



Nutrient Removal Tables

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Below are nutrient removal rates for common row and forage crops in the Northeast. We have seen a decrease in the crop removal rates over the last several years as we learn more about how crops utilize the nutrients. It is important to note the difference between crop removal and crop requirements. Use soil tests to determine how much of each nutrient is available in your soils and then fertilize accordingly.

Removal for Forage Products

SPECIES	N	P ₂ O ₅	K ₂ O
Orchardgrass	50	17	63
Tall Fescue	39	19	53
Timothy	38	14	63
Alfalfa	0	15	60

Row Crops according to Ag PhD and 2019 University Data

Corn Grain vs Corn Stover

Relative Nutrient removal (lbs/bushel)

	NITROGEN (N)	PHOSPHATE (P ₂ O ₅)	POTASSIUM (K ₂ O)	SULFUR (S)	MAGNESIUM (Mg)	ZINC (Z)	BORON (B)	IRON (Fe)
GRAIN	0.67	0.35	0.25	0.08	0.03	0.0011	0.0024	0.0015
STOVER	0.45	0.16	1.10	0.07	0.2	0.0015	0.0003	0.0025

Soybean Grain vs Soybean Stover

Relative Nutrient removal (lbs/bushel)

	NITROGEN (N)	PHOSPHATE (P ₂ O ₅)	POTASSIUM (K ₂ O)	SULFUR (S)	MAGNESIUM (Mg)	MANGANESE (Mn)	IRON (Fe)
GRAIN	3.25	0.73	1.18	0.18	0.15	0.001	0.01
STOVER	1.10	0.24	1.00	0.17	0.36	0.009	0.02

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Wheat Grain vs Wheat Stover
Relative Nutrient removal (lbs/bushel)

	NITROGEN (N)	PHOSPHATE (P ₂ O ₅)	POTASSIUM (K ₂ O)
Spring Wheat - Grain	1.49	0.57	0.33
Winter Wheat - Grain	1.16	0.48	0.29
Stover	0.70	0.16	1.20

Crop Nutrient Requirements

Nutrient Requirements for 200 bu/ac Field Corn

Consider Yield Potential by Soil Type

Nitrogen	180-250 lbs/ac
Phosphorus (P ₂ O ₅)	75-110 lbs/ac
Potassium (K ₂ O)	150-180 lbs/ac
Magnesium	35-45 lbs/ac
Sulfur	15-25 lbs/ac
Zinc	3-6 lbs/ac
Boron	0.5-1 lb/ac
Iron	0.3 lb/ac

Nutrient Requirements for 65 bu/ac Soybeans

Consider Yield Potential by Soil Type

Nitrogen	300+ lbs/ac – vast majority from N-fixing bacteria
Phosphorus	65-75 lbs/ac
Potassium	180-200 lbs/ac
Magnesium	20-25 lbs/ac
Manganese	1-2 lbs/ac
Sulfur	20-25 lbs/ac

Forage Fertility Requirements

	<u>Grasses</u>	<u>Legumes</u>
pH	5.5-7.0	6.8-7.2
P	>50	>50
K	300-400	300-400