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### ***Lagoon 101***

I recently did a farm visit for some new residents that are new to the country life. They had many questions about their trees, grasses and what to do with their acreage. One of their concerns was their waste water lagoon. On my drive home, I thought there really should be an owner's manual for new owners. Which leads me to this topic:

A lagoon is a small pond that receives wastewater from a home for treatment. The lagoon is three to five feet in depth and the size is determined by the number of bedrooms in a home. A lagoon works to treat domestic sewage by a biological process.

The sewage from the home enters the lagoon on the bottom. The solids stay on the bottom and become sludge. Algae, a microscopic plant that lives in the lagoon, works with carbon dioxide and sunlight to produce oxygen. Other microorganisms use this oxygen to digest the sewage. This is why sunlight and good wind action are essential for a lagoon to work properly. Trees must be cleared around a lagoon for this reason. The lagoon should also be mowed frequently to make sure the lagoon gets plenty of sun and wind.

The lagoon is a natural system that depends on a balance of living organisms in order to treat wastewater. Lagoon systems are not designed to treat products like pesticides (insecticides, herbicides, fungicides), medication, paints, paint thinners, solvents, and excess cleaning products. Avoid putting these down the drain.

Hazardous materials may cause system failure by slowing down or killing beneficial organisms.

Don't overuse or dispose of excess materials such as pesticides (insecticides, herbicides, fungicides), medication, paints, paint thinners, solvents, and cleaning products down the drain.

The system can handle normal amounts of household cleaning products, including antibacterial soaps. Excessive use may be harmful to the system. Dispose of excess amounts at a household hazardous waste collection.

Avoid using automatic toilet cleaning dispensers containing bleach. These introduce a constant antibacterial agent that can inhibit treatment in the lagoon.

Inside the fence: Plant the dike area inside the fence to perennial grass to prevent erosion. Cut frequently to 3 inches, with a maximum height of 6 inches.

Outside the fence: Plant the dike area outside the fence to perennial grass. This grass can be maintained at a height greater than the 3 to 6 inches recommended within the fence.

There must be nothing taller than the dike within 50 feet of the dike. This includes trees, bushes and tall grasses as well as structures. Adequate air movement over the lagoon is necessary for evaporation to occur.

Monitor and manage the water level. Check the liquid depth the same time each month.

Maintain a 2 - 5 foot liquid depth. This provides for aerobic and anaerobic layers, and prevents plants from establishing in the lagoon. You may need to add water during dry spells to maintain the required minimum 2-foot depth. Maintain a 1-foot freeboard, the distance between the highest level of the wastewater and the top of the dike. Some homeowners with homes having several bedrooms but few occupants may not be able to keep their large lagoons at the minimum level.

David G. Hallauer  
District Extension Agent  
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### ***Soybean Defoliation from Insect Feeding***

Defoliation is not uncommon in soybeans from emergence through harvest. Fortunately, they tend to respond fairly well in most cases, particularly if pressure is only from a single pest. We often see pressure from multiple pests. That's when an understanding of the defoliation compensation capacity of the soybean can be important.

Research from the University of Nebraska has shown that the key driver for yield losses in soybeans from defoliating insects is the degree that said defoliation reduces light interception for the canopy. The plants can actually lose a tremendous amount of leaf area if the remaining leaves are still intercepting ninety percent of the available light.

Small canopies have less capacity for loss than larger canopies. Vegetative defoliation tends to be less severe than defoliation during reproductive phases. Good weather trumps bad weather. In the end, many entomologists point to defoliation thresholds of around 40 percent prior to flowering and closer to 20 percent when insects are present during pod-forming or filling stages. NOTE: this may vary from five to ten percent depending on growth stage, etc...

Defoliation levels are difficult to estimate and are almost always over estimated. Damage in the upper canopy is much more visible than lower canopy injury. Different insects feed on different areas within the canopy. Scouting the entire canopy in multiple areas of the field is integral to getting a correct estimate.

Both the 40 and 20 percent damage levels will likely be much more than you think. For a visual representation, check out the UNL Cropwatch publication available online at: <https://cropwatch.unl.edu/evaluating-soybean-defoliation-and-treatment-need> . For insect damage thresholds based on insect numbers, check out the KSU Soybean Insect Management Guide at: <https://bookstore.ksre.ksu.edu/pubs/MF743.pdf> .

### ***Tomatoes Not Setting Fruit***

If you've been caring for your tomatoes all spring, you certainly want them to produce. Maybe you've noted blooms, but don't see any fruit yet. If so, don't let panic set in – just yet. It could be one of a couple of issues.

First, consider your fertility program. Tomatoes don't like too much nitrogen since it encourages vegetation growth over fruit production. At the very least, flower production could be decreased and fruit set diminished when flowers are produced. If you see flowers that don't set flowers at all, or flowers that don't set fruit, consider your nitrogen program.

Another issue is our annual string of hot July temperatures. When nighttime temperatures are above 75 degrees or daytime temperatures are above 95 degrees and accompanied by hot/dry winds, fruit set can be diminished. Different varieties respond differently, and cherry tomatoes may be more forgiving than slicing tomatoes, but day and nighttime temperatures could well be an issue if you have flowering but no fruit production.

It's difficult to be patient, but if temperatures are your issue, things should straighten out a little when temperatures moderate. Until then, continue to maintain even adequate watering for good production when possible.

Cindy Williams  
District Extension Agent  
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### **Berries: Their Benefits and How to Use Them**

Strawberries, blueberries, blackberries, boysenberries, huckleberries and more! Summer is a great time to stock up on many fruits like berries and cash in on the many benefits they have for us. They are high sources of fiber, potassium, vitamins C and K, and manganese.

These antioxidant-rich fruits protect the body from harmful agents that can damage cells and are a major source of disease and aging. Berries also protect against the damaging effects of physical stress on the body.

Berries amazing benefits help to lower the risks of chronic disease such as cancer, cardiovascular disease, diabetes and age-related mental decline. Scientist find it as no surprise that in nature animals naturally gravitate toward berries.

These bright, juicy, naturally sweetened fruits also reduce oxidation in inflammation in the bodies tissues and boost immune response.

Incorporating berries into your diet:

\*There are so many ways to use berries. Start your day with some berry topped cereal or yogurt.

\*Grab a handful of berries as a power up snack.

\*Use in smoothies, salads, or in pancakes, muffins, and breads. Try your hand at berry pies, cobblers or turn overs.

\*Berries are a traditional jam and jelly ingredient, many vendors at farmers' market sell homemade products.

\*Do some research on preservation or ask your local extension office for updated, USDA information on safe preservation processes. We have several food preservation publications on preserving produce that include some updated, safe recipes. Ask for these publications at your local extension offices. There is no charge for these publications.

Keep portion sizes in mind when eating dried berries, which have higher concentrations of calories and sugar than fresh berries. One quarter cup of dried fruit is roughly equivalent to one-half cup of fresh fruit.

When you see fresh fruits and veggies out of season at the supermarket, they may have been picked unripe and shipped from distant places thus minimizing their nutrient content. When berries are out of season, it does not hurt to look into preserved canned or frozen berries. Remember to check the nutrition fact labels as some brands may contain added sugars.

Nancy C. Nelson  
Meadowlark Extension District  
Family Life

No news this week.