



Your local link to MU for ag extension and research information
<http://agebb.missouri.edu/agconnection>

For more information
please contact your
MU Extension Center:

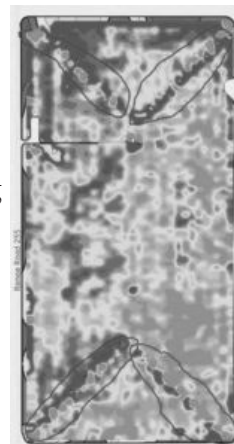
Adair
(660) 665-9866
Audrain
(573) 581-3231
Boone
(573) 445-9792
Callaway
(573) 642-0755
Chariton
(660) 288-3239
Clark
(660) 727-3339
Howard
(660) 248-2272
Knox
(660) 397-2179
Lewis
(573) 767-5273
Linn
(660) 895-5123
Macon
(660) 385-2173
Marion
(573) 769-2177
Monroe
(660) 327-4158
Pike
(573) 324-5464
Putnam
(660) 947-2705
Osage
(573) 897-3648
Ralls
(573) 985-3911
Randolph
(660) 269-9656
Schuyler
(660) 457-3469
Scotland
(660) 465-7255
Shelby
(573) 633-2640
Sullivan
(660) 265-4541

Harvest and Planning for the Next Growing Season

Harvest is always an exciting time of the year, to reap the workings of an entire growing season and begin evaluating decisions to make for the coming season and year. Knowing how trials, varieties/hybrids, and management practices influenced final yield at harvest is critical to understanding what the best decision is to make for the next year, and continually improve.

Pre-Season Planning

Yield data is a great way of validating what happened throughout the season, and how the decisions made in years past will pay off in the future. Although the environment will dictate many final reports, using yield data for pre-season planning can help identify opportunities in input decisions, zone management, and marketing the crop. One should always remember the yield map from this season is just an indication of what happened this year. Areas that performed poorly may just be an area of low fertility, and getting a full picture of the “Why?” behind those areas helps greatly in planning. Understanding hybrid differences across soil types and fertility timing/placement can all be ways of using yield data to make efficient decisions at the beginning of the year.



In-Season Decisions

Yield and harvest data can also be used to make in-season decisions when paired with precision ag technologies giving insight across a farm. Understanding variability in the field from one season to the next can help determine whether to make that next fungicide pass, or put on extra fertility. Exciting advances are being made in yield prediction. Predictive analytics can help provide information on what decisions to make and when a potential pest or environmental condition may affect yield.

Post-Harvest Analysis

Post-harvest analysis is one of the most exciting things that is continually evolving in precision agriculture. Analysis shows how decisions made during the planning and in-season parts of the year performed, and give a look into how to capture opportunity with data for next year.

How did planting a week later due to weather impact yields? Did those yields vary based on soil type or fertility? What did that fungicide pass return? Was it really that “bad hybrid” or was it over watered in the bottoms? Those questions may be answered with data analysis at the end of the season, reducing the guesswork of making decisions for next year.

As harvest is completed, the question of “What to do with the data?” comes down to understanding how to capture opportunity. Raw yield data is only as good as the calibration, which can never be constant throughout the day with changes and erroneous points coming from speeds, moisture, and swath widths, starts and stops, multiple machines, and different crops. Using processed data to get an accurate report enables a producer to use a validated layer for decision-making. However the yield data is used, a processed layer is key to removing those points that can give a false report, and give the clearest picture for the process to start again in 2019.

Source: *Kent Shannon, natural resource engineer*



Weathering the Coming Financial Storm

The outlook for farm commodity prices makes it imperative for producers to be proactive and informed as they make business decisions. In an analysis by the Federal Reserve Bank of Minneapolis, 84 farm operations in the upper Midwest (North Dakota, South Dakota, Minnesota, Montana and Wisconsin) filed for Chapter 12 bankruptcy from June 2017 to June 2018. This is double the total from 2014 and even surpassed the 2010 level at the peak of the Great Recession. Current price levels and trends suggest the number will continue.

The new Farm Bill has not yet been passed into law as details are still being finalized. The Farm Bill plays a significant role in farm financial decisions. As of December 5th, Representative Collin Peterson (MN), ranking member of the House Ag Committee, commented:

- Few changes on crop insurance
- ARC and PLC expected to continue
- CRP acres allowed to expand by 3 million acres to 27 million acres, but at lower rental rates
- Small dairy farmers (< 5 million pounds of milk per year, roughly 240 cows) get a higher safety net which should keep them in business
- No forestry management included in the bill
- SNAP will not be subject to work requirements

Currently, U.S. meat supply (beef, pork, and chicken) is in strong demand. In 2017, consumption in the U.S. was 214 pounds of meat per person and is expected to be 221 pounds per person in 2019. However, heifers on feed indicate a slow-down in expansion of the breeding herd. This is not a surprise with drought in much of the U.S. this year, especially in the leading cow/calf states of Texas, Missouri, and Oklahoma. High quality beef continues to be a growth market. Producers who want to stay in agriculture must adapt to consumer demands, said Dr. David Kohl at an Agricultural Lenders’ seminar in Kirksville on November 30.

On the crop side, lower prices are projected with tighter margins and larger carryover stocks. Due to low prices, PLC looks to be a better option over ARC if there are no major changes. Crop demand growth is export driven. Price volatility is expected with a wide spread in basis. This volatility may allow for some market capture. Now is a good time to develop a marketing plan based on 70% of multi-year average production. Historically, crop prices have been higher if crop was sold by July of the year following harvest. Nearly 2/3 of soybean demand and 1/4 of corn demand is export dependent. Mexico is pivotal in corn export growth, China is pivotal in soybean export growth. Therefore, export demand will largely depend on the tariff situation and the value of the U.S. dollar.

Other alternatives to maintain cash flow include value-added production and off-farm employment. Benchmarking costs against other producers and keeping down fixed costs will be critical. There will be pricing opportunities due to the usual factors – weather, oil prices, disease outbreaks, and other events. Be sure to know cost of production in order to capitalize on market fluctuations.

Profitability will be tough through 2019. Take advantage of opportunities to minimize losses. Work with lenders and other advisors to develop different strategies to weather this period.



Source: *Darla Campbell, ag business specialist*

MU Variety Testing Results are online

Corn <https://varietytesting.missouri.edu/corn/>

Soybean <https://varietytesting.missouri.edu/soybean/>

On both sites just click on “results”

Benefits and Characteristics of Healthy Soils

The terms ‘soil health’ and ‘soil quality’ are used interchangeably and becoming very familiar these days among farmers and agricultural scientists. USDA-NRCS has defined soil health as, “the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals and humans.” From the soil health perspective, soil is an ecosystem full of life, which needs to be carefully managed to maintain its ability to function optimally. When soil is not functioning to its full capacity, sustainable crop productivity, environmental quality and net farm profits are jeopardized in the long-term.

Soil health is a function of soil use and management over time. It is affected by various soil and crop management practices related to soil disturbance, organic residue addition, crop rotation and diversification. Some important soil functions related to crop production and environmental quality include:

- Retaining and cycling nutrients
- Supporting plant growth
- Sequestering carbon
- Improved water infiltration and storage
- Suppressing pests, diseases and weeds
- Detoxifying harmful chemicals
- Supporting the production of food, feed, fiber and fuel

Benefits of Healthy Soil

There are many benefits of maintaining and improving soil health, which include:

- Better plant growth, quality, and yield
- Reduced risk of yield loss during periods of environmental stress (e.g. drought, heavy rain, pest or disease outbreak)
- Better field access during wet periods
- Reduced fuel costs by requiring less tillage
- Reduced input costs by improving use efficiency of fertilizer, pesticide, herbicide, and irrigation applications

Characteristics of Healthy Soil

Increased soil microbe biomass and activity is the most important function of a healthy soil and the primary factor for the following characteristics:

Good soil tilth refers to a soil that is crumbly, well-structured, dark in color due to a higher organic matter content and no large or hard clods.

Sufficient root depth refers to the extent of the soil profile through which roots are able to grow to find

water and nutrients. A soil with a shallow depth because of a compaction layer or past erosion is more susceptible to damage in extreme weather fluctuations, thus predisposing the crop to flooding, pathogen, or drought stress.

Good water storage and drainage is characteristic of a healthy soil with macro pores. These macro pores are large and stable conducting water to the medium and small pores for later use. This range of pore sizes in a healthy soil allows for increased water storage for plants during dry periods.

Improve plant nutrient availability by maintaining a balanced nutrient cycle for optimal plant growth. An excess of nutrients in soil can lead to leaching and potential ground water pollution, high nutrient runoff and greenhouse gas losses, as well as toxicity to plants and microbial communities.

Crops growing in healthy soil are more tolerant of environmental stresses such as drought and high rainfall events or biological stresses such as insect pests and diseases. A healthy soil can also rebound more quickly after a negative event, such as harvesting under wet soil conditions.

Source: *Dhruba Dhakal, agronomy specialist*

Farm Bill Sent to President

Due to the time lag in sending the newsletter to the printer and then getting it in the hands of farmers, some times things happen. Most likely by the time this newsletter is read, there will be a New Farm Bill called the Agricultural Improvement Act of 2018.

The Senate passed the final bill on December 11 by a margin of 87 to 13. The House followed on December 12 voting to pass the bill with a 286 to 47 margin.

More than 75 percent of the \$867 billion price tag over a 10-year period funds the SNAP program.

The bill is 807 pages in length.

This newsletter will have more details on several key points in the months ahead, once it is officially law and time to study more details.



Private Pesticide Applicator Training

(for those who need to obtain a license and those who need to renew a license)

Adair (Kirksville) – Feb. 20 @ 2 p.m. (660-665-9866)	Marion (Palmyra) – Jan. 16 @ 2 p.m.. (573-769-2177)
Audrain (Mexico) – Jan. 23 @ 2 p.m. (573-581-3231)	Monroe (Paris) – Jan. 22 @ 2 p.m.. (660-327-4158)
Boone (Columbia) – Jan. 30 @ <i>call office for time</i> (573-445-9792)	Pike County (Bowling Green) – Jan. 9 @ 2 p.m. (573-324-5464)
Clark (Kahoka) – Jan. 28 @ 2 p.m.. (660-727-3339)	Putnam (Unionville) – Feb 26 @ 2 p.m. (660-947-2705)
Howard (Fayette) – Jan. 28 @ <i>call office for time</i> (660-248-2272)	Ralls County (Center)– Jan. 24 @ 6:30 p.m. (573-985-3911)
Knox (Novelty) – Jan. 15 @ 2 p.m. (660-397-2179)	Schuyler (Lancaster) – Jan. 29 @ 2 p.m. (660-457-3469)
Lewis (Lewistown) – Feb. 11 @ 6:30 p.m. (573-767-5273)	Scotland (Memphis) – Jan. 10 @ 2 p.m. (660-465-7255)
Linn (Linneus) – Feb. 13 @ 2 p.m. or 6 p.m. (660-895-5123)	Shelby (Shelbyville) – Jan. 8 @ 2 p.m. (573-633-2640)
	Sullivan (Milan) – Feb. 11 @ 2 p.m. (660-265-4541)