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## DROUGHT AND FERTILIZATION

**Drought is a simple and unfortunate fact of life that agriculture must endure from time to time.** Those who went before us endured these times, in fact my aged father, a retired producer, still talks about the drought of the '50s. A multi-year event memorialized in the novel "The time it never rained". And just as sure as those who went before us endured and survived, so will we.

**Last year the Sept. 22 US Drought Monitor Map showed severe to exceptional drought covering the entire states of Texas and Oklahoma, most of New Mexico, eastern Colorado, and southern Kansas, while Nebraska was unaffected.** So far this year the conditions have shifted somewhat as a low pressure system brought needed rain in July to areas in the southern part of the Southern and Central Great Plains Region, but for the most part conditions are still tough, with the majority of the six state region still affected by some degree of drought.

Given last year's extreme conditions, the topic of drought and fertilization was addressed in this publication series (Fertilization after drought, Winter 2011-2012 No. 7 <http://www.ipni.net/pnt>) and in a more in-depth Insights newsletter (Nutrient management after drought, Nov. 2011 <http://www.ipni.net/insights>). This current article is meant only to point out a few basics when considering drought and fertilization. For more detail on the subject refer to the publications mentioned above or see some of our other Insights newsletters planned for release in 2012.

**A good starting question to ask when crops have been affected by drought is: how much nutrient export was there from crop harvest?** If corn, sorghum or other crop biomass was baled, then nutrient removal will be different than if grain were harvested as normal, and stalks remained. If nothing was harvested then of course exportation is zero. Where this (zero removal) is the case the majority of the fertilizer applied should still be in the system moving forward—either in the soil or in crop residue. So some carryover or credit for the next crop will be likely.

**Soil testing to determine the nutrient status of fields where crops were drought impaired is a good idea.** It is also good to consider the amount of nutrients present in the residue remaining, and how quickly those nutrients will become available to crops. Nutrients carried over in drought-affected areas may include:

- Mobile nutrients such as nitrate, sulfate, and chloride in the soil profile
- Immobile nutrients such as P, K, and Zn in the surface soil
- Nutrients in crop residues

Among the first tools farmers should think about when planning future fertility programs is a deep profile (at least 2 foot depth) soil test for the mobile nutrients, especially N. It is likely that some N will remain in the profile for use by the subsequent crop, and a soil test is the best way to tell. The immobile nutrients (e.g., P, K, and Zn) can be measured using a surface sample (6 to 8 inches depth). With P the availability and carryover is not always clear-cut, as P reacts in some soils to become less available over time; but, again soil testing is the best tool we have to make the determination. Potassium usually has a high carryover potential, since in all but a few specific cases its remains available over time.

The bottom line for drought-affected areas is that it is likely that there will be carryover of nutrients applied, and given the stressful circumstances it is advisable to make an effort to account for residual nutrition. Soil testing remains one of the best tools available for the job.

– WMS –

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Abbreviations: N = nitrogen; P = phosphorus; K = potassium; Zn = zinc.

Note: *Plant Nutrition TODAY* articles are available online at the IPNI website: [www.ipni.net/pnt](http://www.ipni.net/pnt)