

Variable Rate Fertilizer

Variable rates can be used in agriculture in different ways. Some of these include fertilizer, seed, and herbicides. Fertilizer applied using variable rates is rapidly becoming popular due to the increasing input costs. With variable rate fertilizers they can be spread at different rates across the field based on yield maps and fertility of the soil.

To get started using variable rate fertilizers, you are going to need a Global Positioning System (GPS) to map out the field coordinates and to use as a yield monitor during harvest. This will show where the most productive soils are and how fields can differ from one another and even different areas within a field can differ. You may think similar fields have similar yields and fertility but in reality they might not. Using this can help identify spots in fields where additional fertility would be beneficial to increase yields more on the productive soil, and reduce inputs on the soil where there are other limiting factors besides fertilizer. GPS technology may have a higher initial start-up cost, but it can pay for itself in the savings of fertilizer and seed when they are not overlapped.

After utilizing a GPS for monitoring and recording yields, you need to obtain soil samples from fields. The soil samples will measure the fertility of the soil and help decide on the amount of fertilizer that needs to be applied to either maintain production levels or increase them. There are different ways soil sampling can be taken; the first is grid sampling and the second, zone sampling. Each will help determine the fertility level of the soils.

Grid sampling is mapping out small sections of each field into "cells" where soil samples are going to be taken. A sample needs to be taken from each designated location; these can be one sample from a spot or numerous small samples taken within the area and lumped together into a core sample. Samples from various locations within the cell that is being collected from have a higher accuracy of representation of the soil in that particular area because it was not taken in one spot. According to a study conducted by Ohio State University, grid sampling can help improve the soils deficient in nutrients more rapidly than conventional sampling.

Zone sampling is a part of grid sampling, but the soils have more of a distinct similarity; it may be color, texture, yields, topography or other data that may differentiate soils from one another. Once fields have been broken down into sampling regions, the samples can be collected. Make sure the samples that are collected represent the area or the soil tests will not be worth doing.

Using variable rate fertilizers can cut back on fertilizer costs; soil sampling is also beneficial so you have the ability to use variable rate fertilizers to improve yields. There are costs associated with the soil sampling, but if they are done correctly, they can also save you money. For an example, if you use conventional soil testing, taking only a couple samples per field, and get a recommendation for an application of a fertilizer or lime that is high, it is going to have a high cost of inputs; whereas if you use grid sampling, with samples representing approximately 2.5 acres, you can find specific areas that are either low or high in fertility where fertilizer adjustments can be made accordingly. The use of variable rate fertilizers can not only cut costs but it can also reduce environmental concerns with the minimal amount of fertilizers applied to the soil.

References

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