

Options for Stock Water Development

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Developing alternative stock water sources can improve the quality and reliability of stock water and minimize erosion on ponds and stream banks. I would like to provide suggestions for various concepts of enhancing water availability and sources of cost-share funding for water development projects.

Let us start today's discussion about the cost to care for your livestock. What is the most expensive part of a cow herd budget? Feed? K-State economists show the cost for pasture and purchased feeds to be between \$400-450/beef cow/year (2012 data). That is about 50% of the total cost to keep the cow. What is the most limiting nutrient in a Beef Cows diet? Do you know the nutrients? Do you know the nutrients in her diet? I will make it easier, the 5 nutrients of a beef cow are:

- Vitamins
- Minerals
- Protein
- Carbohydrates (some divide this into starches and fats)
- Water

Which is the most limiting nutrient? (the answer is normally protein or energy "carbohydrates")

Which nutrient costs the most? (the answer is normally energy "carbohydrates" or protein)

Which nutrient is needed in the greatest quantity? (Water)

Which nutrient can have the greatest impact on health and performance? (Water)

Across ,Kansas livestock producers rely on surface water often stored in farm ponds. The choice to use a pond with unrestricted access has been common. Recently, these costs of have become more visible and increasing; while the options are becoming more manageable.

A discussion of the costs of using a pond would include: the cost of the land, the costs of construction of the pond, the cost to clean out the pond whenever necessary. An additional set of cost for using a pond with unrestricted access includes

- the risk of livestock falling through the ice,
- the risk of livestock getting stock in the mud,
- the risk of health related issues, such as foot rot and other diseases transmitted in wet environments,
- and the risk of Blue-Green Algae issues.

You can read many articles about Blue Green Algae from many sources. Much of the work we do related to livestock water quality is to reduce the Phosphorus and Nitrogen levels in streams, rivers, lakes and ponds. The Phosphorus and Nitrogen levels in the stream affect the downstream uses of the water by the public; it also directly impacts the occurrence of Blue Green Algae in the streams and ponds on your acreage.

An article from Kentucky indicates “Blue-green algae are simple plants that exist naturally in water and wet environments. They prefer warm, stagnant, nutrient-rich water and are found most often in ponds, lakes, and slow moving rivers. Farm ponds contaminated with fertilizer run-off or direct manure and urine contamination are prime places for algae to thrive.”

The difficult question about Blue-Green algae is what to do once it is in your pond. Producers can test to confirm the problem, but the choices about what to do are few. The only sure solution is to find an alternate supply of water and fence the livestock out of the problem pond.

My work for Kansas State University relates to “Water Quality”. As part of my work I try to help livestock producer to better understand the impact of their livestock on Water Quality and the impact of water Quality on their livestock. This all has to do with what happens to the nutrient produced by their livestock.

The easiest solution would be to suggest that everyone use a clean water supply such as municipal or **rural water** or from a well. A close second would be water from a pond or reservoir that is either **pumped or gravity flows** to the cattle. Not all producers want to think about a water bill each month. The cost of pumping and maintaining their own pump system is not far behind in the producer’s dislikes. Many dairymen will attest to the increased production by switching to a clean water supply. It is much more difficult to measure the increased production of a beef cow herd.

Drilling a producing well in Eastern Kansas has its limitations. But a reliable well can be a most valuable resource

Developing the springs helps to protect the water quality and also prevents the livestock from trampling the resource. Each spring is a challenge to develop. The process to capture the water is different with each spring. A working protected spring is a valuable resource to preserve.

If a pumped or gravity flow system is available, it is often the wise decision to **add pipeline** to additional pastures where water supplies are need. Pipelines can normally be installed for \$2.00 per foot or less which can be a wise choice over constructing an additional pond.

My efforts often focus on helping producers develop a watering system from their own ponds. Ideally, ponds are centrally located in a grazing area with adequate elevation drop behind the pond to place livestock waterer. Ideally, a 2 inch PVC line was installed in the pond when the pond was constructed. In those cases, the process is simple, chooses from the many types of waterers, installs the tank, and the exclusion fence around the pond.

Livestock waterers come in many types and sizes. Some of the questions to ask about what type tank are:

- Will the waterer be used during the summer, winter or both?
- How much pressure will be available to serve the tank (refill rate)?
- How many head will use the waterer?
- What will happen if the tank has no use during the winter?
- What will it take to periodically drain and clean the tank?

Pond users often choose between the concrete “behind the dam” type, which are easier to prevent from freezing, and the tire tanks which can be made of many types of construction or agricultural tires. I will guarantee that the tires tanks will freeze in Eastern Kansas. However, there are things to reduce the freezing problems.

It is possible to **install a pipeline into an existing pond**. It is a 4 hour process with a contractor, but the process can place a 2 inch line into the pond with the riser in the deepest parts of a pond. Syphon systems are only a temporary solution.

Producers may choose to consider a “**limited access**” to a pond when the pond has no elevation behind the dam. A limited access is basically a hardened surface constructed similar to a boat ramp into one edge of a pond. The pond can be fenced. Often producer choose to use a portable electric fence at least across the hardened surface access. There are not a lot of these available for producers to see. I have a short list of ponds for producers to see. The process is most easily installed at the time a pond is built or cleaned. Ask me about a solution in a pond with water and is in use. See the information included in your program.

Producers which have working **windmills and wells** have choices as well. Their concerns are weather the well will hold up to the water demands. Most Windmills have mechanical problems which restrict their use. The solution in these cases may be to install a **solar pump system**. The technology is getting easier to work with and now can be installed for about \$2,500 from wells that are no deeper than 85 or 90 ft. Most of the pumps for livestock uses have a pumping rate of 4 to 5 gallons per minute; of course, that rate is only available during about 6 to 8 hours per day. Deeper wells and higher volumes can be pumped; it just takes more solar panels and selecting an appropriate pump.