



Texoma Cattlemen's Conference | 3



New Fescue Cultivar | 4



Pecan Management Calendar | 6

# NOBLE NEWS & VIEWS



## LIVESTOCK

# Using Bermudagrass Pastures to Meet Cow Nutrient Requirements

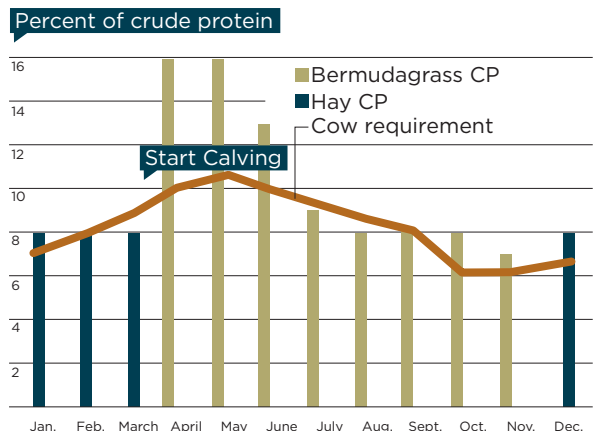
by Robert Wells, Ph.D., livestock consultant | [rswells@noble.org](mailto:rswells@noble.org)



**W**inter supplementation for a cow can account for anywhere between 40 and 60 percent of the annual cost of maintaining the cow. Therefore, producers should plan their winter supplementation strategies during the growing season to allow for more options and to reduce winter feed costs when utilizing bermudagrass pastures.

Bermudagrass is a dominant, introduced forage type in the Southern Great Plains and along the Gulf Coast. This grass species is an excellent warm-season perennial

**GRAPH 1. BERMUDAGRASS: FORAGE CP QUALITY AND COW REQUIREMENTS BY MONTH**



*Continued on next page*

grass that stands up to grazing pressure and responds well to fertility and moisture.

Cows can meet their nutrient requirements on bermudagrass during the growing season and with stockpiled forage in the fall, if calving timing is correct. Graphs 1 and 2 demonstrate the relationship of grass quality and the cow's nutrient requirements to time of year, for crude protein (CP) and total digestible nutrients (TDN) of the forage, respectively.

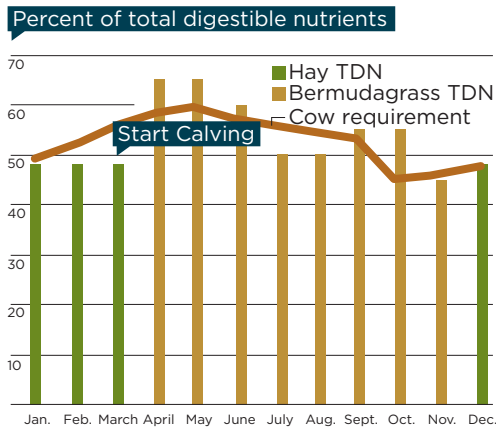
In general, it is preferred to time the beginning of the calving season about one month prior to the start of the growing season. In doing so, the producer can time the cow's highest nutrient requirements when forage is at its best quality and sufficient quantity. This allows the cow to meet her nutritional demand solely from the pasture with no additional supplementation required. Additionally, in a controlled 60-day calving season, all cows will be done calving before pasture quality diminishes to the point where the cow cannot meet her nutrient requirements while in peak lactation. Peak lactation occurs about 60 days post-calving, which coincides with the highest nutritional demand of the cow's physiological year.

During the hottest part of the summer, when bermudagrass may go into a summer dormancy, the grass quality may taper off to a point that it may not meet the cow's requirements for either CP or TDN (Graphs 1 and 2). However, the cow may be selective enough to continue to meet her requirement or she may slightly slip in body condition. If a producer anticipates an extended time period of high temperatures or decreased moisture that would be sufficient enough to affect the forage quality, he or she could feed a small amount (less than 0.5 pound) of a high protein supplement to the cow during the summer months. This would stimulate forage intake and allow the cow to meet her requirements.

It is important to remember that a bermudagrass grazing system will be dependent on hay feeding once stockpiled forages have been depleted during the winter months. In most areas, hay feeding will start around December and continue until green-up next spring, around April. Careful consideration should be given to the hay quality that is either baled on the farm or bought. It is easy to have hay that can satisfy the cow's nutritional requirements while also supplying supplemental forage. If high-enough hay quality, both in terms of CP and TDN, can be fed free-choice, then additional feed supplementation would not be necessary. Typically, high-quality hay can be purchased at a lower price than any purchased feed on a ton basis.

Table 1 lists the amount of the nutrients in pounds rather than percent deficient each month during the typical winter feeding months. Many producers only think in terms of percent of a nutrient required for the cow. However, the correct method is to consider the actual amount supplied by the pasture and the cow's requirements. The cow

**GRAPH 2. BERMUDAGRASS: FORAGE TDN QUALITY AND COW REQUIREMENTS BY MONTH**



**TABLE 1: POUNDS OF NUTRIENT REQUIRED BY MONTH**

Month	Crude Protein in Pounds	TDN in Pounds
November	0.0	0.19
December	0.0	0.0
January	0.0	0.31
February	0.06	1.04
March	0.31	2.02

*\*Amounts based on minimum cow requirements in graphs 1 and 2.*

**TABLE 2: AMOUNT OF EACH TYPE OF SUPPLEMENT REQUIRED BY MONTH**

Month	Byproduct feed	38% Cubes	20% Cubes
November	0.75 (\$0.08)	0.75 (\$0.15)	1.0 (\$0.11)
December	0.0	0.0	0.0
January	1.25 (\$0.12)	1.25 (\$0.25)	1.5 (\$0.17)
February	4.25 (\$0.41)	3.5 (\$0.70)	4.0 (\$0.45)
March	8.5 (\$0.82)	6.75 (\$1.35)	7.0 (\$0.78)
Total	43.02	73.70	45.35

**It is important to remember that a bermudagrass grazing system will be dependent on hay feeding once stockpiled forages have been depleted.**

and rumen microbes need a set quantity of each nutrient, not a percentage. Nutrient quality or percentage is only necessary to determine the amount that the cow is getting from the pasture and how much is needed in the supplement, if any. Which feed is the right one to use will depend on the supplement cost on a quantity-per-day basis after a calculation has been made to determine the correct amount for each potential supplement.

Table 2 lists three example feeds that are commonly available for producers and the amount that would be fed on a daily basis (top value in each cell) to meet cow requirements. The value in parenthesis in each cell is the cost on a daily basis for that feed. The last line of Table 2 is the cost of feeding each feed for the winter feeding period assuming the following costs for each feed: Byproduct feed (\$192.50 per ton, 38 percent Cubes (\$403 per ton) and 20 percent cubes (\$220 per ton).

Not always is the cheapest feed on a

price per ton basis the best feed to use. This demonstrates that a producer should determine the correct amount of feed necessary to meet a cow's requirements then calculate the cost of each feed. Additional consideration should be given to special handling and trough requirements of each feed type. Byproduct feeds will have about a 10 percent greater amount of waste than cubes when fed on the ground, which needs to be accounted for so the cow is not shorted on the feed amount she actually consumes.

Ultimately, a producer should have a diversity of forage types on the ranch to allow for season-long grazing. Utilization of native grasses as a standing hay crop during the winter can eliminate the cost of hay, but the producer may still have to supplement additional protein to the cow. However, for those producers who are locked into a bermudagrass-only grazing system, care should be exercised to reduce winter feeding costs. 🐮





## CONFERENCE

# What You'll Gain From the Texoma Cattlemen's Conference

by Hugh Aljoe, director of producer relations | [hdaljoe@noble.org](mailto:hdaljoe@noble.org)



**G**reater efficiency is always the objective for ranch operations, although it is seldom a stationary target. Ranching efficiency takes on multiple facets within an operation: reducing costs and increasing revenues, eliminating redundancies, enhancing production and marketing, and optimizing operational activities with accurate timing and execution, all while managing through more variable weather conditions and commodity markets.

This year's Texoma Cattlemen's Conference, which will be held June 15, will focus on "The Road to Ranching Efficiency." We will address a number of issues and opportunities pertaining to ranching efficiency.

This year's conference has several new features in addition to those you have come to expect and enjoy from the past. First, we

have moved the conference to June from February. In doing so, we hope to have placed the conference during a time of year that better suits regional cattle producers. This has also allowed us to schedule an adjacent field day.

### NEW THIS YEAR: PRE-CONFERENCE FARM TOUR

On Thursday, June 14, the day before the conference, you have the opportunity to tour two Noble Research Institute farms. We will present some of our applied systems research results as well as demonstrations and technologies applicable to regional beef cattle producers.

### FARM TOUR TOPICS INCLUDE:

- The use of synchronization and artificial insemination.
- EPD selection criteria for both terminal and maternal traits.
- Herd management systems.
- Replacement heifer development.
- Production and marketing to enhance

value of cattle, from weaning calves to cull cows.

- Planned pasture management.
- Management of pecans as a complementary enterprise.

We will also provide an open house for producers to observe first-hand the more recent additions and facility enhancements to the Noble Research Institute farm and ranch operations.

### YOU WILL SEE:

- The state-of-the-art shipping/receiving/processing facility at Oswalt Ranch.
- GrowSafe beef units, which we use to measure and study individual cattle efficiency on feed and forage on a daily basis.
- The newly constructed Red River Grazing Facility, a 640-acre unit with 16 grazing pastures that can be further subdivided into 4-acre paddocks to conduct grazing research with growing cattle using multiple forages and forage combinations.

Noble Research Institute applied research  
*Continued on next page*



ers, operational staff, managers and consultants will be on-hand to present the applied agricultural systems activities on the farms and discuss the implications to producers.

#### DURING THE CONFERENCE

The conference, on Friday, June 15, will include the three most requested features from previous conferences: the trade show with our supporting allied industry businesses and agencies, Ron Hays (Oklahoma's Voice of Agriculture) from the Oklahoma Farm Report as our conference emcee and moderator, and Noble Research Institute research lightning talk updates. This year, the lightning talks will include results from our Forage 365 research projects, which sought to find ways to extend the grazing season, and more.

In addition, several nationally renowned speakers from across the country will speak:

- Jim Robb, senior analyst with the Livestock Marketing and Information Center, will provide the market outlook for cattle, beef and other agricultural commodities important to the beef industry.
- Donnell Brown of the R.A. Brown Ranch in Throckmorton, Texas, will share how his family continues to find success into the sixth generation during his keynote address, "Ranching Efficiency: Providing Viability and Sustainability to the Land, Livestock and Family."
- Colin Woodall, the senior vice president of government affairs at the National Cattlemen's Beef Association, will present the political outlook for agriculture and the beef industry from his Washington, D.C., perspective.

- G. Cliff Lamb, Ph.D., newly appointed department head of the Texas A&M University Department of Animal Science, will present his research, which spans multiple decades and demonstrates the value of stringently managing the cow herd for reproductive and economic efficiency. He'll share how more can be done than just delivering a live calf to market every year.

All these industry-leading experts will provide information that directly pertains to enhancing operational efficiency on our ranches. Plus we'll hear industry updates from the Oklahoma Cattlemen's Association, Texas and Southwestern Cattle Raisers Association, Oklahoma Beef Council and Oklahoma Farm Report during the noon hour. This could be one of the most impactful regional conferences this year.

#### FOR MORE DETAILS

We hope you can attend both the field day tour June 14 and the sessions June 15, but you are certainly welcome to attend just one of the days if that is all your schedule permits. Registrations are separate for each day, but the Thursday tour is limited to 200 with priority given to those registering both days. Both events will begin at 8 a.m. at the Ardmore Convention Center. Tour buses will depart from the Convention Center parking lot Thursday morning. Lunch comes with the registration for both days.

For more information or to register, please visit [noble.org/events](http://noble.org/events). 🐄

## RESEARCH

# Noble Releases New Summer-dormant Tall Fescue Cultivar

*Chisholm tall fescue pasture in early spring.*

by Mike Trammell, senior plant breeder | [matrammell@noble.org](mailto:matrammell@noble.org)



A major goal of the Noble Research Institute's plant breeding program has been to develop a perennial cool-season forage that could provide producers an alternative to planting winter annuals, such as wheat or cereal rye, for grazing. Though

this goal may seem narrow in focus, systems producing forages throughout the year would limit the need for feeding hay and/or reduce the need to plant cool-season annuals. This could lower overall production costs for producers.

Tall fescue is a cool-season perennial forage that can provide valuable forage from fall through spring for grazing livestock. Tall fescue generally needs at least 37 inches or more of annual rainfall for suitable production and persistence. Historically, in Oklahoma and Texas, this type of rainfall occurs east of Interstate 35. This creates a transition zone for tall fescue, which is adapted east of this zone but not to the west due to summer heat and drought.

However, some types of tall fescue possess a unique trait where the plant enters a period of dormancy to avoid the harsh summer conditions common to the Southern

Great Plains. These types of tall fescue originate from the Mediterranean region of southern Europe and North Africa and are often referred to as Mediterranean or summer-dormant types. Summer-dormant types stop growth during summer in response to long days, high temperatures and dry conditions.

Chisholm is a new tall fescue release by the Noble Research Institute. It was developed with this unique trait of summer-dormancy. Chisholm summer-dormant tall fescue is an endophyte-free variety that can provide livestock producers with a persistent, perennial, cool-season grazing option that is adapted to the hot, dry summers typical west of Interstate 35 in Oklahoma and Texas.

Chisholm is capable of producing high-quality forage from autumn through spring suitable for grazing livestock before entering summer-dormancy. After four years of grazing Chisholm pastures on our research farms, cattle had similar average daily and total live-weight gains compared to cattle on graze-out wheat pasture. The net return per acre on Chisholm was also similar to the graze-out wheat system. Other potential benefits of this perennial forage include the reduction of soil erosion and the improvement of soil health. Chisholm summer-dormant tall fescue is commercially available at Warner Brothers Seed Company in Lawton, Oklahoma. 🐄



## PECAN MANAGEMENT

# How to Manage the Pecan Nut Casebearer

by Will Chaney, senior research associate | [jwchaney@noble.org](mailto:jwchaney@noble.org)



The pecan nut casebearer, *Acrobasis nuxvorella* (Neunzig), is the most damaging nut-feeding insect that occurs in pecans. This species only occurs in pecans but is closely related to similar species that

cause the same damage in hickory and walnut. The pecan nut casebearer (PNC) is found from Florida to southern New Mexico, encompassing almost all of the pecan growing region.

## SEASONAL CYCLE

Pecan nut casebearer can complete two to three generations per year. Overwintering larvae develop into pupae and ultimately moths that emerge from late May to early June. After tree pollination, female casebearer moths begin laying eggs on pecan nuts. These eggs result in first-generation larvae that feed on pecan nuts and generally cause the most damage.

Second-generation PNC begin appearing in mid-July. Larvae feed primarily on pecan shucks. Unless populations are extremely high, little damage is created from second-generation larvae. Third-generation PNC hatch 30 to 40 days later and feed for a short time (if they feed at all) on shucks. Late in the season, each small larva forms a tightly woven, protective silken case (hibernaculum) near a bud or leaf scar for overwintering. These larvae emerge from hibernacula in the spring and feed by tunneling into shoots. Pupation of the overwintering generation occurs in these tunnels formed from feeding, and adults emerge the following spring to deposit the first generation of eggs on pecan nuts.

## GUIDELINES FOR PHEROMONE TRAP USE

Pheromone-baited traps for PNC are available. The pheromone mimics the chemical emitted by female casebearer moths and attracts males to a sticky trap. Traps can be used to detect the arrival of PNC into an orchard, to provide growers an estimate of population numbers, and to provide a signal of when first significant nut entry by larvae may occur.

Some guidelines for using pheromone traps:

1. Use three traps in 30- to 50-acre orchards and five traps in orchards larger than 50 acres.
2. Do not place traps closer together than 100 yards.



## PECAN NUT CASEBEARER FACT SHEET ONLINE

This article was largely adapted from The Pecan Nut Casebearer, an Oklahoma Cooperative Extension fact sheet, which is available for download at [factsheets.bit.ly/pecan-casebearer](https://factsheets.bit.ly/pecan-casebearer)

For control, visit [bit.ly/osu-pecan-control](https://bit.ly/osu-pecan-control) to see chemical options and rates.

3. Place traps near the terminal of a nut-bearing limb at a convenient height.
4. In Oklahoma, traps should be in the orchard by May 1.
5. Monitor traps every two or three days, three times a week if possible, and keep detailed records.
  - Frequent monitoring will help detect the first flush of moth activity.
  - Record the trap location and monitoring date each time.
  - Remove all moths, other insects and any debris that is found on the traps' sticky surfaces.
  - Replace any traps that have become too dirty or covered in debris.
  - Pheromone lure can be carefully transferred (with forceps) to the new trap.

- Pheromone does not need to be replaced during the season.
6. Do not confuse PNC moths with other similar species.
    - Pecan bud moth *Gretchena bolliana* (Slingerland)
    - Pecan leaf casebearer, *Acrobasis juglandis* (LeBaron)

## SCOUTING FOR PNC

First capture of PNC males generally occurs 12 to 16 days before the optimum time for application of insecticides.

Scouting should begin seven to 10 days after the capture of the first PNC moth.

Look for eggs on the nuts using a hand lens to determine the maturity of eggs.

Examine 10 nut clusters per tree across several trees.

If two or more clusters contain eggs or damage before 310 clusters have been examined, an insecticide application should be made as soon as possible.

Traps can be used to monitor flights of later PNC generations.

Second-generation PNC occurs approximately six weeks after the spring flight, and larval damage can be expected 12 to 16 days after the flight begins.

The decision to treat an orchard is based on scouting to detect eggs and/or larvae not on the numbers of moths captured. The traps allow you to know when to start scouting for eggs. The pheromone trap is very effective and will capture moths even when economic infestations of larvae are unlikely to develop. Later generations (third and possibly a fourth) are rarely a significant threat to nut production. 🐛

## WHERE TO FIND PNC TRAPS AND PHEROMONES

### ALPHA SCENTS

1089 Willamette Falls Drive,  
West Linn, OR 97068  
Phone: 503-342-8611 or 971-998-8248  
Fax: 314-271-7297  
[www.alphascents.com](http://www.alphascents.com)

### GEMPLER'S

P.O. Box 44993  
Madison, WI 53744-4993  
Order by Phone: 1-800-382-8473

### GREAT LAKES IPM INC.

10220 Church Road  
Vestaburg, MI 48891-9746  
Phone: 989-268-5693 or 989-268-5911  
Toll Free: 1-800-235-0285  
Fax: 989-268-5693  
Email: [gliipm@nethawk.com](mailto:gliipm@nethawk.com)  
[www.greatlakesipm.com](http://www.greatlakesipm.com)

### ISCA TECHNOLOGIES / MORITOR TECHNOLOGIES

P.O. Box 5266  
Riverside, CA 92517  
Phone: 951-686-5008  
Fax: 815-346-1722  
Email: [info@iscatech.com](mailto:info@iscatech.com)  
[www.iscatech.com](http://www.iscatech.com)

### OLIVER PECAN CO. INC.

1402 W. Wallace, San Saba, TX 76877  
Phone: 1-800-657-9291  
Email: [soliver@centex.net](mailto:soliver@centex.net)

### PAPE'S PECAN HOUSE

P.O. Box 1281  
101 S. Hwy 123 Bypass  
Seguin, TX 78155  
Phone: 830-379-7442

### SOUTHERN NUT 'N TREE EQUIPMENT INC AND PPI

324 SH 16 South  
Goldthwaite, TX 76844  
Phone: 1-800-527-1825  
Fax: 325-938-5490  
Email: [sales@sntequipment.com](mailto:sales@sntequipment.com)  
[www.sntequipment.com](http://www.sntequipment.com)

### TRECE

(for bulk orders only)  
P.O. Box 129  
Adair, OK 74330  
Phone: 918-785-3061  
Order Center: 866-785-1313  
Fax: 918-785-3063  
Email: [custserv@trece.com](mailto:custserv@trece.com)  
[www.trece.com](http://www.trece.com)

# PECAN MANAGEMENT CALENDAR: MAY TO JULY

by Will Chaney, senior research associate | [jwchaney@noble.org](mailto:jwchaney@noble.org)

To properly manage a successful pecan orchard, a well-developed plan should be implemented. Planning will help growers and managers be prepared for tasks that will need to be addressed throughout the year. This calendar can be used as a resource to help with planning.

## MAY FLOOR MAINTENANCE

If weeds are a problem, an herbicide can be applied to the orchard floor as needed. Continue maintaining orchard floor vegetation by mowing or grazing.

## DISEASE CONTROL

Apply pre-pollination scab spray to susceptible varieties when leaves are about one-half the normal size. After pollination, use the Mesonet scab model ([bit.ly/pecan-scab-map](http://bit.ly/pecan-scab-map)) to determine when to apply fungicide to susceptible varieties.

## GRAFTING

Continue grafting. Watch videos on how to graft using the following methods:  
Bark graft: [noble.org/texas-inlay-graft](http://noble.org/texas-inlay-graft)  
Four-flap graft: [noble.org/banana-graft](http://noble.org/banana-graft)

## IRRIGATION

Orchard irrigation will most likely begin this month, depending on rainfall.

## FERTILIZE

If a split application of nitrogen was applied, fertilize trees with remaining fertilizer.

## FIRST-YEAR TREES

After 6 to 8 inches of growth has developed, fertilize with 1/3 pound of 19-19-19 in a band 18 inches long, 12 inches from the tree. If growth continues, apply 1/3 to 1/2 pound of 46-0-0 every three weeks, not to continue past the middle of July.

## ZINC SPRAY

On mature trees, apply second foliar applications of zinc at the rate of 6 pounds of zinc sulfate (36 percent) per acre. For young trees, continue to apply foliar zinc at a rate of 2 pounds of zinc sulfate (36 percent) per acre in two-week intervals.

## HERBICIDE SPRAY

Continue spraying your vegetation-free strips as needed.



## COMING IN AUGUST

Management tips for August through October will be in the August issue of *Noble News and Views*.

## PEST CONTROL

Continue to monitor for pests.

## CASEBEARER

In the northern half of Oklahoma, set out traps and start monitoring. In the southern half, continue to monitor traps at least three times a week (daily preferred) to determine the first male moth capture. Begin spraying 16 to 20 days after you see the first significant capture.

## JUNE FLOOR MAINTENANCE

If weeds are a problem, an herbicide can be applied to the orchard floor as needed. Continue maintaining the vegetation by mowing or grazing.

## DISEASE CONTROL

Use the Mesonet scab model ([bit.ly/pecan-scab-map](http://bit.ly/pecan-scab-map)) to determine when to apply fungicide to susceptible varieties.

## IRRIGATION

Orchard irrigation will continue this month, depending on rainfall.

## ZINC SPRAY

On mature trees, apply the third and final foliar applications of zinc at the rate of 6 pounds of zinc sulfate (36 percent) per acre. Zinc can be tank-mixed with pecan nut casebearer spray and fungicide if needed to limit trips through the orchard. For young trees, continue to apply foliar zinc at a rate of 2 pounds of zinc sulfate (36 percent) per acre in two-week intervals.

## HERBICIDE SPRAY

Continue spraying your vegetation-free strips as needed.



**PEST CONTROL**

Monitor the orchard for pecan nut casebearer and begin spraying 16 to 20 days after you see the first significant capture. Order your pecan weevil traps if you do not already have them. Monitor the orchard for additional pests such as aphids, caterpillars and fall web worm.

**CROP LOAD**

Determine crop size by counting the number of clusters per 100 shoots. Crop size is low if less than 40 percent, 40 to 70 percent is good, and more than 70 percent is heavy crop.

**JULY****FLOOR MAINTENANCE**

If weeds are a problem, an herbicide can be applied to the orchard floor as needed. Continue maintaining the vegetation by mowing or grazing.

**DISEASE CONTROL**

Use the Mesonet scab model ([bit.ly/pecan-scab-map](http://bit.ly/pecan-scab-map)) to determine when to apply fungicide to susceptible varieties.

**ZINC SPRAY**

For young trees, apply last foliar zinc at a rate of 2 pounds of zinc sulfate (36 percent) per acre.

**HERBICIDE SPRAY**

Continue spraying your vegetation-free strips as needed.

**PEST CONTROL**

Continue to monitor the orchard for pests. Scout orchard for aphids and caterpillars. Take note of beneficial insects and do not spray for aphids if the beneficial insect level is sufficient.

**Casebearer:** Continue monitoring for second-generation pecan nut casebearer.

**Hickory Shuckworm:** If you have a history of hickory shuckworm, spray at shell hardening.

**Weevil:** Install weevil circle traps by mid-July.

**LEAF SAMPLE**

In the first two weeks of July, collect leaf samples for analysis. You will base next year's fertilization on these samples. Collect samples from each management area and label for easy identification. Watch a how-to video on leaf sampling at [noble.org/pecan-leaf-sampling](http://noble.org/pecan-leaf-sampling).

**CROP LOAD**

When the kernel is halfway to being fully expanded in the water stage, thin excessive fruit load off of trees.

**ORCHARD MAINTENANCE**

Observe tree spacing and mark trees for removal if there is greater than 60 percent shade on the orchard floor. 🐄

**WILDLIFE**

# How to Properly Stock and Manage Channel Catfish

by Mike Porter, senior wildlife and fisheries consultant | [mdporter@noble.org](mailto:mdporter@noble.org)



**C**hannel catfish is one of the three most commonly stocked fish species in Southern Great Plains (largemouth bass and bluegill are the others).

Channel catfish is the primary target fish species in some

ponds and one of several sport fish species in other ponds. In ponds where channel catfish is the primary focus, management strategy varies depending whether a pond permanently holds water or is periodically drained. This article focuses on ponds with permanent water because this type of catfish pond is more common in the Southern Great Plains.

**PREVENT OVERPOPULATION**

Ponds with permanent water require largemouth bass to prevent catfish overpopulation and stunting. A single female channel catfish can spawn 2,000 to 50,000 young. Each

pond supports a limited number of catfish per acre, so channel catfish commonly becomes overpopulated without bass.

Stocking only channel catfish and largemouth bass is a great option for managing ponds smaller than one-half acre where bass-bluegill management can be difficult. This also is an option for larger ponds when a pond manager primarily wants a channel catfish fishery.

**STOCKING RATES**

Initial channel catfish stocking rate usually is 100 fingerlings per surface acre (i.e., 10 per 1/10 acre) in ponds that are not fed or fed inconsistently. Channel catfish grow fine without feeding in most ponds when stocked at 100 or fewer per acre. Stocking more than 100 channel catfish per acre in unfed or inconsistently fed ponds typically results in somewhat stunted catfish.

Channel catfish stocking rate can range from 100 to 1,000 fish per acre in sport fishing ponds that are consistently fed an appropriate floating pelleted catfish feed.

*Continued on next page*





However, feeding fish, especially at higher catfish stocking rates dramatically increases the risk of a low-dissolved oxygen fish kill.

Largemouth bass fingerlings should be stocked at approximately 40 per surface acre into such ponds. Largemouth bass tend to remain relatively small (e.g., 8-14 inches) in catfish fisheries without other fish prey species, which is typically not a problem because bass are present as a management tool rather than a focal sport fishery. When stocked at the same time, channel catfish fingerlings should be larger than bass fingerlings. When same-size catfish and bass fingerlings are stocked, channel catfish should be stocked six to eight months prior to bass.

In ponds larger than one-half acre without fish, where channel catfish is not the focal species but one of several sport fish species, typically small fingerling channel catfish and bream species (e.g., bluegill, redear sunfish or hybrid sunfish) initially are stocked at approximately 100 and 500 per acre, respectively, during late summer or early fall. Then depending on bass goals, 40 to 100 small fingerling largemouth bass per acre are stocked during the following spring.

### SUPPLEMENTAL STOCKING

When stocking channel catfish into a pond with an established largemouth bass population, advanced fingerling catfish longer than 8 inches should be stocked to avoid significant depredation of supplementally stocked catfish. Such advanced fingerling catfish generally grow to edible size after one growing season.

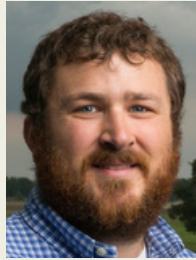
Channel catfish fry do not recruit well in ponds where significant numbers of adult largemouth bass exist. Catfish may spawn in such ponds, but adult bass consume most, if not all, catfish fry and fingerlings. Thus, advanced fingerling channel catfish must be periodically stocked to maintain catfish fisheries in ponds with bass.

Records of channel catfish stockings and harvests help a pond manager calculate the number of channel catfish to stock. The number of catfish harvested is added to estimated natural mortality since the last stocking to determine the number of advanced fingerlings needed to increase catfish numbers close to 100 per acre (or other stocking rate target). I usually estimate channel catfish natural mortality at 8 to 10 percent per year. Properly managed channel catfish provides an enjoyable sport fishery with relatively predictable results. 🐟

## WILDLIFE

# Aquatic Plant Spotlight: HYDRILLA

by Will Moseley, wildlife and fisheries consultant | [wamoseley@noble.org](mailto:wamoseley@noble.org)



**H** hydrilla (*Hydrilla verticillata*) is a nonnative, invasive aquatic plant that is rooted and can grow to almost 30 feet, filling up the water column. Due to its invasive nature, it becomes overabundant and can reduce fish habitat, outcompete important native plants, clog irrigation canals and water control stations, and change water chemistry.

### THE INVASIVE NATURE OF HYDRILLA

Hydrilla was initially brought to the U.S. as an aquarium plant and has since escaped into the wild, where it becomes an ecological and economic disaster. Millions of dollars are spent annually to try

to control hydrilla across the U.S., but the best way to control it is to prevent its spread. Hydrilla is difficult to control after established due to its rapid growth and ability to spread, primarily by fragments on boats and trailers.

We can prevent the spread of hydrilla by cleaning our boats, trailers and live wells. If boating in a water body known to have hydrilla, power wash your boat and trailer after use and allow to air dry for at least five days before moving to a new water body.

Chemicals such as endothall, fluridone and copper with diquat can be effective in controlling hydrilla. So can grass carp since the plant is one of their preferred foods. 🐟



To learn more about aquatic plant management, visit our plant image gallery at [bit.ly/aquatic-plant-gallery](https://bit.ly/aquatic-plant-gallery) or purchase our field guide for aquatic vegetation identification and control methods at [noble.org/store](https://noble.org/store).



## IN THIS ISSUE

Bermudagrass Pastures		<b>1</b>
Texoma Cattlemen's Conference		<b>3</b>
Summer Dormant Tall Fescue		<b>4</b>
Pecan Nut Casebearer		<b>5</b>
Pecan Management Calendar		<b>6</b>
Channel Catfish		<b>7</b>
Hydrilla		<b>8</b>

## MAY 22

### Irrigation Systems and Design in Specialty Crops Workshop

**9 a.m.-Noon**  
**Protected Ag Area**  
**No Registration Fee**

Join Noble Research Institute researchers and Irrigation Mart representatives to discuss irrigation water requirements, system design and components, basic practices of system maintenance, scheduling, and chemigation. Attendees will learn how to properly determine needs and install irrigation to increase their production efficiency and minimize water usage.

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## UPCOMING EVENTS

For more information or to register, visit [www.noble.org/events](http://www.noble.org/events) or call 580-223-5810. Preregistration is requested. For other agricultural questions, please call our Ag Helpline at 580-224-6500.

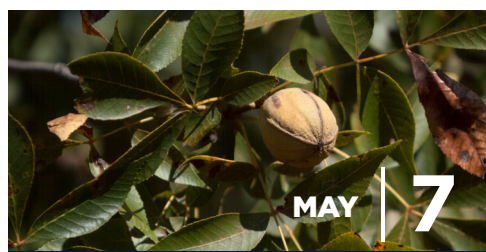


# Pond Management Series

**MAY | 23**  
**MAY 30 AND JUNE 6**

Ponds can provide endless hours of recreation as well as increased value to a property. There are many goals for an impoundment, such as sport fishing, waterfowl, livestock water, swimming, fire suppression supply and irrigation supply.

**All sessions 6-8 p.m.**  
**Noble Research Institute Pavilion**  
**No Registration Fee**



**MAY | 7**

### Managing Your Native Pecan Grove Effectively

**9 a.m.-Noon**  
**Noble Research Institute**  
**No Registration Fee**



**MAY | 10**

### Is Specialty Crop Production for you?

**6:30-8 p.m.**  
**Kruse Auditorium**  
**No Registration Fee**



**MAY | 14**

### Advanced Beef Quality Assurance Workshop

**9 a.m.-3 p.m.; Oswalt Ranch**  
**Registration Fee: \$25, Includes lunch**



**MAY | 15**

### Introduction to Integrity Beef Seminar

**4-9 p.m.; Pavilion**  
**No Registration Fee, Dinner Provided**