Dean Steward stores rainwater in tanks from multiple buildings on his farm. Pipes connect adjacent tanks. By installing mechanical gauges on the tanks, he can easily keep track of water levels.

This gauge is mounted on a Quonset-style building. Aircraft cable runs from float in tank up over a pulley to a large pointer that moves up and down on scales of reflective numbers.

Mechanical Gauges Track Water Storage Levels

With rainwater capture and storage on multiple buildings, Dean Steward had trouble keeping track of water levels vital for watering gardens and livestock on his Arizona homestead. Now, thanks to his mechanical gauges, he can check water levels at a glance. He can also see if water pumps are running.

"I have multiple, redundant, water storage systems that hold 23,000 gal. total," says Steward. "Each one is used for a purpose, like watering the garden and fruit trees or watering livestock. If one gets low, I have to move water to it from one of the other tanks. I used to have to walk around and pound on tanks to check levels. Now I just look out my kitchen window."

Steward, a wildland firefighter, puts a high value on water. As his area gets only 15 in. of rainfall a year, every drop is precious. He has collected rainwater since moving to Arizona 23 years ago. What started out as 55-gal. drums at barn downspouts has become a sophisticated system of tanks, cisterns, pipes and valves. The system includes a Quonset-style, steel arch building.

"At the bottom edge on each side, I built rain gutters," explains Steward. "They feed water into a 100-gal. cistern I constructed out of cinder blocks under the apron of the building."

House water is provided by a windmill that pumps to a tank at the wellhead, from which it can be pumped uphill to a storage tank. Like other buildings, the house also catches water with rain gutters feeding into an 1,800-gal. cistern next to it.

Pipes connect adjacent tanks, as well as the individual tanks and cisterns. This helps when tanks are getting low as well as when rain is falling.

"When I see a set of tanks is full, I can open valves to another storage unit not yet filled to keep from losing water on the ground," says Steward.

His mechanical water gauges are relatively simple. Floats are made out of pvc pipe and 70 percent filled with water and bleach to make them heavier. Light gauge aircraft cable runs from the floats up over pulleys to large pointers that move up and down on scales of reflective numbers.

"I can see five of them from the house," says Steward.

A large set of 4 tanks that hold 13,500 gal. total is on the opposite side of the barn.

Floats are made out of pvc pipe and partially filled with water and bleach to make them heavier.

They're all plumbed together so the cable attaches to a float in one tank. It runs through a set of pulleys down the full length of the barn to a gauge. In another case, cables from 2 separate storage tanks, one 150 ft. away, drive markers to either side of a single reflective scale.

If necessary, Steward can use rainwater for drinking water. All water to the house passes through a UV filter to kill bacteria.

Also visible from his kitchen window are warning lights from each of the 3 pump houses scattered around the buildings.

"When I'm gone, my neighbors can keep an eye on the pumps," he says. "If you run out of water, you burn out an irrigation pump, and you're out $200 to $300. I've done that."

Contact: FARM SHOW Followup, Dean Steward, P.O. Box 444, Dewey, Arizona 86327 (ph 928 713-5085; dsteward@hotmail.com).

Portable Water Tank Helps Improve Pasture Management

By Heather Smith Thomas

Emry Birdwell and his wife, Deborah, run stocker cattle on their ranch near Henrietta, Texas. They practice intensive grazing, moving cattle several times a day, allowing each pasture to fully recover before grazing it again. In the past 9 years, they have increased the stocking capacity on their ranch from 2,400 head to more than double that number.

"On our ranch today we have 120 permanent paddocks, fenced with electric hard wire, and we divide each of those 3 to 5 ways with poly wire. During March through June we moved cattle an average of 4 times per day – the maximum is 6 times per day and the minimum twice a day," says Birdwell.

"Since 2011 we've been putting in a pipeline system for water. We'd been watering out of dirt ponds that collect runoff from rainwater. Due to lack of rain in the current drought we put in the pipeline so we can pump from those dirt tanks into water troughs. Most of the cattle are now using water troughs," he says.

This last spring he came up with the idea of manning a mobile water trough, pump and generator on a trailer that can be moved from one water hole to another. "This enables us to pump from a water source we couldn't use, into a trough, and make it usable. We're watering 3,800 cattle right now out of one 24-ft. trough," he says.

They move the mobile trough to wherever they want the cattle to be. "The portable trough is just a big propane tank cut in half; it's 24 ft. long and about 5 ft. wide, and holds about 1,500 gal.," says Birdwell.

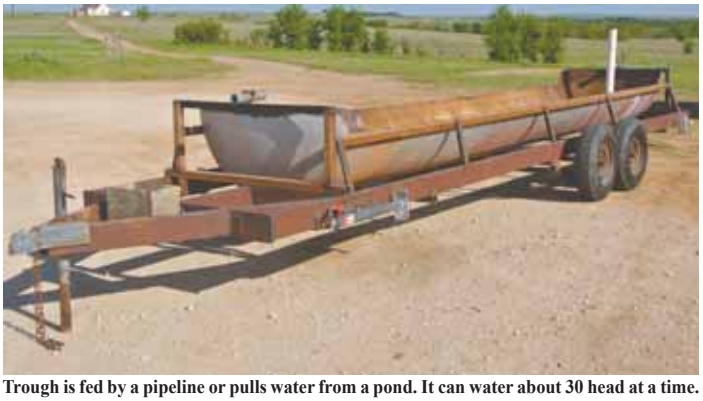
The trough mounts on dual wheels. After coming up with the idea, he had a friend build it for him, and it's undergone a few modifications. "The trough waters about 30 cattle at a time," he says. The pipeline has a good flow and can keep up with a thirsty herd.

"We use this trough two different ways. We use it on a pressurized line and we can pump directly out of any water source. When we have it hooked up to the pressurized line, we have three floats on it so we can get maximum water flow into it. We also have a water pump and generator sitting on the trailer so we can pull it up to a fenced-off pond to pump water out.

"We can pull the trough trailer with an ATV. It's well balanced and we can pull it with about anything when it's empty." He also put 5 jacks on it so he can level the trough anywhere they put it, no matter what the terrain is like.

"Eventually we hope to have all our pipelines in place so we can just hook up to a pressurized line wherever it is, but for right now we can use it these two different ways," he says.

Mobile water trough, pump and generator mount on a trailer that can be moved from one water hole to another.



Trough is fed by a pipeline or pulls water from a pond. It can water about 30 head at a time.