Quick Fertilizer Guide for Texas Peanuts

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Timing	Nutrient	Soil test (*leaf tissue) sufficient level	Soil test level (lb/ac)	Recommendation (lb/ac)	Deficiency symptoms
Previous crop	P	30 lb/ac	< 15	80	Stunted growth. Reddish purple leaf under severe deficiency.
			16-30	50	
	K	60 lb/ac	< 30	80	Yellow tips and margins, followed by browning, leaf drop, and eventual death of the tissue.
			31-60	50	
Planting	N	20 lb/ac	-	30	Stunted plants with yellowing of matured leaves at initial flowering. Check nitrate in irrigation water[3].
	S	20 lb/ac	-	10-20	Yellowing of young leaves and dark green color of matured leaves.
Initial flowering	Ca	600 lb/ac AND Ca:K = 3:1 in pegging zone	-	Banded application of 600 lb/ac for Runner and 1200 lb/ac for Virginia	Weak vigor and root system. Short plant. Yellowing on the young leaves. Increased pod rot infestation and unfilled pods ("pops").
	Mn	pH 6.0 – 6 pH 6.5 – 11 pH 7.0 – 17 (*20-350 ppm)	-	Twice 0.5 lb/ac of elemental Mn	Yellowing of young leaves. Interveinal chlorosis.
	Mg	60 lb/ac (*0.3-0.8%)	-	10-20	Yellowing of matured leaves with reddish brown tints. Early leaf fall.
	Zn	2-8 lb/ac (*20-60 ppm)	-	6-10	Stunted growth, smaller young leaves, wider chlorotic strips on leaves.
	B	- (*20-60 ppm)	-	½-3/4 lb/ac of elemental B/ac	Rosetted branching, split stems and roots, and yellow-green mosaic appearance on leaves. Increased risk of kernel and embryo damage, called hollow heart.
Post harvest	Lime	pH 6.0-6.5	pH 5.6-5.9	1.0-1.5 ton/ac	Various nutrient deficiency symptoms.
	Fe	(*50-300 ppm)	-	-**	Deficiencies occur in soils with pH above 7.0. Symptoms will be observed in the youngest leaflets, which are chlorotic to pale green and develop interveinal chlorosis.
	Cu	(*5-20 ppm)	-	-**	Initial symptoms include wilting of upper leaves, followed by chlorosis and leaf scorching. Dead, brown tissue develops from the leaf margins and progresses inward until the petiole drops.
	Mo	(*0.1-5.0 ppm)	-	-**	Stunting growth and yellow leaves.

**There is not strong evidence of yield responses by applying these nutrients.

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[3]DeLaune and Trostle, 2012. E-619.

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Nutrients	Functions	Remarks
N	Component of chlorophyl molecules. Photosynthesis.	It is not common to apply N fertilizer in peanut. However, if soil test shows below sufficient level, apply no more than 30 lb/ac N fertilizer. If nodule failure occurs and N deficiency is evident, apply N fertilizer 40 to 60 days after planting.
P	Photosynthesis, metabolism of sugars, energy storage and transfer, cell division, cell enlargement and transfer of genetic information. Root growth.	Apply P and K to the previous crop or before land preparation, and thoroughly incorporated them into the root zone. Legumes are a good scavenger for P, K, and Zn with the help from vesicular arbuscular mycorrhizal fungi.
K	Movement of water, nutrients, and carbohydrates in plant tissue. Provide plant resiliency in unfavorable weather.	See the remarks for P. High level of K in the pegging zone have been found to interfere with Ca uptake and increase incidence of pod rot. This may be particular concern in west Texas and Rolling plains cotton/peanut rotations where soil K is already high.
Ca	Structural support for cell walls. Activate certain enzymes and send signals for certain cellular activities. Cell growth and development. Improves plant vigor and activates root formation.	If Ca is applied during the land preparation, it can be leached below the pegging zone. Foliar applied Ca do not correct Ca deficiencies as Ca moves upward though xylem tissue and does not move downward. Rainfall or irrigation after application is needed to move the gypsum into the pegging zone. Larger seeded market-types (Virginia) require higher Ca than smaller seeded market-type peanut (Runner and Spanish). Increase the soil test recommended rate of gypsum by two times when broadcast application is used.
Mg	Component of chlorophyll molecule along with four N atoms. Important for photosynthesis.	Mg can be leached out of pegging zone when excessive Ca is applied. Mg deficiency is not common in peanut; however, the rotational crop (e.g., cotton and corn) may have higher Mg demand (>60 lb/ac). Affordable Mg source is dolomitic lime
S	Chlorophyl development and protein synthesis. Required by the rhizobia bacteria for N fixation.	10-20 lb/ac of S is applied by the application of gypsum. Leaf tissue sufficient level is 0.2-0.5%.
Lime	Adjust pH of soils.	Use dolomitic limestone if low magnesium levels are indicated by soil test. For soils with a pH greater than 6.4 and high calcium levels but low-to-medium Mg levels, consider broadcasting 150 lb/A of potassium magnesium sulfate. For very sandy soils with a pH of 6.0 or more, gypsum is suggested if the soil calcium level is low. It may take as long as 6 months for full reaction.
B	Cell wall formation, maintenance of biological membranes, movement of sugar or energy.	B deficiency problems are rare in Texas. Apply 0.25 lb/ac of B with the first two fungicide applications. Boron can be toxic if excess amount is applied to peanut.
Mn	Photosynthesis, respiration, and N assimilation. Involved in pollen germinate, pollen tube growth, root cell elongation and resistance to root pathogens.	Problem fields can be treated with foliar sprays of Mn products. Leaf tissue sufficient level at early bloom is 20-350 ppm, and at early pegging is 20-300 ppm. Mn deficiency occurs in the soil where the pH is higher than 6.3.
Zn	Metabolic and physiological processes, enzyme activities	Stand losses can occur if Zn is banded near seeds. Zinc deficiency is not common in Texas. Excess Zn can be toxic to peanuts.
Fe	Production of chlorophyll and maintenance of chloroplast function.	Use a surfactant or sticker in the spray, and ensure that nozzles produce a fine spray since iron will not translocate within the plant.
Cu	Plant respiration, enzyme systems and metabolism of carbohydrates and proteins.	Excessive amounts of copper can cause loss of root growth. Soil and foliage applications are possible including copper containing fungicides. Copper deficiency is not common in Texas.
Mo	Nodule formation. Enzyme reactions.	Deficiencies usually do not occur unless soils are highly acid. Adding limestone to raise soil pH usually corrects the problem.