

# Quick Fertilizer Guide for Texas Peanuts

Emi Kimura<sup>1</sup>, Bob Whitney<sup>2</sup>, Paul DeLaune<sup>3</sup>, Katie Lewis<sup>4</sup>, John Cason<sup>5</sup>

| Timing                            | Nutrient | Soil test sufficient level                  | Soil test level | Recommendation  | Deficiency symptoms<br>*Photos are available through the QR code below  |
|-----------------------------------|----------|---|-----------------|---|---|
| Apply during the previous crops   | P        | 30 lb/ac                                    | < 15 lb/ac      | 80 lb/ac  | Stunted growth. Reddish purple leaf under severe deficiency.  |
|                                   |          |   | 16-30 lb/ac     | 50 lb/ac  |   |
|                                   | K        | 60 lb/ac                                    | < 30 lb/ac      | 80 lb/ac  | Yellow tips and margins, followed by browning, leaf drop, and eventual death of the tissue.   |
|                                   |          |   | 31-60 lb/ac     | 50 lb/ac  |   |
| Planting                          | N        | 20 lb/ac                                    | -               | 30 lb/ac  | Stunted plants with yellowing of matured leaves at initial flowering.   |
|                                   | S        | 20 lb/ac                                    | -               | 10-20 lb/ac   | Yellowing of young leaves and dark green color of matured leaves.   |
| Initial flowering                 | Ca       | 600 lb/ac<br>AND Ca:K = 3:1 in pegging zone | -               | Banded application of 600 lb/ac gypsum at initial flowering (30-45 DAP) should be adequate. | Increased pod rot infestation and unfilled pods ("pops").   |
|                                   | Mn       | 6 lb/ac                                     | -               | Twice 0.5 lb/ac of elemental Mn   | Yellowing of young leaves   |
|                                   | Mg       | 20 lb/ac                                    | -               | 10-20 lb/ac   | Yellowing of matured leaves with reddish brown tints. Early leaf fall.  |
|                                   | Zn       | 4 lb/ac                                     | -               | 6-10 lb/ac  | Stunted growth, smaller young leaves, wider chlorotic strips on leaves.   |
| Flowering to beginning of pegging | B        | 0.5 lb/ac                                   | -               | 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 harvesting                   | Lime     | 5.8-6.2                                     | 5.6-5.9         | 1.0-1.5   | Various nutrient deficiency symptoms  |
|                                   |          |   | < 5.6           | 2.0-3.0   |   |

<sup>1</sup>Extension Agronomist and state Extension peanut specialist, <sup>2</sup>Organic specialist,

<sup>3</sup>Environmental soil scientist, <sup>4</sup>Soil Chemist, <sup>5</sup>Peanut breeder.



| Nutrients | Functions   | Remarks   |
|-----------|---|---|
| N         | Component of chlorophyll 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 through 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         | Chlorophyll development and protein synthesis. Required by the rhizobia bacteria for N fixation.  | 10-20 lb/ac of S is applied by the application 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.   |
| 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 60-350 ppm, and at early pegging is 20-300 ppm.   |
| Zn        | Metabolic and physiological processes, enzyme activities  | Stand losses can occur if Zn is banded near seeds.  |

**Texas A&M AgriLife Extension Service**

AgriLifeExtension.tamu.edu

More Extension publications can be found at AgriLifeBookstore.org

Educational programs of the Texas A&M AgriLife Extension Service are open to all people without regard to race, color, sex, religion, national origin, age, disability, genetic information, or veteran status.

The Texas A&M University System, U.S. Department of Agriculture, and the County Commissioners Courts of Texas Cooperating