



Printed from the:
 MU Agronomy Extension Web Site
<http://www.psu.missouri.edu/soyx>
 for more information contact:
 Bill Wiebold (wieboldw@missouri.edu)

Removal of Plant Nutrients by Soybean

Bill Wiebold, Peter Scharf

Table 1 contains estimates of the amount of six important mineral nutrients removed from the soil and located in the grain of soybean. Soybean seeds contain high concentrations of protein so their nitrogen content is high. Soybean plants develop a symbiotic relationship with *Bradyrhizobia* bacteria so part of their nitrogen requirement is met through nitrogen fixation which transforms atmospheric nitrogen (N₂) into ammonium (NH₄). Table 2 contains similar information for the above-ground, vegetative (non-seed) plant parts.

Table 1.		Amount of nutrient in soybean grain with a yield of:		
Nutrient	Concentration pounds/bushel	30 bushels/acre	50 bushels/acre	70 bushels/acres
		-----pounds/acre-----		
Nitrogen	4.20	126	210	294
Phosphorus	0.40	12	20	28
Potassium	1.25	38	63	88
Calcium	0.20	6	10	14
Magnesium	0.23	7	11	16
Sulfur	0.20	6	10	14

Table 2.		Amount of nutrient in soybean straw with a yield of:		
Nutrient	Concentration pounds/bushel	30 bushels/acre	50 bushels/acre	70 bushels/acres
		-----pounds/acre-----		
Nitrogen	1.30	39	65	91
Phosphorus	0.13	4	7	9
Potassium	0.75	23	38	53
Calcium	1.50	45	75	105
Magnesium	0.22	7	11	15
Sulfur	0.25	8	13	18