

Protect your soybean yields.



Protect your fields from disease pressure & increase your potential yield.

During fungicide application, it is important to consider a nutrient efficiency optimizer to maximize your field's potential.

Utrisha™ N

NUTRIENT EFFICIENCY
OPTIMIZER

Utrisha™ N nutrient efficiency optimizer is a natural bacterium that fixes nitrogen by converting N_2 from the air into ammonium NH_4^+ , thus providing a constant flow of nitrogen. Utrisha N can be tank mixed with certain fungicides like Aproach® Prima fungicide, it's biocompatible and goes into solution very well as a wettable powder. Tests indicate that mixing with Aproach Prima does not affect the Utrisha N colonization rate or viability.

Aproach® Prima

Onmira™ active

FUNGICIDE

Aproach® Prima fungicide, with Onmira™ active, combines multiple active ingredients to effectively stop pathogens and prevent the spread of disease. The result is a healthier soybean crop that can deliver higher yield potential and increased revenue per acre.

Soybean yield increase

from Utrisha N related
to yield potential in high
yielding environments¹

+3.2 bu/A

Despite their high demand for nitrogen, soybeans have historically received little or no nitrogen fertilizer. However, some studies have indicated that fixed N alone may not be sufficient to supply the N required to produce maximum yields. In fact, adequate N_2 -fixing capacity of soybeans declines rapidly after the R5 stage, which coincides with the peak soybean N demand for protein synthesis in seeds.

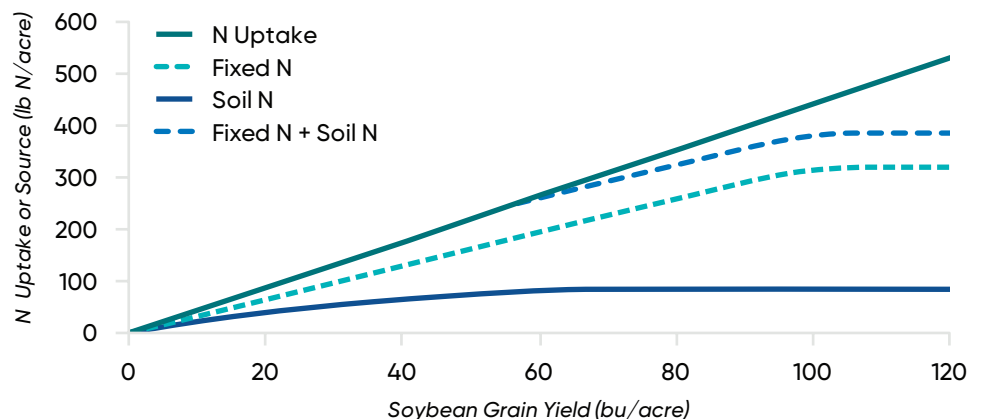
The N budget in **Figure 1** illustrates that there may be a small N deficit for yields 60–80 bu/A, which means that yield could be restricted because of too little N. Realistically, conditions that are favorable for top soybean yields are usually conducive to high soil mineralization as well, meaning N would not always be limited in the 60–80 bu/A range. However, as soybean yields continue to increase and yields in this range and higher become more common, N fixation and soil N mineralization will reach capacity in many growing environments. Thus, an increasing number of N shortfalls are almost certain to occur based on the current understanding of this system, particularly at yields near 100 bu/A.

Nitrogen Needs^{2,3} of Soybean

based on N budget

- **50 – 60 bu/A soybean yields:**
Additional N is likely not needed, except perhaps in soils with very low inherent N mineralization.^{2,3}
- **60 – 80 bu/A soybean yields:**
0 – 30 lbs/A additional N may be needed to reach this yield level.^{2,3} In soils with high mineralization capability, N may be sufficient.
- **80 – 100 bu/A soybean yields:**
30 – 60 lbs/A additional N may be needed to reach this yield level.^{2,3}
- **100 bu/A and higher soybean yields:**
More than 60 lbs/A additional N may be needed to reach this yield level.

Figure 1: Generalized N budget for soybean (adapted from Salvagiotti et al. 2008)



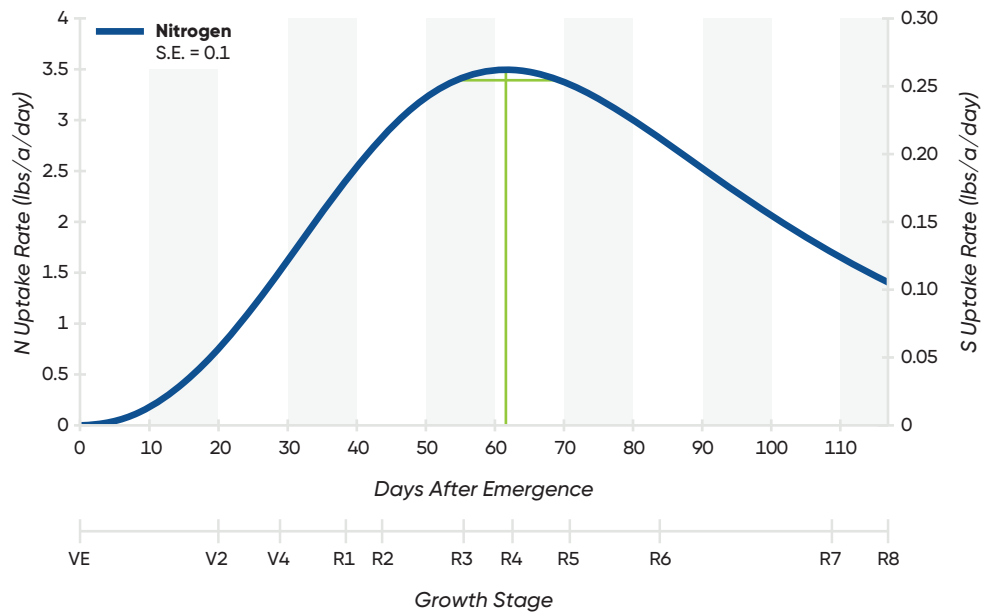
¹Data is based on average yield advantage of Utrisha N treated soybeans adjacent to untreated soybeans in 2021 field trials. Product performance is variable and depends on a variety of factors including but not limited to weather conditions, soil factors and manner of use or application. Individual results may vary. 26 trials of high yielding soybean environments with greater than 80 bu/A.

²These N needs are only approximations based on the N budget shown in Figure 1. Soybean fields are subject to a wide variety of environmental effects, including climatic, disease and insect pressures. Mineralization of N by soils and soybean N fixation is affected by soil moisture levels, temperatures and other factors that vary within season and from season to season. Consequently, soybean needs for fertilizer sources of N are variable and difficult to predict. Individual results may vary.

³In soils with low mineralization capacity (soils with low organic matter), an additional 20 lbs N/acre may be needed.

Figure 2: Uptake

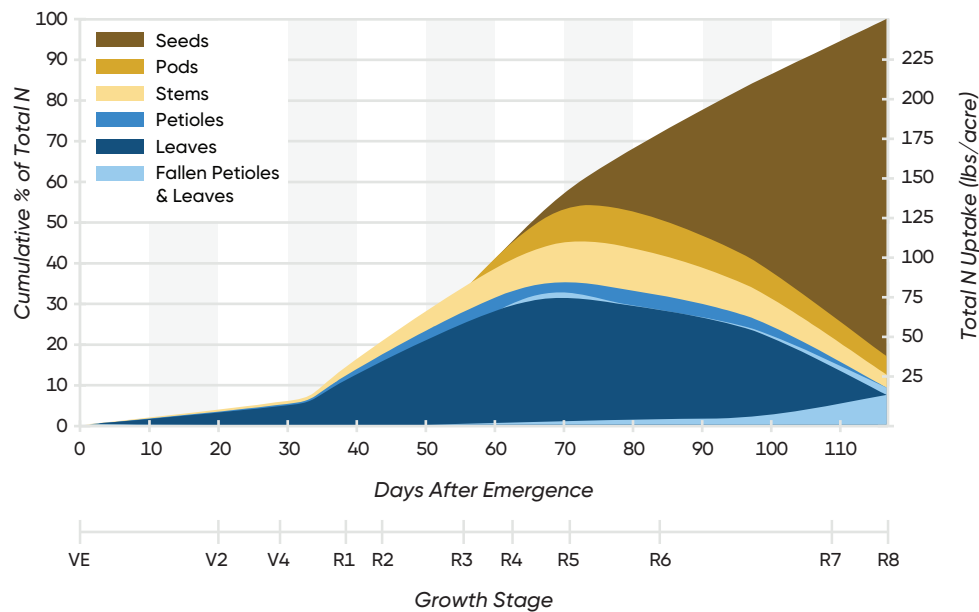
(adapted from Understanding Nutrient Requirements and Utilization for High-Yielding Soybeans. 2017)



Total N uptake prior to R1 was minimal due to a lag in the early season N uptake rate. However, the high yield level did have a greater early season uptake rate of 1.9 lbs. N/A./day at V4.

Figure 3: Partitioning

(adapted from Understanding Nutrient Requirements and Utilization for High-Yielding Soybeans. 2017)



Farmers should focus on production practices that maximize N₂ fixation and soil N mineralization throughout the whole growing season. At the high yield level, vegetative N remobilization (~100 lbs. N) combined with continued uptake to the seed after R5 (~160 lbs. N) resulted in an N harvest index near 84%. The N harvest index increased in parallel with yield.

For more information on Utrisha™ N nutrient efficiency optimizer and Aproach® Prima fungicide, please contact your local Corteva Agriscience territory manager or call **800-258-3033**.

Sources:

Salviagioti, F., K.G. Cassman, J.E. Specht, D.T. Walters, A. Weiss, and A. Doberman. 2008. Nitrogen uptake, fixation, and response to fertilizer N in soybeans: A review. *Field Crops Res.* 108:1-13.
 Schmidt, J. P. (2019, April 10). Nitrogen fertilizer for soybean. *Nitrogen Fertilizer for Soybean* | Pioneer® Seeds. Retrieved May 26, 2022, from www.pioneer.com/us/agronomy/nitrogen_fertilizer_soybean.html
 Conley, S., Gaspar, A., and Naeve, S. 2017. Understanding nutrient requirements and utilization for high-yielding soybeans: Characterizing soybean nutrient uptake, partitioning and removal. p.8-9.

