

Produce Fertility Guidelines

All guidelines based on loam, silt loam, or sandy loam soils with organic matter between 2.0 to 9.9%. Amounts shown are for optimum (O) soil test levels. Apply 50% of this rate if soil test is high (H) and omit if soil test is excessively high (EH). If soil test is low (L) or very low (VL), increase rates according to soil test recommendations.

| Crop | Yield Goal | Target pH | Nitrogen | | Phosphate (P ₂ O ₅) | | Potash (K ₂ O) | |
|-------------|----------------|--------------|----------|-------------------------|--|-------------------------|---------------------------|-------------------------|
| | | Mineral Soil | lbs/a | oz/1000 ft ² | lbs/a | oz/1000 ft ² | lbs/a | oz/1000 ft ² |
| Asparagus | 2000-4000 lb/a | 6.0 | 60 | 22 | 10 | 4 | 20 | 7 |
| Snap Bean | 5000-7000 lb/a | 6.8 | 40 | 15 | 15 | 6 | 60 | 22 |
| Beet | 10-15 t/a | 6.0 | 100 | 37 | 15 | 6 | 100 | 37 |
| Broccoli | 4-6 t/a | 6.0 | 80 | 29 | 10 | 4 | 40 | 15 |
| Cabbage | 12-20 t/a | 6.0 | 140 | 51 | 25 | 9 | 115 | 42 |
| Carrot | 20-30 t/a | 5.8 | 100 | 37 | 45 | 17 | 240 | 88 |
| Cauliflower | 6-8 t/a | 6.0 | 100 | 37 | 20 | 7 | 50 | 18 |
| Celery | 25-35 t/a | 6.0 | 120 | 44 | 100 | 37 | 300 | 110 |
| Cucumber | 300-400 bu/a | 5.8 | 80 | 29 | 10 | 4 | 25 | 9 |
| Eggplant | ----- | 6.6 | 60 | 22 | 60 | 22 | 60 | 22 |
| Lettuce | 15-20 t/a | 5.8 | 100 | 37 | 40 | 15 | 160 | 59 |
| Melon (all) | 8-10 t/a | 5.8 | 80 | 29 | 40 | 15 | 145 | 53 |
| Onion | 400-600 cwt/a | 5.6 | 140 | 51 | 60 | 22 | 130 | 48 |
| Pea | 2500-4000 lb/a | 6.0 | 30 | 11 | 15 | 6 | 30 | 11 |
| Pepper | 8-10 t/a | 6.0 | 80 | 29 | 10 | 4 | 50 | 18 |
| Potato | 350-450 cwt/a | 5.2/6.0 | 155 | 57 | 80 | 29 | 230 | 84 |
| Pumpkin | 15-20 t/a | 6.0 | 80 | 29 | 50 | 18 | 110 | 40 |
| Squash | 12-16 t/a | 6.0 | 60 | 22 | 40 | 15 | 90 | 33 |
| Sweet Corn | 4-6 t/a | 6.0 | 130 | 48 | 15 | 6 | 30 | 11 |
| Tomato | 20-25 t/a | 6.0 | 120 | 44 | 40 | 15 | 180 | 66 |

Suggested Fertilizer Management

Asparagus: Apply N, P₂O₅, and K₂O prior to planting. Broadcast and work in before spear growth in spring.

Snap Beans: Apply P₂O₅, and K₂O broadcast or in a band 2 in. below and 2 in. to the side of the seed. Be sure seed does not contact fertilizer. Broadcast or sidedress N at trifoliolate.

Beet: Apply P₂O₅, and K₂O broadcast or in a band 2 in. below and 2 in. to the side of the seed. Apply N before planting or sidedress early in the growing season. Apply 2-3 lb/a boron broadcast before planting if soil test is low.

Carrot: Broadcast N, P₂O₅, and K₂O and work in before planting. N can be sidedressed.

Celery: Broadcast N, P₂O₅, and K₂O and work in before planting. N can be sidedressed with a split rate application.

Cole crops (Broccoli, Cabbage, Cauliflower): Broadcast N, P₂O₅, and K₂O and work in before planting. N can be sidedressed early in the growing season. Apply 1-3 lb/a boron broadcast before planting if soil test is low.

Cucumber: Apply P₂O₅, and K₂O in a band 2 in. below the seed. Split N recommendation into two or more applications. Make the first N application when plants have 2-3 true leaves. Make the second N application when vines begin to fill rows.

Eggplant: Broadcast N, P₂O₅, and K₂O and work in before planting.

Lettuce: Broadcast N, P₂O₅, and K₂O and work in before planting. Split N recommendation into two or more applications.

Melon (Cantaloupe, Watermelon): Apply P₂O₅, and K₂O in a band 2 in. below and 2 in. to the side of the seed. Split N recommendation into two or more applications. Make the first N application when plants have two or more true leaves. Make the second N application when vines begin to fill rows.

Onion: Broadcast N, P₂O₅, and K₂O and work in before planting. Split N into two or more applications on sandy soil.

Pea: Broadcast N, P₂O₅, and K₂O and work in before planting.

Pepper: Broadcast N, P₂O₅, and K₂O and work in before planting. Split N recommendation into two or three applications.

Potato: Apply P₂O₅, and K₂O in a band 2 in. below and 2 in. to the side at planting. Nitrogen timing on potato can be at planting or emergence under heavier soils. Excessive N can delay tuber initiation and decrease yield.

Pumpkin & Squash: Apply P₂O₅, and K₂O in a band 2 in. below and 2 in. to the side of the seed. Split N recommendation into two or more applications. Make the first N application when plants have two or more true leaves. Make the second N application when vines begin to fill rows.

Sweet Corn: Apply P₂O₅, and K₂O in a band 2 in. below and 2 in. to the side of the seed. ^N can be broadcast, sidedressed or applied through irrigation.

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Produce Fertility Guidelines (Continued)



Relative micronutrient requirement of Wisconsin vegetables¹

| Crop | Boron | Copper | Manganese | Molybdenum | Zinc |
|-------------|--------|--------|-----------|------------|--------|
| Asparagus | Medium | Low | Low | Low | Low |
| Snap Bean | Low | Low | High | Medium | Medium |
| Beet | High | High | Medium | High | Medium |
| Broccoli | Medium | Medium | Medium | High | - |
| Cabbage | Medium | Medium | Medium | Medium | Low |
| Carrot | Medium | Medium | Medium | Low | Low |
| Cauliflower | High | Medium | Medium | High | - |
| Celery | High | Medium | Medium | Low | - |
| Cucumber | Low | Medium | Medium | Low | Medium |
| Lettuce | Medium | High | High | High | Medium |
| Melon (all) | Medium | - | - | - | - |
| Onion | Low | High | High | High | High |
| Pea | Low | Low | Medium | Medium | Low |
| Pepper | Low | Low | Medium | Medium | - |
| Potato | Low | Low | Medium | Low | Medium |
| Sweet Corn | Low | Medium | Medium | Low | High |
| Tomato | High | High | Medium | Medium | Medium |

- = no data

Iron (Fe) and chloride (Cl) deficiencies have not been noted on field crops in Wisconsin.

Highly responsive crops will often respond to micronutrient fertilizer additions if the micronutrient concentration in the soil is low. Medium responsive crops are less likely to respond, and low responsive crops do not usually respond to fertilizer additions even at the lowest soil micronutrient levels.

¹Table abridged from University of Wisconsin A2809 and Michigan State University E-486.



Interpretation of soil test values for secondary nutrients and micronutrients

| Nutrient | Soil test category | | | | |
|---------------------------------|--------------------|---------|---------------|----------|-----------------------|
| | Very low (VL) | Low (L) | Optimum (Opt) | High (H) | Excessively high (EH) |
| soil test, ppm | | | | | |
| Calcium | 0-300 | 301-600 | 601-1000 | >1000 | - |
| Magnesium | 0-50 | 51-100 | 101-500 | >500 | - |
| Boron | 0-0.3 | 0.4-0.8 | 0.9-1.5 | 1.6-3.0 | >3.0 |
| Zinc | 0-1.5 | 1.6-3.0 | 3.1-20 | 21-40 | >40 |
| Manganese | - | 0-10 | 11-20 | >20 | - |
| Sulfur availability index (SAI) | | | | | |
| Sulfur | - | <30 | 30-40 | >40 | - |

Recommended rates of secondary and micronutrients for foliar application if needed.

| Nutrient | Lbs. of element per acre |
|------------|--------------------------|
| Calcium | 1-2 |
| Magnesium | 1-2 |
| Boron | 0.1-0.3 |
| Copper | 0.5-1.0 |
| Manganese | 1.0-2.0 |
| Molybdenum | 0.06 |
| Zinc | 0.3-0.7 |
| Iron | 1.0-2.0 |

Use a minimum of 30 gallons of water per acre.
Source: MSU E-550B



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