

Table 4.1 Total nutrient uptake* by selected crops.

Crop***	Region	--- kg uptake/t** ---			
		N	P ₂ O ₅	K ₂ O	S
Alfalfa (DM)	Argentina	27	5.7	25	3.5
Barley	Argentina	26	9.2	24	4.2
Bermudagrass	USA	23	6.0	25	
Canola	China	43	27	87	
Chickpea	India	46	8.4	50	
Corn	USA	18	9.6	25	
Grape	China	5.6	5.2	8.5	
Mustard	India	33	15	11	14
Oranges	China	2.6	0.80	3.6	
Peach	China	4.5	1.5	5.0	
Peanut	India	63	12	37	3.9
Pear	China	5.0	2.0	5.0	
Peas, green	India	42	15	31	4.3
Potato	Australia	4.9	2.1	12	
Rice	USA	16	8.4	24	
Safflower	India	39	8.4	22	13
Sorghum	India	22	13	34	
Soybean	USA	82	18	38	
Sugar beet	China	4.8	1.4	9.3	
Sugarcane	China	1.8	0.36	2.1	
Sunflower	Argentina	40	25	35	5.0
Tobacco	China	39	12	71	
Tomato	India	2.8	1.3	3.8	
Wheat, spring	USA	37	13	26	
Wheat, winter	USA	32	11	33	

* Total nutrient uptake refers to the quantity of nutrient accumulated in the above ground portion, and harvested portions, of the plant by the time of sampling, usually physiological maturity or when uptake is at its maximum.

** Reported nutrient uptake coefficients may vary regionally depending on growing conditions. Use locally available data whenever possible.

*** DM = dry matter basis; otherwise moisture content is standard marketing convention or at the stated moisture content.

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Table 4.5 Nutrient removal* by selected crops.

Crop***	Removal, kg/t**			
	N	P ₂ O ₅	K ₂ O	S
Alfalfa (DM)	26	6.0	25	2.7
Alsike Clover (DM)	21	5.5	27	1.5
Bahiagrass	22	6.0	18	
Barley grain	21	8.3	6.7	1.9
Barley straw per t of grain	8.3	3.3	25	2.1
Barley straw	6.5	2.6	20	1.5
Beans (dry)	50	13	15	8.7
Bermuda grass	23	6.0	25	
Birdsfoot trefoil (DM)	23	5.5	21	
Bluegrass (DM)	15	6.0	23	2.5
Bromegrass (DM)	16	5.0	23	2.5
Buckwheat	17	5.0	4.4	
Canola grain	32	16	8.0	5.0
Corn grain	12	6.3	4.5	1.4
Corn silage (67% water) per t of grain	29	9.1	21	3.2
Corn silage (67% water)	4.9	1.6	3.7	0.55
Corn stover per t of grain	8.0	2.9	20	1.3
Corn stover	8.0	2.9	20	1.3
Cotton (lint)	64	28	38	
Cotton stover	9.4	3.3	11	
Fescue (DM)	19	6.0	27	2.9
Flax grain	45	13	11	3.4
Flax straw	13	2.9	39	2.7
Millet grain	28	8.0	8.0	1.6
Millet straw	7.7	2.2	20	
Mint oil	1,900	1,100	4,500	
Oat grain	24	8.8	5.9	2.2
Oat straw per t of grain	9.7	5.0	29	3.4
Oat straw	6.0	3.2	19	2.3
Orchardgrass (DM)	18	6.5	27	2.9
Peanut nuts	35	5.5	8.5	
Peanut stover	16	3.4	12	
Potato tuber	3.0	1.5	6.5	0.30
Potato above-ground stems & leaves	1.9	0.60	5.3	0.20
Red clover (DM)	23	6.0	21	1.5
Reed canarygrass (DM)	15	6.6	13	
Rice grain	13	6.7	3.6	
Rice straw	8.3	2.7	21	
Rye grain	25	8.2	5.5	1.8
Rye straw per t of grain	14	3.8	27	2.5
Rye straw	6.0	1.5	11	1.0
Ryegrass (DM)	22	6.0	22	
Sorghum grain	13	7.8	5.4	1.2

Crop***	Removal, kg/t**			
	N	P ₂ O ₅	K ₂ O	S
Sorghum stover per t of grain	11	3.2	17	2.4
Sorghum stover	14	4.2	21	3.0
Sorghum-sudan (DM)	15	4.8	17	2.9
Soybean grain	55	12	20	3.0
Soybean hay (DM)	23	5.5	13	2.5
Soybean stover per t of grain	18	4.0	17	2.8
Soybean stover	20	4.4	19	3.1
Sugarbeet root	1.9	1.1	3.7	0.23
Sugarbeet top	3.7	2.0	10	0.20
Sugarcane	1.0	0.65	1.8	
Sunflower grain	27	9.7	9.0	2.5
Sunflower stover per t of grain	28	2.4	41	6.0
Sunflower stover	12	1.0	17	2.5
Switchgrass (DM)	11	6.0	29	
Timothy (DM)	13	5.5	21	1.0
Tomatoes	1.3	0.46	2.9	
Tobacco leaves	36	9.0	57	6.0
Vetch (DM)	29	7.5	25	
Wheat straw per t of grain	12	2.7	20	2.3
Wheat straw	7.6	1.9	15	2.7
Wheat (spring) grain	25	9.5	5.5	1.7
Wheat (winter) grain	19	8.0	4.8	1.7

* Nutrient removal refers to the quantity of nutrient removed from the field at crop harvest.

**Reported nutrient removal coefficients may vary regionally depending on growing conditions. Use locally available data whenever possible.

***DM = dry matter basis; otherwise moisture content is standard marketing convention or at the stated moisture content.

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Example: Using **Table 4.5**, an example of nutrient balancing would be a 10 t/ha corn crop removes 63 kg P₂O₅ from the soil (10 x 6.3=63). So, the maintenance P₂O₅ application will be 63 kg/ha.
