

Nutrient Removal Rates for Selected Crops and Yield Levels

Crop	Yield	Removal, lb/A ¹				
		N	P ₂ O ₅	K ₂ O	Mg	S
Alfalfa, tons/A	6	306	72	294	32	32
	8	408	96	392	43	43
	10	510	120	490	54	54
Corn grain, bu/A	150	135	57	41	14	12
	200	180	76	54	18	16
	250	225	95	68	23	20
Corn silage, tons/A	20	194	62	146	40	22
	25	243	78	183	50	28
	30	291	93	219	60	33
Grain sorghum, bu/A	125	83	49	34	8	8
	175	116	68	47	11	11
	225	149	88	61	14	14
Oats, bu/A	75	58	21	14	3	5
	95	73	27	18	4	7
	115	89	32	22	5	8
Soybean grain, bu/A	50	190	42	65	11	9
	70	266	59	91	15	13
	90	342	76	117	19	16
Wheat grain, bu/A	55	83	33	19	8	6
	75	113	45	26	11	8
	95	143	57	32	14	10

¹For hay and silage crops, removal also represents uptake.

Note: References for nutrient uptake/removal data sources and other information about crop nutrient uptake and removal are available at the IPNI website: >www.ipni.net<. Ref. # 08104



International Plant Nutrition Institute (IPNI)
3500 Parkway Lane, Suite 550
Norcross, GA 30092-2806

PLANT FOOD UPTAKE AND REMOVAL for Northcentral Region Crops

Crop	Yield	Nutrient Uptake, lb/A ¹				
		N	P ₂ O ₅	K ₂ O	Mg	S
Corn grain, bu/A	100	135	54	137	23	15
	150	203	81	206	35	23
	200	270	108	274	46	30
	250	338	135	343	58	38
Grain sorghum, bu/A	75	92	41	83	14	14
	125	153	69	138	23	23
	175	214	96	193	32	32
	225	275	124	248	41	41
Oats, bu/A	55	59	24	62	8	10
	75	81	33	85	11	14
	95	103	42	107	13	17
	115	125	51	130	16	21
Soybean grain, bu/A	30	147	32	69	13	11
	50	245	54	115	22	18
	70	343	76	161	30	25
	90	441	97	207	39	32
Wheat grain, bu/A	35	77	27	54	9	8
	55	121	42	85	14	13
	75	165	57	116	19	18
	95	209	72	146	24	23

¹Uptake is assumed to be equivalent to total nutrient removal by stover/straw plus grain.

For hay and silage crops, removal also represents uptake.