

**Foliar feeding** of field crops has been around for years but may be under-utilized and may be worth offering this service to growers as an option.

In most cases, foliar feeding should only be done if soil tests are at maintenance levels or below, and nutrition is limiting the crop's full potential. Conditions such as high or low pH, temperature stress, high or low soil moisture, insects, nutrient imbalance, etc., can create the case for the use of foliar feeding by limiting the uptake of nutrients by roots.

**Planning** should be completed well ahead of planting, beginning with soil sampling. Estimate crop needs as usual, and take any foliar applications into account to meet those needs.



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**Nutrient deficiency symptoms.** Foliar feeding can provide rapid plant uptake and response to the nutrient application, and help resolve deficiencies.

In general, the efficiency of nutrient uptake is considered to be 8-9 fold higher when nutrients are applied to the leaves compared to soil application. Foliar applications of deficient nutrients can provide a quick, but often temporary fix.

**Meeting growth stage needs.** Plants require different amounts of nutrients during specific growth stages. Managing the nutrient balance in soil to meet stage-specific needs can be a challenge. Foliar applications of needed nutrients, including micronutrients if they are limiting, during key stages can improve plant health and yields.

Recommendations should be based on visual assessment of crop conditions, and/or soil or tissue testing, and considering current and near-term needs. For example, in soybeans an application of 3-18-18 between the V3 and V5 stages might be applied with an herbicide and micronutrients all in one pass.

Nutrients may be foliar-applied once or multiple times up to the time of tassel. Some research suggests that macronutrients, such as P and K, cannot get into the plant in sufficient volume in a single foliar application. Multiple applications may be needed. Micronutrients on the other hand are needed in much smaller quantities and have better potential to be absorbed in one application.

**Dry or liquid?** Effective foliar feeding with a liquid sprayer requires adequate coverage of plant surfaces, and can provide for immediate uptake. Broadcasting dry fertilizer is faster and easier but can take much longer for a response, and adequate soil moisture is needed for uptake through plant roots, especially for micronutrients.

### **Where can I go for more information?**

Penn State Extension

<http://extension.psu.edu/plants>

SMART Fertilizer Management <http://www.smart-fertilizer.com/articles/foliar-feeding>

NovusAg [novusag.com/2015/07/why-foliar-spray/](http://novusag.com/2015/07/why-foliar-spray/)