
Acreage Living

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Soil Test Time is Here

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Actually, anytime is a good time for soil testing. The problem seems to be taking the time and effort to do it. Soil test results can tell you where and how to spend your money—or if you even need to spend money.

Cropping or crop removal is a soil depleting activity. Period. There is no free lunch. Nutrient removal, through crops, will eventually result in lower yields and/or uneconomic yields.

Proper fertility management, including an adequate liming program, is the key to optimum economic yields. Proper fertilization of alfalfa allows for good stand establishment and promotes early growth, increases yield and quality, and improves winter hardiness and stand persistence. Adequate fertility also improves a forage's ability to compete with weeds and strengthens disease and insect resistance.

Fields differ in their fertilizer needs. Soil testing is the most convenient and economical method of evaluating the fertility levels of a soil and accurately assessing nutrient requirements.

Either take a new look at your old sample results or take a new sample. The sample should portray a representative area. That is, the sample should not include old fence lines, borrow pits—any place different from the average, good or bad. We'd like to see you stay within soil type areas but that will vary by field and past cropping history; certainly, keep hill and bottom areas separate. Also, try to keep each sampled area at less than 10-15 acres. Take 15 to 20 cores, mix in a plastic bucket and take the sample from that mixture. Soil bags and information sheets can be obtained from your county extension office.

Most soil testing programs make recommendations for pH and lime, phosphorus and potassium. Tests can also be done for secondary and micronutrients. For your trivia information, a six-inch layer of soil over an acre weighs about 2,000,000 pounds so a soil test report showing one part per million of phosphorus would indicate two pounds of phosphorus being available for plant usage.

In general, we would like to see a pH of at least 6

for row crops and at least 6.9 for alfalfa. A pH of 7 is considered neutral, below 7 is acid and above 7 is alkaline. The pH is raised by applying lime. The calcium in the lime has a buffering effect but needs to be mixed with the soil for full benefit. Phosphorus and potash (potassium) needs vary according to crop use and needs. In general, research has shown that the most economical level of these two products would be the medium range. Lower levels will not produce optimum yields. Maintaining higher levels is not economical in that it requires additions in excess of crop removal rates to maintain the high soil test level. If the soil test levels are in the high or very

high range, you should consider not applying for a time.

Assistance to understand soil test results is as close as your county extension office. For starters, ask for pocket guide ICM-1 and start on page 8, or ask for "Fertilizing Pasture," PM 869 (available on the Web at <http://www.extension.iastate.edu/Publications/PM869.pdf>.) There is also a cost bulletin, "General Guide for Crop Nutrient Recommendations in Iowa," PM1688 available for a more in-depth discussion of recommendations.



Pond Planning

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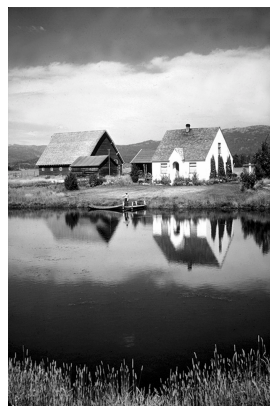
Back in 1994, we discussed planning considerations for a pond. Let's revisit some basic pond planning principles.

Whether it's for runoff control, recreation, livestock water, fire protection, or just appearance, a pond can add value and beauty to an acreage. But locating and building a functional pond is not as simple as pushing up a dam. For maximum usefulness and life, a pond requires careful planning.

The size of the pond will depend on the intended use and land area available to drain into the pond. For fishing and general recreation, a pond surface area of 1/2 to 2 acres is desirable. In Iowa, unless the pond is fed by a spring, each acre of pond surface requires about 20 acres of drainage area above the pond. A 10-acre drainage area, for example, would support a pond no larger than 1/2 acre.

Pond depth in Iowa should be at least eight feet. Shallower ponds are difficult to manage and do not provide quality water for livestock or suitable habitat for fish survival.

The quality of water coming off the watershed depends on the way the land in the watershed is used. Permanent vegetation of grass and/or trees is best. Land in crop production requires extensive treatment to prevent eroded soil from filling up the pond. If necessary, sediment control basins can be installed above the pond to catch soil before it gets to the pond. Spillway pipes that draw water from the bottom of the pond, rather than the top, can help reduce sediment buildup in the pond.



Select pond location to maximize the usefulness and aesthetic benefits of the pond. If the pond will be a water source for livestock or irrigation, you may want to locate the pond high enough on the landscape that water can gravity flow to the livestock waterers or irrigated plots. If the pond is mainly for recreation or appearance, visibility from the home may play a large role in selecting the

location. In any case, possible failure of the dam and protection of homes, roads, and property downstream must be considered. Larger ponds may even require special design considerations and permits for property protection downstream.

Remember that the available watershed size, topography, and soil types may limit the choices in locating your pond. Areas in natural depressions will minimize the cost of moving soil. However, soil for pond construction must have sufficient clay content to form a seal (about 20 percent clay), or the pond will leak. Leaky ponds can be sealed with purchased clay or synthetic liners, but these are expensive options. If suitable soil can be excavated nearby, it can be hauled to the site to form a liner. A soil survey report for your county will help you determine the soil types you have. Check soil composition in the soil survey rather than trusting common terminology. For example, the term "sugar clay" is commonly used for the yellow soils of the loess hills in southwest Iowa. These Ida and Hamburg soil types actually contain very little clay, and do not make suitable pond seals. You can get a copy of your county soil survey from your Natural Resources Conservation Service office. Look in the U.S. Government section of the phone book for their number.

Quality of construction of the pond can have a tremendous impact on the beauty and usefulness of the end result. The dam must be properly constructed to prevent leaking or even failure of the dam. A clay "core" may be built into the dam to reduce seepage through the soil. The dam must have an outlet to handle excess water during heavy rains. This "emergency spillway" must be properly designed to handle the expected water flow without causing erosion or endangering the stability of the dam.

In order to allow the spillway to dry out between heavy rains, a metal tube (trickle tube) is often installed through the dam to provide a controlled outlet under normal conditions. Proper sizing and installation of this tube are critical to promote proper

function and prevent damage to the dam. Special tube designs that draw water from the bottom of the pond, rather than the top, can promote better water quality in the pond, but allow more sediment to pass downstream into the waterway or river.

Proper excavation and compaction of the soil in the pond will minimize loss of water through the pond sides and bottom. Careful shaping of the sides and selective clearing of vegetation will add beauty to the pond and make it blend in with the surrounding landscape. Leaving some brush in the bottom of the pond can create beneficial fish habitat. Creating irregular bank shapes and leaving some trees near the shore will add character and help create the beauty of reflected tree lines on the pond surface.

Stocking a pond with fish can add greatly to its recreational value as well as promoting the health of the pond ecosystem. Fish for stocking (largemouth bass, bluegill, and channel catfish) are available from the Iowa Department of Natural Resources if the pond meets the following criteria:

- (1) new or renovated to be free of fish,
- (2) surface area of at least 1/2 acre,
- (3) maximum depth of at least 8 feet, and
- (4) fenced to exclude livestock with a 60 foot minimum buffer between pond edge and fence.

Consider safety in any pond design. Ponds are safest when they are fenced to prevent unsupervised use by children. Swimming areas should be clearly marked, and safety equipment stored nearby. Refer to Chuck Schwab's article on pond safety in the June 2000 issue of *Acreage Living*.

Technical assistance for pond design is available from the Natural Resources Conservation Service. Ask for Agriculture Handbook Number 590 entitled "Ponds- Planning, Design, Construction." NRCS engineers can also help you evaluate potential sites and design a suitable pond. Depending on the size of the pond, permits for construction or water storage may be required from the Iowa Department of Natural Resources. NRCS staff can walk you through all these design steps, and help

you end up with the kind of functional and beautiful pond you want.

ISU Extension has several bulletins on pond design and maintenance. For web surfers, visit <http://www.extension.iastate.edu/Pages/pubs/> and follow

the link to Aquaculture under the section "for your farm" and the link to Wildlife under the section "general interest topics." Or contact your county ISU Extension office and ask for bulletins Pm-1352b "Managing Iowa Fisheries: Farm Ponds" and Pm-1352k "Managing Iowa Fisheries: Building Quality Ponds."



Remember to "call before you dig"

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As you go about your summer home and land improvement projects, remember to "call before you dig." Iowa law requires that underground utilities be located before any excavation deeper than 15 inches. But don't worry about the details, one toll-free phone call from you is all it takes. Call Iowa One Call at 1-800-292-8989 and all utility companies will be notified for you.

This program was established for the safety of property owners and utility workers. You need only

make the toll-free call at least two working days before you plan to dig. Be prepared to give the precise location of your excavation (property address and location on the lot, or township, section, and quarter section for agricultural areas) the depth of excavation, and the date you plan to dig.

This service is free and easy. Plus, it's the law in Iowa and substantial fines apply if you disturb underground utilities and have not made the call.

• Demonstration Home Garden Field Days Set •

"Field days give gardeners the chance to see research projects in progress and talk with the researchers involved," said Cindy Haynes, Iowa State University Extension horticulturist. "The public is also presented with an opportunity to view the latest in modern agriculture by viewing the new and unusual flowers and vegetables."

Highlights of the gardens include different varieties of popcorn, tomatoes, potatoes, salsa, and onion plants. Different flowers also are featured.

For more information, contact your local county extension office, or get more information about the research farms at <http://www.ag.iastate.edu/farms/>

Date	Location	Time
Aug. 8	Muscatine Island at Fruitland	6:30 p.m.
Aug. 9	Allee at Newell	6:30 p.m.
Aug. 22	Armstrong at Lewis	6:00 p.m.
Aug. 29	Northeast at Nashua	6:30 p.m.
Sept. 2	Northern at Kanawha	6:30 p.m.
Sept. 7	McNay at Chariton	4 p.m.
Sept. 9	Northwest at Sutherland	1 p.m.

Acreage Living is published monthly. For more information, contact your local county ISU Extension office.

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