



Number 99
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Estimated Crop Nutrient Removal

The information below estimates the amount of crop nutrients removed with the harvested portions of Kansas crops. The amount of nutrient removed depends on soil test levels, variety/hybrids utilized, geographical location and other factors. As a result, estimates from various sources vary. While these values are useful for developing nutrient management plans, they are not fertilizer recommendations.

<u>Crop</u>	<u>Yield Level</u>	<u>N</u>	<u>P₂O₅</u>	<u>K₂O</u>	<u>S</u>
- - - - - lbs per acre - - - - -					
Corn, grain	150 bu	135	50	40	10
stover	9,000 lbs	90	20	135	15
Corn, silage	25 ton	205	80	215	30
Sorghum, grain	100 bu	80	40	25	15
stover	6,000 lbs	85	20	90	10
Sorghum, silage	25 ton	205	80	215	30
Wheat, grain	50 bu	65	25	15	5
straw	5,000 lbs	35	10	35	10
Sunflower, seed	3,500 lbs	125	55	20	5
stover	5,200 lbs	50	10	100	10
Soybeans, grain	50 bu	200*	40	70	15
stover	2,250 lbs	70*	15	40	10
Alfalfa	6 ton	225*	70	350	30
Cool Season Grass	4 ton	140	50	160	15
Canola, grain	2,000 lbs	75	35	20	15
straw	4,000 lbs	45	20	70	10
Cotton					
2 bales lint + seed	2,600 lbs	65	25	30	5
Burs, leaves, stalks	3,000 lbs	55	15	70	15

* Legume crops can obtain most of their N via symbiotic N fixation

Calculations, Values and Conversions:

1 acre = 43, 560 feet ²	1 mile = 5,280 feet	1 acre inch = 27, 154 gallons
1 hectare = 2.471 acres	1 metric ton = 2,204 pounds	1 kilogram = 2.2 pounds
1 inch = 2.54 cm	1 meter = 3.28 feet	1 pound = 454 grams
1 gallon = 8.34 pounds of water	1 gallon = 3,785 ml	1 gallon = 128 fl ounces
1 gallon = 4 quarts	1 quart = 2 pints	1 pint = 2 cups
1 cup = 8 fl ounces	1 cup = 16 tablespoons	1 tablespoon = 3 teaspoons
1 quart = 946 ml	1 cubic foot = 7.48 gallons	1 tablespoon = 0.5 fl ounce
1 peck = 2 gallons	1 bushels = 4 pecks	1 bushel = 8 gallons
28-0-0 ~ 10.67 lbs/gal	32-0-0 ~ 11.06 lbs/gal	10-34-0 ~ 11.65 lbs/gal
6-0-0-16.5Cl ~ 9.05 lbs/gal	12-0-0-26S ~ 11.04 lbs/gal	Ammonia ~ 5.14 lbs/gal @ 60°F

Bushel Weights

Wheat - 60 lbs/bu	Corn Grain - 56 lbs/bu	Grain Sorghum - 56 lbs/bu
Sunflower, oil – 27-28 lbs/bu	Sunflower, non-oil – 22-24 lbs/bu	Edible Beans – 60 lbs/bu
Rye – 56 lbs/bu	Oats – 32 lbs/bu	Barley - 48 lbs/bu
Canola – 50 lbs/bu	Cotton Seed – 32 lbs/bu	Millet – 50 lbs/bu

Miscellaneous Calculations

Degrees Centigrade (°C) = $5/9 \times (°F - 32)$

Degrees Fahrenheit (°F) = $(9/5 \times °C) + 32$

Lbs/acre = ppm x sample depth (inches) x 0.30

Lbs/acre = ppm x acre inches of water x 0.226

Suggested Soil Sampling Depths

0-24 inches = Profile N, S and Cl (or depth of soil if less than 24 inches)

0-6 inches = Soil P, K, Zn, Organic Matter and other nutrients (with tillage, no-till and pasture)

0-6 inches = Soil pH (with tillage)

0-3 inches = Soil pH (no-till systems and pasture)

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