

Virginia No-till Alliance - February 7th – Harrisonburg, VA

Five Things to Help Increase Corn Yields – Missy Bauer

Increasing corn yields and profitability is on all farmers' minds. A great place to start is by improving soil fertility through management zones, understanding nitrogen management, improving ear count, having uniform soil density for adequate root growth, and using a good pest management program.

Utilizing management zones instead of traditional sampling, either by field or 10- to 15-acre blocks, will help manage the variability within your fields. Management zones can be created using several resources including soil type, yield maps, aerial photos, and elevation data. Yield monitor data can be very helpful in creating or fine tuning management zones if it is good quality data. It is very important for yield monitors to be calibrated properly based on varying grain flows. Depending on the brand of the yield monitor, you will run between two and five calibration loads at different grain flows. A calibration load should be only 4,000 to 8,000 pounds each. Aerial imagery available through Google Earth can also help you pick out variability within the field. Soil type often changes with elevation, so your high elevation soils may be different than your low soils. Pulling soil samples by GPS management zones will allow nutrients or lime to be variable rate applied if the soil test calls for it.

Nitrogen management is a critical part of increasing corn yields. Understanding the nitrogen cycle and how immobilization, mineralization, and nitrogen loss affect your corn crop is important. Volatilization, leaching, and denitrification are all part of nitrogen loss. Although reducing nitrogen loss is our main objective, if loss does occur in the field we need to react to the situation and not leave the corn crop short on nitrogen.

Uniform stand establishment will lead to great ear counts. Ear count loss through poor plant spacing or uneven emergence will hurt corn yields. Every 1,000 ears per acre are worth 5 to 7 bushels per acre. There are several things you can do with corn planter setup to improve your ear counts. Three common problems we see with corn planting are poor levelness (main tool bar) of the planter when running in the field, planting speed (too fast), and the wrong down pressure setting.

Uniform soil density is an important part of increasing corn yields. Soil density refers to the amount of air space between soil particles. Roots can't handle a sudden change in density. Corn roots naturally grow down at a 35- to 40-degree angle; however, if there is a sudden change in soil density then roots may grow horizontally instead. The first, second, and third sets of crown roots are important for the yield potential of the plant. An abrupt change in soil density is often caused by horizontal tillage. Soil density layers can be identified by evaluating roots, using tile probes or soil penetrometers, and digging soil pits. Soil density layers not only change root growth but also have an effect on water movement. Water movement down through the soil profile is slowed by soil density layers. Capillary action from roots in pulling water up from the subsoil in July and August is important; however, if density layers have restricted rooting depth this action is limited as well. Uniform soil density can lead to a good seedbed. A good seedbed is crucial for uniform corn emergence and ear counts.

Pest management is another very important part of increasing corn yields. It is important to be proactive with pest management systems and not reactive. Too often growers are reactive (acting too

late) to a pest situation, and the result is lost yield. Many pest situations with insects or disease are predictable based on the environment and factors of the pest triangle. Designating a person in your operation to be the Pest Boss will help improve the success of your pest management program. Too often we find that no one is responsible for what is happening out in the field. When problems do arise, people are then caught off guard. Be sure you have a Pest Boss on your farm.