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OHIO STATE UNIVERSITY EXTENSION

NORTHEAST OHIO AGRI-CULTURE NEWSLETTER

Your Weekly Agriculture Update for Ashtabula, Portage and Trumbull Counties

June 28, 2022

Wheat ready to harvest soon in Portage County

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Hello Northeast Ohio Counties!

Wheat harvest is just about here! There are several growers getting their combines ready to head out to the field. The wheat has dried down quickly with our hot and dry weather.

It looks like we have a couple more days of dryer weather, before some much-needed rain heads our way.

Have a great week!

Lee Beers
Trumbull County
Extension Educator

Andrew Holden
Ashtabula County
Extension Educator

Angie Arnold
Portage County
Extension Educator

Nutrient Value of Wheat Straw

By: Laura Lindsey, Lee Beers, CCA, Ed Lentz, CCA
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/2022-20/nutrient-value-wheat-straw

Before removing the straw from the field, it's important farmers understand the nutrient value. This is especially important now with high N, P, and K fertilizer prices. The nutrient value of wheat straw is influenced by several factors including weather, variety, and cultural practices. Thus, the most accurate values require sending a sample of the straw to an analytical laboratory. However, "book values" can be used to estimate the nutrient values of wheat straw. In previous newsletters, we reported that typically a ton of wheat straw would provide approximately 11 pounds of N, 3 pounds of P2O5, and 20 pounds of K2O. According to June 2022 fertilizer prices and nutrient removal "book values", one ton of wheat straw would remove N, P, K valuing approximately $30.31.

Table 1. What is the value of your straw? N, P_2O_5, and K_2O removed in straw, June 2022 fertilizer prices, and the total value of nutrients within the wheat straw.

	N	**P_2O_5**	**K_2O**
Removed in straw	11 lb/ton	3 lb/ton	20 lb/ton
June 2022 Price	$1.10/lb N	$1.07/lb P_2O_5	$0.75/lb K_2O
Value	$12.10	$3.21	$15.00
TOTAL VALUE OF REMOVED NUTRIENTS = $30.31 PER TON			

The nitrogen in wheat straw will not immediately be available for plant uptake. The nitrogen will need to be converted by microorganisms to ammonium and nitrate (a process called "mineralization"). Once the nitrogen is in the ammonium or nitrate form, it is available for plant uptake. The rate at which mineralization occurs depends on the amount of carbon and nitrogen in the straw (C:N ratio). The USDA reports a C:N ratio of 80:1 for wheat straw which means there are 80 units of

carbon for every unit of nitrogen. Mineralization rapidly occurs when the C:N ratio is ≤ 20:1. At a C:N ratio of 80:1, mineralization will be much slower. (For comparison, corn stover is reported to have a C:N ratio of 57:1.) The rate of mineralization is also influenced by soil moisture and temperature. Since mineralization is a microbial-driven process, mineralization will be slowed (halted) in the winter when temperatures are cold. Thus, no N credit is given for wheat straw since it is not known when the N will mineralize and become available to the following crop.

In addition to nitrogen, the removal of straw does lower soil potassium levels. If the straw is removed after heavy rainfall, some of the potassium may have leached out of the straw, lowering the nutrient value. However, a soil test should be done to accurately estimate nutrient availability for future crops. Besides providing nutrients, straw has value as organic matter, but it is difficult to determine its dollar value.

Supplemental Forages to Plant in July After Wheat

By: Mark Sulc, Bill Weiss
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/2022-20/supplemental-forages-plant-july-after-wheat

Some producers may be considering planting a supplemental forage crop after winter wheat grain harvest for various reasons. Some areas of the state are becoming very dry. In many areas, the wet weather this spring resulted in ample forage supply, but good to high-quality forage is in short supply because of the wet weather that delayed harvesting until the crop was mature, or it resulted in rained-on hay that lowered quality.

The table below summarizes options for planting annual forages after wheat harvest.

Species	Comments
Corn plant silage	Highest single-cut forage yield potential of all choices. Silage quality will be lower than normal planting dates. The risk is getting it harvested at the right moisture for good fermentation.

Forage sorghum Sorghum-sudangrass Sudangrass	Best harvested as silage. Brown midrib (BMR) varieties have higher digestibility and are best for growing animals and lactating cows; however, conventional varieties are okay if BMR seed is not available. Can produce 3-4 tons of dry matter/acre. Potential high nitrates under drought conditions. Risk of prussic acid (hydrogen cyanide gas) if frosted.
Soybean silage	A reasonable alternative to replace alfalfa forage. Check seed treatment and herbicide labels, many restrict forage use.
Teff grass	Best suited to beef and sheep; lower yield than sorghum grasses. Can be harvested as hay or silage.
Millets	Best suited to beef and sheep; many produce a single harvest. Best harvested as silage. Potential high nitrates under drought conditions. Pearl millet has no prussic acid after frost damage.
Mixtures of annual grasses with soybean	Best harvested as silage. Mixtures of sorghum grasses or millets or even oats and spring triticale with soybean are feasible and soybean can improve forage quality characteristics.

The forage grass options all require adequate nitrogen to maximize yield potential, either as fertilizer or manure (about 60 lbs of actual available nitrogen per acre). Check any potential herbicide restrictions from the previously planted crop and consider herbicides used after wheat and before planting these annual forages.

Chopping and ensiling or wet wrapping are the best mechanical harvest alternatives for most of the options listed. Wilting is usually necessary. Storage and harvest costs are greater, and fermentation quality can be poor with crops less than about 30% DM (greater than 70% moisture). Ideally, silage should be left undisturbed for at least two weeks to allow the forage to reach stable fermentation. If forage is needed sooner, consider daily green chopping of forage or wet wrapping individual bales for feeding until the silage is ready. Except for Teff, dry baling any of the listed forages is a challenge. Work with your nutritionist to incorporate these alternative forages into properly balanced rations.

In addition to these options, Italian ryegrass or oats can be planted in early August, if soil moisture is adequate. They will produce forage into the autumn months, and Italian ryegrass will likely survive the winter and produce forage next spring and early summer depending on the variety planted. They are suitable for ensiling or wet wrapping or grazing in the autumn. Brassicas can be planted in early August as well, but they are only suitable for grazing in the autumn, not for mechanical harvesting.

For more information see the following:
https://dairy.osu.edu/newsletter/buckeye-dairy-news/volume-21-issue-3/emergency-forages-planting-early-mid-summer
https://forages.osu.edu/forage-management/forage-species-varieties/annual-forages

Consult the Ohio Agronomy Guide for management details, available at https://extensionpubs.osu.edu/ohio-agronomy-guide-pdf/

Tri-State Precision Agriculture Conference

By: Alan Leininger
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/2022-20/tri-state-precision-agriculture-conference

The second annual Tri-State Precision Agriculture Conference will be held at Northwest State Community College in Archbold, Ohio on July 27, 2022. This year's event will highlight sprayer and pesticide application technology. The morning sessions will feature presentations on Best Practices for Efficient Application of Pesticides by Erdal Ozkan, Professor Department of Food, Agriculture, & Biological Engineering Ohio State University; How to Manage Sclerotinia White Mold in Soybeans by Michael Staton, Soybean Educator Michigan State University; Managing Tar Spot in Corn by Pierce A. Paul, Professor Cereal Pathology, Epidemiology Ohio State University.

During the event, a hands-on sprayer demonstration featuring sprayer calibration, deposition, drift from different nozzles, spray uniformity, and boom movement. The afternoon will feature technology demonstrations from manufacturers such as John Deere, Hagie, Case IH, Hardi, and many more. Demonstrations on current UAS "Drone" spraying technology will also be featured. Several agribusinesses will be featured in the trade show area including the field demonstration companies. Private Pesticide Applicator credits (PAT) and Certified Crop Advisors (CCAs) recertification credits will be available. You may register for the event at https://go.osu.edu/henryanr2022. If you would like more information, please contact the Henry County Extension Office at 419-592-0806 or email at leininger.17@osu.edu.

Lupin Used as Winter Cover Crop Boots Summer Sorghum Yield

By: Raleigh Darnell
Source: https://www.agronomy.org/news/science-news/lupin-used-winter-cover-crop-boosts-summer-sorghum-yield

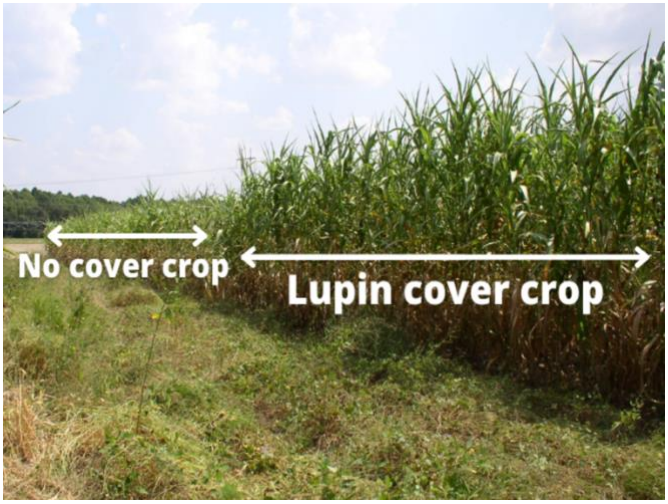
Lupin is a well-known garden flower, and is an important part of a healthy habitat. Lupin grows rapidly and puts nutrients back into the soil. (Lupin is commonly referred to as “lupine” for those familiar with this plant.)

Lupin belongs to a family of plants known as legumes. Legumes build up nitrogen in the soil. Nitrogen is crucial for plant growth, flowers, and fruits. Legumes like lupin make nitrogen available in the soil for other plants that would not otherwise have access to the precious nitrogen. Due to its resilience, lupin has real potential as a winter cover crop for farmers and growers.

A hardy lupin with white flowers at a breeding nursery in Tifton, Georgia. Lupin was used as a winter cover crop for sorghum and cotton as part of this study. Credit: Joe Knoll

Joseph Knoll, research geneticist (plants) for the USDA Agricultural Research Service (ARS) located in Tifton, GA, and his team evaluated several species of legumes, including narrowleaf lupin, at two farm locations in Georgia. The study focused on how lupin can serve as a winter cover crop and how it can affect subsequent high-biomass sorghum and cotton yields. As Knoll attests, “you can see the difference in height and greenness of the plants.”

The study was published in Agronomy Journal, a publication of the American Society of Agronomy.



Two test plots of sorghum show differences in performance midsummer when grown side-by-side. The sorghum to the front-right of view was grown with lupin as a winter cover crop. The sorghum grown with lupin had an increase in height and greenness compared to sorghum grown without lupin. Credit: Bill Anderson

Sorghum, a highly productive biomass crop, can vary greatly in crop appearance. Some crops may grow as tall, green stalks. Other neighboring sorghum, however, can pale in comparison to height and greenness. What made the difference? “The tall sorghum in the foreground is after growing lupin during the preceding winter,” says Knoll. No matter how plants look during one growing season, though, farmers need more information to make sound management decisions.

Following the changing of seasons, the team followed a rotation of sorghum, winter cover, and cotton. As the crops grew in real time, the research team recorded observations over the course of the five-year study. The research team compared lupin with several other types of cover crop legumes and rye. They found lupin to harbor the greatest biomass and nitrogen for summer crops. The long-term data the research team produced will allow farmers to consider land management strategies that will benefit not only their revenue, but also the land and environment they depend on.

A researcher for this study inspects and assesses overall health and quality of biomass sorghum in test plots at the Belflower Farm site. This information helps the research team consider how variables such as location, year, cover crop, and treatment influence the performance of summer crops. Credit: Bill Anderson

The soil data alone will fuel future research. Due to the vast amount of data, Knoll and

his team plan to present this information in a forthcoming research paper. The soil data will provide insight into the relationship between nitrogen, carbon, and cover crops. “We are currently pouring over the soil data from this study right now and intend to look at soil N and C effects from covers,” Knoll says.

Narrow-leaf lupin decorate the field rows in arrangements of whites, pinks, and blues at a local lupin breeding nursery near Tifton, Georgia. Lupin is a well-known garden flower and is an important part of a healthy habitat. It is also referred to as lupine. Credit: Bill Anderson

Soil will not be the only direction for future research, though. “We are also continuing to study lupins, including white lupin, as winter cover options in the Southeast,” Knoll says.

The research was supported in part by ARS base funds.

Upcoming Extension Programs

The following programs have been scheduled for NE Ohio farmers. Check back each week as more programs are added to the calendar