Calculating NPK

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- Calculating <u>NITROGEN</u> fertilizer rates
  - Nitrogen derived from air or 'fixed'
  - Understand the active % of N / product
  - Plant is able to utilize nitrate (NO_3-) or ammonium (NH_4+)
    - <u>Example:</u>
    - If you want to apply 50 pounds of N /acre using an urea product (46-0-0)
    - X (amount of urea) x 46% = 50 pounds of N
    - X= 50 pounds of N/ 46%
    - Solution: 109 pounds of Urea to apply 50 pounds of N / acre
- Calculating <u>PHOSPHORUS</u> fertilizer rates
  - Phosphorus derived from phosphorus rock
  - Understand the amount of P_2O_5 (phosphoric acid)/ product
  - Also known as available phosphorus or phosphorus oxide
  - Common products are: rock phosphate, treble super phosphate, etc.
  - Calculating phosphorus = P_2O_5 x 0.44
  - Calculating P_2O_5 by knowing P needs: P x 2.29 = P_2O_5
    - <u>Example:</u>
    - If you want to apply 50 pounds of P/acre
    - Using a product like 10-30-10 which has 30 lbs. of P_2O_5 in a 100 lb. bag (13.2 lbs. of P)
    - Solve for X
      - 100 pounds / 13.2 pounds of P = x amount of 10-30-10 / obtain 50 pounds of P
    - Therefore, you need 379 lb. of 10-30-10 fertilizer to supply 50 lbs. of P to the acre.
- Calculating <u>POTASSIUM</u> fertilizer rates
  - Potassium derived from brine sources of potash salts
  - Understand the amount of K_2O (water soluble potash)/ product
  - Common products are: potassium chloride (muriate of potash) , potassium sulfate (sulfate of potash), potassium nitrate, etc.
  - Calculating potassium= K_2O x 0.83
  - Calculating K_2O by knowing K needs: K x 1.20 = K_2O
    - <u>Example:</u>
    - If you want to apply 50 pounds of K/acre using K_2O
    - Using a product such as 0-0-62 has 62 pounds of K_2O in a 100 lb. bag (51.5 lbs.)
    - Solve for X
      - 100 pounds of 0-0-62/51.5 pounds of P = x amount of 0-0-62 needed / 50 pounds of K
    - Therefore, you need 97 lbs. of the 0-0-62 fertilizer to supply 50 lbs. of K to the acre.

Match your crop needs with fertilizer options