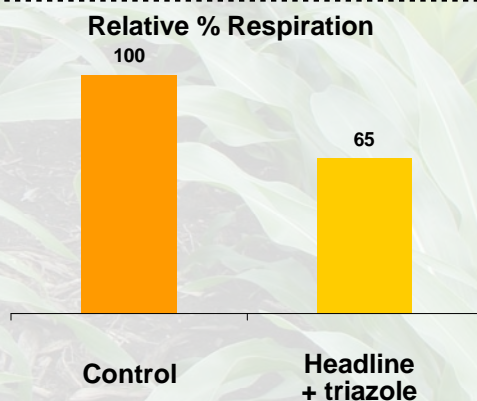


Headline and Headline AMP: Protecting Yield Under Stressful Environmental Conditions



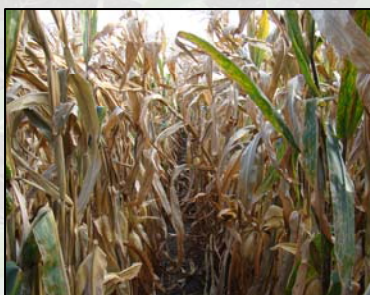
There are multiple factors that can impact corn yield in any given season, some of which can be controlled by the grower, others of which cannot. Probably the most influential yield factor in every season is the environmental conditions the crop faces. As much of the corn crop nears and enters the early reproductive stages, we appear to be heading into a stretch of extended warm temperatures. Extended periods of warm weather, especially warm nighttime temperatures, can take a physiological toll on the yield capacity of a corn plant. Warm nighttime temperatures (above 70 degrees F) lead to increased levels of respiration in the plant, rapidly releasing carbon and reducing overall yield potential. **Headline**[®] and **Headline AMP**[™] have been researched for multiple years and have often been characterized as providing excellent disease control and Plant Health physiological benefits that lead to increased yield, increased crop quality, and improved crop standability. Even more specifically, the active ingredient in Headline and Headline AMP has been shown to decrease respiration in the plant (Figure 1), protecting the plant from the warm nighttime temperatures and maintaining more carbon in the plant for grain fill. These benefits can lead to dramatic visual differences in plant health appearance late in the season (Figure 2) and often assist in protecting valuable corn yield.

Figure 1. This graph demonstrates the reduction in relative % respiration of an untreated corn plant versus a plant treated with two applications of Headline fungicide and a triazole fungicide.



Neto and Aizemberg, ESALQ/USP 2005; 2 applications, measured 7 days after second application

Figure 2. These photos were taken from Omission Plot Research conducted by Dr. Fred Below at the University of Illinois on September 9, 2010 and show the high tech yield package either with (right) or without (left) an application of 6 oz/A of Headline fungicide at R1.



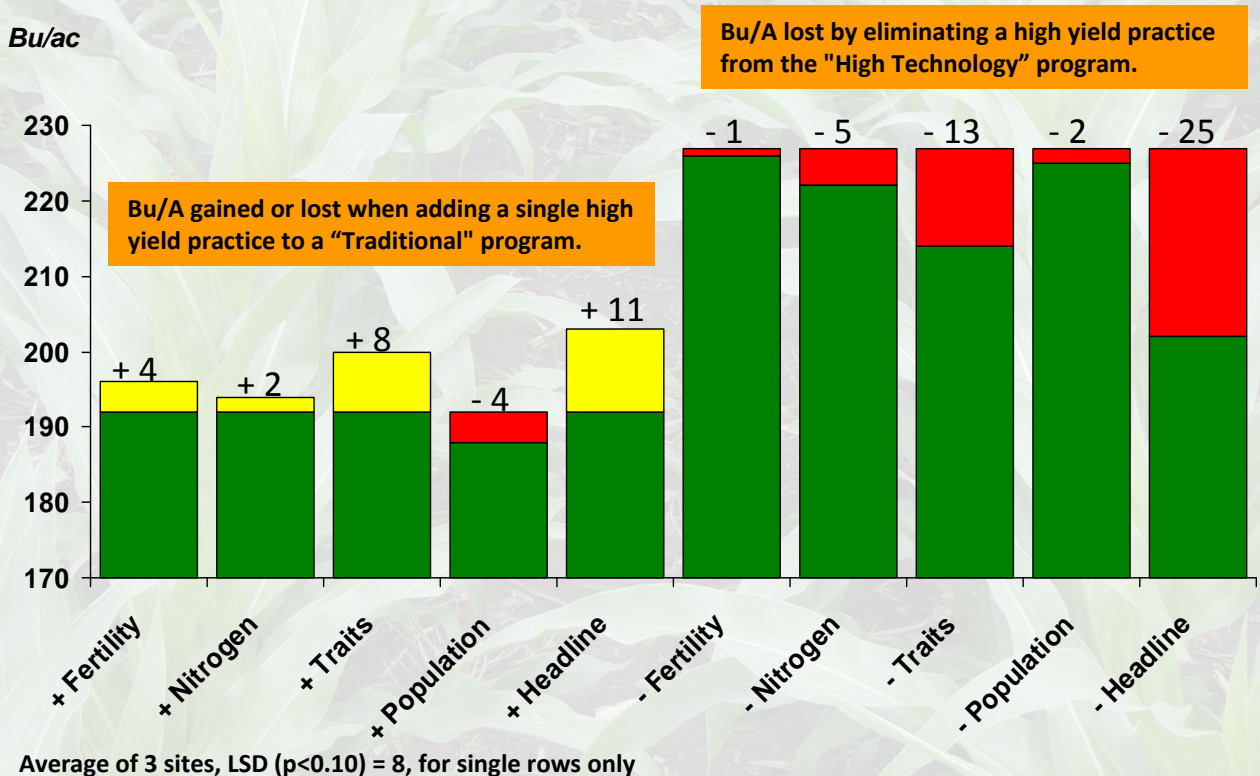
High Tech Without Headline



High Tech With Headline

Trials conducted by both the University of Illinois and BASF have indicated that response to fungicide in corn is likely to increase when other high yield management tactics are implemented. For example, research conducted by Dr. Fred Below at the University of Illinois in Urbana, IL indicated that under a “Traditional” management approach (180 lbs Nitrogen, refuge hybrid, 32,000 plants/A) a yield increase of +11 bu/A (192 to 203 bu/A) was observed from an application of Headline at the R1 growth stage at 3 locations in Illinois (Urbana, Joliet, Dixon Springs). However, when a “High Technology” program was implemented (additional 100 lbs of P2O5 as MESZ, 100 lbs additional N sidedressed as Super U, triple stack hybrid, and 45,000 plants/A) and treated with Headline at R1, the yield increase was +25 bu/A (202 to 227 bu/A) at the same 3 locations, more than doubling the response from a Headline application (Figure 2). This may in part be due to creating a microenvironment that encourages disease development and also causes increased stress within the crop canopy from greater plant competition.

Figure 2. Data from Omission Plot Research conducted by Dr. Fred Below at the University of Illinois. An application of Headline fungicide to a “Traditional” program yielded an increase of 11 bu/A. The cost of removing Headline from a “High Technology” program was 25 bu/A, indicating the increased benefit of Headline under high management tactics.



In summary, Headline and Headline AMP are important factors under stressful weather conditions, especially in high yielding environments. Often, response to Headline and Headline AMP is greatest when multiple factors are implemented to achieve high yields. In order to maximize yield and protect plants from disease and stressful weather conditions, including heat stress, BASF recommends an application from the VT (tassel) to R3 (milk) growth stages.

Always read and follow label directions.