

1. Reduce nitrogen and potash application when manure is applied. Manure analysis is available through your County Agent. Apply only enough manure to supply the crop's nitrogen requirement. For most vegetable crops apply about one ton per acre of moist crumbly poultry manure or 7 tons per acre of cattle manure for low-N crops such as beans and peas and up to 4 times this amount for high-N crops such as broccoli, cauliflower and fresh market sweet corn.
2. Adjust nitrogen levels according to soil type, previous management, amount of rainfall, and plant growth.
3. Use an all-soluble, high phosphate plant starter fertilizer such as 12-48-8, 11-42-17, 10-55-10, 10-52-8, 8-32-16 in the transplant water in cold soils and for early plantings.
4. If vine growth has been excessive apply less nitrogen. Use monoammonium phosphate (MAP)
5. In some cases phosphorus may stimulate plant vigor similar to excess nitrogen.
6. Most vegetable crops and especially peas and beans will NOT tolerate high soluble salts levels. Sized particle blends low in soluble salts should be used for all banded and starter fertilizers in vegetables. Exceptions are beets and asparagus which are salt-loving and spinach which is fairly salt tolerant.
7. Limestone quality is important. Limestone recommendations are based on the use of 100% Calcium Carbonate equivalent limestone. Use the enclosed ST-13 "LIMING MATERIALS CONVERSION TABLE" to determine actual limestone recommendation based on purity of material you are planning to apply.
8. Limestone requires time to react with soil to effectively change soil pH. It should be applied 6 months to one year ahead of time when desired pH correction is required. Fall is an excellent time to lime.
9. Lime supplies needed calcium and magnesium in addition to raising pH levels. Do not use high rates of dolomitic limestone unless specifically recommended on vegetable soil test. If no limestone is recommended, but magnesium is required, consider applying Magox (54% Mg) or have dealer formulate required magnesium in fertilizer.
10. Common scab may cause problems on beets, carrots, diakon, radish, rutabaga, turnip roots, and parsnip in addition to Irish potatoes. Excessive use of farm manure can aggravate a scab problem. If manures are used, apply only moderate amounts in the fall to a growing cover crop.
11. Boron is a unique micronutrient. It is toxic to some vegetables at levels slightly above that required for good growth of others. Boron is most critical for beet, cauliflower, celery, and turnip production—adequate amounts are essential, but small excesses can be toxic to those crops as well. Beets, cauliflower, celery, and turnips may be particularly susceptible to boron deficiency on shaley soils, soils that have recent heavy applications of lime and soils with pH greater than 7. Plants have a higher boron requirement when calcium levels are high. When boron deficiency is evident from foliar symptoms in early growth stages, a foliar application may be made. Use 2-3 pounds of Borax or 1 pound of Solubor per 100 gallons of water per acre. Do not grow peas, beans, or Jerusalem artichokes following the year of a boron application

SUGGESTED BORON (B) RATES BY CROP

B (lb/A)

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| 1 | Asparagus-established-(apply every 3 years), Brussel Sprouts, Cabbage, Collards, Carrots, Leeks, Muskmelon, Onions, Scallions, Parsnips, Radishes, Rutabaga, Diakon |
| 1-2 | Beets, Horseradish |
| 2 | Turnip Roots |
| 2-3 | Broccoli, Cauliflower, Celery |
12. Banded fertilizer is extremely efficient. N rates in the row should be between 50 and 100 lbs/A. P₂O₅ row-applied rates may be as high as 200 lbs/A. K₂O rates in the row should not exceed 200 lbs/A. Mg should be applied in the row fertilizer when not supplied with the limestone application. Side-dressed N is an extremely efficient method of application.
 13. The fertilizer recommendations are based on the efficient use of plant nutrients. When soil nutrient levels are high, broadcast applications are not an efficient method of supplying plant nutrient needs. Be sure row applied fertilizer is not in contact with the potato seedpiece.
 14. Soil nutrient levels exceeding crop needs can be as bad as deficient levels. High soil nutrient levels not only might represent an economic loss, but they may also result in crop, animal or environmental problems. Very high P levels (above about 310 lbs P₂O₅/acre or 140 lbs P/acre) in the soil may lead to nutrient deficiencies, especially of iron and zinc. If K, Mg and/or Ca levels are high, serious nutrient imbalances can occur. When K levels are above about 5% saturation; Mg levels 15%; and Ca levels 80%, soil nutrition is beginning to get out of the optimum range. Use best management practices to avoid increasing nutrient levels that exceed crop needs.