn. 56025 (ph 507787-2359).