Corn and Grain Sorghum Weekly Update – March 11, 2016

2016 Update No 1

<u>Corn and Grain Sorghum Update</u> – Dr Jason Kelley (Wheat and Feed Grains Specialist)

A limited amount of corn has been planted in parts of southern Arkansas and even in Northeast in the 10 days prior to the recent heavy rains this week. Given the rainfall totals of 5-10 inches or more in some areas this week, it is good that not much corn had been planted. We are still very early in the planning window and still have considerable time to get corn planted without losing yield potential. It is far more important to consider the stand that will be realized instead of focusing on getting corn planted early. High yields need to have good stands and ultra-early plantings often result in stands not as ideal as planned. In planting date studies in past years, the highest yields tended to come from late March to Early-April plantings. Next week will hopefully bring sunshine and drier weather and we can get prepared to plant corn later this month.

<u>Corn Fertility Update</u> – Dr Trent Roberts (Assistant Professor, Crop, Soil & Environmental Science)

Preplant N Management in Corn

With the weather warming up and the unusually mild winter that we experienced, a lot of producers are interested in getting a head start on their 2016 corn crop. As most producers know, N is the fuel that powers large corn yields and its proper management throughout the season is critical not only for maximal yield production, but also producer profitability. Nitrogen is essential for optimal corn production, but the problem is that N is a great magician. You can apply it as urea one day and within a matter of weeks it can be transformed to various organic and inorganic components that can render it lost or unavailable for corn uptake. Preplant or at-planting N can help get the corn crop off to a good start, but unfortunately this application timing is very inefficient, with as little as 30-50% of preplant-N making it into the corn plant by harvest. The season-total N uptake for a 225 bu/acre corn crop is ~250 units N/acre, with some of this N coming from both the soil and added fertilizer-N. As a general rule of thumb, a high-yielding corn crop will only contain 25-30 units of N per acre at the V8 growth stage when sidedress N is generally applied. Current work in Arkansas shows that the majority of the N in the plant at the V6 growth stage is actually provided by the soil, not the preplant-N fertilizer. Another useful thing to keep in mind is that corn demands for N are quite small until the V8 growth stage when corn begins rapid biomass and nutrient accumulation. So knowing what we know about corn N needs throughout the season, how do we need to manage preplant N to ensure that we are maximizing corn grain yield, but not wasting money?

1. Preplant-N rates in corn should be 30-50 units N/acre as this is the least efficient N application time. Moving N fertilizer that you would typically apply preplant to an in-season application timing such as sidedress or pretassel will increase its uptake and result in greater return on your N fertilizer investment.
2. Preplant-N fertilizer sources should be restricted to ammonium or ammonium-forming fertilizers, such as urea, ammonium sulfate, DAP, MAP, and ESN (Environmentally Smart Nitrogen). By using ammonium-based fertilizers you delay the potential losses of N through leaching and denitrification that will occur in fertilizers that contain nitrate. Although ammonium-based fertilizers can eventually be converted to nitrate, this is a process that takes time and varies from soil to soil. Therefore, an ammonium-based fertilizer is more likely to be plant available for a longer period of time. The product ESN is a polymer-coated urea that protects urea and slowly releases it for plant uptake over time and is dependent on soil moisture and soil temperature. ESN is an excellent preplant-N alternative, but is sometimes cost prohibitive if the season-total N rate is not being applied preplant.
3. Preplant or at-planting-N should be incorporated to increase uptake efficiency. Placement of preplant-N as well as other preplant-fertilizers such as P, K and Zn are critical and have potentially the greatest influence on nutrient uptake and utilization. Banded or incorporated preplant-N will have the greatest potential for corn uptake and the closer you can place preplant-N within the root zone of a developing corn plant the more likely it is to be taken up and not lost.
4. Preplant applications of ammonium sulfate or DAP that are incorporated into the bed prior to planting to meet P and S needs will often times supply adequate N to carry the corn plant until the sidedress N application.

Overall, preplant-N is more prone to loss before the V6 growth stage when sidedress-N is typically applied and therefore producers should be very careful about the rates and ways that they apply preplant-N to ensure that their investment is not wasted. The most efficient approach to optimize corn N uptake and reduce loss potential is to apply 30-50 units N/acre and incorporate into the bed immediately prior to planting. Remember that the further in front of planting that you apply your preplant-N fertilizer, the less likely it is to be there when the corn plant is actually large enough to use it. Also, preplant-N that is not incorporated into the bed has very little opportunity to be taken up by the corn plant prior to the V6 growth stage due to the limited root system not being able to "reach" the N until later in the growing season (after sidedress). Understanding how and when corn takes up and utilizes N will help you determine when and where preplant-N can be helpful, but surface broadcast applications of preplant-N are very inefficient and that fertilizer would be better used at sidedress than preplant when the corn plant is actually large enough to access and utilize the N.

<u>Corn and Grain Sorghum Research Verification</u> – Kevin Lawson (Corn & GS Verification Coordinator)

2016 will be the seventeenth year for the Corn and Grain Sorghum Research Verification Program. This year 6 corn fields and 5 grain sorghum fields have been enrolled. The River Valley County Agents will participate in a joint field in Conway County with other fields in Clay, St Francis, Prairie, Jefferson and Lincoln Counties. The grain sorghum fields will be in Lawrence, Pope, White, Lee and Jefferson Counties. Currently I am meeting with County Agents and producers going over soil samples and selecting hybrids. If the weather stays warm we could be planting the first fields around March 20.

Southeast Arkansas Update – Kevin Norton (Ashley County)

Ashley County has received 11+ inches of rain this week. There is a lot of flooding in all areas of the county. I know of 1,200 acres of corn planted in Ashley County before the rain started, possibly more. A few thousand acres were planted in Chicot County around Eudora before the rains. It looks like it is going to be awhile before we dry out.

Central Arkansas Update – Brett Gordon (White County)

Prior to the rainfall, much progress was made in land preparation, especially in southern White County. Producers were able to apply burndown and take care of tillage operations. I would estimate anticipated corn acreage in White County to be in the neighborhood of 4,000 acres. Anticipated grain sorghum acreage will be less than 1,000 acres, mainly planted on dryland fields as a rotational crop to combat herbicide resistant pigweeds.

Northeast Arkansas Update – Stewart Runsick (Clay County)

Dry conditions in February allowed for field work in Clay County. Much of the corn ground is bedded or has at least been cultivated. A lot of fertilizer went out over the past 2 weeks. We have processed a lot of soil samples also. I expect corn acres to increase in 2016. Last year, producers harvested around 25,000 acres. In 2013 the number was 38,000 acres. I would not be surprised to see a 20% increase in corn acres. Last year, grain sorghum acres were nearly 10 fold previous years. I expect a substantial decrease in grain sorghum, but we will still have maybe 5,000 acres in the County. I have been getting calls on burndown applications. I don't think a lot went out, fields are still pretty clean and most were worked in the fall or this winter.

River Valley Update – Kevin VanPelt (Conway County)

The dry weather since the first of the year has allowed producers in the area to get most of their corn ground worked up or burndown treatments applied. Even pre-plant fertilizer applications have already gone out, but some are waiting to get poultry litter applied to their fields before discing. Rain has slowed field work down in the last week, but for the most part they are sitting on go and ready to plant as soon as soil temperatures warm up enough. With no market in the River Valley for grain sorghum there won't be much planted, but most producers in Conway County are planning to have 20% more acreage in corn this year.

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Extension Corn Webpage – www.uaex.edu/corn

Extension Grain Sorghum Webpage – www.uaex.edu/grain-sorghum

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