

## **Low Volume Irrigation, September 2-8**

Efficient irrigation is one of the key Earth-Kind practices for conserving water in the landscape. Low volume irrigation systems (sometimes referred to as drip or trickle irrigation) are among the most effective means of achieving significant water savings. Despite the tremendous potential for water conservation and foliar disease prevention, these systems are not widely used in residential landscapes. Like conventional overhead irrigation systems, low volume systems require proper design, installation, maintenance, and operation for optimum water savings and plant performance.

Like all types of irrigation systems, if not operated properly, low volume systems can be wasteful and ineffective. A thorough understanding of the landscape's soil/plant/water relationship is critically important in determining how much water should be applied at each irrigation. Remember, a deep soaking of the entire root zone is recommended to prevent shallow roots and to increase drought tolerance.

One of the most important benefits of low-volume irrigation is the potential to reduce or eliminate water waste. Low-volume systems do an excellent job of applying water to meet specific plant needs. The rate of application also more closely matches the soil's infiltration rate, and water is directly applied to the plant root system to maximize water use efficiency and reduce loss through evaporation. Since water is directed exactly where it is needed most, very little is wasted on the areas between widely spaced plants, or on sidewalks, streets, and driveways.

### ***Some Common Low Volume Irrigation Systems:***

**Soaker Hose:** A soaker hose is one of the most basic means of applying supplemental irrigation to the landscape. Small holes in the hose provide a low volume of water which "soaks" into the soil. A soaker hose can be moved to various locations within the landscape, or it can be left in a more permanent location and pressurized by a regular garden hose as needed.

**Porous Hose:** A porous hose is very similar to a soaker hose. However, its unique construction material enables the entire hose to deliver irrigation water. These systems are frequently used in landscape beds and are also used in sub-irrigation systems for turfgrass. A porous hose can be an effective means of providing water to the landscape, however, the delivery rate can be somewhat variable in areas that are not level.

**Drip:** Drip systems typically use plastic pipe or tubing to deliver water to a small drip emitter. Emitters come in a variety of sizes, shapes, and specifications while some are embedded into the tubing. Most are rated in gallons per hour, making it relatively easy to determine how much water is being applied at each irrigation. Drip emitters can be spaced evenly along the delivery pipe or clustered at specific locations around plants. Drip emitters with pressure compensation and backflow prevention provide optimum control over the volume of irrigation water supplied.

The use of a high-quality low-volume irrigation system is one of the most valuable Earth-Kind practices available for conserving water in the landscape. These systems are typically low cost, easy to operate and relatively maintenance free so I take full advantage of them. To read the “Low Volume Irrigation” publication in its entirety or for more information on Earth-Kind landscaping, visit the Aggie Horticulture website.



*Image caption: Drip irrigation conserves water and prevents foliage diseases.*

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## Hay Considerations During these Difficult, Dry Times, September 9-15

As you know most of East Texas is currently experiencing an exponential drought. Pasture conditions are poor and hay production has been minimal. Hay buying to fill the shortfall has begun in earnest.

Let's take some time and put hay purchasing decisions on equal footing. We'll examine how to price hay equally by weight. When buying hay, I know too many producers that ask about the size of the bale without knowing anything about the weight or its quality.

It should be stated that folks that buy hay 'by the ton' are already where we should be. When you purchase hay by the ton then one really does not care what size the bale is. If you stack a flatbed trailer with 4X4's or 5X6's, purchasing by weight is the smartest way to go.

Thus, for the many cattlemen still buy hay by the bale, it seems a nearly impossible task to eyeball a bale of hay and determine the quantity and quality of hay that's within it. To make it more difficult, you must match the asking price to the other prices for hay that match loosely by bale size. It truly is a daunting task.

To help us get a better idea of the volume of hay in a bale, let us use some basic equations that we learned in geometry in high school. A round bale is nothing more than a cylinder. The volume of a cylinder is measured as 3.14 times the radius squared times the height of the cylinder ( $V = \pi R^2 \times H$ ). If we apply that to a 4X4 bale of hay, we come up with a volume of 50.27 cubic feet. If you take that same formula and apply it to a 5 by 5 bale of hay, then you come up to 98.18 cubic feet. Surprisingly, a 5X5 bale is indeed double the volume of a 4X4.

For those who are interested and the remainder of the common bale sizes, here are the basic bale sizes: 4X4 = 50.27

4X5 = 78.54

4X6 = 113.10

5X5 = 98.18

5X6 = 141.37

Research from several universities and commercial sites say that hay density can vary from 9 to 12 pounds per square foot. In the bales I have examined, I have seen a very loose bale of hay at just under 9 lbs. per square foot and others as high as 11 lbs. per square foot. But for

simplicity, I'm going to assume a density of 10 lbs per cubic foot. At 10 lbs/square foot, a 4X4 would be about 500 lbs. and a 5X5 would be just under 1,000 lbs., coming in around 980 lbs.

Even with the assumptions above, using a good set of public scales would be an excellent choice. At a national gas station chain in our town, the first time across the scales to get the weight is \$13.50 and the next time is just \$4. So for less than a \$20, you can take a full load of hay and then an empty load of hay. Take the difference between the two weights and divide by the number of bales. You'll then know the average weight of the bales. Bonus tip, fill up your gas tank before each weight to eliminate any error caused by the fuel weight.

Not convinced? We'll take a hard look at a \$60 bale of hay. If it is a loosely wrapped 4X4, then you could be spending \$0.13 per pound. But if was a tightly baled, 5X5 round bale, you could end up with an investment of \$0.06 per pound of hay.

And finally, let's look at this another way. If you are confident that the \$60, loosely wrapped (at 9 lbs. per square foot), 4X4 was a good purchase, then you could also justify spending \$140 on a tightly wrapped (at 11 lbs. per square foot), 5X5 bale. Run the math for yourself.

Cattlemen run a business with incredibly tight margins. I tip my hat to those who do well year after year with increasing input costs and facing unpredictable weather. Let the numbers above prod you and encourage you to make wise decisions as we continue to wait for rain.



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**Sunflowers, September 16-22**

Sunflowers are one of the most recognizable flower species. From wild sunflowers growing in roadside ditches to cultivated sunflower fields, nothing makes people smile more than these tall vibrant flowers.

Sunflowers come in a variety of colors and sizes but surprisingly all sunflowers, from wild ones to improved garden varieties, all are one species. There are hundreds of varieties of sunflowers, but they all originated from the annual sunflower (*Helianthus annuus*). Annual sunflowers are the wild sunflower you see growing in roadside ditches and pastures across Texas, most of the U.S., southern Canada, and Mexico. Sunflower anatomy is unique. When you look at a large sunflower head or what is technically called inflorescence, your first thought is a sunflower head is one flower. However, a sunflower head is made up of hundreds of individual flowers. The head consists of two types of flowers, ray flowers and disk flowers. Ray flowers produce the colorful petals you see around the edge of the sunflower head. Disk flowers are in the middle of the ray flowers and will bloom from the outside to the center of sunflower head. After the flowers bloom, they will mature to produce sunflower seeds. In other words, every seed is the product of each individual disc flower.

Improved sunflower varieties are divided into two categories, oil seed and confection. Oil seed sunflowers are used to produce sunflower oil or for bird seed. Sunflower oil is very healthy and low in saturated fats and is used in a variety of food products. Black peredovik is an oil seed sunflower variety that is commonly used for wildlife food plots. Confection sunflowers produce large seeds on large heads. Black strips are present along seed coat. Confection sunflowers are primarily grown to be roasted.

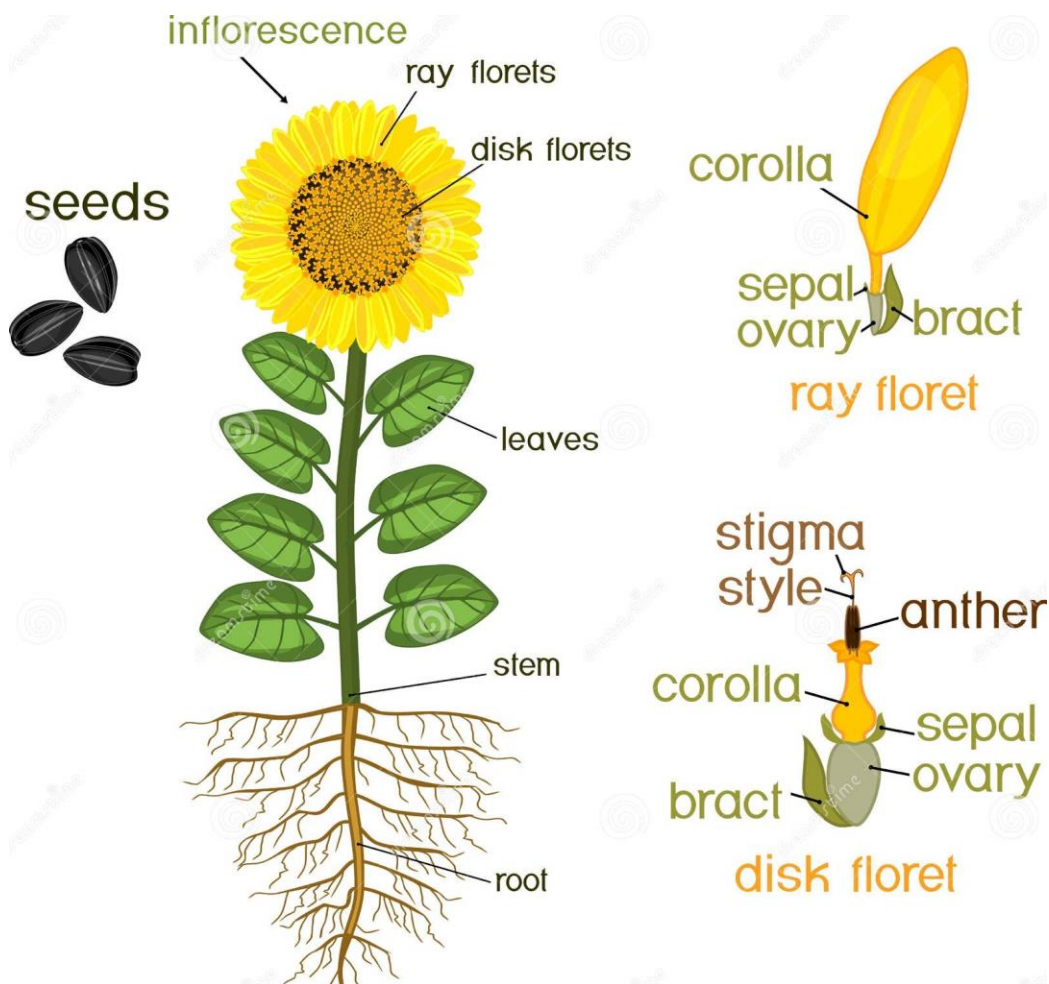
If you wish to grow sunflowers, select a site that will receive full sun and has well drained soil. Sunflowers prefer soils that are slightly acidic. Sunflowers can be grown by direct seeding seeds and seeds should be planted 6 inches to 1 foot apart depending on variety. Sunflowers are drought tolerant and generally require minimal supplemental watering in east



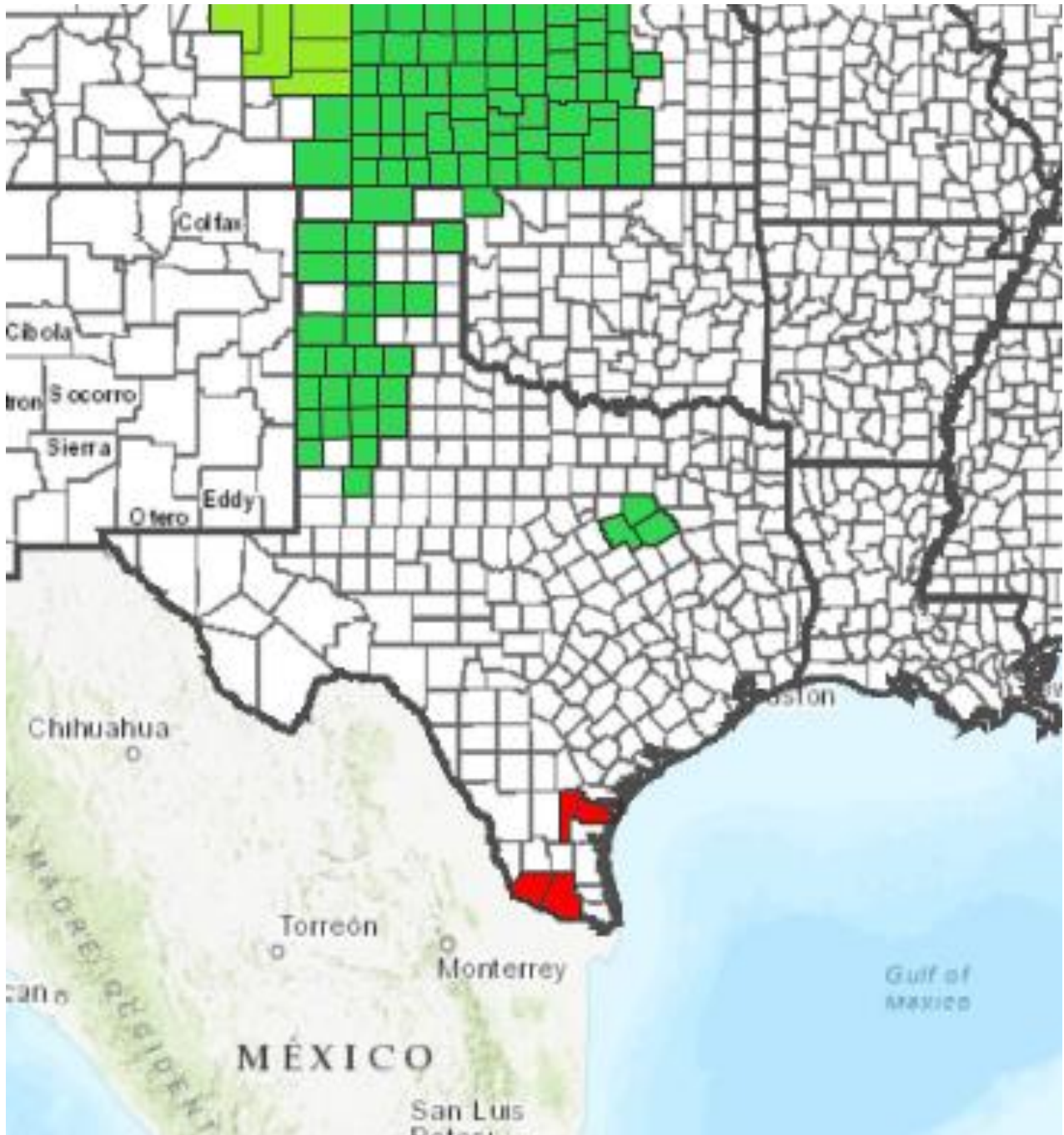
Texas. Wildlife can be an issue when growing sunflowers from birds to squirrels that tend to make a meal out of the seeds.

Kansas is famous for being the sunflower state. So, you would think Kansas would produce more sunflowers than in other state. Shockingly, Kansas, which produces 45 million lbs. of seeds, is sixth in sunflower production behind North Dakota (1.4 billion), South Dakota (1.1 billion), Minnesota (174 million), Texas (61 million), and Nebraska (46 million). In Texas, the major sunflower production region is the high plains around Amarillo and Lubbock. Sunflowers are also grown in Hillsboro region south of Dallas and Valley of South Texas. Sunflowers are harvested like other grain crops such as corn and wheat using a combine. However, a specialty header is needed on the combine to harvest sunflowers.

Sunflowers are possibly one of the most recognizable flowers. While sunflowers vibrant colors are popular for adding color to landscaping, they are also an important food source for wildlife and an important economic crop for Texas.



*Sunflower Anatomy*



*Major sunflower production counties for Texas are highlighted in green and red*

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## **Feral Hog Control At Deer Feeders, September 23-29**

Deer season is quickly approaching, and deer fever is beginning to take hold amongst hunters. From a hunter's point of view there is nothing better than watching the first light wake up the woods on a crisp fall morning. During this time, hunters look intensely into the woods for the horns of a trophy buck or listen for deer moving through the brush. However, this almost magical moment is routinely ruined by the grunting and breaking of branches of wild hogs tearing through the woods towards your deer feeder, likely running your chances of seeing a trophy buck during that hunt.

As any hunter knows, wild hogs are attracted to deer feeders and are a nuisance. Not only can they ruin your deer hunt, but they can cause damage to feeder legs and create a wallow that holds water making a muddy mess under your feeder. There are also other environmental impacts caused by wild hogs including habitat destruction, disease vectors, and predation of eggs of ground nesting birds. So, what can be done to prevent wild hogs from being attracted to your deer feeder? Research has shown that an effective exclusion fence can be built around your feeder that can keep wild hogs out, but allow deer in.

Should be of note that some hunters do want to attract wild hogs as they enjoy hunting them and the option of harvesting wild hogs for meat. If a hunter wishes to hunt wild hogs, but also wants to exclude wild hogs from feeders there is an option. A hunter could set up one feeder without an exclusion fence to hunt wild hogs and build exclusion fences around other deer feeders to hunt deer. However, this option will still attract wild hogs to your hunting property, and you must consider the other negative environmental impacts of wild hogs on your property.

Building an exclusion fence around a deer feeder is relatively simple. First you need to determine the height of the exclusion fence. Panel height of 28 or 34 inches tall will keep wild hogs out, but allow deer in. However, fawns may not be able to jump over a 34 inch tall panel. If constructing a 34 inch tall fence, 28 inch tall slots can be cut into the panel to allow fawn access. The following materials and tools are needed for a 28 inch tall fence. You will need three 60 inch by 16 foot utility panels, twelve 5-foot T-posts, wire clips, T-post driver, fencing pliers, and bolt cutters.

Steps to build the fence: 1. Use the bolt cutters to cut each panel length-wise exactly in half. 2. Place the utility panels end to end to form an approximately 28-foot-diameter circle around the feeder. Overlap the ends by one 4-inch square and push the cut end into the ground. 3. Fasten the ends together with wire clips. 4. Position the fence so the feeder is in the middle of the circle. 5. Drive steel T-posts on the inside of the circle in the middle of each panel



and where they overlap. 6. Fasten the T-posts to the panels with wire clips. Make sure the panels are flush to the ground and leave no gaps that hogs might dig under.



*Feral hog exclusion fence around deer feeder. Image Credit: Agrilife Extension*

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**Bluestems: The Good, The Bad, And The Ugly, September 30 - October 6**

If you have ever attended any lecture or workshop on wildlife management, you have likely heard that bluestem grasses are important for wildlife. However, not all bluestems are created equal and in fact many of the grasses we call bluestems are not even related to each

other. Many landowners are unaware of this difference and believe all bluestems are created equal.

If you are managing your property for wildlife such as ground nesting birds, you should strive for “good” species of bluestem which can include big bluestem (*Andropogon gerardii*) and little bluestem (*Schizachyrium scoparium*). Little bluestem and big bluestem can both provide excellent cover for ground nesting birds and are good forage plants for livestock. These two grasses when managed properly can provide cattle up to 4,000 lbs. per acre dry forage a year. Big bluestem is easily recognizable by its turkey foot seed head. During early summer, little bluestem crude protein levels can reach 8-9 percent but can become as high as 12 percent. Both grasses produce culms or seed heads during late summer and fall. Here in east Texas, a unique variety of little bluestem called pinehill bluestem has become adapted to the sandy hills commonly found throughout our area.

The next species of bluestems may be called the “bad” species as they generally have less wildlife value, do not produce as much forage, and are rated poor for livestock grazing value. These bluestems are bushy bluestem (*Andropogon glomeratus*), splitbeard bluestem (*Andropogon ternarius*), broomsedge bluestem (*Andropogon virginicus*), and silver bluestem (*Bothriochloa laguroides*). Distinct from the rest of this group, silver bluestem is rated as being fair grazing for livestock. As a land manager you should obviously strive for the “good” species of bluestems. But sometimes you must work with what is present on the site and should strive for performing good wildlife habitat techniques and not worrying about the presence of “bad” bluestems. Typically, these “bad” bluestems are found more on disturbed sites, waste sites, old crop fields, overgrazed pastures, invading hay fields, and clear-cut sites.

Lastly, is the “ugly” bluestems and one species claims this title; King Ranch or KR bluestem (*Bothriochloa ischaemum*). KR bluestem is invasive, can outcompete our native bluestems, and has a lesser value to wildlife than the “good” bluestems. Sadly, eradication options require intensive management, is expensive, and can still fail. Prescribed fire typically used to promote growth of “good” bluestems will not have any negative impact on KR bluestem stands. It should be noted KR bluestem is rated fair in value for livestock grazing.

After reviewing the bluestems, you may feel overwhelmed with ID and distinguishing between the good, the bad, and the ugly. Most of these species are easily recognizable with a little practice and sample grasses are available at the extension office for your reference.



Little Bluestem



Bushy Bluestem



King Ranch Bluestem

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