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N Fixation in Soybeans

In our corn/soybean rotation budgets, nitrogen rates and the related costs are a big factor in whether the crop is profitable or not. With fertilizer prices where they are today, we should be *very* happy soybeans do such an efficient job of producing their own N.

Soybeans capture atmospheric nitrogen through a symbiotic relationship with soil bacteria in a process called biological N fixation. This fixation process in short means despite the fact nitrogen needs by the soybean crop are fairly high, supplemental N is seldom needed. In fact, a 70 bushel per acre soybean crop has a total N uptake of over 300 pounds per acre (over 50 percent of that coming after the full pod stage) – and no added N is needed. The nitrogen needs are met by a combination of N in the soil reservoir and the aforementioned biological fixation.

A 2016 study across 23 Midwest locations investigated the effect of nitrogen fertilizer applications on the nitrogen fixation process. The results: neither yield nor protein were affected by added N applications, further reinforcing the need for a focus on making sure the biological fixation process is optimized. In fact, the study even showed a decrease in the biological fixation process when nitrogen was added to the system.

Soybean research just like this will be part of the program for the K-State Soybean Production School coming to the Northeast Kansas Heritage Complex south of Holton on Tuesday, January 25th. Fertility, weed control, and insect management will also be discussed. For information, see the flyer (with registration information) at: <https://www.meadowlark.k-state.edu/docs/crops-soils/event-flyers/KSU%20Soybean%20Schools.pdf> or contact the Holton Office of the Meadowlark Extension District at (785) 364-4125 (e-mail dhallaue@ksu.edu). Registrations are requested by January 14th.

K-State Garden Hour Webinar Series

Hosted by K-State Research and Extension horticulture staff across the state, the K-State Garden Hour is one hour a month of great gardening information you won't want to miss. Forty-five-minute training sessions are held the first Wednesday of each month at noon followed by a question and answer period with the presenter and other KSU Horticulture specialists.

The first session on vegetable varieties is in the books. All sessions are recorded for later review, with last year's sessions available as well. Check out what the series has to offer by visiting the KSU Horticulture Information Center at: https://hnr.k-state.edu/extension/info-center/k-state-garden-hour-webinar-series/k_state_garden_hour.html.

Cindy Williams
Meadowlark Extension District Agent
Food, Nutrition, Health and Safety

January is Radon Action Month

Because of its odorless, tasteless and colorless ways, radon can be a silent killer and unfortunately, it's fairly prevalent in Kansas soils. The radioactive gas that occurs naturally in some soils is the No. 1 cause of lung cancer in non-smokers. It claims the lives of about 21,000 Americans every year, according to the EPA. But there are ways to test for it and mitigate it. To help raise awareness and encourage people to have their homes tested, the EPA has deemed January as National Radon Action Month.

The Kansas Radon Program encourages all homeowners to test for radon. Test kits can be obtained from your Meadowlark Extension District offices located in Seneca, Holton or Oskaloosa. These kits include the testing kit, information to send off for the lab analysis and return postage. Currently, the cost of radon kits is \$6.00, but once our stock is used up the cost will go up.

More than 112,000 radon measurements have been reported in Kansas, according to the Kansas Department of Health and Environment. The agency indicated that the statewide average indoor radon level in Kansas is 4.9 picocuries of radon per liter (pCi/L), which is above the EPA threshold of 4.0.

For homeowners who test and find elevated radon levels in their homes, the most common technique to reduce it is called Active Soil Depressurization. An ASD mitigation system is a permanently-installed pipe-and-fan system that places a direct constant vacuum on the soil beneath the home's foundation, so the amount of radon that can penetrate into the living space is reduced.

More information about radon, testing and mitigation is available at kansasradonprogram.org/home or by calling the Kansas Radon Hotline at 1-800-693-5343. For more information, please contact Cindy Williams, csw@ksu.edu, or by calling 785-863-2212.