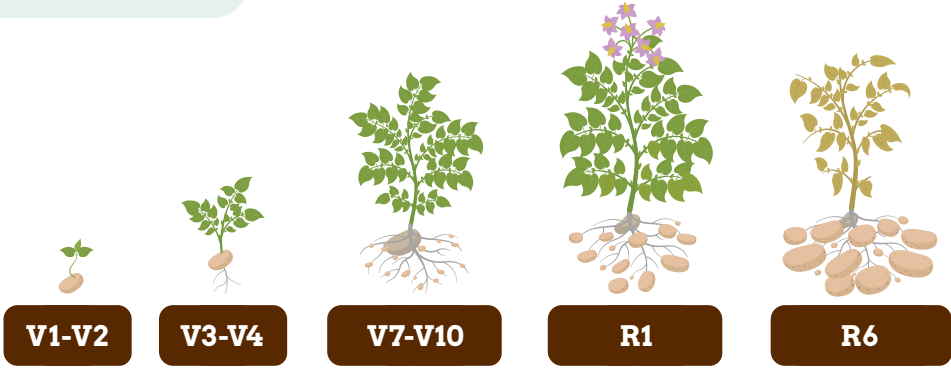
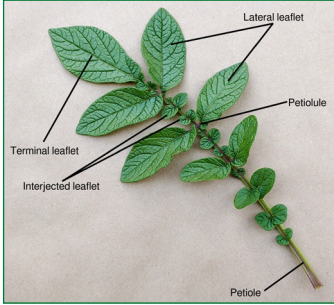




# CROP INFORMATION: POTATOES



POTATOES	Pre-Plant	Sprout Development	Vegetative Growth	Tuber Initiation	Tuber Bulking	Maturation
<b>Monty's Recommended Program</b>	MLC: 2-4 qt/ac Agri-Sweet FG: 1-2 qt/ac Microhance: 1-2 qt/ac Calcium 3%: 1-2 qts/ac 9-24-3: 2-3 gal/ac	MLC: 1-2 qt/ac Microhance: 1-2 qt/ac Calcium 3%: 1-2 qt/ac Surge XD: 1 qt/ac	Microhance: 1-2 qt/ac Calcium 3%: 1-2 qt/ac Surge XD: 1 qt/ac K28: 1-2 qt/ac Boron: 1-2 qt/ac 9-24-3: 2-4 qt/ac	MLC: 1-2 qt/ac Microhance: 1-2 qt/ac Calcium 3%: 1-2 qt/ac Surge XD: 1 qt/ac K28: 2-4 qt/ac	Calcium Plus: 2-4 qt/ac Boron: 1-2 pt/ac K28: 2-4 qt/ac	Nanoboost: 3 oz/ac to speed up defoliation process
<b>Monty's Program Benefits</b>	Improves soil health and stimulates soil microbial populations	Maximize yield & increase specific gravity Increase uptake of all nutrients, buffering salt, pH, and CEC		May increase uptake of N application, buffer salts and pH		
<b>Fertility Needs</b>	N, P, K, S, Zn, B, Mn (For specific micronutrient needs, consult your Monty's representative or dealer)					
<b>Maintenance Applications</b>	<b>Other products that can be used in potato production:</b> MLC: 1-2 qt/ac & Agri-Sweet FG: 1-2 qt/ac - Will assist in loosening dirt being held on potatoes Humihance: 2 qt/1 ton dry fertilizer Surge XD: 1-2 qt/ac: Can be added to any herbicide/pesticide/fungicide application					
<b>When To Soil Sample</b>	Prior to planting or in the fall					
<b>When To Tissue Sample</b>	Regional timing/recommendations					

\* October to December sampling for spring fertilizer applications, and March to April sampling for fall applications are preferred.  
 † Weekly tissue sampling will allow you to monitor crops' fertility to achieve the highest yield. Tissue sampling should be done if deficiency symptoms appear.

## Useful Information:

### Soil type and pH

- Potatoes grow best in loose, well-drained, non-crusting, sandy loam or loam soils with high organic matter content and pH between 5.5 and 6.5.

### Soil temperature

- Seed pieces can germinate when soil temperatures are cool (less than 55°F).

### Bed spacing

- Bed spacing of 48" allows for a balance of workability and yield potential.
- 60" beds provide for ease of field operations, but may reduce yield potential.
- Potatoes grow best planted in a single line per row to allow for "hilling" to ensure that potatoes are covered with soil. Potatoes exposed to sunlight turn green and become unmarketable.

### Plant spacing within row

- 8-12" between plants in the row. Closer spacing will result in smaller tubers.

### Planting size and depth

- Use 1.5-3 ounce seed pieces with at least 2 "eyes."
- Place seed pieces 2-4" deep.

### Days to maturity

- Most varieties suitable reach full maturity in 100 to 120 days.
- Harvest "new" potatoes at the growth stage following bloom when the canopy is full, typically 8-9 weeks after planting, depending on variety and weather.
- Harvest "creamers" 10-12 weeks after planting, depending on variety and weather.

2017 Center for Agroecology & Sustainable Food Systems (CASFS)

**Based on growth stages, adequate seasonal soil nitrogen should be within the following values (18" depth):**

Developmental Stage	Soil NO <sub>3</sub> -N+ NH <sub>4</sub> -N Concentration
Stage I	15 ppm
Stage II	> 10-15 ppm
Stage III	10 ppm
Stage IV	< 10 ppm

Westermann and Kleinkopf, 1982

## Nutrients (lbs) removed per ton of potatoes produced

Maintaining the ideal level of nutrients is key to maximizing yield. It is important to tissue test and supplement nutrients throughout the season to ensure your plants are getting the necessary amounts of nutrients.

Nutrient	lb/acre
N	90
P <sub>2</sub> O <sub>5</sub>	48
K <sub>2</sub> O	158
Ca	5
Mg	7
S	7
B	0.08
Cu	0.06
Fe	0.08
Mn	0.14
Zn	0.08
Na	...

Ag Proud, 2022

\* Program benefits are based upon results of field trials conducted by Monty's and third parties. Program benefits are not guaranteed and will vary based upon many factors including weather, soil type, and farming practices.



## CROP INFORMATION: POTATO

### Deficiency Symptoms



**Nitrogen** deficient wheat plants appear pale-green to yellow with necrosis/chlorosis, and appear in older leaves.



**Boron** symptoms develop in younger leaves and spread to older growth. Symptoms appear as small chlorotic spots that began to enlarge and coalesce to form white stripes.



**Iron** deficiency is characterized by interveinal chlorosis of the leaves with the leaf veins remaining green.



**Zinc** deficiency symptoms appear as pale green plants with localized light-yellow chlorosis, that can turn into brown/gray necrotic lesions. Plants can be stunted.



**Sulfur** deficiency is characterized pale yellow color, uniform yellowing without necrosis.



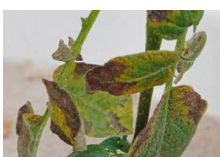
**Calcium** deficiency appears first on the youngest leaf and spreads to older leaves. Tips of leaves turn pale and began to roll inwards. Leaves may twist back, tear off, or die. The base of the leaves will remain green.



**Phosphorus** may cause dark green coloration of the leaves and a purple color to the leaves. Older leaves may be dark yellow to orange or brown.



**Manganese** deficiency will occur in patches throughout the field. Plants are stunted and symptoms appear as yellowing in the younger leaves, yellow striping of leaves and whitish to colorless spots.



**Potassium** deficiency appears as pale green plants that appear wilted or limp. Symptoms appear in the oldest leaves and have bright yellow chlorosis and brown necrosis along the margins.



**Magnesium** appears on the middle leaves as green, yellow with yellow interveinal chlorosis that can turn to brown necrosis.

### Soil & Tissue Sampling

#### SOIL SAMPLING RECOMMENDATIONS:

Take one soil sample for every 20 acres. This sample should consist of a composite of 15 subsamples taken randomly at a depth of 6-7 inches from across the sample area. The sample needs to be mixed well to be representative of the soil conditions.

**Soils that can be tested less often:** If the soil has a high CEC, it will hold cation nutrients better and the pH will remain constant over longer periods of time. It is still suggested to test throughout the growing season and at the end of the harvest for planning.

**Soil that should be frequently tested:** Soil with a low CEC (less than 7), some cations such as potassium (K<sup>+</sup>), magnesium (Mg<sup>++</sup>), and ammonium (NH<sub>4</sub><sup>+</sup>) have the ability leach through the root zone, so testing more often to find nutrient deficiencies is beneficial. When fertility levels are low, soil sampling should happen more frequently to insure best utilization of added nutrients and fertility.

**The key is consistency and getting the information back in time to use it.** This is why we encourage sampling at harvest to plan properly for the next growing season. While factors such as weather and crop rotation can affect soil test results, these differences are generally small enough that reliable information can still be obtained regardless of when sampling is done.

**For general practices:** October-December sampling for Spring fertilizer planning and applications, and March-April sampling for Fall/post harvest planning and applications. These two time periods generally have the lowest amounts of testing variability associated with them. **Give yourself adequate time to review the test results and plan the program before making fertilizer applications.**

#### TISSUE SAMPLING RECOMMENDATIONS:

**Timing:** Potato tissue sampling is best prior to, and through, tuber initiation for best plant information, and again at early through late bloom. Growers are encouraged to tissue sample throughout the growing season (early and often) to achieve the highest yields possible.

**Storing and shipping:** Store the sample properly and remove soil or other debris that would interfere with tissue analysis and results. Problem areas or areas of interest should be sampled separately. All samples should be stored in a paper bag and in a cool place and properly labeled. All samples should be sent to the lab immediately to prevent any decay or damage to your sample that could cause your tissue results to be inaccurate.

**MONTY'S HIGH YIELD PROGRAM:** *Monty's high yield program can vary from a standard program by products, application rates, and application timing. If you are interested in a high yield program contact your Monty's representative or call 800.978.6342.*