

# Palo Pinto County Agriculture and Natural Resources Newsletter



**Fall 2018**

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## **UPCOMING PROGRAMS**

- **October 10, 2018 - North Texas Cattle Clinic at Expo Center in Graham, TX 8:30 a.m.**

### **GROWING A FALL GARDEN**

So you want to grow garden fresh vegetables this fall. Where do you start? Simply looking at seed packets in catalogs or local nurseries will not get the job done. One must garden smartly if economical production and utilization are expected.

Once the decision to have a fall garden has been reached, a gardener must take action--drastic action. One must pull out some of those plants that have been nurtured from "babies" in the spring to monsters now. This takes courage and faith! It is recommend that all plants, weeds included, be removed except okra, cherry tomatoes and pole beans if the foliage is healthy. Large-fruited tomatoes may have some small ones still hanging on, but unless you have at least 20-25 good-sized fruit, pull them out--make green tomato relish or chow-chow. If you recall, the largest, best tomatoes you had this spring were the first ones produced. The tomato plant has gotten old, diseased, and damaged by insects; it will never produce an abundance again. Besides, it is too large to be manageable as far as insect and disease populations are concerned. Pull the old plants up and discard them. Give them to the garbage man. Don't try to compost insect and disease-ridden plants--spider mites don't compost!

Then, determine where to put the garden. If you are an "ole timer," you may need to think in terms of garden relocation. The major consideration for garden placement is sunlight. All vegetables require some sunlight; the most popular vegetables require full sun. "Full" sun means at least 8 hours of intense, direct exposure. If such exposure is not received by crops such as tomatoes, peppers and squash (vegetables that contain seed), the plants grow spindly, they have weak stems, drop blooms and are generally nonproductive. Shade in the afternoon (after 3 p.m.) is wonderful; shade in the morning is acceptable. There are vegetables which produce passably in the shade. Generally, those crops such as greens, broccoli, cauliflower, root crops (carrots, turnips) which do not produce a fruit with seed will yield sparingly in semi- shaded areas but even these crops will do better in a full sun condition. Crops such as tomatoes, peppers, squash, beans and cucumbers may not produce anything if grown in the shade; plants will grow tall and spindly. The production potential of the garden's most popular vegetables depends solely on the amount of direct sunlight they receive.

Some gardeners believe shading is beneficial, but remember that commercial vegetable producers never shade crops. Use shade-tolerant crops for planting between larger growing vegetables such as tomatoes. During the early establishment period of a crop such as tomatoes, leave several feet of vacant space between transplants in which short, fast-maturing, shade-tolerant vegetables can be produced.

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Do not locate the garden within 6 feet of hedges, shrubs or trees. Not only do these larger, more permanent plants compete for light, but they also gobble up nutrients and water necessary for healthy vegetables.

If a new garden site has been selected and it was previously covered with grass, this turf **MUST** be removed. Don't think that you can dig or till this existing grass into the garden soil and get rid of it. Even a well-tilled, pulverized garden soil will contain enough bermuda grass sprigs to cause troubles for years to come. New garden areas are doomed before they begin if all bermuda and other lawn grass is not completely removed **BEFORE** tillage begins. If a raised garden is being considered, sod should be removed **BEFORE** additional soil is put into the prepared frame.

What about chemicals which might be applied to the grass to kill it rather than pulling it out? Yes, you're in luck! There are several brand names which contain the weed and grass killer glyphosate. These include Roundup and Kleenup - - check ingredients on label for the term "glyphosate" and follow label instructions for application rate.

Once the sod has been removed, the garden area should be shoveled to a depth of 10-12 inches. Rototillers, when used in a new garden area, will not penetrate adequately. Rototillers can be used to loosen and mix shoveled areas. Apply 1 to 2 inches of coarse (sharp), washed sand and 2 to 3 inches of organic matter to the garden site surface and incorporate to improve the soil's physical quality. The soil's physical condition will have to be altered over a period of time rather than trying to develop desirable soil in a season or two. If you are making the effort to build a raised bed garden don't skimp on the soil which you put into it.

The addition of fertilizer is the next step. You have two options. You can add only one pound of ammonium sulfate (21-0-0) per one hundred square feet (10 feet by 10 feet) and use ammonium sulfate every three weeks at the rate of one tablespoon sprinkled around each plant and watered in as a sidedress application for hybrid tomatoes and peppers. The second fertilization choice, and probably the one which will result in a more abundant harvest, is to use 2-3 pounds of a slow release fertilizer (19-5-9, 21-7-14, 25-5-10) per 100 square feet of garden area. Even if slow release fertilizer is used, It is still recommend to use ammonium sulfate (21-0-0) every three weeks at the rate of one tablespoon sprinkled around each plant and watered in as a sidedress application for the super productive hybrids. Horse or cattle, never fowl in the fall, manures may be substituted for commercial fertilizer and used at a rate of 60-80 pounds per 100 square feet of garden area.

After all ingredients have been added, mix the soil thoroughly and prepare beds on which to plant rows of vegetables. These beds should be 30-36 inches apart to allow for easy movement through the garden area when plants get larger. Pile and firm the planting beds then pre-irrigate the entire garden area by wetting with a sprinkler for at least two hours. Allow the area to dry for several days and it will be ready to plant.

When growing tomatoes and peppers, it is easier to use transplants. However, the use of transplants alone does not insure bountiful, precocious fall production. What must be accomplished is rapid establishment of fall transplants. As hot and dry as the weather has been, some people think that transplanting is risky. Transplants **WILL** survive hot temperatures and full sun IF adequate moisture is available to the plant. "To the plant!" is the key phrase. Transplants in peat pots or cell packs with restricted root zones require at least two weeks to sufficiently enlarge their root systems so that active growth can begin. Until that time, gardeners must provide adequate, daily moisture or the transplants will either die or stunt to the point that fruit maturity will be delayed. Delayed maturity is what we need to avoid!

Daily moisture should be provided on an individual basis to transplants. Depressions or basins around each transplant can be filled daily, or as needed depending on the soil type, with water to provide the necessary wetting or a drip irrigation system can be installed. Too much water, i.e., keeping roots soaking wet instead of moist, will cause root rotting and subsequent transplant stunting or death.

A transplant with a larger root system which can be easily watered will be helpful. Such a large root system will spread faster, have access to more water and will support an older plant which has the potential of producing more fruit, sooner. Fall-recommended tomato varieties such as Bingo, Merced and Celebrity can be purchased in a large transplant form with larger root systems in mid to late August. You can also purchase smaller, peat pot or cell pack transplants and grow larger transplants yourself. This simply involves the use of potting mix, Osmocote slow-release fertilizer pellets to be evenly mixed into the potting mix, a water soluble fertilizer to water the enlarging transplants every time moisture is required, a gallon pot or container, and full sun (afternoon shade after 2 p.m. preferred) location free of pests (kids, dogs, etc.) for a 30 day length of time. If you have all of these elements and won't over water the containerized plants, **GROW YOUR OWN.**

Surefire, Heatwave, Bingo, Merced and Whirlaway are the best, highest quality varieties available but they are also the highest maintenance (proper watering, periodic fertilization, pest control). For those who don't want to take the challenge of growing the above mentioned high maintenance varieties, Carnival and Celebrity, are recommended. The main advantage of growing Bingo, Merced or Whirlaway in the fall is their firmness of fruit and ability to develop a deep red color if harvested green to avoid freeze damage. Surefire and Heatwave are the only tomato varieties which will set flowers and fruit during the heat of September and are thus the earliest maturing tomatoes of a fall planting. The fruit size of Surefire is dependent upon cultural techniques used to grow the plant but it is the longest storing of any tomato variety on the market. The best bell pepper, Summer Sweet 860, is also available in local nurseries.

Of course, since bell peppers are eaten in an immature state, i.e., when they are green before turning red or yellow (860 is a yellow-when-mature variety), the urgency of planting is not as critical.

Of course larger transplants will cost more but the ease of establishment may be worth the extra funds. In fact a recently completed Texas A&M study confirmed that just two of the larger transplants, even though they were more expensive initially, significantly out yielded six of the smaller, cheaper transplants which died (were killed!) after planting. Certainly you believe the Aggies; don't you?

Proper timing is probably the most important factor in successful fall gardening. Regardless of variety selected or cultural practices used, if a gardener does not do the right thing at the right time, any chances of success are diminished.

Remember these are "average" planting dates for each region.

With these dates in mind, a gardener can decide which frost-susceptible vegetables to plant, when to plant and whether to use transplants or seeds.

Fall vegetable crops are categorized as long-term and short-term crops. Duration of these crops is dependent upon when the first killing frost occurs and the cold tolerance of the vegetables.

Plant long-term, frost-tolerant vegetables together. Frost-tolerant vegetables include beets, broccoli, Brussels sprouts, cabbage, carrots, cauliflower, chard, collards, garlic, kale, lettuce, mustard, onions, parsley, spinach and turnips.

Plant short-term, frost-susceptible vegetables together so that they can be removed after being killed by frost. Frost protection and the planting of a cereal rye cover crop are facilitated if such a grouping system is used. Frost-susceptible vegetables include beans, cantaloupes, corn, cucumbers, eggplants, okra, peas, peppers, Irish potatoes, sweet potatoes, squash, tomatoes and water-melons.

Keep in mind the relative maturity rate, average height (in feet) and frost sensitivity of the crop of various garden vegetables with FS meaning frost-susceptible crops which will be killed or injured by temperatures below 32 degrees F. and FT meaning frost-tolerant crops which can withstand temperatures below 32 degrees F.

The quick (30-60 days) maturing vegetables are: beets (1 1/2 feet) FT; bush beans (1 1/2 feet) FS; leaf lettuce (1 foot) FT; mustard (1 1/2 feet) FT; radishes (1 1/2 feet) FT; spinach (1 foot) FT; summer squash (3 feet) FS; turnips (1 1/2 feet) FT; and turnip greens (1 1/2 feet) FT.

The moderate (60-80 days) maturing vegetables are: broccoli (3 feet) FT; Chinese cabbage (1 1/2 feet) FT; carrots (1 foot) FT; cucumbers (1 foot) FS; corn (6 feet) FS; green onions (1 1/2 feet) FT; kohlrabi (1 1/2 feet) FT; lima bush beans (1 1/2 feet) FS; okra (6 feet) FS; parsley (1 1/2 feet) FT; peppers (3 feet) FS; and cherry tomatoes (4 feet) FS.

The slow (80 days or more) maturing vegetables are: Brussels sprouts (2 feet) FT; bulb onions (1 1/2 feet) FT; cabbage (1 1/2 feet) FT; cantaloupes (1 foot) FS; cauliflower (3 feet) FT; eggplant (3 feet) FS; garlic (1 foot) FT; Irish potatoes (2 feet) FS; pumpkins (2 feet) FS; sweet potatoes (2 feet) FS; tomatoes (4 feet) FS; watermelon (1 foot) FS; and winter squash (1 foot) F.

## **PECANS AS A HEALTH FOOD**

A high dietary intake of saturated fats has been linked to arteriosclerosis and coronary disease. Arteriosclerosis is a process in which fatty substances, especially cholesterol and triglycerides are deposited in the walls of medium-sized and large arteries. Cholesterol in blood is transported in combination with specific aggregates of lipids and proteins called lipoprotein. Normally, most cholesterol is carried in low density lipoprotein (LDL), and is a significant risk factor for coronary heart disease. Other plasma cholesterol is transported in high-density lipoprotein (HDL). Research indicates when HDL cholesterol is high, coronary heart disease risk is lowered.

Saturated fats have been shown to increase plasma cholesterol and LDL levels. Plasma cholesterol can be reduced by twenty mg/dl by reducing the consumption of saturated fats from 17 to 10 percent of the total calories in the diet.

One would think that the more unsaturated a fatty acid is, the healthier it would be because it would reduce the plasma cholesterol. However, this is not necessarily the case. Consuming mostly polyunsaturated fatty acids tend to reduce levels of both LDL and HDL, while research indicates that consuming mostly monounsaturated fats tend to reduce only LDL.

The definitive work by Grundy measured the plasma LDL and HDL after four weeks on a liquid diet containing 40% fats from palm oil (saturated fats), high oleic safflower oil (monounsaturated fats), or high linoleic safflower oil (polyunsaturated fats). The poly and monounsaturated fat diets had equal effects on lowering plasma LDL. However, the polyunsaturated diet lowered plasma HDL more frequently than did the monounsaturated diet.

Grundy also compared a high monounsaturated fat diet that contained 40% fat and 43% carbohydrates and a low fat diet that contained 20% fat and 63% carbohydrates. Both diets lowered total plasma cholesterol. The monounsaturated diet lowered LDL by 21% compared with the low fat diet which lowered LDL by 15%. The low fat diet also raised the plasma level of triglycerides and lowered HDL, while the monounsaturated diet had no effect on either of these. Thus, the monounsaturated diet may be as effective as a diet low in fats and high in carbohydrates.

Pecan nuts contain about 65 to 70 percent oils. Approximately 65% of the oil of fresh pecans consists of oleic and 26% linoleic fatty acid. Our laboratory has consistently found high quality 'Desirable' pecans to have as much as 74% oleic.

Preliminary work indicates that there are different oleic/linoleic ratios consistent with different native pecan populations in the Colorado, Brazos and Guadalupe River bottoms. Discovery of a population high in oleic acid would be a major break-through because such germplasm could become a vital part of pecan breeding.

The pecan research team at Texas A&M University has identified a native pecan in Freestone County, Texas that has an oleic content comparable to that of olives. This native from Freestone County has been placed in the USDA Germplasm Repository as breeding material. Work should be undertaken to learn the inheritance pattern of the oleic/linoleic ratio in pecans. Future breeding procedures could be developed that would lead to higher quality nuts.

Pecans contain oil that compares very favorably with oil from other oil seed crops. These oils were purchased from a local grocery store and run through a gas chromatograph. The expeller pressed pecan oil came from a retail supplier in California. The low oleic content, compared with our own cold pressed nuts, indicates that the expeller nuts had probably been out of storage so long that they had lost much of their quality through oxidation of the monounsaturated fatty acids to polyunsaturated fatty acids and smaller carbon fragments. If the pecan oil industry is to evolve into a viable industry much more consideration should be given to the quality of the oil stock.

Only olive and canola oils compare favorably with high quality cold pressed pecans. Pecan oil could be marketed competitively with olive oil, but canola oil is lower in price. Pecan oil is now consumed as a part of the nut and it is delicious. In the future it could be marketed as a salad oil because the pecan flavor in the oil could make it more popular than less flavorful oils. A long term objective would be to produce a cooking oil for food processors.

In the storage of pecans, the oleic/linoleic ratio decreases with time. However, the conversion from monounsaturated to polyunsaturated fatty acid was found to be delayed by drying the nuts to 4% moisture immediately after early harvest. Improper drying can lead to darker seed coats and a considerable increase in free fatty acids, both of which are characteristics of deteriorating quality. Research points to the best drying temperature to be 35 degrees C (95 degrees F) with an air volume of 21 m<sup>3</sup>/sec (45 CFM).

Pecans can become an important health food because of their high level of monounsaturated fats. Dietary research with pecans needs to be conducted to confirm their value in lowering LDL content while maintaining HDL content of the blood plasma. Clinical work is now underway by Scott Grundy of the Southwest Texas Medical Center in Dallas, using high quality pecans from Texas. It is hopefully anticipated that the same positive results can be found with pecans as with high-oleic safflower because the same monounsaturated fatty acid can be found in both .

## **COOL CALM COWS ARE MORE PRODUCTIVE FOR MEAT AND DAIRY**

Cattle are a little like humans: They are more productive when they are cooler. With cattle, a cooler body helps with meat and dairy production, new University of Florida research shows.

Cows with shorter hair are cooler, and thus, more productive, said Raluca Mateescu, an associate professor of animal sciences at the UF Institute of Food and Agricultural Sciences. A calm cow is also more productive than an agitated one, Mateescu said.

When their bodies heat up, cattle use energy to try to lower their temperature, which usually means they eat less, said Mateescu, who led a recent study on body temperature and cattle traits.

"These findings would have the biggest impact for beef producers in hot, humid environments, largely in the southeast U.S. and other sub-tropical and tropical regions of the world," Mateescu said.

Florida and much of the southern U.S. are in what's called the "sub-tropics." Places like Brazil, central Africa and the northern half of Australia are in the "tropics." About half of the world's meat and 60 percent of its dairy comes from the tropics and sub-tropics, according to the Food and Agriculture Organization of the United Nations.

The U.S. livestock industry suffers an annual economic loss of \$2.36 billion to heat stress, according to a 2003 study led by Ohio State University, the most recent national data available. Scientists predict most livestock throughout the U.S. will experience extreme summer heat in the years to come, which translates to less-productive cattle, Mateescu said.

UF/IFAS researchers took cows' temperature and temperament as they brought them through the chute. They also looked at how the cattle behaved.

"Some cattle are very agitated and move a lot in the chute, and they exit the chute by sprinting or jumping, while the calm ones will follow you and won't kick or shake the chute," Mateescu said. "Also, they exit the chute calmly, by just walking out."

Normal body temperature is similar in beef cattle and humans. In humans, normal would be about 97 to 99 degrees Fahrenheit, according to health care professionals. In beef cattle, it starts at 98 and goes up to 102.

As a rule of thumb, when cows' body temperature rises above 102.4 degrees Fahrenheit, they start eating less and produce less meat or milk, Mateescu said.

Now that UF/IFAS researchers have shown that cooler, calmer cattle can produce more milk and meat, producers might consider breeding their cattle for these traits, Mateescu said.