Effect of Management Practices on Nutritional Quality of Crops. (S04-grant153816-Oral)

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Abstract:

Nutritional quality of crops may be improved by increasing micronutrient concentration and decreasing heavy metal content. Nutrient concentration in wheat grain is influenced by crop management practices. In field studies, concentrations of Fe, Mn and Zn were either increased or unaffected by application of N fertilizer on N deficient sites, with effects being similar with urea or urea ammonium nitrate. The heavy metal Cd was also increased by N applications. In contrast, Cu concentration of wheat grain decreased with increasing N applications, presumably due to biological dilution with increases in grain yield. Phosphorus application consistently decreased Zn concentration in wheat grain, increased Cd concentration, but did not affect Fe or Mn concentration. Application of KCl generally decreased Zn concentration and increased Fe and Cu concentration in wheat grain, although the effect was relatively small. Application of KCl generally did not influence concentration of either Mn or Cd. Application of Se as a seed-treatment, Se fertilizer or foliar spray were all effective in increasing Se concentration in durum wheat grain. Tillage system had little effect on nutrient content of wheat grain. Herbicide applications had no effect on Fe or Zn concentration but increased Cu concentration of wheat grain. Large difference in concentration of Zn, Cu, Fe, Mn and Cd occurred among cultivars of wheat and from location to location.

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