

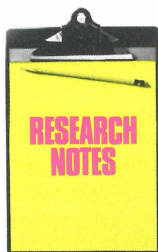
Figure 5. Yields increase, production costs per bushel decline and net returns (net revenue) increase when a production system includes adequate plant nutrients (irrigated corn, Kansas research).

### Summary

This study demonstrates the benefits of long-term soil fertility investigations. Yields of irrigated corn in this system have been maintained and increased over the 31-year period of the study. Sorghum

yields, however, have not kept pace and have slipped somewhat over the years. Clearly, use of a complete fertility program was able to maximize profit potential while minimizing soil-nitrate N accumulations and decreasing any hazards of potential nitrate leaching. ■

### Utah



## A Role for Potassium in the Use of Iron by Plants

**STUDIES** were conducted on iron (Fe) deficient tomato and soybean cultivars. Researchers found that neither species was able to respond to Fe stress in the absence of potassium (K) in growth solution.

The lack of Fe stress response resulted in reduced levels of leaf Fe and greater chlorosis in both species when K was

omitted from the growth solution. Solution K was replaced with equal (equimolar) amounts of sodium (Na) and rubidium (Rb), but neither effectively substituted for K. It appears, from this research, that K is essential in evoking the Fe stress response which results in Fe uptake by the plant.

Researchers concluded that K seems to have a specific role in the plant for maximum utilization of Fe. ■

Source: V.D. Jolly, J.C. Brown, M.J. Blaylock and S.D. Camp, Brigham Young University, Provo, UT 84602. Published in *Journ. of Plant Nutrition* 11(6-11), 1159-1175 (1988).

Note: See *Potash Review*, Subject 4, 5th Suite, No. 5, p.1 (1989), for an abbreviated version of the above article.

Also for further reading: Jolly, V.D. and J.C. Brown, 1985. Iron stress in tomato affected by potassium and renewing nutrient solutions. *Journ. of Plant Nutrition*, 8(6), 527-541.