

Spring Developments

As spring developments have become a very popular conservation practice, they should be considered during any giving year because they provide numerous benefits for livestock producers.

Benefits of Developing a Spring

- Dries up the area and prevents livestock from denuding and possibly damaging the natural spring
- Can provide clean, fresh and cool water 24 hrs/day
- Provides another source of water and may keep livestock from entering a stream or pond as frequently
- Reduces the demand on a well, especially during drought years
- In most developments, no electricity is needed

Developing a spring can be broken down into 3 basic steps: collecting, distributing and storing.

Collection

Collecting a spring is usually the most challenging step in developing a spring. The method and size of collection differs from site to site and depends on the number, type and location of the seeps. However, most collection systems consist of approximately 50'-100' of 4" perforated plastic tubing buried about 24" below the ground surface. This trench is back-filled with at least 6"-12" of #57 gravel over the 4" tile. To prevent the spring water from escaping past this tile, a "cutoff wall" is placed on the downhill side of the tile trench. The placement and type of cutoff wall will vary depending on the site. Usually it consists of compacted clay approximately 12"-18" thick with a heavy plastic on the upper face of the clay, but sometimes concrete may be needed if suitable clay is not present on site. The 4" tile is then connected into a "spring box," which usually is an ODOT concrete box (catch basin) or a 3'-5' section of clay or double-walled plastic pipe that is buried or vertically into the ground, with one end remaining above ground to serve as an inspection point. The spring box also provides a basin to help filter and clean out any sediment that may be carried through the collection system.

Distribution

Out of the spring box, black plastic waterline (120 psi) or PVC pipe (#40) of the designed size is run to the specified stock tank site. Pipe sizes will range from 1" to 2", depending on the amount of fall in the line and the available flow coming out of the spring. A general rule of thumb for grade on a pipeline is approximately 6" of fall per 100 feet of line. Minimum cover over the line is 30"-36", but may be less around the spring box or stock tank and PVC pipe is recommended in these areas.

Storage

The final step to completing a spring development is determining the size and type of storage system or the stock tank. The tank shall be of adequate size and be durable to withstand the type of animals that will be using it. The tank shall be large enough to supply the animals with at least 50% of their daily water consumption. For example, the average beef cow drinks 12 gallons of water per day. If 50 head of cattle are present, the required tank size would be 300 gallon. Often times, producers see the benefit in additional storage and will go ahead and install a larger tank, usually 500 gallons. Producers are encouraged to use concrete tanks, preferably with the tapered inside to prevent solid freezing and possible busting of the tank, but other permanent types of tanks may be considered suitable. Finally, from the stock tank, an overflow should be provided to allow the continuous flow of the spring to be placed into a suitable outlet (i.e.: ditch, existing tile or another spring tank).

Maintenance

After developing a spring, minor maintenance guidelines shall be followed to insure the spring remains functioning adequately for the livestock:

- Fence livestock from the seep area if they continue to disturb the collection area once it is developed
- Keep trees/brush from the collection area because they will consume some of the water and roots may possibly plug up the collection system
- Clean out the spring box if it begins to fill with sediment
- Continually check the tank for leaves, algae buildup or mud and clean as needed

If you would like assistance or guidance on whether your spring is feasible for developing, please contact us and we would be more than willing to evaluate it with you.