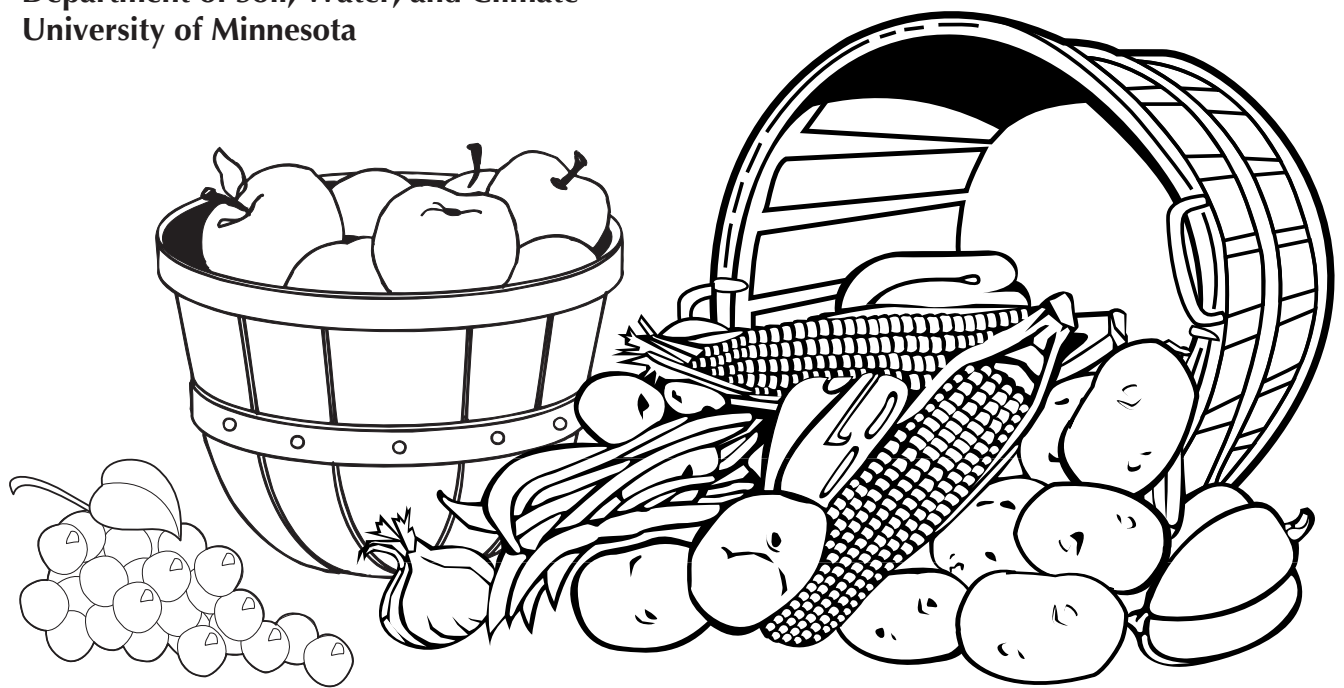


Nutrient Management for Commercial Fruit & Vegetable Crops in Minnesota

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Extension
SERVICE

Vegetable Crops

Table 28. Nitrogen recommendations for vegetable crops.

Crop	Approximate Yield Goal ² cwt/A	Soil Organic Matter Level (O.M.) ¹			Organic Soil	Suggested Method of Application ^{3,4,5}
		Low	Medium	High		
-----N to apply (lb/A)-----						
Asparagus (New Planting)	—	120	100	80	50	1/3 broadcast, 2/3 sidedress during cultivation
Asparagus (Est. Planting)	40	80	60	40	20	topdress before cutting starts or after harvest
Beets, table	200	100	80	60	30	1/2 broadcast, 1/2 sidedress 3-5 wks after planting
Broccoli	120	180	160	140	100	1/3 bcst, 1/3 sidedress 2 wks after planting, 1/3 sidedress 5 wks after planting
Brussels sprouts	175	140	120	100	70	1/3 bcst, 1/3 sidedress 2 wks after planting, 1/3 sidedress 5 wks after planting
Cabbage	400	180	160	140	100	1/3 bcst, 1/3 sidedress 2 wks after planting, 1/3 sidedress 5 wks after planting
Carrots	400	120	100	80	50	1/2 broadcast, 1/2 sidedress when plants are established
Cauliflower	150	180	160	140	100	1/3 bcst, 1/3 sidedress 2 wks after planting, 1/3 sidedress 5 wks after planting
Celery	600	180	160	140	100	1/3 bcst, 1/3 sidedress 2 wks after planting, 1/3 sidedress 5 wks after planting
Cucumber	250	100	80	60	30	1/2 broadcast, 1/2 sidedress when vines begin to run
Eggplant	250	120	100	80	50	1/2 broadcast, 1/2 sidedress when fruit appear
Endive	180	120	100	80	50	1/2 broadcast, 1/2 sidedress 3-5 wks after planting
Garlic	150	120	100	80	50	1/3 broadcast at planting (Sept./Oct.), 2/3 sidedress when shoots emerge in spring
Lettuce	300	120	100	80	50	1/2 broadcast, 1/2 sidedress 3-5 wks after planting
Mint	—	120	100	80	50	1/2 broadcast, 1/2 sidedress 3-5 wks after planting
Muskmelon	200	100	80	60	30	1/2 broadcast, 1/2 sidedress when vines begin to run
Onions (dry)	500	130	110	90	60	1/4 banded, 3/4 sidedress 4-5 wks after emergence
Onions (green)	150	80	60	40	20	1/4 bcst, 1/2 sidedress 4-5 wks after emergence, 1/4 sidedress 4 wks before hvst
Parsley	—	100	80	60	30	1/2 broadcast, 1/4 after first cutting, 1/4 after 2nd cutting
Parsnips	400	120	100	80	50	1/2 broadcast, 1/2 sidedress after plants are established
Peppers	200	140	120	100	70	1/2 broadcast, 1/2 sidedress after fruit appear
Pumpkins	400	70	50	30	20	1/2 broadcast, 1/2 sidedress after vines begin to run
Radishes	70	50	40	30	20	broadcast
Rhubarb (New Planting)	—	100	80	60	30	1/2 broadcast, 1/2 sidedress after plants are established
Rhubarb (Est. Planting)	200	80	60	40	20	1/2 broadcast in spring, 1/2 sidedress after last cutting
Rutabagas	400	100	80	60	30	1/2 broadcast, 1/2 sidedress when plants are 4-6 inches tall
Spinach	150	100	80	60	30	1/2 broadcast, 1/2 sidedress 4-5 weeks after planting
Squash	300	70	50	30	20	1/2 broadcast, 1/2 sidedress after vines begin to run
Swiss Chard	150	120	100	80	50	1/2 broadcast, 1/2 sidedress 3-5 wks after planting
Tomatoes	270	130	110	90	60	1/2 broadcast, 1/2 sidedress when fruit appear
Turnips	300	60	50	40	20	broadcast
Watermelon	300	100	80	60	30	1/2 broadcast, 1/2 sidedress when vines begin to run

¹ Low = less than 3.1% O.M., medium = 3.1-4.5% O.M., high = 4.6-19% O.M., Organic soil = greater than 19% O.M.

² Recommendations are based on attaining approximate yield goals listed.

³ Suggested methods of application are a general guide and can be modified when appropriate.

⁴ On sandy soils, sidedress applications may be split 1-2 more times (not to exceed total recommended unless a need is indicated).

⁵ Up to 30 lb N/A of the broadcast application can be banded if equipment is available.

Nitrogen credits for previous crops:

Alfalfa (good stand) : 70 lb N/A

Alfalfa (poor stand) : 40 lb N/A

Alsike clover
Birdsfoot trefoil
Grass-legume hay
Grass-legume pasture
Red clover

Snap beans : 20 lb N/A

Peas
Soybeans

All other crops : 0 lb N/A

Table 29. Phosphorus recommendations for vegetable crops.

Crop	Approximate Yield Goal ¹ cwt/A	Bray-P1 Olsen-P	Soil Test P Level (ppm)					
			0-10 0-7	11-20 8-15	21-30 16-25	31-40 26-33	41-50 34-41	51+ 42+
			-----P ₂ O ₅ to apply (lb/A) ² -----					
Asparagus (New Planting)	—		200	150	100	50	25	25
Asparagus (Est. Planting)	40		75	50	25	0	0	0
Beets, table	200		150	100	75	50	25	0
Broccoli	120		150	100	75	50	25	0
Brussels Sprouts	175		150	100	75	50	25	0
Cabbage	400		150	100	75	50	25	0
Carrots	400		150	100	75	50	25	0
Cauliflower	150		150	100	75	50	25	0
Celery	600		200	150	100	50	25	0
Cucumber	250		150	100	75	50	25	0
Eggplant	250		150	100	75	50	25	0
Endive	180		150	100	75	50	25	0
Garlic	150		150	100	75	50	25	0
Lettuce	300		150	100	75	50	25	0
Mint	—		150	100	75	50	25	0
Muskmelon	200		150	100	75	50	25	0
Onions (dry)	500		200	100	100	50	25	0
Onions (green)	150		150	100	75	50	25	0
Parsley	—		100	100	75	50	25	0
Parsnips	400		150	100	75	50	25	0
Peppers	200		150	100	75	50	25	0
Pumpkins	400		150	100	75	50	25	0
Radishes	70		100	75	50	25	0	0
Rhubarb (New Planting)	—		200	150	100	50	25	25
Rhubarb (Est. Planting)	200		75	50	25	0	0	0
Rutabagas	400		150	100	75	50	25	0
Spinach	150		150	100	75	50	25	0
Squash	300		150	100	75	50	25	0
Swiss Chard	150		150	100	75	50	25	0
Tomatoes	270		150	100	75	50	25	0
Turnips	300		100	75	50	25	0	0
Watermelon	300		150	100	75	50	25	0

¹ Recommendations are based on attaining approximate yield goals listed.

² Recommended rates are for total amount to apply: broadcast + starter. Up to 70 lb P₂O₅ can be banded at planting.

Table 30. Potassium recommendations for vegetable crops.

Crop	Approximate Yield Goal ¹ cwt/A	Soil Test K Level (ppm)					
		0-40	41-80	81-120	121-160	161-200	201+
		----- K ₂ O to apply (lb/A) ² -----					
Asparagus (New Planting)	—	250	200	150	100	50	0
Asparagus (Est. Planting)	40	100	75	50	25	0	0
Beets, table	200	200	150	100	75	50	0
Broccoli	120	250	200	150	100	50	0
Brussels Sprouts	175	250	200	150	100	50	0
Cabbage	400	250	200	150	100	50	0
Carrots	400	200	150	100	75	50	0
Cauliflower	150	250	200	150	100	50	0
Celery	600	250	200	150	100	50	0
Cucumber	250	200	150	100	75	50	0
Eggplant	250	200	150	100	75	50	0
Endive	180	200	150	100	75	50	0
Garlic	150	200	150	100	75	50	0
Lettuce	300	200	150	100	75	50	0
Mint	—	200	150	100	75	50	0
Muskmelon	200	200	150	100	75	50	0
Onions (dry)	500	250	200	150	100	50	0
Onions (green)	150	200	150	100	75	50	0
Parsley	—	200	150	100	75	50	0
Parsnips	400	200	150	100	75	50	0
Peppers	200	200	150	100	75	50	0
Pumpkins	400	200	150	100	75	50	0
Radishes	70	100	75	50	25	0	0
Rhubarb (New Planting)	—	250	200	150	100	50	0
Rhubarb (Est. Planting)	200	150	100	75	50	25	0
Rutabagas	400	200	150	100	75	50	0
Spinach	150	200	150	100	75	50	0
Squash	300	200	150	100	75	50	0
Swiss Chard	150	200	150	100	75	50	0
Tomatoes	270	250	200	150	100	50	0
Turnips	300	100	75	50	25	0	0
Watermelon	300	200	150	100	75	50	0

¹ Recommendations are based on attaining approximate yield goals listed.

² Recommended rates are for total amount to apply: broadcast + starter. Up to 30 lb K₂O can be banded at planting.