What Is Limiting Soybean Yield?
Laura Lindsey, OSU Extension

As I travelled the state this winter, the same question came up, “What’s limiting soybean yield? No matter what I do, I get the same soybean yield every year.”

With funding from the Ohio Soybean Council and North Central Soybean Research Program, I am embarking on a state-wide project aimed at generating some baseline producer data on current soybean management practices in Ohio’s production systems. The project goal is to identify key factors that preclude the state soybean producers from obtaining yields that should be potentially possible on their respective individual farms. The term used for the difference between what yield is possible on your farm each year and what yield you actually achieve is called a “Yield Gap.”

To participate in this research, please see the online survey: https://www.surveymonkey.com/r/ohiosoybean

We are asking crop producers in Ohio to provide us with yield and other agronomic data specific to their soybean production fields. With that data, we could then conduct an in-depth analysis of what on-farm factors might be causing a Yield Gap on producer farms. We intend to provide annual reports to all crop producers informing them of what factors we may have identified that, based on our analysis of the data collected from farms, are likely limiting you from achieving soybean yields closer to yield potential that is likely possible on your farms.

Specifically, we are requesting yield and other data specific to two 2015 fields of soybean and also two 2014 fields of soybeans, that YOU grew on your farm. We recognize that you may best remember the yields and related agronomic data for the 2015 season because you just harvested those fields within the past few months. However, we would very much appreciate additional data in the last two columns of the Survey Form for two 2014 soybean fields on your farm. If you cannot recall or do not have data for any given cell in the columns shown on the Survey Form, leave them blank.

We look forward to receiving your data. Keep in mind that all data submissions will be kept strictly confidential. In this project, our objective is to WORK FOR YOU. Our goal is to use the data YOU supply to help YOU get soybean yields on YOUR farm fields that, in the future, will be closer to the potential soybean yields that are possible on those fields, once you know what production system factors are holding back YOUR current soybean yields.

Cover Crop Program Renewed for 2016

The Knox SWCD Board of Supervisors is pleased to announce that the Muskingum Basin Cover Crop Initiative Program that was so popular the last 3 years will be renewed in 2016. Program guidelines remain basically unchanged for the 2016 cropping season. Growers may enroll up to 200 acres with an expected cost-share rate of $12.00 an acre for the establishment of a cover crop. Eligible cover crop types include a wide variety of small grain, grass, legume and brassicas. All cropland is eligible for submission, but priority scoring will be directed to ground that will be in corn for silage and/or soybeans in 2016, and, ground that will be used for manure disposal in fall 2016/spring 2017 or that is located adjacent to either the Kokosing or Mohican State Scenic Rivers. Scoring for program eligibility will be based on a field by field assessment. Growers are urged to provide specific USDA Farm and/or Tract numbers as well as field numbers with their application. The application forms and agreements can be obtained by contacting the Knox SWCD office.

For further program details, or to sign up for the program contact Rob Clendening at the SWCD office at 740-393-6724. The local application submission deadline is Monday, June 13th.

Cover crops like the cereal rye seeding pictured above help reduce soil erosion, suppress weeds, and improve water quality. Cover crops planted through the SWCD program last fall will keep 25,000 pounds of nitrogen, 12,500 pounds of phosphorus and 24 million pounds of soil out of Knox County waterways this year!
Don’t Forget to Schedule No-Till Drills for Spring Planting

Producers interested in renting the Knox SWCD’s no-till drills establishing pasture/hay or planting soybeans this spring should contact the SWCD office now. Early sign-up for the SWCD’s no-till drill rental program allows our staff to plan ahead in the scheduling and maintenance of the equipment and helps insure (weather permitting) that you will have the equipment when it is needed.

As usual the SWCD will have available one 10’ Truax no-till drill suitable for warm season grass establishment, and 2 10’ John Deere 1590 with grass-seed attachments. The drills rent for $10.00 an acre; the renter is responsible for reporting equipment acres. For more details on rental, tractor requirements, or operation of the drills you may contact the SWCD office at 393-6724.

Local Livestock Farms Can Apply for Fencing Funds

Knox County livestock owners may now apply for incentive program funding through the Knox Soil and Water Conservation District for fence and off stream watering systems for livestock. The program, made possible with funds provided by the Muskingum Watershed Conservancy District and U.S Fish and Wildlife Service is aimed at reducing livestock access to local streams and improving water quality. The program will pay for 100% of the cost to establish fence to exclude livestock from streams up to the equivalent Knox County USDA-EQIP cost share rates. The fence must be maintained for 10 years and livestock are not allowed access to the area between the new fence and the stream. Many fence types are permitted and either “permanent multi wire” or “dual wire exclusion” fences will be considered. Exclusion type fences must generally be electrified and all fence installations must meet the minimum requirements in the specifications of the local USDA Technical Guide. The provisions for off stream watering systems which may include pipelines and tanks from existing wells, spring developments, and in some cases new wells, are available only when installed in conjunction with a fencing project. Required buffer or setback widths vary depending on size of the watershed, generally from 15-35 feet measured from the top of bank.

For more information on the program or to apply, contact the Knox SWCD at 740-393-6724.
USDA Develops Resources for New and Beginning Farmers

The U.S. Department of Agriculture will prioritize $5.6 billion over the next two years for new and beginning farmers. A new, tailored web tool designed to connect farm entrepreneurs with programs, services and resources is available for anyone interested in getting started into farming at www.usda.gov/newfarmers. The site features advice and guidance on everything a new farm business owner needs to know, from writing a business plan, to obtaining a loan to grow their business, to filing taxes as a new small business owner, starting or expanding an operation, developing new markets, supporting more effective farming and conservation practices, and having access to relevant training and education opportunities. By answering a series of questions about their operation, farmers can use the site’s Discovery Tool to build a personalized set of recommendations of USDA programs and services that may meet their needs. To learn more about the new and beginning farmers website, visit www.usda.gov/newfarmers.

Enrollment Period for 2016 Agricultural Risk Coverage Continues

Producers who chose coverage from the Agriculture Risk Coverage (ARC) or the Price Loss Coverage (PLC) programs can visit the FSA county offices to sign contracts to enroll in coverage for 2016. The enrollment period will continue until Aug. 1, 2016. Although the choice between ARC and PLC is completed and remains in effect through 2018, producers must still enroll their farm by signing a contract each year to receive coverage. Knox County farmers may complete this during their annual crop certification after their crops are planted. Producers are encouraged to contact their local FSA office to schedule an appointment to enroll.

Farmers Breakfast Reminder

April 19—Biosecurity Measures, Dr. Sue Skorupsi, APHIS
May 17—Social
June 21—Locally Produced Foods

*Monthly meetings will be held on the 3rd Tuesday of the month at 8 a.m. at Bob Evans. In the private meeting room.

Please join us to discuss timely farm topics, Q & A, and general discussion.
- Bring your questions and a friend!
- Breakfast will be at your expense and ordered off the menu

Representatives from Knox FSA, NRCS, SWCD, and OSU Ext. will be present with updates.

Have a speaker or topic idea? Call 392-0891. Katie. We are planning 2016 topics now.

Dates to Remember

Mar. 31 --- Final Availability for 2014 crop wheat, barley, oats, honey loans and LDPs.
May 30 --- Memorial Day Holiday. FSA Offices Closed.
May 31 ---- Deadline to apply for 2015 commodity loans and LDP's on feed grains, soybeans, pulse crops.
July 4 ----- Independence Day Holiday. FSA Offices Closed.

Selected Interest Rates for 2016 Agricultural Risk Coverage

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<tr>
<td>Farm Storage Facility Loan -- 7 year</td>
<td>1.625%</td>
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<tr>
<td>Farm Storage Facility Loan -- 10 year</td>
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<td>Farm Storage Facility Loan -- 12 year</td>
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<td>Commodity Loans 1996-Present</td>
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Farming Operation Changes

Producers who have bought or sold land, or added or dropped rented land from their operation must report those changes to the FSA office as soon as possible. A copy of the deed or recorded land contract for purchase property is needed to maintain accurate records with FSA. Failure to do so can lead to possible program ineligibility and penalties. While making record updates, be sure to update signature authorizations. Making record changes now will save time in the spring.

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Proper Management of CRP Grass Cover

In the past, aesthetic mowing of CRP grass cover was a widely accepted practice by many participants. Today with more research and understanding, it has been shown that properly managed grass cover will reduce soil erosion, improve water quality, and is more beneficial to wildlife than annually mowed grass covers.

Wildlife, especially grassland birds including pheasants and quail, and pollinators, such as bees and butterflies, view properly managed CRP cover as a source of food and habitat suitable to raise their young. Wildlife will not be attracted to CRP cover if plants are not allowed to mature. Game birds and bees are disappearing because of habitat loss.

Properly managed grass cover does not include noxious weeds such as thistle and teasel or woody species like trees and multiflora rose. These noxious weeds must be controlled.

This can be done in several ways. Mowing of CRP cover, not to exceed 20% of the total CRP acres in a field, is permitted. This activity must be included in your conservation plan and be conducted outside of Ohio’s primary nesting season (March 1st – July 15th). The location of this mowing should be changed from year to year. Another option to control noxious weeds is by spot mowing affected areas or spot spraying of an approved herbicide.

These treatments will have a minimal effect on the CRP practice cover’s ability to meet the purposes of erosion control, water quality, and wildlife habitat. Unauthorized disturbance of CRP cover is considered a violation of the terms and conditions of the CRP contract and conservation plan. Violations could potentially result in hefty penalties including contract termination and refund of all contract related payments.

Properly maintained CRP cover can be very attractive if noxious weeds and invasive species are controlled and grasses and wildflowers are allowed to mature. Please scout your CRP fields before weeds go to seed. Contact your local FSA office for permission to spot treat your CRP grass cover during Ohio’s primary nesting season (March 1st – July 15th). Plan to have your CRP cover assessed for the need of mid-contract management activities that are designed to enhance your CRP cover for wildlife. Mid-contract management is a contractual obligation that is outlined in your CRP-1 Appendix and conservation plan.

Contact the FSA office for more information on proper maintenance and management of CRP practice cover.

Tree Assistance Program (TAP) Available

Orchardists and nursery tree growers who experienced losses from natural disasters can sign up for the Tree Assistance Program (TAP) at the Knox County FSA Office. TAP provides financial assistance to qualifying fruit and nursery tree growers to replant or rehabilitate eligible trees, bushes and vines damaged by natural disasters. For 2016, eligible losses must occur on or after Jan. 1, 2016, and before December 31, 2016. A notice of loss must be filed with FSA and provide supporting documentation within 90 days of the disaster event or the date when the loss is apparent.

Eligible tree types include trees, bushes or vines that produce an annual crop for commercial purposes. Nursery trees include ornamental, fruit, nut and Christmas trees that are produced for commercial sale. Trees used for pulp or timber are ineligible. To qualify for TAP, fruit growers must suffer a qualifying tree, bush or vine loss in excess of 15 percent mortality from an eligible natural disaster.

The eligible trees, bushes or vines must have been owned when the natural disaster occurred; however, eligible growers are not required to own the land on which the eligible trees, bushes and vines were planted. If the TAP application is approved, the eligible trees, bushes and vines must be replaced within 12 months from the date the application is annually approved. The cumulative total quantity of acres planted to trees, bushes or vines for which a producer can receive TAP payments, cannot exceed 500 acres if physical evidence of the lost trees, bushes, or vines no longer exists, the owner must provide documentation to determine the eligible trees, bushes, or vines existed and were lost on each stand because of the approved disaster condition.

Examples of documentation can include:

- Receipts for the original purchase of the eligible trees, bushes, or vines where TAP is requested,
- Documentation of labor and equipment used to plant or remove the eligible trees, bushes, or vines that were lost,
- Chemical, fertilizer, or other related receipts to substantiate the existence of the eligible trees, bushes, or vines.
- RMA appraisal worksheet may be used by COC to substantiate applicant’s certification of trees lost.

For more information, producers are encouraged to review the TAP fact sheet or contact the Knox County FSA Office at 740-392-0891.

Emergency Assistance for Livestock, Honeybee, and Farm-Raised Fish Program (ELAP)

The Emergency Assistance for Livestock, Honeybees and Farm-Raised Fish Program (ELAP) provides emergency assistance to eligible livestock, honeybee, and farm-raised fish producers who have losses due to disease, adverse weather or other conditions, such as blizzards and wildfires, not covered by other agricultural disaster assistance programs.

Eligible livestock losses include grazing losses not covered under the Livestock Forage Disaster Program (LFP), loss of purchased feed and/or mechanically harvested feed due to an eligible adverse weather event, additional cost of transporting water because of an eligible drought and additional cost associated with gathering livestock to treat for cattle tick fever. Eligible honeybee losses include loss of purchased feed due to an eligible adverse weather event, cost of additional feed purchased above normal quantities due to an eligible adverse weather condition, colony losses in excess of normal mortality due to an eligible weather event or loss condition, including CCD, and hive losses due to eligible adverse weather.

Eligible farm-raised fish losses include death losses in excess of normal mortality and/or loss of purchased feed due to an eligible adverse weather event.

Producers who suffer eligible livestock, honeybee, or farm-raised fish losses from October 1, 2015 to September 30, 2016 must file:

- A notice of loss the earlier of 30 calendar days of when the loss is apparent or by November 1, 2016
- An application for payment by November 1, 2016

The Farm Bill caps ELAP disaster funding at $20 million per federal fiscal year. The following ELAP Fact Sheets (by topic) are available online:

- ELAP for Farm-Raised Fish Fact Sheet
- ELAP for Livestock Fact Sheet
- ELAP for Honeybees Fact Sheet

To view these and other FSA program fact sheets, visit the FSA fact sheet web page at www.fsa.usda.gov/factsheets.
As it relates to agriculture, the term animal unit was first used in 1976 as part of the federal rules and regulations requiring states to participate in the National Pollutant Discharge Elimination System (NPDES) program. One animal unit was set to equal a 1,000-pound feeder steer. To calculate the number of animal units for other livestock species, multipliers were used. For example, the multiplier factor for ducks was 5 (5,000 animal units); mature dairy cows, 0.7 (700 animal units); swine weighing more than 55 pounds, 2.5 (2,500 animal units); laying hens, 100 (100,000 animal units), and turkeys, 55 (55,000 animal units).

Ohio S.B. 141 required the Concentrated Animal Feeding Facility (CAFF) Advisory Committee to conduct an examination of the scientific appropriateness of the definition of animal unit and prepare and submit their findings and any recommendations for legislative changes to the definition to the General Assembly, the governor, and the directors of the state Departments of Agriculture, Environmental Protection, and Natural Resources – which has been completed. S.B. 141 required farms with more than 1,000 animal units to have a state Permit to Install (PTI) and Permit to Operate (PTO).

Livestock farming today is drastically different than when the animal unit measurement was first created more than 40 years ago. In 1976, most concentrated livestock farming was in large, out-door pens. Now most species are housed in enclosed facilities with manure and rainwater storage facilities. The original definition of animal units also wasn’t based on the science of manure production; i.e., five ducks don’t produce as much manure as a 1,000-pound steer.

Adopting the categories changed by new U.S. Environmental Protection Agency rules that account for the larger size variations in livestock farming today, the CAFF Advisory Committee changed the animal unit measurements to small, medium, large and major.

**Large CAFF**

Large concentrated animal feeding operations are required to obtain a PTI/PTO if they stable or confine at least the number of animals specified in any of the following categories:

- 700 Mature dairy cows (whether milked or dry)
- 1,000 Veal calves
- 1,000 Cattle, other than mature dairy cattle or veal calves
- 2,500 Swine (each weighing 55 pounds or more)
- 500 Horses
- 10,000 Sheep or lambs
- 55,000 Turkeys
- 30,000 Laying hens or broilers (using a liquid manure handling system)
- 82,000 Laying hens (using a non-liquid manure handling system)
- 125,000 Chickens other than laying hens (using a non-liquid manure handling system)
- 5,000 Ducks (using a liquid manure handling system)
- 30,000 Ducks (using a non-liquid manure handling system)

2) does one of the following:

Discharges pollutants directly into waters of the United States through a ditch constructed by humans, and flushing system constructed by humans, or another similar device constructed by humans.

Discharges pollutants directly into waters of the United States that originate outside of and that pass over, across, or through the facility or otherwise come into direct contact with the animals at the facility.

**Small CAFF**

Small concentrated animal feeding operations are those that do not fit the definitions established for the large and medium animal feeding facilities, and are designated by the Agriculture Director as a small concentrated animal feeding operation pursuant to state rules.
Thinking Making a Forage Seeding? Follow these Steps for Greater Success!

√ Best seeding dates for “spring” seedings in Knox County are April 1st to May 1st.

√ Identify problem weeds and apply a labeled herbicide, especially in no-till situations. Proper herbicide applications are a must for successful seedings!

√ Apply fertilizer and lime according to a current soil test. If you do not have a current year test with recommendations for your yield goals have an agronomist calculate an application from a test no more than three (3) years old. Phosphorus, Potash and Lime applications are especially important for Alfalfa seedings. IT’S NOT TOO LATE TO GET A SOIL TEST.

√ Always inoculate all legume seeds.

√ Choose a forage or seed mix appropriate for the site. For example; poorly drained sites, or those with low pH will yield poor results with alfalfa, consider another forage specie or expect a short-lived stand.

√ Choose the correct seeding depth, one quarter to three eighths of an inch is usually adequate, seed slightly deeper on sandy or droughty soils.

√ Make sure there are no potential problems with herbicide carry-over from the previous crop.

√ Consider treated seed, especially on alfalfa.

√ Consider no-till, no-till seedings are very successful with proper weed control.

√ If using a companion crop on spring seeded forages, be prepared to clip the companion crop so that it does not “out-compete” the desired forages.

√ On conventionally tilled broadcast seedings, increase the seed rate and drive closer than normal for the equipment in use and lightly incorporate the seed (with a cultipacker, light tine harrow or similar tool) following application. Poor stands in broadcast seedings generally result from inadequate coverage and poor seed to soil contact.

It’s Time to Plan Conservation Practice Construction

There is no time like the present for SWCD Cooperators to plan for the construction of conservation practices in Knox County. Many local landowners have signed-up for assistance on the installation of conservation practices in the various incentive programs available through USDA. As we move into the spring and summer construction season, it is important that preparations be made to get those practices on the ground and functioning. If you are one of those landowners who will be using the assistance of the SWCD/NRCS engineering staff this summer here are a few things to check off in preparation for your project:

- Meet with the SWCD Technical Staff to review the site and discuss your objectives.
- Be sure that our proposal and design meets your objectives.
- Review and agree to the construction drawings, or suggest changes that will allow the practice to fit your needs.
- Choose a competent contractor.
- Review the list of materials necessary to complete the job and determine who will be responsible for obtaining supplies (you or your contractor).
- Get any necessary permits or easements.
- Where necessary, coordinate activities with neighboring property owners.
- Notify the SWCD staff well in advance of the start of construction.
- Identify any utility locations for our staff.
- Be prepared to seed and mulch the project following construction to prevent unnecessary erosion.
- Make plans for emergency repairs that might be necessary due to unexpected rainstorms.
- Be prepared to pay your contractor upon completion of the project. Incentive program payments are generally made to you as the landowner and it is your responsibility to work directly with the contractor.

For more information, or a preliminary field visit, you may contact the Knox SWCD office at 740-393-6724 or the NRCS office at 740-392-7806.
Early Termination of Cover Crops
Rory Lewandowski, OSU Extension

Cover crops provide multiple benefits with regards to protecting soil from erosion, improving soil health, and as a component of a nutrient management plan. For those cover crops that over winter and resume growth in the spring, for example, cereal rye and annual ryegrass, an important question is when to terminate that cover crop. That decision should consider the next crop, planting date of that next crop, the spring weather pattern and purpose of the cover crop. For cover crops that have not been planted with the intention of providing a forage harvest, and that are on acres intended for corn grain production, this may be a year to consider early termination of that cover crop.

A driving factor for early termination of cover crops this year is the potential for a drier than average spring and summer. On a recent OSU Extension Ag Crops team conference call, Jim Noel from the National Weather Service talked about weather patterns following an El Nino year. Often the pattern is for the spring and summer months to be drier and warmer than average. At this point, warmer than average weather and plant growth points to an earlier spring. I have talked with several farmers who tell me that our soil moisture is drier than average. If this pattern holds, the risk is a cover crop can take up moisture that should be saved for the cash crop. At the recent conservation tillage conference in Ada I saw data that showed lower corn yields following cover crops in dry years when those cover crops were not terminated early enough. Those cover crops robbled soil moisture leading to delayed germination and slower development that was not made up compared to a corn crop planted with no cover crops or planted into a winter killed cover crop.

Given the risk of or the potential for a drier than average spring and summer, cash grain corn producers should consider terminating cereal grain and annual ryegrass cover crops in the late March to early April time frame. Ideally we would like to see less than 8 inches of growth for either of those crops. I have read several sources that recommend annual ryegrass be terminated at 6 inches or less of growth. The recommended method for early termination is the use of herbicides. Glyphosate should be effective, especially if day time temperatures are above 50 F, and is probably one of the most economical options. A Purdue Extension publication entitled “Successful Annual Ryegrass Termination with Herbicides” says that producers need to use at least 1.25 lbs. of acid equivalent /acre of glyphosate and possibly up to 2.5 lbs. of acid equivalent /acre of glyphosate under less than ideal conditions for herbicide translocation. Purdue research also shows that mixing 1 oz. of Sharpen with 1.25 lbs. of acid equivalent rate of glyphosate provides the most consistent results in terminating the cover crop. Mark Loux, OSU Extension Weed Specialist says that the Sharpen option only needs to be used where there is a desire for burndown help with marestail or other weeds. The advantage of using Sharpen for this purpose in the tank mix is that it won’t reduce the glyphosate activity which can happen with atrazine or 2,4-D in the mix. Dr. Loux’s recommendation is to use a minimum of 1.5 lbs. of acid equivalent/acre of glyphosate for cover crop termination and only include Sharpen if marestail control is needed.

Mount Vernon Farmers Market

With the beginning of spring comes the start of the farmers market. The market opens for business on May 7th at 9am-noon, ending the season on Saturday, October 29th. New this year is the hiring of a Market Manager. Dan Britton will be available during market hours, throughout the growing season to help vendors with marketing, customer questions and market promotions.

If you are interested in becoming a vendor contact the OSU Extension office.
**Soybean Cyst Nematode Sampling Can Be Done In The Spring.**
Anne Dorrance, OSU Extension

As many of you heard at our Agronomy School this winter, fluctuating temperatures that we have had this spring where we go from snow days to short days provides some opportunities to get the crews out and enjoy some nice weather. Sampling for Soybean Cyst Nematode is fine to do in the spring, especially in years where the ground thaws early.

It is becoming increasingly important in Ohio to know your numbers. Sounds like a cholesterol warning doesn’t it? In the case of SCN, less than 500 eggs per cup of soil and keeping it under 1,000 is what we need to shoot for on some fields. Non-detectable levels are like gold. If you haven’t tested in a while, here are some guidelines of fields to be sure to target:

1. Fields which are consistently low yielding, always below the county average.
2. Continuous soybean fields.
3. Fields with a healthy crop of purple dead nettle, shepherds purse, or planted to a legume cover crop. These can all serve as additional hosts to SCN and especially with a warm winter there will be some increase in nematode numbers.

If you have yield maps, especially for no-till farmers, target the low yielding pockets. SCN will stay in that one pocket, but the pocket will get larger over time with no-till. With cultivation, the pocket will get larger in the same direction that you till.

For a quick video on sampling for SCN check out OSU Dept of Plant Pathology Ph.D. Student Horacio Lopez Nicora’s take on “How to Properly Sample for Soybean Cyst Nematode:

http://plantpath.osu.edu/about-us/multimedia

Only two labs in Ohio will accept samples:

Spectrum Analytic Inc
1087 Jamison Rd NW
Washington Court House, OH 43160
800-321-1562
740-335-1562
(8995 E Main St, Bldg 23
Reynoldsburg, OH 43068
614-292-5006
($15/Sample)

**Knox County Master Gardener Volunteer Junior Growers Day Camp**

Junior Growers Camp is a 7 week camp for young gardeners ages 8-12. Camp will be held Thursdays from 9-11am beginning June 9th – July 21st at the Knox County Extension Office. Campers will learn: Basic Plant Parts, Good Garden Bugs vs. Bad Garden Bugs, Garden Pollinators, Composting, Plant Selection, Planting and Care. At the end of camp, campers will have products that they will be able to exhibit at the Knox County Fair.

Open flower/vegetable show. Campers do no need to have prior gardening knowledge in order to attend.

Sign-ups begin May 18th, 2016 costing $25 for the entire camp or pick and choose your days for $5 each.

For more information contact the Knox County OSU Extension office at 740-397-0401 or email Sabrina Schirtzinger at schirtzinger.55@osu.edu

**Vegetable Gardening Tips for Success**

The Knox County Master Gardener Volunteers will be holding vegetable gardening tips for success clinic on Saturday, May 7th from 9am-11am at the OSU Extension Office, 160 Columbus Road. Seasoned and new gardeners are invited to come with their questions and gain answers from Master Gardeners. Topics of discussion will include: soil sampling, container gardening, heirloom variety plants, pest and disease management. There is no cost to attend; however, registration is encouraged. Call The OSU Extension office at 740-397-0401 to register.

**Pruning Clinic**

Do you have trees that you are unsure how to prune? What to learn how to sanitize and stop spreading disease from plant to plant? Bring your own pruners and attend the Knox and Licking County Master Gardener Volunteer Pruning Clinic on Saturday, April 9th from 10am-noon at the LCMGV Learning Gardens and Educational Center; 771 East Main Street Newark OH. Call the OSU Extension office to get registered.

**Good Agricultural Practice Training**

Good agriculture practices or GAPs was developed to help in reducing the risk of on-farm produce contamination. Learn about the new FDA Food Modernization Act, water quality, worker training, health and hygiene, manure and compost handling, domestic and wild animals.

Producer growers in need of Good Agriculture Practice (GAPs) training for 2016 there will be a class on March 31, 2016 from 1-4pm at the Agriculture Service Building, 1025 Harcourt Road. Cost to attend is $20 per person. Pre-registration is required. Please call the Knox County Extension office at 740-397-0401 to register. Attending the OSU GAPs class does not equate to being ‘GAPs Certified.’

Sponsors include: The Ohio Dept. Of Ag Specialty Crop Block Grant Program, Ohio Agricultural Research and Development Center, and The Ohio State University Knox County Extension.

If you are unable to attend this training call the OSU Extension office at 740-397-0401 to learn about other classes being held in Ohio.

**Earth Day Festival-Healthy People, Healthy World– April 17th 10am-2pm**

The Brown Family Environmental Center at Kenyon College is proud to host the 10th Annual Earth Day Festival in Knox County Ohio in conjunction with its community partners - Knox County Health Department, Knox County Park District, Knox County Recycling & Litter Prevention and OSU Extension Knox County.

The Earth Day Festival celebrates healthy living for ourselves and our world – two goals that go hand-in-hand. Enjoy entertainment while connecting with resources for green, healthy living, plus support our economy and community by shopping with local producers of food and green products.

This unique, FREE event will feature:

* Over 90 exhibitors and vendors
* Kid’s activity zone, including Crunch Out Obesity demo with United Way
* Live music by Goslee Reed and Kean
* Farm market vendors & live farm animals
* Local artisans offering upcycled products
* Free health screenings
* Local food concessions by AVI, Kenyon’s local food partner
* Raffle to WIN A BICYCLE from Y-Not Cycling!
**Burndown Of Cover Crops**

This is a reprint of an article Dr. Loux wrote last spring. The information is still relevant for those of you looking to terminate your cover crops.

It can be difficult to find a comprehensive source of recommendations for the control of all of the possible cover crops prior to planting. Some resources we have used recently: “Successful termination of cover crops”, Purdue Extension, Pub #WS-50-W, available free online.

“A weed scientist’s perspective on cover crops”, a Powerpoint pdf by Kevin Bradley, University of Missouri Weed Science, available free online. Contains a summary of his research on cover crop termination and effect of residual herbicides on cover crop establishment.

Information we have gleaned on cover crop burndown based on these and various other resources:

- Optimal management of cover crops in the spring comes with experience and varies with soil type, weather, etc. Check with other growers/agronomists/consultants who have worked with cover crops in your area of the state since they may have the best knowledge for your situation.
- In general, smaller is better when trying to kill cover crops but applying too early can be detrimental under certain soil moisture conditions.
- Radish and oats typically die on their own over the winter and do not require additional burndown. However, radish that does survive the winter can be difficult to control.
- Cereal rye, winter pea, and hairy vetch are relatively easy to kill, while wheat, crimson clover, and annual ryegrass can be difficult to kill.
- Overall, glyphosate is still the most effective herbicide for cover crop control. It does not usually need help to control grasses. Rates should be increased for control of certain grasses, such as annual ryegrass and wheat. Mixing with other herbicides can reduce control of these species, especially under cold conditions. Glyphosate should usually be mixed with a growth regulator (2,4-D, dicamba, clopyralid) for control of legumes and other broadleaf covers.
- Gramoxone can be effective on hairy vetch and cereal rye (bigger is better), and even on small annual ryegrass. Most effective when mixed with atrazine, metribuzin, and/or 2,4-D.
- Liberty is expensive and not usually a good choice for control of covers. Most effective when applied with atrazine during warm, sunny weather.
- In many cases, the POST application of glyphosate in Roundup Ready corn or soybeans will help control covers that the burndown is not completely effective on.

More specifics for a few species:
- Cereal rye: up to 18 inches tall, glyphosate (0.75 lb ae/A). Increase rate on taller rye. Antagonism with other herbicides only a minor concern. Gramoxone can be effective on taller plants at high rates, especially when applied with atrazine and 28%. Adequate spray coverage is essential with Gramoxone – at least 20 gpa.

- Winter wheat: up to 18 inches tall, glyphosate at 1.1 to 1.5 lb ae/A. Increase rate on taller wheat. Antagonism with residual herbicides and 28% is a concern – apply alone in water for most consistently effective control. Smaller is better. Gramoxone is not consistently effective.
- Annual ryegrass: glyphosate, minimum of 1.5 lbs ae/A. Increase rate on larger plants or in cold weather.
- Hairy vetch and winter pea: glyphosate (0.75 to 1.1 lb ae/A) plus 2,4-D or dicamba. Gramoxone can control larger hairy vetch – apply with atrazine and/or 2,4-D.
- Alfalfa, clover: Glyphosate (1.1 to 1.5 lb ae/A) plus 2,4-D, dicamba, or clopyralid. Clopyralid is very effective on these species.

**It Is Not Too Late To Apply Nitrogen On Wheat**

Ed Lentz, Laura Lindsey, Steve Culman - OSU Extension

In many southern Ohio locations wheat has already reached Feekes Growth Stage 5. This is an ideal time to apply spring nitrogen: plants will soon begin a rapid uptake of N and the potential for N loss will be reduced because of this larger demand. The northern part of the state has begun to green-up and N can be applied as soon as fields are fit for equipment Ohio State recommends the Tri-State guide for N rates in wheat. This system relies on yield potential of a field. As a producer, you can greatly increase or reduce your N rate by changing the value for yield potential. Thus, a realistic yield potential is needed to determine the optimum nitrogen rate. To select a realistic yield potential, look at wheat yield from the past five years. Throw out the highest and lowest wheat yield, and average the remaining three wheat yields. This three-year average should reflect the realistic yield potential.

Table 10 in the Tri State guide recommends 110 lb N for yield goals of 90+, 70 lb for 75 bushels; and 40 lb N for 50 bushel yield goal (these recommendations are for total N and include any fall N). If you prefer to be more specific the following equation may be used for mineral soils, which have both 1 to 5% organic matter and adequate drainage:

\[ N \text{ rate} = 40 + (1.75 \times \text{yield potential} - 50) \]

We do not give any credit for the previous soybean or cover crop, since we do not know if that organic N source will be released soon enough for the wheat crop. The Tri-state recommends that you subtract from the total (spring N) any fall applied N up to 20 lb/A, whether you deduct fall N depends how much risk you are willing to take and your anticipated return of investment from additional N. Based on the equation above and deducting 20 lb N from a fall application, a spring application of 110 lb N per acre would be recommended for a yield potential of 100 bu, 90 for 90 bu potential; 70 lb for a 80 bu potential and 40 lb N per acre for a 60 bu potential. Nitrogen rate studies at the Northwest Agricultural Research Station have shown the optimum rate varies depending on the year. However, averaged over years, yield data from these studies correspond well with the recommendation equation given above. These studies have also shown that regardless of the year, yields did not increase above a spring rate of 120 lb N per acre.

The economic benefit of N stabilizers (especially nitrification inhibitors) diminishes as wheat reaches Feekes Growth Stage 6 since a rapidly growing crop has less risk for N loss. However urea may benefit from a urease inhibitor (products containing NBPT) if conditions for volatilization exist for several days after application. These conditions would include an extended dry period with warm drying temperatures (increases as temperatures go above 70°F) and evaporating winds. Urea applications need at least a 1/2 inch rain within 48 hours to minimize volatilization losses unless temperatures remain relatively cool. The urease inhibitor will prevent volatilization for 10 to 14 days with the anticipation of a significant rainfall event during this time.

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COLUMBUS, OH – Controlled trout-fishing opportunities on Cold Creek, one of Ohio’s unique streams, await fishing enthusiasts who enter a special lottery conducted by the Ohio Department of Natural Resources (ODNR).

A half-mile section of the creek, located at the ODNR Division of Wildlife’s Castalia State Fish Hatchery in Erie County, will be open to a limited number of anglers on selected dates from May 2–Nov. 30.

Anglers interested in fishing the stream must submit an application form and a nonrefundable $3 application fee between March 1–31 for the random drawing. Applications may be completed online at wildohio.gov or by calling 800-WILDLIFE to obtain an application form. Only one application is allowed per person. Application information can be obtained from the ODNR Division of Wildlife at wildohio.gov or by calling 800-WILDLIFE.

The adult fishing season will run May 2–Nov. 30, and a youth season will run June 13–Aug. 12. Applicants of the youth lottery must be under the age of 16 when they apply.

Approximately 90 adult and 90 youth permits will be issued. Individuals selected to participate will be allowed to bring two adults and three youths under the age of 16 (no more than six people total). Participation is determined by a computer-generated random drawing, which will be held in early April. The results of the adult drawing will be posted on the division’s website at wildohio.gov. Successful youth applicants will be notified by mail of their fishing dates.

Applicants not chosen will not be notified.

Special fishing rules will be in effect to ensure that a quality fishing experience is maintained throughout the season. One of these special rules prohibits catch-and-release fishing, with wildlife officials requiring that anglers keep all fish they catch. The daily bag limit will be five trout per angler.

Anglers will be required to check in at the hatchery upon arrival and check out at the end of their session. Fishing sessions will be open from 7 a.m.–12 p.m. for adult events. For the youth events, there will be two sessions per day, 7–11 a.m. and 11:30 a.m.–3:30 p.m. All anglers age 16 and older will need a valid 2016 Ohio fishing license.

An Ohio resident annual fishing license costs $19; a one-day fishing license costs $11. Those who purchase a one-day fishing license may later return it to a license agent to receive credit toward the purchase of an annual fishing license.

ODNR ensures a balance between wise use and protection of our natural resources for the benefit of all. Visit the ODNR website at ohiodnr.gov.

For more information, contact:
John Windau, ODNR Division of Wildlife
614-265-6325
Matt Eiselstein, ODNR Office of Communications
614-265-6860

Monarch butterfly populations and the habitat they need are in decline across North America, Mexico and Canada. Ohio has been identified as a priority state for monarch migration and fourth-generation monarchs. Fourth-generation monarchs are the individuals who will travel back to Mexico, spend the winter there, and then start their amazing life cycle all over again in the spring, ending back up in Ohio the next summer.

In May 2015, the National Strategy to Promote the Health of Honey Bees and other Pollinators (The Pollinator Health Task Force) tasked all states to work through federal, state, public and private actions in order to restore or create pollinator habitat with the goal of 7 million acres across the United States over the next five years.

The Ohio Pollinator Habitat Initiative (OPHI) is meeting this challenge head-on, working with multiple partners throughout the state in order to achieve this goal. OPHI is a statewide network of diverse partners that work together to provide education, outreach, research, hands on conservation, native seed collection, and technical assistance to all that have an interest in pollinators and protecting our food supply.

Our growing list of partners include the Ohio Department of Natural Resouces Division of Wildlife, The U.S. Department of Agriculture, The U.S. Fish and Wildlife Service Ecological Services Field Office, U.S. Fish and Wildlife Service Partners for Fish and Wildlife, Ohio Soil and Water Conservation Districts, Ohio Department of Corrections and Rehabilitation, The Ohio State University Extension, The Ohio State University School of Environment and Natural Resources, Wright State University Biological Sciences, and the Levin Family Foundation.

We need Your Partnership

It will take all of us working together to achieve our goal of providing pollinator and monarch butterfly habitat across the state of Ohio. It will take each of us, doing all we can, where we can. It may be in your backyard garden, at your school, church or place of business. The potential is great and opportunities exist almost everywhere. From big to small, these projects have the potential to help reverse the decline in monarch and other pollinator populations. We are looking for partners to help grow OPHI. You or your organization can help us sustain our efforts through a variety of ways including social media and online communication, outreach and public education, technical support and assistance, financial support, hands-on habitat creation, and more.

We fully believe that through a collective effort we can reach these goals to provide a healthier future for monarchs and Ohio pollinators.

Please feel free to contact us if you have any questions.

E-mail: Marci Lininger (marci.lininger@fws.gov)
Jeff Burris (jeffrey.burris@dnr.state.oh.us)
Lori Stevenson (lori.stevenson@fws.gov)
There is still time to order…

Knox SWCD 2016 Wildlife Packet/Tree Sales

Each year the Knox Soil & Water Conservation District offers landowners, homeowners and residents of Knox County an opportunity to purchase many varieties of tree seedlings at a lesser cost. Deer repellant is also offered for purchase. Orders can be submitted by completing the order form on page 12. Orders will be taken until April 5th or until supply is exhausted.

**Butterfly Bush Packet (3 seedlings 24”-36”)**

**$10.00/packet**

Vigorous growing, deciduous shrub producing long spikes of pink, purple, or white flowers. Full sun. Grows 6 to 8 feet. Attracts birds and butterflies.

**Eastern White Pine Packet (10 seedlings)**

4 yr. TP 2-2, 8”-12” $15.00

These 4 year old seedlings are large conifers with needles 5 to a cluster and 2 to 5 inches long. This is an excellent shade and ornamental tree. Our best pine for lumber. Has a rapid growth rate.

**Norway Spruce Packet (25 seedlings) $16.00/packet**

A medium to rapid growing evergreen of conical form. Cones are pendant and the needles usually have four sides. Stiff and sharp to the touch. Good drainage is necessary.

**Red Oak Packet (15 seedlings) $15.00/packet**

This wide, massive, long-lived shade tree is fast growing reaching 80 to 90 feet at maturity. Its lustrous green leaves change to russet red in the fall. It is commercially valuable timber and provides acorns for wildlife.

**Hardwood Packet (15 seedlings/3 varieties) $20.00/packet**

- **Sugar Maple:** A favorite shade tree with reliable fall color. Valued for its hard dense, fine-grained and difficult-to-split wood. Trees in open grows to 80 feet tall and 40 feet wide. Requires a fertile, well-drained soil and ample moisture. Full sun or partial shade. Performs poorly in compacted soil with limited root space.
- **Tulip Poplar:** Oval to round crown. Beautiful yellow, tulip-like flowers attract honey bees. Bright green foliage turns yellow in fall. Needs full sun and plenty of space. Grows 70-90 feet with a spread of 35-50 feet. Good to use to fill in vacant spots in tree plantings.
- **White Oak:** A large (90 feet) majestic native tree with wide spreading branches and leaves of blue-green which turn wine colored in the fall. Tolerates most soils except those very wet. It has a slow to medium growth rate. An extremely valuable timber tree and provides acorns for wildlife.

**Marking Flags**

Wire Staff Marking Flags are made of sturdy 15.5 gauge steel. Available in fluorescent colors such as orange and pink. Flags measure 4”x5” and are 30” high. Flags are sold in a bundle of 100. $8.00 per bundle.

**Plantskydd Soluble Powder Deer Repellent**

Proven effective in commercial applications, this 100% natural product is now available to the home gardener and landscape professional. Animals avoid treated ornamental, shrubs, perennials and annuals. The plantskydd can last up to six months over winter on dormant ornamental shrubs and 3 months on most other succulent/ broadleaf plants. The smell of the blood meal base powder deters the deer and wildlife. For more information visit www.plantskydd.com $20.00 per 1 lb. box. Also available is a 3 lb. package of a granular form which is sold for $22.00.
**KNOX SWCD WILDLIFE PACKET ORDER FORM**  
(Deadline - April 5, 2016 or until supply is exhausted)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>PRICE</th>
<th>TOTAL</th>
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<tr>
<td>EASTERN WHITE PINE (10-4yr)</td>
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<tr>
<td>BUTTERFLY BUSH (3)</td>
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<tr>
<td>NORWAY SPRUCE (25)</td>
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<tr>
<td>MARKING FLAGS (per 100)</td>
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<tr>
<td>HARDWOOD (15)</td>
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<tr>
<td>PLANTSKYDD</td>
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<tr>
<td>RED OAK (15)</td>
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<tr>
<td>TREATS 270 SEEDLINGS (1-lb) Powder</td>
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<tr>
<td>PLANTSKYDD (3-lb) Granular</td>
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</tbody>
</table>

**GRAND TOTAL**

Name:____________________________________ Phone:_____________________
Address:________________________________________________________________________
City:_________________ State:________ Zip Code:____________________
Email Address:_________________________________________________________________
(for pick-up notification)

Send payment and make checks payable to: KNOX SWCD, P.O. BOX 270, MOUNT VERNON, OH 43050
(Payment must accompany order)-Packets will be picked up at the Knox SWCD office, 160 Columbus Road Mount Vernon.

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**KNOX COUNTY AGRICULTURAL NEWS**

Knox Soil & Water Conservation District

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**Hurry - Deadline to order trees is April 5th or until supplies exhausted**

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