



## Windmill Water Distribution System

When researchers at Oklahoma State University needed a way to get water from a pond to several distant rotational grazing pastures, they tried several different methods before hitting on the idea of using a windmill to pump water out of a pond into an elevated storage tank that then gravity-feeds water to stock tanks in several pastures.

According to a report in *Country World*, range management researcher Bob Gillen says they first tried running siphon tubes from the pond to distant stock tanks but found that they weren't reliable. Then they hit on the idea of pulling water out with windmills. Each windmill works as it would to pump a water well except that the pump cylinder is placed above ground at the base of the windmill. A pipe runs from the bottom of the cylinder to the pond where a one-way inlet valve is attached to keep the pipeline primed to the windmill. When the cylinder pumps, it's the same as if it were

down in a well casing. At one installation, the windmill sits about 50 yards uphill from a pond. It draws water up and pushes it to a storage tank which is mounted on stilts next to the windmill. Lines (1-in. dia. pvc) run from the storage tank to stock waterers in four different grazing units, each of which consists of multiple paddocks. Flow of water is simply controlled by float valves in the stock tanks.

Researchers note that the system has benefits even if you're not practicing rotational grazing. It allows you to fence off the pond to keep cattle out. Makes for a healthier pond and allows vegetation to grow up the edges of it preventing erosion of silt into the pond and eliminating the need to rebuild manmade dams so often.

Gillen says the system was relatively inexpensive to set up since they bought used windmills and made the tanks out of scrap military parts.

## Paved Pasture Roads Keep Cows Clean, Dairyman Happy

Rotational grazing between a number of small pastures is an idea that's catching on across the U.S. but one big problem with the idea is that the frequent movement of cows between fields creates a well-worn path between fields that can turn into an instant quagmire if it rains.

Wisconsin dairy farmer Charlie Opitz solved the problem by hiring a commercial road contractor to build three limestone-based, 12-ft. wide roads that lead from his barn out through his pastures. His roads range in length from 1/2 to 2/3 mile long and cost about \$14,000 total to build. Opitz, who farms near Mineral Point, says they've already paid for themselves by letting cows get out to fields on wet days when it would otherwise have been too muddy to get out. He says it costs him about \$1,000 a day when cattle can't graze.

Opitz is a rotational grazer who has a series of 50 paddocks on his 2,100 acre farm. He laid out the roads so that they allow cattle to exit directly to the paddocks from the dry, clean road.

After grading the road areas, crews laid a 5-in. base of 1 to 1.5 in. dia. crushed limestone, then added about 2 to 3 in. of powdery field lime. Opitz marched his herd up and down the road immediately after to pack it.

For each 120 ft. of road, Opitz used 15 yards of limestone (\$6.50 per yard) and a 10-yard load of field lime (\$5.75 per yard). Opitz notes that materials likely will cost more in other parts of the country.

Since building the roads 2 years ago, Opitz has added only 1 yard of crushed stone to beef them up (mostly on inclined slopes where hooves dig in). He says one



**New Farm photo by T.L. Gettings**  
Dairy farmer Charlie Opitz built this 12-ft. wide limestone road that leads from his barn out through his pastures.



**In Holland, dairy farmers make roads between fields using flat concrete paving stones with holes through them for drainage, as this photo from the British magazine *Farmer's Weekly* shows.**

reason the road wears well is that he never drives equipment on it. (*The New Farm*)

# "Best Ideas"

## Australians Working On Heat-Triggered Sperm Capsule

Australian cattle researchers have started a project they hope will revolutionize artificial insemination. Their goal is to produce an ovulation-triggered sperm capsule that will remain viable in the female's reproductive tract for an extended period of time, eliminating the need for heat synchronization.

Dr. Michael D'occhio at the government's Tropical Cattle Research Centre in Rockhampton says he's develop-

ing a capsule material that will keep sperm alive at normal body temperatures but then melt away to release sperm when the animal goes into heat, changing the temperature and makeup of fluids in reproductive tract.

If successful, ovulation-triggered sperm capsules would make artificial insemination practical for large commercial beef herds because capsules could be inserted at almost any time. It would also reduce costs for dairy producers.

## He Uses "Body Putty" To Repair Worn Combine

Body putty - the stuff used to repair auto bodies - works great for making all kinds of quick repairs to worn combine parts, says Joseph Haffner, Farmington, Iowa, who first got the idea when the return elevator on his combine rusted out.

"The hole was about 5 in. across. I didn't have a pop rivet gun to repair it with metal so I got the idea of using body putty. I sand blasted the area and then plastered it with putty by holding a piece of cardboard over the bottom. It dried quickly and we were ready to go again. Made a permanent, strong repair. Can be sanded or filed down as needed," says Haffner, who's used the rock-hard putty to make other repairs on his vintage 1969 Moline 4296.

"In the area where the augers from under the sieve dump grain into the elevator the metal was wearing thin. The metal in the area was too light to braze so I just coated it

with putty and smoothed it out. It really did the job and stood up real well to the abrasion of grain passing over it," he says.

When the grain hopper on the combine wore through, he also used putty to plug that up. He even used it to tighten up a gear that had worked loose, packing putty on the shaft around the sprocket.

"I've found many other uses for it around the farm. It's cheap, dries fast, and has saved me a lot of down time and expense by letting me get back into the field fast," says Haffner, who uses the least expensive body putty that's available at any discount store. He says the more expensive fiberglass-type putty would probably work even better for larger repair jobs.

Contact: FARM SHOW Followup, Joseph Haffner, Rt. 1, Box 57, Farmington, Iowa 52626 (ph 319 836-2113).

## Corn/Soybean Row Direction Affects Yields

Purdue University researcher Robert L. Nielsen says the direction corn and soybean rows are planted in the field definitely affects yields, according to a recent report in *Illinois Agri-News*.

Generally, Nielsen says a north-south row orientation allows greater penetration and more uniform distribution of light into the crop canopy, especially at high noon. So under optimum conditions, he says there's no doubt corn and soybeans grown in north-south rows will yield more than crops in rows running east to west.

However, for corn and beans grown under dry conditions or that are subjected to drought stress, there may not be much difference in yields. In one study in South Carolina, irrigated corn yielded 11 percent more in north-south rows than east-west

rows. But there was no yield difference in non-irrigated corn grown under dry conditions. In fact, in one test when corn suffered early season drought stress, yields were actually 13 percent higher in east-west rows than in north-south rows.

Nielsen says he and other researchers have concluded from the few studies that have been done that for farmers who farm soils with high organic matter and minimal history of drought, a north-south orientation of rows will almost always yield the best. Farmers with sandy soils and history of drought damage would probably be best planting in an east-west direction.

Researchers say farmers should test the idea out on their own farms to see if they find a difference.