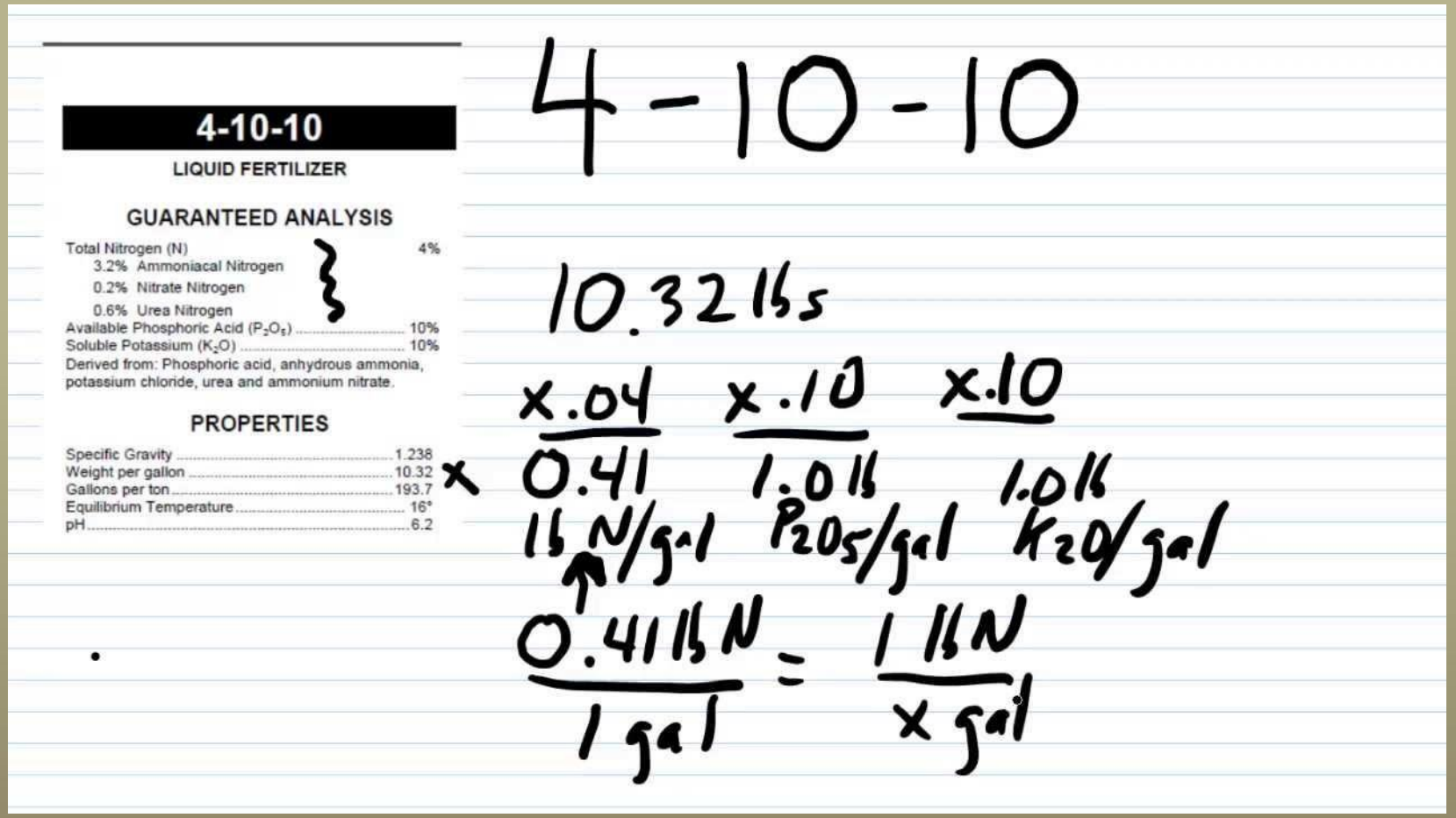
Virginia Department of Conservation & Recreation



Calculation Commercial Fertilizer

Commercial Fertilizer Blend

- Plant Food vs. Material
  - Plant food is the actual plant available nutrients in the material
  - Material is simply that, material
- Two formulas
  - plant food (lbs.) = pounds of material x percent (%) analysis
  - fertilizer material (lbs.) = plant food ÷ percent (%) nutrient in fertilizer

Plant Food

pounds of material x percent (%) analysis= plant food

Material		**Plant food**
100 lbs. UREA (46-0-0)	*100 x 46% (0.46)*=	**46 lbs. N**
100 lbs. DAP (18-46-0)	*100 x 18% (0.18)*=	**18 lbs. N**
	100 x 46% (0.46)=	**46 lbs. P**

Plant Food

Material		Plant food
50 lbs. Potash (0-0-60)	*50 x 60% (.60)*=	**30 lbs. K2O**
2000 lbs. UAN 30% (30-0-0)		
	2000 x 30% (.30)=	**600 lbs. N**

Fertilizer Material

fertilizer material (lbs.) = plant food* ÷ percent (%) nutrient in fertilizer

Example using UREA (46-0-0):
Percent nutrient in fertilizer: 0.46 lbs. N
Recommendations*: 80 lbs. N

80/ 0.46= 173.9 ~ 174 lbs material (Urea)

*expressed as plant food

Fertilizer Material

Example using DAP (18-46-0):

Percent nutrient in fertilizer: 0.46 lbs P_2O_5
Recommendation: 60 lbs. P205

60 lbs P_2O_5 / 0.46= 130.4 lbs. DAP

N from DAP: 130 lbs material x 0.18 = 23.4 lbs. N

Commercial Fertilizer Blending

- Example using 400 lbs ammonium sulfate/ acre
  - 21-0-0-24 (S)
- How much nitrogen per acre (plant food)?
- How much sulfur per acre (plant food)?

Commercial Fertilizer Blending

- Nitrogen: 400 lbs/ acre x 0.21 = 84 lbs N / acre
- Sulfur: 400 lbs/ acre x 0.24= 96 lbs S/ acre

Commercial Fertilizer Blending

- Example using 250 lbs of Urea to acre (46-0-0) and 200 lbs. Potash (0-0-60)
- How much nitrogen per acre (plant food)?
- How much potash per acre (plant food)?

Commercial Fertilizer Blending

- Nitrogen: 250 lbs/ acre x 0.46= 115 lbs N/ acre
- Potash: 200 lbs/ acre x 0.6= 120 lbs K/ acre

Commercial Fertilizer Blending

- Example: Need 100 lbs plant food per acre if nitrogen using urea (46-0-0)
- How much material per acre of urea?

Commercial Fertilizer Blending

- Material: 100 lbs plant food N/ acre /0.46= 217.4 lbs Urea/ acre

Commercial Fertilizer Blending

- Example: need 120 lbs plant food per acre of phosphorous from DAP (18-46-0)
- How much material per acre of Triple Super?
- How much nitrogen per acre (plant food)?

Commercial Fertilizer Blending

- Material: 120 lbs plant food P/ acre / 0.46= 260.8 lbs DAP/ acre
- Nitrogen: 260.8 lbs DAP/ acre x 0.18= 46.9 N/ acre

Commercial Fertilizer Blending

- Example: N on corn needs 80 lbs plant food per acre
- Using 30% N with weight of 10.84 lbs per gallon
- How many gallon per acre of 30% N?

Commercial Fertilizer Blending

- 80 lbs N plant food/ acre /0.3= 266.6 lbs N/ acre
- 266.6 lbs N/ acre/ 10.84 gal= 24.6 gallons N/ acre

Commercial Fertilizer Blending

- Example: 8 acre pasture field
- Nutrient recommendation 90-70-170
- DAP (18-46-0)
- UREA (46-0-0)
- Potash (0-0-60)
- How many total pounds does the spreader truck need and what is the rate per acre?
  - Hint: start with P

Commercial Fertilizer Blending

- Blend 90-70-170
- DAP (18-46-0)
  - 70 (P)/ 0.46= 152 lbs DAP/ ac
  - 152 lbs/ acre x 0.18= 27.3 lbs N
    - 27.3-70-0
    - 90-27.3= 62.7 lbs N needed
- Urea (46-0-0)
  - 62.7 (N)/ 0.46= 136 lbs urea/ acre
- Potash (0-0-60)
  - 170 (K)/ 0.6= 286 lbs Potash/ acre

Commercial Fertilizer Blending

- 152 lbs DAP + 136 lbs Urea + 283 lbs Potash= 571 lbs/ acre
  - Rate/ acre
- 571 lbs/ acre x 8 acres= 4568 total lbs mixed and put on the truck for application