Cattle grazing, green pastures, and crystal clear streams, these are things we in Surry County want to see when we travel through the County. We also want this to be the legacy we leave to those beef producers who follow us. The question is: “Can we have all these things together?” The answer, “YES!”

Beef farmers are like most other farmers, they want to be able to take pride in the product (beef) they produce. In most cases, the land that cattle are produced on is that which is unsuitable for row crop production. This land is a productive part of the farm economy as it amounts to approximately $19 million annually to the beef producer in Surry. This amount is multiplied several times over as it is spent with retail and other establishments in the County.

There are about 18,000 cattle in Surry County. These cattle, for the most part, are found on small farms in herds of 30 animals or less. These herds are watering in almost every small stream or spring in the County. This is no different in almost any area of the state. In most cases, this is not a problem, but in some areas it is becoming a major focus of environmental groups. These groups are beginning to force legislation that takes a look at the effect cattle watering has on surface waters of the state. These guidelines have, to this point, been focused on confined animal feeding operations, but they may eventually spread to grazing cattle as well. Beef producers must consider this and become proactive in developing alternative ways to water their cattle. If cattle producers do not do this, steps may be mandated at a level such that cattle production becomes an economic catastrophe.

Only recently has the technology and research become available to establish Best
Management Practices or BMP’s that are cost effective and are useful in maintaining water quality. The biggest strides in these BMP’s have been the development of alternative watering systems for livestock that are economically viable and remain sensible for the average producer. These new systems are affordable and low maintenance; two things that are very important to the part-time producer. One must consider that the prices beef producers now are receiving are no higher than they were ten or more years ago. In fact, recent years have seen the prices received lower than they were earlier. This makes it hard for a beef producer to adopt “just any” technology that comes along, regardless of their desire to be better stewards of water resources. In many cases, public outcry and media misinformation about the “agricultural raping and pillaging of the environment” has hampered the successful adoption of many new practices. Many overzealous attempts to remove cattle from all surface waters would effectively put all beef producers out of business. This is the reason we, as beef producers, MUST work not only to improve the water quality on our farms, but, also, to let our friends, neighbors, and elected officials see our efforts. This will lead to a better understanding of the beef industry as a whole and provide a network of support to the beef producer at times of environmental overreaction.

This portion of this program will address the following questions beef producers may have concerning alternative watering systems:

1) Why should we be proactive;
2) What are some alternative systems;
3) Why do we need it;
4) How do we do it;
5) What does it cost; and
6) What does it mean to me?
Why Should We Be Proactive?

Proactive, the word itself implies action. Webster’s defines proactive as: ‘acting in anticipation of future problems, needs, or changes.” We in the beef industry who depend on the springs, creeks, and streams to water our cattle, must be proactive in demonstrating to the public that we are sensitive to the water issues facing them. If we don’t become proactive, we may be legislated by laws that have little or no agricultural input in their development. In other words, if we demonstrate that we can and are working to address the water issue, we may be able to help develop the laws that govern our use of surface waters for cattle watering. Times are changing and we must adapt to them to stay in business. If we don’t tell our story, the media and a few activists will

We can and should work to protect our water resources. After all, water is a necessary nutrient for all forms of life, even humans. We owe those who follow in our footsteps the clean, pure water that we have. We should pass the land to those who follow in better shape than what it was when we received it. Our very future depends on it!

What Are Some Alternative Systems?

Alternative systems are available in all shapes, sizes, and forms. Over the past ten years, much work and research (sometimes trial and error) has gone into developing alternative watering systems. There are no "textbook" answers. All systems that have been successful have been tailored to fit the farm in question. These systems range from something as simple as a gravity-fed trough from a stream to systems that employ ram, solar, or electric pumps to move water for great distances. In most cases, a combination of one or more of these systems has worked best. Most systems in our area will require some sort of pumping apparatus to move water from a low area to a high area. This movement of water will allow us to take advantage of a great and cheap power source to move water gravity.

All of these systems have advantages and disadvantages. These should be kept in mind when developing any system.
Gravity Systems

Gravity systems alone are limited in their use. In many cases, the “fall” or drop in elevation simply will not allow the use of such a system. If we only move the cattle a matter of a few feet from the stream edge, we have effectively not moved the water. This lack of movement will allow for the waste buildup around a watering station to simply run back into the stream following any significant rainfall. These systems work best in hilly or mountainous areas where springs emerge at high spots on a hill or mountain. This allows for the movement of water a relatively long distance from the stream.

Ram Systems

Ram pumps were once the “new kids on the block” but have fell out of favor in many area. These pumps were originally heralded as the saviors of the alternative water movement. Maintenance and upkeep of these systems along with the higher than realistic claims of amounts of water moved have caused most producers to discount this method of moving water. While these pumps do have a place, most water professionals will discourage their use due to maintenance problems.

Solar Powered Systems

Solar powered systems are relatively new in the alternative water arena. Cost of these systems has tended to be prohibitive in their adoption. In the last few years, technology in the form of low-cost solar panels and solar tracking systems have fallen to the point that they are becoming more economically viable. These systems utilize energy from the sun to do the work of moving water.

In solar driven systems, water is typically collected from a spring into a reservoir and then pumped to a high spot on the farm and gravity fed from there. This allows for more flexibility in placement of watering stations further from the water source. This movement of water leads to better forage utilization and animal performance.

The disadvantage of these systems is the possibility, especially in Winter, of periods of low light resulting in lower amount of water being pumped. The development of better panels and pumps has decreased the problems from this area. Cost has also typically been a problem with the high initial cost causing “sticker shock” in many producers’ minds.
Electrical Powered Systems

Electrical pumping systems are essentially the same as solar based systems, but they do require a source of electrical current to function. In many cases this is not a problem, but in remote areas it can be a problem. These systems do, however, allow for pressurized lines and troughs which allow the most flexibility in designing a grazing plan. The maintenance and worry about loss of power are the main drawbacks to these type systems. There is also a monthly charge that must be factored into the economics of implementing this type system.

Why Do We Need Alternative Watering Systems?

The answer to why we need alternative watering systems is not a simple one. It can be looked at from many different aspects ranging from the purists view of improving water quality to a view of improving efficiency of beef operations. The answer, in my opinion, is a mixture of both views. We have a responsibility to protect our natural resources and we should always strive to improve our production efficiency. A well designed system can accomplish both objectives. Perhaps the best way to answer this question is to present some case studies where natural resource and economic factors were considered. These studies follow.

Goldwasser Farm

This project was begun in 1979-1980, and the situation was as follows:

⇒ 38 acres of pasture
⇒ Broomsedge, briars, and unused grass due to “spot-grazing”
⇒ Grazing available 150 days/year
⇒ Erosion estimates of 9+ tons/acre/year
⇒ Sediment, bacteria, and nutrients leaving site

Alternative Water System Installation and Controlled Grazing Adopted

⇒ 38 acres of pasture
⇒ Less undesirable plants such as briars, etc.
⇒ Grazing available 180 days/year
⇒ Erosion estimates of 2 tons/acre/year
⇒ 78% reduction in sediment, etc. leaving site
Boyer Farm
This project was begun in 1986-1987, and situation was as follows;

⇒ 30 acres pasture
⇒ 22 cows
⇒ Marketing 22 calves/year, avg. weaning wt. Of 543 lbs.
⇒ Erosion estimates of 15 tons/acre/year
⇒ Sediment, bacteria, and nutrients leaving site

Alternative water system installed and controlled grazing adopted

⇒ 30 acres pasture
⇒ 33 cows
⇒ Marketing 33 calves/year, avg. Weaning wt. Of 600 lbs
⇒ Erosion estimates of 3 tons/acre/year
⇒ Less sediment, bacteria, and nutrients leaving site

Economic Analysis
The economic analysis on the above two farms revealed many surprising facts. The first is the utilization of a grazing system where the cattle are better utilizing the forage resources available. For the Goldwasser farm, the addition of water and better utilization of forage resources resulted in an income increase of $94/acre/year. This calculates to $3572 in added income for the beef producer. For the Boyer farm, the addition of water and better utilization of forage resources resulted in an income increase of $110/acre/year. This calculates to $3300 in added income. As you can see this is a drastic amount and it does not include the benefits for stream health in dollar form. This answers the “why should we” question pretty emphatically. An interesting side note is the fact that on one farm, the cattle were not excluded from the stream. The healthy stream effects were seen anyway. This is due to the cattle willingly not going into the stream, they preferred the water in the trough to the stream water.

How Do We Develop Alternative Watering Systems?
This question is not as simple as it first appears. As stated earlier, any good system must be designed and implemented for the specific farm for which it is intended. The first step is to evaluate the water resources available. If they are all in low areas, decide how to move the water up and away from where it is. This is done through the use of some sort of pump
Once again, as is deemed appropriate by the situation. If the water source is located “high up,” gravity can be used. Once the water is moved up, gravity can be used from there back down to creek level where excess water is returned. Expertise can be found from many sources such as Extension Agents, NRCS Personnel, or other producers.

In most cases, the water would be collected in a reservoir and the cattle excluded from the source, regardless of the system called for. In some cases, the source if a spring can be fenced out fairly easily. In other cases, only one side of the source can be fenced. Cattle, if given the choice, will not return to the creek or stream, preferring to drink from the trough provided. This is due to fresher and cleaner water. In this situation, less sedimentation, nutrient loss, and bank erosion occurs leading to better water quality and improved environmental views of beef producers by the public and environmental advocates.

**How Much Does It Cost To Install Alternative Water?**

Cost for the systems depends on type of system, amount of water needed, how far it must be pumped, and type of movement (gravity, ram, solar, or electric) system. Typical cost is in the $5000- $7000 range, but could be more or less depending on the previously mentioned factors. In the long run, this would be a small price to pay in order to receive the benefits of cleaner water and better animal performance. This, also, could lead to more farmer-friendly environmental regulations.

The initial cost can be prohibitive, but there are programs available to help offset the costs. Also, the expected life-span of these systems are at least 20 years so the cost could be spread over that length of time resulting in a minimal cost per year. In most cases, the increased income from the animal performance would pay for the system in a very short period of time.

**What Does It Mean To Me?**

This question should have been answered in the discussion above. The economic benefits are very substantial. The more farmer-friendly legislation could be the difference between being in the beef business or forced out by environmental regulations. The benefits received from better natural resource use and protection are essential to allow for the future of production agriculture. So what does it mean to you? Only the future of agriculture and the continued supply of wholesome, safe, and economical food. Are those things important enough to you to make this effort:? I think so.