

# Response of Soybean Varieties to Manganese Foliar Fertilizer Application

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DuPont Pioneer has developed a soybean trait that gives soybean grain high oleic acid composition. Plenish varieties have high oleic acid content, making it a healthier source of oil. However, there is little information if the application of manganese to Plenish soybean would affect the composition of oleic acid, oil, and protein in the grain. In a full factorial, randomized complete block design experiment, four replicate of different soybean varieties including Plenish and non-Plenish and three manganese regimes were carried out in two different locations. When soybeans reached R2 growth stage, leaf tissues were analyzed, in which the amount of manganese concentration range from 16 to 69 ppm. After harvesting, seeds from all different treatment were analyzed for fatty acid, oil, and protein percentage. By comparing the result between two different soybean varieties, Plenish seeds contained higher percentage of oleic acid, oil, and protein, with a lower percentage of linolenic acid; whereas, non-Plenish seeds contained higher percentage of linolenic acid, oil, and protein, along with a lower percentage of oleic acid. Yet, there were no significant effect of manganese application on both Plenish and non-Plenish seed quality. Nevertheless, when leaf manganese levels were low (less than 21 ppm), there was significant effect on the grain yield for both Plenish and non-Plenish varieties. In short, the results show that levels of manganese do not affect the seed quality, but affect the yield when manganese is deficient. Therefore, this experiment acts as a decision tool for soybean growers in applying manganese fertilizer especially when Plenish soybean variety is planted since there could be a significant influence in the soybean yield.