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### **PEANUT NUTRITION... A BEST MANAGEMENT PRACTICE FOR TOP-PROFIT PRODUCTION**

**Nutrient requirements by peanuts are unique and have been documented by years of research.** These needs, however, can be quite dynamic depending upon specific variety characteristics, yield levels, market quality demands, climatic fluctuations, soil chemical and physical characteristics, or even the timing of certain management practices such as irrigation.

**The basic philosophy on how best to fertilize this high value legume crop differs among specialists.** This might be due in part to field yields that range from 3,000 or less to more than 5,000 pounds of peanuts per acre. Some growers bale the crop residue and remove this high protein livestock feed source from the field. In addition, the sandy nature of peanut soils increases the risk of loss of nitrogen, potassium, magnesium, sulfur and boron during intense rainfall periods.

**Individual peanut plants function much like a factory.** Each must receive, on a timely schedule, basic raw materials required to produce as much of the variety's genetic potential as possible. Low yields and poor grades are often traced to inadequate water, a shortage of calcium at pegging, pod splitting due to drought or to a shortage or imbalance of essential nutrients.

**Soil testing provides valuable input when establishing peanut fertilizer requirements.** A soil pH level of about 6.5 is desirable for nitrogen fixation by legumes and for optimum availability of phosphorus, calcium and many other essential nutrients. Phosphorus is vital for rapid seedling development and strong root systems. Potassium is essential for more than 60 enzyme systems that regulate growth and development, for boosting plant tolerance to stress and for improving crop disease resistance. Magnesium, as the center ion in the chlorophyll molecule, enhances photosynthesis and sugar production. Sulfur is vital for photosynthesis and nitrogen use efficiency. Boron in short supply results in "hollow heart" and low quality seed. Supplemental calcium applied topdress just prior to pegging improves pod set and ultimately crop yield. Thus, it becomes readily apparent that highly fertile soils are essential for quality, top-profit peanut yields.

**Peanut fertilization practices should achieve a very specific objective...to assure that nutrition does not become a yield/quality limiting factor during plant/root growth and pod development.** Since peanuts respond well to residual soil fertility, some growers increase the fertilizer applied to the previous crop by an amount that is anticipated to be needed by the following peanut crop. This works when the residual fertility to the peanut crop is sufficient to produce expected peanut yields, when nutrient leaching or fixation conditions are of no consequence and when financial resources are available for pre-crop fertilization. Other growers apply nutrient needs by plant growth stage and/or based upon site-specific soil/crop needs for optimizing nutrient use effectiveness.

**A science-based fertilization strategy builds consistency into peanut production programs. Consider the following for top-profit peanuts.**

- Soil test and build productivity by establishing highly fertile soils.
- Lime acid soils to a pH range of 6.0 to 6.5 since peanuts are a legume crop.
- Preplant apply phosphorus, potassium, sulfur, and magnesium for optimum seedling establishment and plant growth.
- Provide calcium in the pegging zone to promote pod formation and development.
- Apply boron prior to flowering to promote pollination and fruiting.
- Tissue test upper mature leaves prior to flowering to monitor plant nutrition status.
- Field scout for signs of nutrient shortages and the need for late season foliar fertilization.

—NRU—

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