

HOMESTEAD & FARM NOTES

April 2013

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For a listing of more programs visit: <http://union.ifas.ufl.edu>

April 4th: **Raised Bed Vegetable Gardening** free class at the Alachua County Extension Office from 3:00PM to 4:00PM. Call (352) 955-2402 for more information and to pre-register via voicemail call (352) 337-6209.

April 6th: **Spring Garden Festival** at the Baker County Extension Office from 9:00AM to 2:00PM. Plants for sale, Garden Rummage Sale, Gardening Exhibits and activities. Come and enjoy!

April 9th: **Tri-County Private Pesticide Applicator School & Examinations** at the Baker County Extension Office from 8:30am TO 5:30PM. Call (904) 259-3520 to pre-register by April 2nd.

April 22nd: **Home Mushroom Production in a Bag** at the Columbia County Extension Office from 6:00PM to 7:30PM. Please call (386) 752-5384 to pre-register.

April 26th: **Food Preservation Class** at the Baker County Extension Office from 9:30AM to 2:00PM. Please call (904) 259-3520 for more information and to pre-register.

Commissioner's Ag-Environmental Leadership Award: This award is given annually and recognizes someone who is in the forefront of developing and adopting environmentally innovative farming practices. If you would like to submit a deserving person visit <http://union.ifas.ufl.edu> for information and submission form.

Pond Corner

Managing Water Quality to Prevent Fish Kill in Northeast Florida

Basil Bactawar, CED

Northeast Florida is characterized by small fish ponds measuring approximately one-quarter to one acre in surface area and usually located near the owners' house. One of the major problems that can occur is fish kill especially during late spring and summer when the temperatures in ponds rise. The intent of this factsheet is to provide information that can help pond owners manage their ponds properly by highlighting several conditions that contribute to fish kill. The most important condition is the level of dissolved oxygen.

Dissolved Oxygen: Fish requires oxygen to respire and convert their food into energy. If there is an inadequate concentration of dissolved oxygen in the pond, fish health would decline and can be followed by death. The required concentrations of dissolved oxygen for fish depend on whether they are warm water or cold water species. Warm water species require at least 5mg/liter of dissolved oxygen compared to cold water species which require at least 7mg/liter of dissolved oxygen. Please note that mg/liter is the same as parts per million (PPM). Oxygen enters ponds by diffusion from the environment such as wind and wave actions as well as by photosynthesis. Photosynthesis is the main source of dissolved oxygen in ponds. It is the process by which plants manufacture their food in the presence of light. Very small aquatic plants called phytoplankton use carbon dioxide to manufacture their food. During this biological process oxygen is produced. Fish, aquatic organisms and microorganisms use this oxygen to fuel their biological processes. However, there is no photosynthesis taking place at night even though the organisms in the pond are continually using the oxygen. Consequently, the levels of dissolved oxygen decline during the night and are lowest at dawn. This is the recommended time to take a water sample for analysis of dissolved oxygen. Most of the time there is a balance on how much oxygen is produced and how much is used. However, this balance can be disturbed under some conditions in which oxygen concentration reaches a minimum level whereby some species of fish are unable to survive. There are several factors that may reduce the levels of dissolved oxygen in ponds. These include:

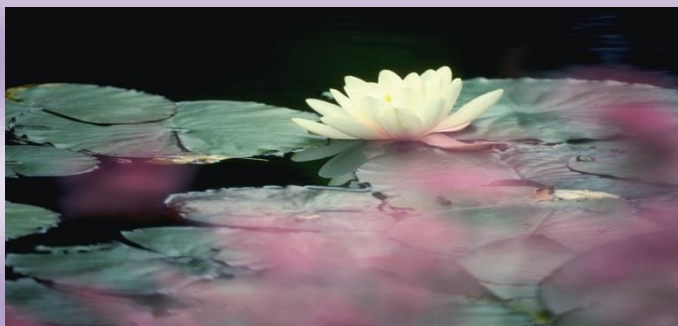
- Long periods of hot weather can reduce the levels of oxygen concentrations in ponds. The solubility of oxygen in ponds declines with increasing environmental temperatures.
- Run-off from water sheds and agricultural areas can bring turbid water to your pond. Turbid water reduces the amount of light reaching aquatic plants. These plants require light for photosynthesis, and so if photosynthesis is adversely affected then the amount of oxygen generated may be reduced in a pond.
- Generally, ponds have upper layers with more dissolved oxygen and lower layers which are deeper and denser and characterized by lower oxygen concentrations. Heavy rains or storms can suddenly mix these two layers thereby reducing oxygen concentration which becomes inadequate for fish survival.
- Furthermore, the amount of fish a pond can support is limited by the level of dissolved oxygen. Increasing in stocking rate in ponds can deplete the oxygen levels in ponds to critical limits that can kill

fish. It is important to follow the recommended stocking rates which vary with the species of fish. http://edis.ifas.ufl.edu/topic_a32783890. You cannot control the weather, but we can use aerators to increase the levels of dissolved oxygen in your pond.

Ammonia: Rising levels of ammonia in a pond can lead to fish kill. Ammonia in fish ponds exist either as unionized (NH_3) or as ammonium (NH_4). Unionized ammonia is toxic to fish. The pH and temperature of the water in the pond determine the proportion of each form. As the pH and temperature increase the toxicity of ammonia increases because the relative proportion of the unionized ammonia increases. Unionized ammonia (NH_3) levels beyond 0.05 mg/liter can be toxic to fish. In trace amounts, it is odorless and colorless. Water analysis is needed to determine if it is present in your pond. Ammonia is derived from the waste products of fish after feeding. Uneaten feed, dead algae and zoo planktons (small animal life) produce ammonia during decomposition. It is gradually removed from the pond by a natural process involving bacteria. They convert ammonia to nitrite, then to nitrate on the surface of mud or plants. Nitrate is relatively harmless to fish. The bacteria need oxygen to do this conversion provided the alkalinity of the pond is adequate. If oxygen is insufficient, the process breaks down and the ammonia levels in the ponds may increase. One of the objectives in good pond management is to reduce the levels of ammonia in ponds. To this effect, it is necessary to follow recommended stocking rates and avoid over-feeding your fish. Regular harvesting of fish as they reach maturity can reduce both the stocking rates and the level of ammonia in ponds. In addition, it is advisable to remove debris and dead vegetation. Remember chemical weed control during hot summer months can produce additional dead vegetation that may worsen the situation. This additional debris requires oxygen from your pond during its decomposition thereby further reducing the levels of dissolved oxygen available to fish.

Summary

1. Avoid over-feeding.
2. Follow recommended stocking rates.
3. If possible harvest your fish as they reach maturity.
4. Consider using an aerator to increase the levels of dissolved oxygen in your pond.
5. Avoid run-off from watershed and farming areas that bring debris to your pond.
6. If possible, avoid controlling weeds in and on the edges of your pond when the environmental temperatures are high. Killing weeds increase the amount of debris in your pond.



Livestock & Wildlife

Beef Calendar for April:

- ✓ Check for external parasites and treat if necessary.
- ✓ Deworm cows as needed.
- ✓ Market cull cows and bulls.
- ✓ Update market information and refine market strategy for calves.
- ✓ Observe bulls for condition and success, rotate and rest bulls.
- ✓ Vaccinate against blackleg and brucellosis after three (3) months of age and before 12 months of age.
- ✓ This is the month to plant millet, sorghum-sundagrass, and browntop millet pastures.
- ✓ Check mineral feeders and keep them filled. This is the month of "spring starvation" and you might have to continue feeding hay and other low quality roughages until summer pastures come in.

Horticulture Hints

Vegetables to Plant: April is the last month to plant many vegetables because of the upcoming hot weather. Vegetables that should be planted no later than April include: Bush beans, pole beans, cantaloupes, sweet corn, cucumbers, peppers, summer squash, tomatoes, collards, and turnips. Vegetables that can be planted from now into the summer include: Okra, southern peas, lima beans, and sweet potatoes.

Bulbs to Plant: African Lily (Morea), Amaryllis, Aztec Lily, Caladium, Dahlia, Dutch Iris, Gloriosa Lily, Gloxinia, Ixia, Kaffir Lily, Marcia (Walking Iris), Spider Lily, Tritonia, Tuberose, Voodoo Lily, Watsonia, and Zephyr Lily.

Citrus Trees:

Newly set trees (trees that you planted in February or March) should be fertilized in April with 12 ounces of a 6-6-6 analysis per tree. Five more applications (once every 6 weeks) of 12

ounces of a 6-6-6 analysis fertilizer spread evenly around the root zone and extending past the drip-line should be made.

The second year beginning after trees leaf out, they should be fertilized five times during the growing season with two pounds of 6-6-6 analysis fertilizer at each application.

If tree are three years old they should be fertilized in April with three pounds of 6-6-6 analysis fertilizer, with two more applications during the growing season at the same rate.

If trees are four years old they should be fertilized with three pounds of 10-10-10 analysis fertilizer in April, with two more applications during the growing season at the same rate.

Begin fertilizing newly planted lawns about two weeks after planting. Apply a complete (N-P-K) turf type, slow release nitrogen fertilizer (16-4-8 or 15-4-15) to provide $\frac{1}{2}$ pound of actual nitrogen per 1000 square feet. Do this every 2-3 weeks until lawn has completely filled in, and then follow fertility regimes as recommended for your grass species.

Time for establishment will vary, but most lawns should be considered established 2-3 months after planting. If you are planting centipede grass, only apply fertilizer once during establishment. Look for the words slow-release or controlled-release on fertilizer labels. Nitrogen in this type of fertilizer will not burn or wash away as readily as quick release nitrogen sources. Don't be fooled by the word organic. Some organic fertilizers are water-soluble and can leach as quickly as inorganic fertilizers.

Watering recommendations for established lawns: Irrigate when about half of the lawn shows wilting. Apply $\frac{3}{4}$ of an inch of water when you irrigate (you can use a coffee can to measure how much water you have applied). Water in the early morning hours, rule of thumb is 2 to 3 watering per week when there are no rainfall events during the week.

Repairing Winter-Killed lawns and sodding new lawns: Frequent, short, watering are needed to develop a root system when repairing dead lawn areas or planting new lawns. Objects in watering during establishment are to keep the sod root system alive until it starts to peg down, to encourage deep rooting. To ensure that roots don't die from lack of water following planting, irrigate a few times during the day until roots have pegged down into the soil. This generally takes five to ten days. Only irrigate enough to wet the top few inches of soil for this period (5-15 minutes per zone). After roots are pegged down, reduce irrigation gradually over the next 2-3 weeks to twice to three times weekly. Later in the summer months, under drought conditions, daily irrigation may be necessary.



4-H Happenings



April 6th: 4-H Shooting Sports Club; The Young Hunter Educational Challenge at Osceola Range.



April 15th: Pay your taxes, now you will understand the importance of good record keeping.



April 25th: 4-H Awards Banquet, 6:00PM at the Lakeside Community Center in Lake Butler. **Be sure to come and get your 4-H Record Book**, and enjoy the fellowship.



May 4th: District Events, 8:00AM at Union County High School.

*The tree of freedom must be watered by the blood of the tyrant
as well as the patriotic*

Colan L. Coody

4-H Program Assistant



**Tri-County
Private Pesticide Applicator School & Examinations
April 9, 2013**

**Registration Deadline – April 2, 2013 5:00 PM
Baker County Extension Office**

- 8:30 a.m.** Registration (\$5 per person - Exam takers should contact their County Agent to purchase study materials)
- 8:45 a.m.** **CORE Principles** (Applying Pesticides Correctly)
(Basil Bactawar, Union County Extension)
- | | |
|------------------------|---|
| Pest Control | Pesticides in the Environment |
| Pesticide Labeling | Special Environmental Concerns/Ground Water |
| Pesticide Formulations | Harmful Effects & Emergency Response |
- 10:00 a.m.** **CORE Principles** (Applying Pesticides Correctly)
(Tim Wilson, Bradford County Extension)
- | | |
|---|------------------------------|
| Personal Protective Equipment | Pesticide Handling Decisions |
| Mixing & Loading of Pesticides | Applying the Correct Amount |
| Effects of Pesticides on the Human Body | Florida Laws Regulations |
| Transportation, Storage, Disposal & Spill Cleanup | |
- 11:15 a.m.** **CORE EXAMINATION**
- 12:15 p.m.** **Lunch – on your own**
- 12:45 p.m.** **Private Applicator Agriculture Pest Control**
(Tim Wilson and Basil Bactawar)
- Pests & Their Control
 - Application Equipment
 - The Worker Protection Standard
- 1:45 p.m.** **Equipment Calibration** (Mike Davis, Baker County Extension)
- 3:00 p.m.** **Pesticide Arithmetic** (Mike Davis, Baker County Extension)
- 4:15 p.m.** **PRIVATE APPLICATOR AGRICULTURE PEST CONTROL EXAM**

CEUs (7 total, 3 CORE & 4 Private Ap/ Ag Row) have been requested for current Private Applicator License holders attending this program.

Call the Baker County Extension Office at 904-259-3520 to pre-register by April 2nd.

For individuals with disabilities requiring special accommodations, please contact the Bradford County Extension Service at least 5 working days prior to the program in order for proper consideration to be given to the request. For TDD service, call the Florida Relay Service Center at: 1-800-955-8771.