

ISU Extension in Keokuk County

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In This Issue:

- 1-2 | Crop Scout School
- 2-3 | Custom Rate Survey
- 3 | Retained Placentas on Cows
- 4 | Improve Pasture this Spring
- 5 | Spring Pond Management Tips
- 6 | Specialty Crop Producers Series
- 7 | Southeast Iowa Research and Demonstration Farm Field Day
- 8 | Manure & Biomass Digesters
- 9 | Crop Nutrient Guide
- 10 –11 | Calving in Muddy Conditions
- 11-12 | Pruning Trees
- 12 | Extreme Weather Events
- 13 | Assembling Your Estate Planning Team
- 14 | Machinery Leasing
- 15-16 | Spring Planting Fruit Trees

Crop Scout School Planned for May 17

By: Rebecca Vittetoe, ISU Extension Field Agronomist



Farmers and crop consultants can improve their knowledge of current issues by attending the Crop Scout School May 17, at the Southeast Research and Demonstration Farm near Crawfordsville.

The scout school, hosted by Iowa State University Extension and Outreach, is intended to be a foundational course, providing essential information for effective and efficient crop scouting.

Topics to be covered

- Crop scouting tips and tricks – Virgil Schmitt, extension field agronomist.
- Corn and soybean growth and development and staging – Mark Licht, assistant professor agronomy and extension cropping systems specialist.
- Crops disease identification – Ed Zaworski, extension specialist, plant pathologist.
- Weed identification – Meaghan Anderson, extension field agronomist.
- Insect pest identification – Ashley Dean, extension specialist, entomology.
- Other crop issues and challenges (nutrient deficiencies, herbicide injury, etc.) – Virgil Schmitt and Rebecca Vittetoe, extension field agronomists.
- Hands-on practice out in the field – Clarabell Probasco, Virgil Schmitt, and Rebecca Vittetoe, extension field agronomists.

“This Crop Scout School is a great opportunity to those wanting to refresh their knowledge and skills, as well as for those new to crop scouting,” said Rebecca Vittetoe. “The educational sessions, hands-on practice out in the field, and field guide publications, make this an exceptional value for those looking to increase their toolbox of resources to be better growers or crop scouts.”

Continued on pg. 2

Publications and resources included with registration

- [Soybean Diseases](#) and [Corn Diseases](#) booklets provide a combined 88-page compendium of soybean and corn diseases in Iowa and the greater north central region, in full color. Each guide is complete with disease life cycles and diagrams, as well as foliar disease estimation charts.
- [Field Crop Insects](#) contains descriptions and color images of more than 55 pest and beneficial insects, as well as information on insect life cycle, damage, scouting and management options. There is also information on basic entomology and integrated pest management tactics.
- Early, mid, and late season corn and soybean scouting cards are record keeping tools that outline diseases, insects, and disorders that occur to corn and soybean plants during the early, mid, and late parts of the growing season.
- A digital [Corn and Soybean Field Guide](#) includes updated text and 375 images, illustrations, diagrams and tables to assist farmers with identifying corn and soybean diseases, insects and disorders found throughout the Midwest. This 158-page guide focuses on development stages, pesticide decisions and production-related topics to help you when scouting fields this summer.
- A digital [Weed Identification Field Guide 2nd Edition](#) contains 35 illustrations and more than 250 high-quality photographs of weeds found in Iowa. Palmer amaranth information was added to this 108-page field guide, and information on herbicide resistance and management was updated from the first edition.

Advance registration is required. The cost of \$100 includes the above printed and digital publications, lunch and refreshments. Registration for the course closes May 12, and the course is limited to 70 students.

The Southeast Research and Demonstration Farm is located at 3115 Louisa-Washington Road, Crawfordsville. Check-in begins at 8:30 a.m., with the program running from 9 a.m. to 3 p.m.

To register, visit <https://go.iastate.edu/UADGBG> For questions related to registration, contact Agriculture and Natural Resources Program Services at 515-294-6429 or anr@iastate.edu. For all other questions, contact Rebecca Vittetoe at 712-540-3319 or rka8@iastate.edu.

Custom Farm Rate Results Released for Iowa

By: Alejandro Plastina, ISU Extension Economist & Ann Johanns, ISU Department of Economics

Many Iowa farmers hire some custom machine work in their farm business or perform custom work for others. Others rent machinery or perform other services.

In order to help producers and custom operators examine the market, Iowa State University Extension and Outreach publishes the [Iowa Farm Custom Rate Survey](#).

This year's survey, published in March, includes 94 responses and 2,621 custom rates for tasks related to tillage, planting and seeding, spraying, harvesting, farm labor and more. Additions to the survey for 2023 include ground (broadcast) spraying with a self-propelled, tall-crop sprayer and liquid fertilizer high clearance application with drop hose and Y spray nozzle.

Most custom rates saw an increase of 10-15%. Custom planting ranges from \$12.50 to \$45 per acre, depending on the type of planter and setup. Combining corn shows an average of \$41.30 per acre and combining soybeans averages \$39.90 per acre, an increase of 12.4% and 10.7%, respectively. Table 1 shows historical prices for select operations. This year's publication as well as previous reports can be found on the [Ag Decision Maker website](#).

The survey may lag increases in diesel prices and other inputs that change more frequently. This means that for custom farming practices that involve these inputs, the cost may be even higher. The current survey assumed diesel prices would be \$3.39 a gallon in 2023, based on forecasts

continued... from the U.S. Energy Information Administration.

The information in the survey is meant to be a starting point for farmers and agribusiness to engage in conversations and negotiations. The survey is not meant to set the rate for a particular practice or operator. This is an opinion survey and represents the responses of participants.

This survey is only possible with the participation of Iowa farmers, custom operators and farm managers. To join the survey list for 2024, email the survey authors. For more information, Plastina can be reached at 515-294-6160 or plastina@iastate.edu, and Ann Johanns can be reached at 515-337-2766 or aholste@iastate.edu.

Retained placenta? What to do (and not do)

By: Sherry Hoyer, Iowa Beef Center

CHARITON, Iowa — Retained placentas can seem very problematic. They can look bad and smell even worse, especially if a cow goes more than a couple of days without cleaning. Your gut instinct may be to put on some gloves and pull it out. In this case, however, Iowa State University extension beef specialist Chris Clark says, "Don't listen to your gut!"

"Manual removal of the placenta can actually cause tiny tears in the uterine tissue, which can impact reproductive capability," Clark said. "The best course of action often is to be patient and do nothing. Generally, untreated cows expel the fetal membrane in two to 11 days and bounce back relatively quickly."



If long strands are hanging where dirt and manure contamination can occur, a knot can be tied or tissue can be cut to a shorter length. Again, do not pull with anything more than very light pressure, as mechanical removal has significant risk of internal tissue damage and subsequent metritis.

It is important to keep a close eye on these cows, Clark said, because those that show signs of systemic illness such as fever, depression, lethargy and anorexia require treatment.

In addition, some dairy literature shows about 50% of retained placenta cases result in metritis, or uterine infection. Always work with your local veterinarian when determining if, when and what treatment route may be warranted. Following a retained placenta, particularly if metritis occurred, expect return to estrus to be delayed.

"It can be difficult to know whether an occasional slow-to-clean cow is just a fluke or a sign of a bigger, underlying issue," Clark said. "Predisposing factors for retained placentas include vitamin/mineral deficiencies, poor body condition, abortions and premature calves."

A good practice is to take thorough records of assisted births, twins, retained placentas, weak calves, etc. By recording and tracking the frequency of the infrequent but occasional hiccups in the calving season, you can use that data to identify effective prevention methods such as adjustments to nutrition, genetic and health protocols.

Improve Thin or Over-grazed Pastures This Spring

By: Aaron Saeugling, ISU Extension Field Agronomist

The negative impacts of drought, high nitrogen prices and other high prices associated with pasture management have left some pastures in the state in less-than-ideal condition.

As the 2023 growing season approaches, Aaron Saeugling, field agronomist with Iowa State University Extension and Outreach, discusses important considerations when improving thin or over-grazed pastures. A [recent article](#) written by Saeugling for ISU Extension and Outreach's [Acreage Living Newsletter](#) highlights these considerations and provides resources for pasture improvement.

According to Saeugling, pastures suffering from thinning can be improved with frost-seeding or interseeding this spring. While frost-seeding and interseeding can be a viable long-term solution for some, it is also important to consider pasture conditions such as soil pH, herbicide use and soil fertility, since not all pastures will be ready to be reseeded without soil amendments. As Saeugling explains, taking the time to properly plan and prepare will help to increase the success of these practices.

As an additional benefit given high nitrogen prices, frost-seeding or interseeding with a legume can help to lessen the amount of nitrogen that needs to be applied to the pasture, since many legumes are capable of fixing nitrogen into the soil.

"Nitrogen fixing legumes should include alfalfa, birdsfoot trefoil, and clover species," said Saeugling. "Keep in mind with legumes in a pasture, a soil pH above six is best and for alfalfa a soil pH of 6.9."

Seed placement is another key consideration when frost-seeding or interseeding pastures, as well as seed dispersal method. A drill is preferred for most legumes, as it provides good seed to soil contact. If broadcasting, seeding prior to a snow event can help the seed stick to the surface of the soil.

After frost-seeding or interseeding, it is important



to monitor pasture green up and prevent competitive grass species from growing more than 4 inches, as this can result in shading of legume seedlings. Once legume seedlings are established, grazing can be permitted.

For more information on pasture management, a variety of extension resources are available for free from the ISU Extension Store.

Additional Resources

[Interseeding and No-Till Pasture Renovation.](#)
[Improving Pasture by Frost Seeding.](#)

[Selecting Forage Species.](#)

[Fertilizing Pasture.](#)

[Steps to Establish and Maintain Legume-Grass Pastures.](#)

[Pasture Management Guide for Livestock Producers.](#)

Spring Pond Management Tips for Iowans

By: Catherine DeLong, ISU Extension Water Quality Program Manager

As outdoor temperatures warm and ice begins to thaw, ponds can provide an outdoor retreat for many Iowans. In this article, Iowa State University Extension and Outreach water quality program manager Catherine DeLong discusses best practices when treating or preventing common pond problems.

One of the most common issues that Iowa pond owners face is algae overgrowth or excessive pond vegetation due to nitrate and phosphorus loss from the surrounding agricultural landscape. According to DeLong, while some pond vegetation is essential to the health of aquatic ecosystems that support fish and other aquatic creatures, an overgrowth of pond vegetation can lead to pond odor and fish death, among other management concerns.

DeLong recommends that ponds have between 15 to 25% vegetation coverage. If vegetation levels exceed this, pond owners should consider taking action. Some [options discussed in a previous publication](#) include mechanical raking, nontoxic dyes and as a last resort, herbicides.

However, the best way to address elevated nutrient levels in ponds is through preventative pond management, since other methods may kill fish or otherwise disrupt aquatic ecosystems and can be expensive. As DeLong explained, planting a buffer zone of deep-rooted native plants around the pond is an excellent way to reduce excessive nutrient levels, prevent erosion and build a strong ecosystem around the pond.

DeLong says there are many benefits to buffers including increasing streambank stability, providing habitat for wildlife and pollinators, and increasing the beauty of the area with flowering native plants. Buffers that support streambank stability can also limit erosion, which can create



additional issues for landowners such as dredging or digging sediment out of the pond.

Other preventative measures include fencing off the pond from livestock to prevent streambank erosion, discouraging geese around the pond, limiting fertilizer use near the pond or aerating the pond. For more information regarding preventing or treating excessive pond vegetation, visit the article [Ponds: Managing Algae and “Weeds.”](#)

Turbid water

Another common issue for pond owners in Iowa is cloudy or muddy water, referred to as turbidity. Turbidity is often related to microorganisms living within the pond, weather or animal disturbance or suspended clay particles within the water.

To determine the specific source of the turbidity, collect a water sample and hold it up to the light. If microorganisms moving erratically are visible in the water sample, the source of the turbidity is likely due to planktonic algae, which are an important part of the pond's ecosystem. Unless there is an increase in fish kills or an undesirable odor or scum, no additional management is needed.

If the turbidity is not a result of microorganism activity, check the water sample after an additional 24 hours. If the particles have settled, the cloudiness is likely related to weather or animal disturbance and should clear in a few days. However, if the particles have not settled, there may be a chemical imbalance in the pond. For more information on managing pond turbidity, visit [Ponds: Managing Cloudy or Muddy Water](#).

While good pond management practices can make a pond healthier and more enjoyable for landowners, it is important to remember that good pond management can also have a positive impact on Iowa's watershed, improving water quality for all Iowans.

For more information on pond management, visit [Farm Ponds – Managing Iowa Fisheries](#).



U.S. DEPARTMENT OF AGRICULTURE

UPCOMING EVENTS

SPECIALTY CROP PRODUCER SERIES

WORKSHOP: UNDERUTILIZED RESOURCES

March 22, 2023 | 9 a.m. - 12 p.m.

ISU Extension Office
1625 Adventureland Dr., Ste. A
Altoona, IA 50009

Small-scale producers will gain valuable information about underutilized experts and funding assistance from federal and state agencies and other Iowa organizations by listening to several 10-minute mini-presentations. Enjoy a tradeshow style reception in the second half of the workshop to make one-on-one connections with resource professionals who can assist you with your specific farm operation.

Registration encouraged
by March 15, 2023

FIELD DAY: SOIL HEALTH

April 12, 2023 | 1 p.m. - 3:30 p.m.

Dogpatch Urban Gardens
5085 Meredith Dr.
Des Moines, IA 50310

Learn about Soil Health through live demonstrations, expert presentations and a Urban Farm tour that will help you understand how Soil Health affects your specialty crop operation. Seeing how neglected and healthy soils respond differently in our demonstrations is an experience you don't want to miss! We will also discuss best practices and small-scale financial resources that are available to help you make your soil healthier!

Registration encouraged
by April 5, 2023

For reasonable accommodations and to RSVP, please contact:

Ankeny USDA Service Center
Natural Resources Conservation Service
(515) 964-1883 ext. 3
clint.miller@usda.gov

The Specialty Producer Series is sponsored by NRCS, ISU Extension and Polk SWCD.

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Southeast Research & Demonstration Farm's Spring Field Day

CRAWFORDSVILLE, Iowa – Farmers and those who provide consultation to farmers, as well as the general public, are invited to the Iowa State University (ISU) Southeast Research and Demonstration Farm's Spring Field Day on Wednesday, June 21, 2023, located at 3115 Louisa-Washington Road, Crawfordsville.



The Spring Field Day will feature:

- Research farm update - *Cody Schneider, Farm Superintendent*
- Mung Beans as an Alternative Crop – *Ashlyn Rairdin, ISU Department of Agronomy*
- Do I Need to Apply Sulfur Fertilizer? - *Mike Castellano, ISU Department of Agronomy*
- Utilizing UAVs (Drones) for Pest Management - *Dennis Bowman, University of Illinois Department of Crop Science*
- Models for Improved Corn Disease Management Decisions – *Alison Robertson, ISU Department of Plant Pathology, Entomology, and Microbiology*
- Relay Cropping Opportunities - *Mark Licht, ISU Department of Agronomy*

For more information, contact Virgil Schmitt at vschmitt@iastate.edu or 563- 263-5701.

The Southeast Research and Demonstration Farm conducts agronomic research on corn, soybeans, small grains, and forage, and holds demonstrations and educational events to provide relevant information to surrounding counties in southeast Iowa. The farm, which is near Crawfordsville, is owned by the Southeast Iowa Agricultural Research Association (SEIARA) (which has members from 21 counties in the surrounding area), is operated by Iowa State University (ISU), and is co-managed by SEIARA and ISU.

In 2019, SEIARA and ISU embarked on a project to fund and build a new state-of-the-art research and learning center to allow farm staff and researchers to host larger group sizes and to support research projects. The fundraising was kicked off on March 5, 2020, was paused shortly after due to the COVID-19 shut down, and resumed in 2021. A grant from the Washington County Riverboat Foundation allowed the group to break ground in late 2021. Despite dealing with some supply chain issues and increased building costs, the new research and learning center was completed in 2022.

The first event conducted in the new facility was an open house and ribbon cutting for the new building in conjunction with the 35th anniversary

celebration of the farm held on September 8, 2022. The second event was an ag career exploration event for high school students held on September 21 and 22, 2022, which involved hosting over 250 students between the two days from 20 different schools in SE Iowa. Additional extension educational events and meetings are scheduled to be held in the new facility during the winter months.

SEIARA and ISU look forward to continued improvement in the quality and quantity of research, demonstrations, and educational events conducted at the farm.

Farm Facts:

Acres: 274

Total projects: 1,274 in 35 years

Total visitors: 33,155 in 35 years

Average 47 projects per year in last 10 years

Counties Served:

Benton, Cedar, Clinton, Davis, Des Moines, Henry, Iowa, Jefferson, Johnson, Jones, Keokuk, Lee, Linn, Louisa, Mahaska, Muscatine, Poweshiek, Scott, Van Buren, Wapello, Washington

Natural Gas Production with Manure & Biomass Digesters

In northwest Scott County, one of two large scale “proof of concept” manure and biomass digesters for gas production is being constructed and is already operational, even as construction continues. The other digester location is in Pennsylvania.

In 2013, Dr. Lisa Schulte-Moore, Professor of Natural Resource Ecology and Management and co-director of the Bioeconomy Institute at Iowa State University, and Rudi Roeslein (Roeslein Alternative Energy) met at an event where Roeslein shared his goal to support 30 million acres of grassland across the Midwest in 30 years through the expansion of the biogas industry. The two connected through a shared vision, to improve grassland integration and return economic value to farms and rural communities. Since that first encounter, a broader coalition of partners across public and private stakeholder groups, including Pennsylvania State University (Penn State), The United States Department of Agriculture (USDA), FDCE, and 33 other partners has formed. In 2020, the group was awarded a \$10M USDA National Institute of Food and Agriculture (NIFA) grant to fund research, Extension, and other education. That partnership recently received an additional \$80M Climate-smart grant that will begin in 2023. The construction and research related to the two digesters is part of the 2020 NIFA grant.

In Scott County, cattle manure is currently the main input for the digester. Prairie is currently being evaluated as a feed stock for the digester, and cover crops will also be evaluated. For farmers who do not have livestock (cattle, sheep, etc.) to utilize the biomass produced by cover crops, it is difficult to financially justify cover crops in the short run. Receiving revenue from cover crop biomass delivered to the digester may encourage more cover crops, thereby increasing water quality and soil health benefits in the big picture.

It is anticipated that once the research has been completed and the systems have been fine-tuned, more digesters will be built across Iowa and the nation, providing bioenergy and soil health and water quality benefits.

Find more information here:

<https://www.nrem.iastate.edu/people/lisa-schulte-moore>

<https://roesleinalternativeenergy.com/>

<https://fdcenterprises.com/>

<https://www.nifa.usda.gov/>

<https://www.usda.gov/climate-solutions/climate-smart-commodities>

Crop Nutrient Guide Updated to Reflect Current Recommendations in Iowa

By: Antonio Mallarino, ISU Department of Agronomy

Newly updated crop nutrient recommendations are available in a recent publication from Iowa State University Extension and Outreach.

Antonio Mallarino, professor in agronomy and extension specialist at Iowa State, announced research-based updates to the extension publication PM 1688 [A General Guide for Crop Nutrient and Limestone Recommendations in Iowa](#), available on the Iowa State University Extension Store and Soil Fertility websites.

The publication provides phosphorus (P), potassium (K), zinc (Zn) and lime application guidelines based on soil testing for the major agronomic crops grown in Iowa.

Soil-test interpretations and nutrient application recommendations in this publication always have been based on short and long-term field experiments conducted across Iowa farmers' fields and research farms, from the major soils used for production agriculture in Iowa.

Mallarino said the last update was in 2013, and new recommendations were necessary because of improved crop genotypes that lead to higher yields, and because of changes in farming practices across Iowa.

The updated publication describes new soil-test interpretations and categories of soil testing as well as new suggested nutrient application rates.

"Crops are constantly changing and improving, and so are yields and the ways that Iowans farm," said Mallarino. "Since 2013, nearly 200 field response trials have been conducted with each nutrient, and the results provide a solid foundation of how much nutrients we should be applying, to each crop and growing practice."

He added, "However, the basic concept used for developing the new soil-test interpretations and application guidelines remains the same, which is to accomplish long-term profitability and reduced risk of yield loss while improving the sustainability of crop production."

Trials conducted since 2013 included several P

or K fertilizer application rates and placement methods at multiple Iowa State research and demonstration farms – in the central, northeast, northcentral, northwest, southeast and southwest regions. The research farms have different soil types and slight weather differences that should be taken into consideration.

"The testing of numerous soil samples has increased our awareness of largely unavoidable, intrinsic variability of soil-test results mainly due to large spatial variability, which should be considered when interpreting test results and making fertilization decisions," said Mallarino.

Key changes:

- Boundaries of the interpretation categories were adjusted – mainly by moving upward the boundary for the optimum category to make it wider. Removal-based P and K application is recommended to maintain these desirable soil-test values over time.
- The suggested P and K fertilization rates for the very low and low interpretation categories needed to be increased to assure fertilization for these categories maximize yield for most growing conditions and gradually buildup soil-test levels.
- Interpretations for zinc by the Mehlich-3 test were added.

The soil pH and lime management guidelines, which are also included in the publication, were not updated because the recent research has confirmed changes made in 2013.



Calving in Muddy Conditions

By: Chris Clark, ISU Extension Beef Program Specialist

CHARITON, Iowa — Given the recent precipitation and the weather forecast, things are shaping up to create very muddy conditions in Iowa just as spring calving season is really taking off. Mud is always a headache but it can be particularly challenging for cattle producers during calving season. Chris Clark, beef specialist with Iowa State University Extension and Outreach, describes some of these challenges and offers a few suggestions to help producers manage muddy conditions.



"Muddy conditions increase the risk for hypothermia, failure of passive transfer and infectious disease of newborn calves," he said. "Wet, muddy coats do not insulate as effectively as clean, dry coats. Born into these conditions, newborns can struggle to regulate body temperature and become chilled, which can lead to weakness, lethargy and suckling issues. Pathogens thrive in muddy lot conditions and udders can easily become dirty with contaminated mud and manure."

Clark said there is no silver bullet because every farm has its own unique limitations and challenges, but producers should strive to calve in well-drained areas and do their best to keep cattle high and dry.

"Use bedding to create dry areas and layers of insulation between the animals and the wet ground, and remember to remove saturated bedding and/or re-bed as necessary," he said. "Feeding on concrete or pads of packed rock or lime can create a solid base under high traffic

areas that can become extremely messy."

It's also very important to check cattle carefully and frequently when calving in muddy conditions. Early intervention can be valuable to help calves get going and ensure colostrum consumption.

"When we are talking about things like hypothermia and failure of passive transfer, the earlier we can intervene the better," said Clark.

Reducing stocking density or increasing pen space per head can help to reduce traffic and the effect of manure and urine, promoting drying and managing mud depth. It can be extremely helpful to occasionally move cattle to cleaner, drier pens.

It is common for people to move pairs out to pasture once they feel the calves are doing well. On one hand, this is great to spread out the cattle and get them in a cleaner environment; however, there are a couple problems with this approach.

"One is that pastures may not yet be ready to graze and may be very wet themselves. This creates the risk of reducing pasture productivity by grazing too early and damaging the wet ground," Clark said. "The other problem is that newborns still arrive into a muddy and often, pathogen-contaminated environment."

Clark recommends being creative to implement some sort of modified Sandhills Calving System by occasionally moving remaining pregnant females to a new calving area.

"Moving pregnant cows to a cleaner, drier environment can work well to protect newborn calves. There should be less risk of chilled calves and dirty udders and stuff like that. And the new calving area will not be contaminated with pathogens being shed by older calves," he said.

Mud also can contribute to greater energy requirements for cattle. Muddy conditions can increase energy demands by affecting the insulating ability of the hair coat and by simply increasing calories burned as animals struggle to walk

Continued from pg. 10... through mud. Deep mud can increase energy requirements by up to 30%.

"This time of year I often emphasize the importance of sufficient nutrition to support adequate body condition score at calving and meet the increasing requirements of third trimester and early lactation, he said.

"Cattle can burn many calories just walking through the mud," he explained. "Think about how difficult it can be trying to walk through deep mud. It is no different for a cow. It is critical for health and performance of cow and calf that the diet is balanced to meet the greater energy requirements of challenging environmental conditions."

Clark reminds producers that cows may choose to avoid the challenge of getting to the feed so may be prone to simply eating less. That's why it's important to manage conditions around the feeding area and try to maintain a navigable path from loafing areas to feeding areas.

"There's no question that most of these suggestions are easier said than done, but investing effort in these areas can reap great rewards with greater calf survival, health and performance," Clark said.

Pruning Guidelines for Shade Trees, Fruit Trees and Shrubs

By: Jeffery Iles, ISU Extension Department of Horticulture

While removing stems and branches may seem intimidating at first, pruning a plant is a great way to invest in its long-term health. Removing dead or crowded limbs can improve a tree or shrub's visual appeal, encourage fruit production and help to ensure a long, productive life.

For many shade and fruit trees in Iowa, late winter and early spring are ideal times to prune. This year, Iowa State University Extension and Outreach horticulture specialists have compiled a [variety of materials discussing the basics of pruning woody plants](#).

One of the resources highlighted by the guide is the "[Principles of Pruning](#)" video series, available through the [Integrated Pest Management YouTube Channel](#). In this series, Jeff Iles, professor and chair in the Department of Horticulture at Iowa State University, discusses when, why and how to prune a tree.

"I like to prune during the dormant season, because the leaves are gone, I can see the plant's architecture, and when the tree begins to grow in the spring, the wounds created during pruning will begin to close rather quickly," said Iles.

[Another article included in the guide](#) discusses the proper time to prune various types of woody trees and shrubs, including oaks, fruit trees, shrubs and roses. For most deciduous trees,



February through March is the best time to prune in Iowa. Oaks should be pruned slightly earlier, between December and February, to prevent Oak Wilt, a potential lethal fungal disease. Fruit trees should be pruned in late February through early April, and deciduous shrubs should be pruned in February and March. Because many species of rose can suffer dieback due to Iowa's frigid winters, gardeners should remove any dead wood in March or Early April.

Also included within the guide is an [article from the Horticulture and Home Pest News Website](#) that covers basic pruning equipment, including hand pruners, shears, saws and chainsaws. *Continued from pg. 11...* Hand pruners or shears

can be used for plant material up to $\frac{3}{4}$ inch in diameter, and lopping shears are best for branches between $\frac{3}{4}$ and 1 $\frac{1}{2}$ inches. For larger material, a pruning or pole saw can be used.

While chainsaws can also be used to remove large branches, they can be incredibly dangerous to those who are not trained or experienced in using them and should be primarily left to professional arborists.

To access these and other pruning resources, visit <https://hortnews.extension.iastate.edu/your-complete-guide-pruning-trees-and-shrubs>

More and Stronger Extreme Weather Events

By: Don Hofstrand Retired ISU Extension Agricultural Business Specialist

This article is part of a series focused on the causes and consequences of a warming planet.

Extreme weather events typically don't happen very often. However, more and stronger extreme weather events are consistent with what scientists expect from a warming planet. These events are becoming more frequent and severe around the world. Extreme weather events include heatwaves, droughts, wildfires, extreme rainfall, winter precipitation, hurricanes, floods, and other events.

Examples of extreme weather events in 2022 include Hurricane Ian, extreme warming in British Columbia and the state of Washington, flooding that covered one-third of the country of Pakistan, droughts and wildfires across Western US, and many other places on the planet.

Perhaps the most impactful of these is the additional heat. This additional heat causes more heat waves. A heat wave is generally considered a string of continuous days with daily maximum temperature above a certain level, such as five consecutive days with daily high temperatures above 95° F. The worldwide number of local record-breaking temperature extremes is now much higher than would be expected in a climate with no long-term warming. Because nights are warming faster than days, the evenings do not provide the ability to cool, making heat waves even more of a threat. In the US, heat waves have become more frequent and intense, especially in the West. Cold spells have become less frequent and intense across the nation.

The US Southwest is expected to become hotter and drier. The probability of mega-droughts lasting decades is increasing. These periods may be punctuated by high rainfall events called "atmospheric rivers" where currents of moisture laden air come off the Pacific Ocean and drop

their precipitation on California. This type of event happened during the California Gold Rush in the mid-19th Century when much of the Central Valley was flooded.

Heavy downpours have increased nationally, especially over the last three to five decades, with the largest increases in the Midwest and Northeast. The frequency and intensity of heavy precipitation events are expected to continue to increase in the future. Heavy downpours that currently occur about once every 20 years are projected to occur two to five times more often by 2100.

Some extreme weather events are more closely linked to a warming planet than others. For example, EPA (Environmental Protection Agency) reports that scientists have high confidence that recent heat waves, droughts and extreme rainfall will continue in the future and become more frequent and intense. Scientists are less confident about events like tornadoes.

Whether a warming planet causes more Atlantic Hurricanes is uncertain. But science shows that a warming planet increases the rise in intensity of hurricanes when over water, increases the hurricane's rate of rainfall, and may even slow the movement of hurricanes.

These extreme weather events will impact agricultural production around the world. Weather variability within and between years will make agricultural production more variable. Midwestern farmers will experience this variability in both the production and sale price of their commodities.

See the [Ag Decision Maker website](#) for more from this series.

Assembling Your Estate Planning Team

By: Kitt Tovar Jensen, ISU Beginning Farmer Center Coordinator

Farm transition and succession planning is an important task for farmers at all ages and financial levels. Regardless of whether you are just starting out, thinking about retirement, or somewhere in the middle, you will need a personalized plan to help you achieve your specific goals. A successful farm estate plan requires a team of skilled advisors to analyze your unique situation and make recommendations.

The professional advisors needed may include an insurance agent, financial planner, tax professional, and attorney. These professionals can guide you through the estate planning process and help you avoid both common and technical pitfalls.

Getting started and finding an estate planning attorney can be a daunting task. One of the best ways to find an attorney (or other professional) is to seek referrals from people you trust who have had a legal issue similar to yours. You can then search for that attorney online and usually find additional information through their firm's website.

It is important to conduct some due diligence when seeking to hire an attorney. Most states maintain online, publicly available databases listing information about their attorneys. While the information readily available varies from state-to-state, most states' databases allow the public to verify that an attorney is licensed to practice, and that the attorney's license is in good standing. While this cursory check does not guarantee that an attorney is competent, it is a key first step.

Another option is checking with your State Bar Association. Iowa has a [Find-A-Lawyer program](#) which can be a useful tool to help you in your search. You can search by both practice area and geographic location, for example "'Conservatorship and Estate Planning" or "Ames." Not all qualified attorneys, however, are listed in these services.

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Machinery Leasing—Is It For You?

By: William Edwards, Retired ISU Extension Economist

While the vast majority of farm machinery is still acquired for cash or with a conventional loan, leasing is also a popular choice. Leasing plans offer a large degree of flexibility of payment terms. Both farm machinery manufacturers and independent companies offer lease opportunities.

Types of Lease Plans

Two general types of lease plans are available. The major factor that distinguishes these plans is by how they are treated for tax purposes.

Operating lease

An operating (or true) lease calls for a series of regular payments, usually annual or semi-annual, for a period of years. At the end of the lease period, you have the option of purchasing the machine at a price approximately equal to its fair market value. The option price may be set when the lease is signed or it may depend on the accumulated use

and condition of the machine when the lease expires.

Alternatively, the machine can be returned to the dealer or lease company, or the lease can be extended. The lease payments are reported as ordinary expenses on your tax return. If the purchase option is exercised, the machine is placed on your depreciation schedule with a beginning basis equal to the used purchase price.

Finance lease

A finance lease is treated as a conditional sales contract by the IRS. You are considered to be the owner of the machine so it is placed on your depreciation schedule. Payments made to the lease company must be divided into interest and principal, with the interest being tax deductible. Many finance leases are essentially installment loans with balloon payments after three to five years. The difference is that at the end of the lease period, you have the choice to either return the machine to the dealer (and give up owner-

ship), or make the balloon payment (and take ownership). Since the finance lease is not taxed as a true lease, the final buy-out price (balloon payment) can be quite variable, depending on the length of the lease and the size of the payments.

Advantages of Leasing

Although leasing may not be for everyone, there are several advantages.

- Lower payments, compared to most conventional loans. Of course, one reason the payments are lower is that you are building little or no equity in the machine. At the end of the lease period, you have nothing except the right to exercise the purchase option.
- Machinery leasing utilizes operating capital instead of investment capital. Payment schedules can be matched to periods of high cash flow. Cash requirements for machinery are constant and known in advance. This is particularly beneficial for high volume, low equity operators who can't afford large capital outlays at a point in time.
- If you routinely trade major machinery items every few years, you will find that leasing generally offers lower payments than the payments on a loan used to purchase the machine.
- If you are near retirement, you may prefer to lease equipment so that it can be easily liquidated in a few years with no income tax recapture.

Leasing also offers you the chance to try out a particular machine for a few years without buying it.

Not for Everyone

Lease companies are in business to earn a return on their capital. If you have enough money to purchase machinery outright, you will usually spend less in the long run by owning it. This is especially true for machinery that will be owned for five to ten years or more. In addition, you build equity through ownership.

Expense Method Depreciation

In addition to regular depreciation, you may be eligible for expense method depreciation during the first year. This deduction is available for machinery purchased or leased under a finance lease, but not under an operating lease. So, you may prefer to acquire the machinery by an outright purchase or a financial lease and take full advantage of the early depreciation option. However, if you buy other property that can also utilize the expense method depreciation, you may have already reached your limit for the year.

Include on the Balance Sheet

Sometimes leasing is touted as "off balance sheet financing". However, while an operating lease is not a loan, it

does represent an obligation to pay, and a cash flow commitment is incurred. The [Farm Financial Standards Council](#) does not recommend that leases of capital assets be shown as a liability on your balance sheet. Likewise, the leased equipment should not be shown as an asset. However, adding a footnote to the balance sheet that explains the terms of the lease is a good idea.

Questions to Ask

As with any contract, read the fine print and ask questions before signing. The following provisions should be discussed and understood.

- Who is responsible for maintenance and repairs? Generally, you are, although leased machines often carry the same warranty as purchased equipment. Clarify who is responsible for insuring the leased equipment, as well.
 - What are the purchase option terms at the end of the lease? How will the buy-out price be determined if it is not specified in the contract? Are there adjustments for wear and tear?
 - Is it possible to terminate the lease early if you are not satisfied? Often there are penalties for doing so. There may also be extra charges for high usage rates.
 - What is the timing and frequency of payments? Does this match your cash flow pattern? Can these be modified? When is the first payment due? Often the first payment is due when the machine is delivered or placed in service.
 - Does the lease meet the requirements to be taxed as an operating lease, or will it be considered as a finance lease by the IRS? Either choice could be preferred, depending on your tax situation.
- Compare each financing option by laying out the cash payments side by side over the life of the lease or the loan. Estimate the tax savings for each one, and then compare the after-tax cost of each option. AgDM Information File A3-21, [Acquiring Farm Machinery Services](#) can be used to make this comparison.
- Make your decision based on total after-tax cost as well as near-term cash flow requirements.

Use Decision Tool [Farm Machinery Financing Analyzer](#) to compare the cost the cost of owning versus leasing farm machinery.

Spring is Ideal Time for Planting Fruit Trees in Iowa

By: Suzanne Slack, ISU Extension Fruit Crops Specialist

For those looking to grow and enjoy fruit from their backyard, spring is the ideal time to start. However, to ensure healthy growth and good yields, it is important to select fruit tree cultivars that will be successful in Iowa's cold climate, and to plant them in a way that will set them up for a lifetime of enjoyment. Suzanne Slack, Iowa State University Extension and Outreach fruit crops specialist, discusses tips for planting successful, fruitful fruit trees this spring.

Picking a Tree

The first step in planting a new fruit tree is deciding what to plant. While apple trees are an excellent option that is well suited to Iowa's frigid temperatures, Slack also recommends tart cherry trees, especially the variety 'Montmorency'. Some cultivars of sweet cherries can be successfully grown; however, it is best to purchase cultivars bred for colder climates, such as 'North Star' and 'Black Gold', to ensure adequate winter hardiness.



Plum and pear trees generally do well in Iowa also, but may experience some disease issues, so it is important to monitor them closely. For a less traditional option, Slack recommends the native paw-paw tree, which produces a small, green fruit with a sweet, banana-like flavor and is deer resistant.

An additional factor to consider when selecting a fruit tree for your backyard is that many fruit trees are self-incompatible, meaning that they require a nearby pollination partner in order to produce fruit. Pawpaw, pear, apple, plum and most sweet cherry trees (exceptions include the two recommendations above) require a partner to produce fruit; however, apple trees can be cross-pollinated by nearby crabapple trees as well. Tart cherries are self-pollinated, and do not require a partner.

While some nurseries may claim to sell self-pollinating apple varieties, Slack warns that these trees often produce lower quality fruit, both in size and general taste without a pollinizer partner.

Selecting a Site

When selecting a site for a fruit tree, one of the most important factors to consider is light availability. Fruit trees generally require full sun, and will produce significantly less fruit when shaded out. They also prefer well-drained soil. As Slack explains, it is also important to plan for the tree's mature size, especially when planting near homes, roads, neighboring trees and other obstacles.

Planting and Pruning

As far as planting fruit trees, planting too deep is one common mistake. Most commercially available fruit trees have been grafted on to a rootstock (a totally different tree) for benefits such as increased disease resistance, drought tolerance or size control. Gardeners may see the graft union, where the fruit-producing upper portion of the tree and the beneficial rootstock are joined together, as undesirable, and attempt to bury it. However, this will cause the top portion of the graft to grow its own roots, completely overriding any benefits from the rootstock. This can cause trees to grow much larger than intended, or suffer decreased disease, pest or drought resistance.

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Continued from pg. 15... Pruning is also an important part of caring for fruit trees, as sun exposure and air circulation are essential for fruit formation. Fruit trees require regular pruning, even in their first year. Late February is the perfect time to prune fruit trees. For more information on pruning, visit the [extension pruning guide](#) available on the ISU Extension and Outreach Horticulture and Home Pest News webpage.

Harvesting

For many fruit trees, obtaining edible fruit is a bit of a waiting game. However, the length of time between planting and harvesting is largely dependent on the size of the tree. Some dwarf varieties may produce fruit in their first year after planting. However, Slack recommends removing the blooms from these trees before the fruit is formed in order to encourage the tree to invest in more shoots and leaves, which will be more beneficial long-term.

Most semi-dwarf varieties will produce edible fruit between 2 and 3 years of age, while full size rootstocks can require between 5 and 8 years to produce fruit.

While fruit trees can provide a wonderful opportunity for homeowners to enjoy food grown in the backyard, Slack warns not to expect grocery store quality from backyard trees. "If you're sick of paying Honeycrisp prices and want to buy your own Honeycrisp tree, you will find out quickly why Honeycrisp apples are so expensive at the grocery store," she said. "It takes a lot of effort to get a perfect fruit."

For more information, Slack can be reached at 515-294-0035 or slacksuz@iastate.edu

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