

For Immediate Release
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Making Fertilizer Decisions during Drought **Jessica G. Davis and Wilma Trujillo**

As uncertainty over the weather builds on the winter's drought and the commodity prices, farmers are looking for ways to reduce risk and optimize yields. It may be tempting to cut back on your fertilizer program in order to reduce your costs this year. However, good nutrient management is key to optimizing water use, so be careful not to rush into any hasty decisions.

If you fertilized normally last year and experienced high yields due to timing and adequate moisture, there may not be nutrient leftovers from last year's applications. Soil sampling is extra important in a year like 2018 because of uncertainties about how much of last year's nutrients may still be available for this year's crops. In particular, there may be less nitrate (NO₃-N) than usual because of more rainfall, more crop uptake, and more leaching. So you may not be able to cut back on your N fertilizer this year. But be sure to soil sample prior to making this decision.

Many studies on a variety of crops over the past 50+ years have shown that optimizing water use efficiency cannot be achieved without optimizing nutrient management. They are intimately linked. Proper fertilization removes limitations to plant growth, so that plants are better able to respond to whatever rainfall or irrigation that they do get. Applying fertilizer to move soil nutrient concentrations out of the deficient category and into the sufficient category will allow your crop to get the most yield out of every drop of water.

Nutrient management doesn't only supply nutrients to crops, but can also improve soil quality and alter the way that water cycles through soils. In particular, applying manure or compost has been shown to improve water infiltration into soils and reduce runoff losses from the soil surface. Reducing runoff increases potentially available water for crops. In addition, manure and compost applications also increase soil water retention, especially at field capacity, effectively increasing the amount of rainfall that is stored in the soil for crops to access.



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Having a healthy root system is critical to maximizing plants' access to stored soil water. Healthy roots need N and P to mine the water from the soil. A single N and P fertilizer application to the soil surface can increase root growth down to a 3 foot depth! And, that increased rooting is directly related to enhanced water uptake and better yields.

Overall, be sure to avoid tunnel vision about rainfall. Of course, we need rain to get good yields, especially in our dryland crops. But rain, by itself, doesn't solve all of our problems (even though it may feel like it would!). We need to pay attention to soil fertility so the plants can perform their best with the water that they do have. That said, bring on the rain.
