Construction of a Limited Access Ramp in a Pond for Cattle Watering

Herschel George and Pat Murphy
Watershed Specialist Professor, Environmental Systems Agriculture
K-State Research and Extension Biological and Agricultural Engineering

A limited access to a pond for cattle watering is basically a hard surfaced area similar to a boat ramp that is designed to limit the access of cattle to a pond. The watering access is designed as a part of a total pond fencing system which permits cattle to access water only at a specific location. The limited access improves the pond water quality and reduces the pond bank erosion.

Ramp access areas should not be planned in the emergency spillway area and not where surface water will enter the pond. Recently, limited water accesses into ponds have been planned and installed at the time of pond reconstruction and clean out. After all the muck has been removed from the pond and the dam repaired, the site and size of the limited access are chosen.

Slope of the access ramp can limit the cattle use. Less ramp slope encourages cattle use. Ramp slopes of 1 ft vertical to 4 ft horizontal have been used successfully. Slopes of 1 ft vertical to 6-10 ft horizontal are ideal.

The lower portion of the limited access ramp is designed for the cattle to enter the water and drink. Cattle need an adequate width opening (frontage area) to drink from the pond based on the number and size of cattle in the pasture or paddock. It is suggested that the width of the water frontage area be at least 10 ft wide plus 1 additional foot for each 10 head of cattle in the herd. A herd of 80 head would need a minimum of an 18-foot wide ramp to enter the water.

Functionally, the cattle need only about 3 feet of watering distance in front of them to drink. As the pond level changes. it may not be practical to maintain such a small area. Allowing 10 ft of watering distance into the pond (deepens to 1-2 ft) allows cattle to water with greater changes in pond level. Some producers are experimenting with gate systems at the end of the watering area that can be adjusted to allow cattle access to water during changes of pond water level.

The length of the access ramp covered with water is dependent on the ramp slope. Pond levels can fluctuate each summer and the ramp access should be designed to allow at least a 4 ft drop in pond level. Ponds that are known to lose greater depths of water should design the water access for the expected pond level change. If a pond is expected to have a 4 ft water level change and a 2 ft, watering depth is planned; the total water depth change is 6 ft. With a ramp slope of 1 vertical to 6 horizontal, the total length engaged with pond water would be 6 x 6 ft = 36 ft.

The width of the upper portion of the ramp above the limited water access area should be about 2 times the width of the limited water access width. A 15 ft wide limited water access would need an upper 30 ft wide gravel or hardened entrance area. Producers should also harden the upper ramp area above the water access area to limit erosion from cattle traffic.

Two types of materials can be used for hardening the limited water access. The lower watering area can utilize the open bowl tires system on the top of a geotextile fabric. Producers should also harden the gathering and approach area above the water access area. The gathering and approach area can utilize the Geotextile and gravel process that will stabilize the area for intensive cattle traffic.

The Open Bowl Tire system for the lower pond watering area

The Open Bowl Tire system utilizes discarded tires from semi trucks and trailers. One sidewall is removed so the remaining tire looks like a bowl. These tires are about 3 ½ ft in diameter and about 10 inches deep. A local tire recycler can usually remove the sidewall and provide the tires at low cost. The steel in the sidewall near the tread makes the process more difficult for on farm cutting of sidewall.

The width of the excavation is calculated in consideration of the tire diameter. For example, if the goal is to have an 18 ft wide limited access, the hardened area should be wide enough so that the cattle can not step off the edges of the hardened surface. Producers may find it beneficial to install posts periodically in the outer tire on the ramp in order to maintain a fence. Thus, 5 tires wide on the inside would be 17.5 to 18 ft wide plus one more tire so the posts can be installed on the inside of the outer tires. Total excavation width would need to be 21 to 22 ft wide to allow for 6 tires wide, leaving about 18 ft on the inside of the posts. The top end of the excavation should continue up the slope to or above the contour of the "Full" pond level (at the primary spillway tube level or the emergency spillway level).

When the limited access area has been selected and marked with flags, soil is removed from the ramp area to a depth of 10 to 12 inches. Geotextile fabric is placed into the excavated area and the tires are positioned close together on top of the fabric. If posts are to be installed through the fabric, the fabric must be cut in an "X" format to allow the post-hole auger to dig in the middle of the corner tires and other line posts. The posts should be tamped into place just as you would any fence post.

The dump truck can now back down to the ramp and dump gravel onto the tires. The gravel should fill the tires plus an additional 2 inches above the top of the tires. If care is taken, the gravel can be pushed down the hill and leveled with a skid steer or tractor loader. Care must be used to not drag against the tire in a way that would lift them from the geotextile base. After the cattle have used the site, a producer may see the upper edge of the tire tread showing through the gravel. It is not necessary to maintain the 2 inches of additional gravel above the tire tread. The Open Bowl Tire System is designed to prevent the gravel from eroding to the lower portion of the ramp.

Geotextile fabric is also placed on the gathering and approach area above the watering ramp area without the tires. Gravel or soil may be necessary to hold the geotextile from moving on a windy day. Six inches of gravel can be placed onto the gathering area.

The exclusion fence around the pond can be constructed with barbed wire or electric fence systems. Producers that choose to use an electric exclusion fence often will use a floating electric fence across the limited access. Barbed wire systems can be installed into the ramp watering area; however the wire will need maintenance soon due to the corrosion of the pond water and the wire. Care must be taken if the fence becomes submerged so that the cattle do not become entangled in the wire. The fence outline should be always visible above the water level.

For additional information contact Herschel George
913-294-6021 or Hgeorge@ksu.edu
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