

What do we know?

2012 is quickly becoming one for the record books. Above normal temperatures and low rainfall early allowed us to get into the fields and get the crops planted in record time. Warm temperatures sped development. Close to perfect populations along with emergence in our areas could hardly have been better if you had written a wish list to the Almighty Himself.

As if to remind us of what we already inherently know, the lack of rainfall and high temperatures have taken the potential for a record crop and brought us to the realization that however perfect we execute our duties of planting, fertility and overall management, the weather will be the final determining factor of our crop.

This letter is just an informational letter to let you know what we know, and what we don't know about the corn crop. We are focusing on corn right now because of the physiology of the corn plant. Pollination has occurred and therefore, by definition, you know the number of rows and length of ears used to make estimates of yields. Two unknowns at this point are kernel fill and test weight which can be significant additions or subtractions to yield. These unknowns can still be helped by timely rainfall. Additional rainfall at this point will **not** affect pollination **nor** the length or number of rows on the ear. Don't pay too much attention to the old farmer's myth that you want to see the ears filled out to the end and if you don't, your yield is cut. That was a thought process that died many years ago. In fact, if you do scout your fields and see a lot of ears filled out to the end, you probably don't have your corn planted at optimum population levels for the modern hybrids.



The formula for estimation of yields is as follows: Population times number of rows times the number of kernels within each row and divide that number by 90,000.

For example: You have determined that you have a final population of 31,500. You get this by counting the stalks that have ears on them. Barren stalks or "suckers" are not counted. This year, because of the stress we are experiencing, there are more barren stalks than what we would find in a normal year. It is important that I mention now that unless you take a representative sample, all your work in the field will not give you accurate results. This is just an estimate anyway, so it will behoove you to do the best job you can. Be honest with yourself. Do you want to just talk at the coffee shop about an estimate or do you actually want to know what the possibilities are in your own field? Population for 30" rows is found by measuring off 17.5' of row and counting the stalks with ears. The more you do this the better your results will be. I do multiple counts within the field, usually to correspond to soil types or management

areas. I don't go to the best spot nor the worst unless I am wanting to get an upper and/or lower range for my estimate. Again, be honest with yourself!

While I am determining population, I pull the 3rd, 7th and 10th ears to estimate the rows and kernel length. Again, it is important to be consistent and honest. It is a temptation to pull that perfect ear instead of the scrawnier ear next to it, but you will be rewarded in accuracy with the number of honest replications that you make. When you get back to the barn or on the tailgate of the pickup, you can do all the counting of rows and kernel length, and the rest of the math. The fields this time of year are hot, sticky and itchy. Be sure to stay away from end rows and abnormal areas that may not be representative of the field in general. Instead of averaging, I like to run the yield on each ear. This can give you an idea of what is driving the yields in the whole field. In the end it is the average you will want to come up with but it is still interesting to know what the range of yields are in your field.

I want to stress again that this is only an estimate at this point. Test weight and kernel depth can and will affect the final yield. For further information, 90,000 is the approximate number of kernels in a bushel of corn in a normal crop year.

What else do we know about the corn crop? Two important items come to mind right away. We are way ahead maturity wise with not only a "normal" crop for when it was planted but calendar wise as well. This year's crop is going to come out early. The stress levels that the plants are experiencing actually accelerates maturity as the plants race to reproduce with the inputs such as water and light that they have at hand. If water is scarce, the plant will actually cannibalize themselves in order to produce grain. You might think that is good, until you realize that the cannibalization comes at a price. The first price that is paid is one of stalk quality. The second price to be paid is one of test weight. The deterioration of stalk quality is already occurring. It was noticed prior to tasselling and continues to this day. This is non-reversible. Stalk quality and root growth by definition stop at pollination, since we are pollinated, both are headed downhill from an abnormal peak prior to pollination. Not only are we going to have an early harvest, but we are going to have to deal with a subpar stalk. Any storm while probably welcome from a rain standpoint, could have drastic consequences as far as standability or harvestability. I'm only trying to make you aware of these possibilities in order for you to make informed decisions that could affect your bottom line.



Another drought problem that surfaces in corn is one of aflatoxin. Aflatoxin in corn is produced by certain mold fungi. *Aspergillus flavus* and *Aspergillus parasiticus* are 2 of the fungi that produce these toxins. The toxins can be harmful or fatal to livestock and are considered

carcinogenic to animals and humans. In the Midwest, aflatoxins are highest during hot dry summers. Prime conditions to produce the toxins are warm August nights during a period of drought. Just the kind of weather we are experiencing now. Any damage that occurs during harvest or handling of grain such as drying only exacerbates the problem. Infestation never gets better and only gets worse.

I have had experience with this toxin and my proximity to river terminals has taught me a lot. **You do not want to store grain that is infected with aflatoxins!** Bins can be your worst enemy when dealing with this quality issue. The toxins are byproducts from living organisms (fungi) that can and do spread within the bins given time and conditions. At the elevators, as the realization of the problem becomes more and more widespread, testing of every load will occur with rejection of the load for **ANY USE** above the 20 ppb (parts per billion) level. Dockage can and does occur at levels below the 20 ppb level. If you routinely store your corn crop in the bin, without constant monitoring you could end up with a value of zero. Not only that, but what do you do with a crop of corn in the bin you cannot get rid of? Please refer to the insert I have included or the link on the website for more information.

<http://www.extension.iastate.edu/Publications/PM1800.pdf>

I really don't want to deal with this problem anymore than you do. However, I would be negligent not to mention or make you aware of the potential problems inherent with this disease. In fact, I feel so strongly about this that I am making plans to move ALL of my corn to the market at fall if these conditions continue. I feel it is not worth the risk to store grain with aflatoxin in a bin. For those not wanting to price at fall, consider DP contracts, commercial storage or cash sale with a repurchase of futures positions. Please call me for details.

In respect to soybeans, it is a little early to tell much about yield yet. I will say that the beans stopped growing height wise about 10 days ago. This is not to say that shorter beans cannot yield. We are now at the R1 stage at the beginning of flowering. Moisture is critical from here on out to maximize soybean yields. Rain can and does affect yield all the way until 50% of the leaves have dropped from the plant. So as you can see, we have a lot of time yet to determine



yield of soybeans. Beans are hardier stress wise than corn. With corn, you want absolutely no stress for maximum yields. Soybeans on the other hand seem to respond positively to a period

of stress prior to podding if they receive timely rainfall to grain fill. We are testing those parameters this year. Time and weather will tell just how far stress wise we can go and not hurt yield if we receive timely rains from now until grain fill is complete.

In summary, this year is presenting us with some major production challenges. Not only could we be looking at reduced yields and quality, but harvest and storage problems as well. I am confident that we can handle these potential issues with forethought and awareness. Yield reductions have occurred and their extent depends upon the weather from this point forward. Common sense tells us that if we don't receive substantial rain soon, the production problems will continue to mount. If you have any questions, please don't hesitate to call or e-mail. I am as close as your phone or e-mail and we can draw upon other resources to answer any questions you might have that we can't answer.