

What Impacts Crop Yield?

AGRI-VIEWS

by Chuck Otte, Geary County Extension Agent

Humans are odd creatures. They tend to be competitive and sometimes for the strangest things. I knew two neighbors who had rain gauges 100 feet apart who were always trying to see who had the most rainfall. Unless it was droughty and then it was who had the least rainfall. I've known more than just a few gardeners who had to have the first tomato, or the biggest tomato/potato/sweet potato - just name it. Humans have an innate need for competition whether it is the first, the fastest, the biggest, it doesn't matter. And it seems to often come down to growing things.

Farmers all around the world are just like gardeners. Some want to be the first to plant, some want to be the first to take a load of wheat to the elevator, and everyone wants to have the best yield and hit the high of the market. Oh, unless it's a drought then some want the worst yields in the county. Let me be clear here - I'm not making fun of anyone. It's like this in every county across rural America and in every country around the world. It's human nature.

I've had the privilege to officially witness producers who have entered yield contests. I certified the highest dryland wheat yield in eastern Kansas one year. I've certified a lot of 275 bushel per acre corn (which is really good for our region by the way). It doesn't seem to matter how good the yield is though, human nature wants them to want more. Which brings up some real challenges however.

When I talk with these folks, whether it's a gardener or a crop producer, about maximizing yield, I always point out that maximum biological (agronomic) yield is not maximum economic yield. Gardeners don't care. They usually aren't trying to make a profit, they just want bragging rights! But for a farmer, when they talk about shooting for big yields, I ask them how much they are willing to spend with the understanding that maximum agronomic yield MAY result in losing money on those five or ten acres.

So what does impact yield in production of plant products. When asked, people immediately come up with an obvious list that frequently starts with fertilizer and water. Beyond that we've got variety, weed control, insects and diseases. At which point the listing often tails off very quickly. I always find this interesting because invariably the items listed are things that the grower has some control over. Yet some agronomists have stated that less than 50% of the things that impact crop yield are actually under control of the grower! Over half of the ultimate yield is controlled by items out of the growers control.

Let me add a few more thoughts to the list of what impacts growth or any plant. Fertilizer (nutrients) and water are big ones, but if we take it a step further, it's the timing of those fertilizer applications and timing of the water. If the crop is irrigated, the producer has some control. If it's dryland, as many of our crop fields locally are, you are at the mercy of Mother Nature. Maintaining optimal soil moisture is a challenge even in a small garden. Many people want to fertilize once and be done with it, but regular applications of smaller rates may be needed for optimal growth. Then we have factors like sunshine levels - a lot of cloudy weather at the wrong time can hurt plant growth. Temperature, both daytime and nighttime, as well as extremes and when they occur make an impact. Soil type has a big impact, and producers won't change that. In the end, whether you're a gardener with three tomato plants or a farmer with 3,000 acres, there's much you can't control, so you really need to focus on what you can control. And give a tip of the hat to Mother Nature's role in it all!