Chapter 17.
Potato Production in Florida
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BOTANY

Nomenclature
Family – Solanaceae
Potato – Solanum tuberosum.

Origin
The potato is native to the Andean highlands of Peru.

Related Species
Other vegetable crops in the Solanaceae family are tomato, pepper, potato and tomatillo. Several field and ornamental crops also are included in this family.

VARIETIES

Variety selection, often made several months before planting, is one of the most important management decisions made by the grower. Failure to select the most suitable variety or varieties may lead to loss of yield or market acceptability.

The following characteristics should be considered in selection of potato varieties for use in Florida:

Yield – The selected should have the potential to produce crops at least equivalent to the current market standards. The typical yield for Florida fresh market varieties ranges from 225 – 350 cwt/acre. Production falls on the lower end of the scale in the southern counties and increases as production moves into northern counties.

A typical yield for chip potato production is 275 – 400 cwt/acre. Chip potato production areas are located from mid-state counties on both coasts to northern counties.

Disease, Insect, and Nematode Tolerance – Varieties having disease, insect, and nematode tolerance should be selected when all other factors are equal.

Horticultural Quality – Earliness is an important characteristic for Florida production as the average season length is 100 days. Other important qualities, depending on variety usage, include appropriate skin type, set, and color; taste and mouth feel; uniform tuber shape and size; shallow eyes; and relative specific gravity should all be considered.

Adaptability – Potatoes in Florida are grown as day length increases and temperatures change from cool to warm. This is opposite compared to many other production areas in the world. New varieties should be tested on limited acreage and accepted by the public and/or processor before planting on wider acreage. All popular northern varieties do not produce well in Florida because of Florida growing conditions.

Market Acceptance – New varieties must have characteristics that are appreciated by consumers. In addition, many other entities in the production chain such as packer, processor, and/or retailer all have demands that the variety must meet.

POTATO VARIETIES FOR COMMERCIAL PRODUCTION

Chipping Varieties

ATLANTIC - With high yield potential, high specific gravity and uniform tuber size and shape, Atlantic is the standard variety for chipping from the field or from very short-term storage. The cultivar is tolerant to scab and Verticillium wilt; resistant to pinkeye; and highly resistant to Race A of golden nematode, virus X and tuber net necrosis. Tubers are susceptible to internal heat necrosis, particularly in sandy soils in warm, dry seasons. Hollow heart in the larger diameter tubers (> 3 in) can be serious in some growing areas when growing conditions over the season fluctuate

HARLEY BLACKWELL – Harley Blackwell is a round, white-, netted-skinned cultivar, resistant to internal heat necrosis, for chipping directly from the field in the mid-Atlantic states. Harley Blackwell is resistant to Race A of golden nematode, air pollution susceptible, Verticillium wilt, late blight. It is moderately susceptible to early blight with intermediate resistance to common scab and some tolerance to powdery scab.
Fresh Market/Table Varieties

**RED LASODA** - Red LaSoda is an early to medium season, red-skinned variety that is primarily grown in the southeastern U.S. It is harvested in the winter months as a fresh market variety. Red LaSoda has a high yield potential of tubers with a bright red color. Tubers size early. Tuber eye depth and off-shape tubers are limitations. The cultivar is susceptible to early and late blights, scab, corky ringspot, and bacterial wilt. Red LaSoda is the top planted red-skinned potato variety in Florida.

**LAROUGE** - LaRouge is a early to medium maturing, red-skinned variety that has a high tuber yield potential with tubers sizing early. Primary growing areas are in the southeastern U.S. The variety is grown for the fresh market and is generally not stored. LaRouge has good scab resistance but is susceptible to early and late blights, corky ringspot, and bacterial wilt. The deep eyes and irregular tuber shape are the major limitations. When harvested in southern states the relatively high yield, bright color, and good boiling qualities make it popular for markets in the late winter.

**LACHIPPER** - LaChipper is an early to midseason variety with moderate to high tuber yield and moderate specific gravity. It is the top planted fresh market white-skinned variety in Florida. Tubers are more elongated than round, somewhat flattened. Skin is smooth and white with medium to deep, cream colored eyes that are fairly evenly distributed. Tuber flesh is very white. La Chipper possesses some resistance to late blight. It is moderately susceptible to common scab. Exposure to air pollution can result in defoliation and reduction in tuber yield. Deep eyes and irregular shape are disadvantages on the tablestock market.

**SEBAGO** - Sebago was released by the USDA and the Maine Agricultural Experiment Station in 1938. Tubers are elliptical to round with a smooth, ivory skin. Specific gravity is medium to low. Sebago is recognized statewide as having excellent flavor but it lacks some important horticultural qualities to compete equally with current fresh market standards. When grown in the south, the variety’s maturity is considered medium. Tubers grown under ideal conditions are attractive but are susceptible to prominent lenticels under wet conditions. Sebago is resistant to net necrosis and wart and has moderate resistance to early and late blight, southern bacterial wilt, PVX, PVY, PVA and some resistance to scab. The variety is highly susceptible to blackleg.

**YUKON GOLD** - Yukon Gold has early-medium maturity, moderate yields, moderate specific gravity and relatively attractive tuber type. Tubers slightly oval, may be somewhat flattened with yellow-white skin and light yellow tuber flesh. Its shallow, pink eyes distinguish Yukon Gold from other yellow-skinned, yellow-fleshed cultivars. Yukon Gold is resistant to mild mosaic, moderately resis- tant to leafroll virus and susceptible to virus Y, common scab and air pollution. In some growing areas, hollow heart and internal heat necrosis may be a problem. Yukon Gold retains the yellow flesh color when baked, boiled or french-fried.

**GOLDRUSH** - Goldrush is a medium maturing russet cultivar grown primarily for the fresh market. Russet-skinned tubers are oblong to long and average approximately 6-10 tubers per plant. Eyes are very shallow and well distributed; under some conditions they may show a reddish blush. Tuber flesh is very white and tuber dormancy is medium in duration. Goldrush has been observed to have moderate resistance to Verticillium wilt, good resistance to scab, moderate resistance to blackspot and some resistance to silver scurf. It is considered susceptible to most common potato viruses and other potato diseases, such as early blight, late blight, soft rot and Fusarium dry rot.

**GENERAL INFORMATION** – Production, quality, and disease resistance information is not provided for proprietary varieties. Information on proprietary varieties can be obtained by private or licensing company.

For further information on potato varieties for Florida production refer to the following EDIS documents:

Fresh market red and purple-skinned potato varieties for commercial production in northeast Florida. [http://edis.ifas.ufl.edu/CV283](http://edis.ifas.ufl.edu/CV283)

Fresh market white-skinned potato varieties for commercial production in northeast Florida. [http://edis.ifas.ufl.edu/CV282](http://edis.ifas.ufl.edu/CV282)

Fresh market russet potato varieties for commercial production in northeast Florida. [http://edis.ifas.ufl.edu/CV281](http://edis.ifas.ufl.edu/CV281)

Chip potato varieties for commercial production in northeast Florida. [http://edis.ifas.ufl.edu/CV280](http://edis.ifas.ufl.edu/CV280)

Potato vine killing or desiccation. [http://edis.ifas.ufl.edu/HS181](http://edis.ifas.ufl.edu/HS181)

Growing potatoes in the Florida home garden. [http://edis.ifas.ufl.edu/HS183](http://edis.ifas.ufl.edu/HS183)

Potato physiological disorders – growth cracks. [http://edis.ifas.ufl.edu/HS182](http://edis.ifas.ufl.edu/HS182)

Potato physiological disorders – brown center and hollow heart. [http://edis.ifas.ufl.edu/HS197](http://edis.ifas.ufl.edu/HS197)
SEEDING AND PLANTING

Planting date and seeding information are given in Table 1.

Table 1. General potato planting information.

<table>
<thead>
<tr>
<th>Planting dates</th>
<th>North Florida</th>
<th>Jan-Feb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Florida</td>
<td>Dec-Feb</td>
<td></td>
</tr>
<tr>
<td>South Florida</td>
<td>Oct-Jan¹</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Planting information</th>
<th>Distance between rows (inch)</th>
<th>36 - 42</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Distance between plants (inch)</td>
<td>5 - 10</td>
</tr>
<tr>
<td></td>
<td>Planting depth (inch)</td>
<td>3 - 4</td>
</tr>
<tr>
<td></td>
<td>Average seed piece size (oz)</td>
<td>2.5 - 3.0</td>
</tr>
<tr>
<td></td>
<td>Average seed per planted acre (lb)</td>
<td>2000 - 3000</td>
</tr>
<tr>
<td></td>
<td>Days from planting to tuber maturity</td>
<td>85 - 110</td>
</tr>
</tbody>
</table>

Table 2. Planting information for potato.

<table>
<thead>
<tr>
<th>Planting dates</th>
<th>North Florida</th>
<th>Jan-Feb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Florida</td>
<td>Dec-Feb</td>
<td></td>
</tr>
<tr>
<td>South Florida</td>
<td>Oct-Jan¹</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Planting information</th>
<th>Distance between rows (inch)</th>
<th>36 - 42</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Distance between plants (inch)</td>
<td>6 - 12</td>
</tr>
<tr>
<td></td>
<td>Planting depth (inch)</td>
<td>3 - 4</td>
</tr>
<tr>
<td></td>
<td>Seed pieces per acre (lb)</td>
<td>2,000 - 3,000</td>
</tr>
<tr>
<td></td>
<td>Days to maturity: seed pieces</td>
<td>85 - 110</td>
</tr>
<tr>
<td></td>
<td>Plant population² (acre)</td>
<td>29,040</td>
</tr>
</tbody>
</table>

¹ February plantings in Glades
² Population based on closest between and within row spacing.

FERTILIZER AND LIME

For subsurface or sprinkler irrigated crops, band all P₂O₅, micronutrients, K₂O (50%), and nitrogen (50%) in bed at planting. When plants reach a 10-12 inch growth stage (approximately 35-40 days after planting), band or

Table 3. Soil test and fertilizer recommendations for mineral soils for potato (based on 40 to 42 inch centers).¹

<table>
<thead>
<tr>
<th>Target pH</th>
<th>N (lb/A)</th>
<th>K₂O (lb/A)</th>
<th>VL</th>
<th>L</th>
<th>M</th>
<th>H</th>
<th>VH</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0</td>
<td>200</td>
<td>150</td>
<td>120</td>
<td>120</td>
<td>60</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

P₂O₅ (lb/A/crop season)

<table>
<thead>
<tr>
<th></th>
<th>1200-1400</th>
<th>4500-5000</th>
</tr>
</thead>
</table>

¹ See Chapter 2 section on supplemental fertilizer application and best management practices, pg 11.

Table 4. Plant tissue analysis for potato plants 10 inches tall. Dry wt. basis.

<table>
<thead>
<tr>
<th>Status</th>
<th>N%</th>
<th>P%</th>
<th>K%</th>
<th>Ca%</th>
<th>Mg%</th>
<th>S%</th>
<th>Fe%</th>
<th>Mn%</th>
<th>Zn%</th>
<th>B%</th>
<th>Cu%</th>
<th>Mo%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deficient</td>
<td>&lt;3.0</td>
<td>0.2</td>
<td>3.5</td>
<td>0.6</td>
<td>0.3</td>
<td>0.25</td>
<td>40</td>
<td>30</td>
<td>30</td>
<td>20</td>
<td>5</td>
<td>0.1</td>
</tr>
<tr>
<td>Adequate range</td>
<td>3.0-6.0</td>
<td>0.2-0.8</td>
<td>3.5-6.0</td>
<td>0.6-2.0</td>
<td>0.3-0.6</td>
<td>0.25-0.50</td>
<td>40-150</td>
<td>30-60</td>
<td>30-60</td>
<td>20-60</td>
<td>5-10</td>
<td>0.1-0.2</td>
</tr>
<tr>
<td>High</td>
<td>&gt;6.0</td>
<td>0.8</td>
<td>6.0</td>
<td>2.0</td>
<td>0.6</td>
<td>0.50</td>
<td>150</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>10</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Table 5. Sufficiency ranges for petiole sap testing for potato.

<table>
<thead>
<tr>
<th>Crop development stage</th>
<th>Fresh petiole sap concentration (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO₃-N</td>
<td></td>
</tr>
<tr>
<td>Plants eight-inches tall</td>
<td>1200-1400</td>
</tr>
<tr>
<td>First open flowers</td>
<td>1000-1400</td>
</tr>
<tr>
<td>50% flowers open</td>
<td>1000-1200</td>
</tr>
<tr>
<td>100% flowers open</td>
<td>900-1200</td>
</tr>
<tr>
<td>Tops falling over</td>
<td>600-900</td>
</tr>
<tr>
<td>K</td>
<td></td>
</tr>
<tr>
<td>First open flowers</td>
<td>4500-5000</td>
</tr>
<tr>
<td>50% flowers open</td>
<td>4000-4500</td>
</tr>
<tr>
<td>100% flowers open</td>
<td>3500-4000</td>
</tr>
<tr>
<td>Tops falling over</td>
<td>2500-3000</td>
</tr>
</tbody>
</table>
inject remaining K₂O and nitrogen into side of bed (Table 3). In seepage irrigated potatoes, banded or infected fertilizer must be placed deep enough in the bed to reach the capillary fringe of the perched water table.

**PLANT TISSUE ANALYSIS**

Plant tissue analysis for potato is listed in Table 4. This data corresponds to nutrient concentrations in the most recently matured leaf of 10 inch tall plants.

**PETIOLE SAP TESTING**

Fresh sap can be pressed from leaf petioles and analyzed for nitrogen and potassium concentrations. Results can be used to make fertilizer adjustments within the first 40 days after planting. Application of fertilizer near or after full flower will not result in tuber yield increase. Sufficiency ranges for sap testing for potato are presented in Table 5.

**IRRIGATION**

Potato plant growth is peaks at or soon after full flower. The highest demand for water occurs in the growth stages leading up to full flower. Plant water requirements increase from about 40% of ETo (see Chapter 3, Table 1) during the initial plant growth stages to 110% of ETo at peak foliar growth and tuber development. Tubers bulk rapidly after full flower when the foliage begins to senesce. Plant water use decreases to about 70% ETo. The depth of the perched water table in the seepage irrigated potatoes should be carefully maintained. The perched water table should be dropped before expected periods of heavy rainfall. Over irrigation late in the season can cause lenticels to expand detracting from fresh market tuber quality. In addition, over irrigation late in the season can lower specific gravity in chipping potatoes.

**WEED MANAGEMENT**

Weed control early in the season is important to maximize tuber yield and quality. A combination of herbicide application and working potato acreage will reduce weed pressure. Care should be taken to implement a weed control program that reduces weed pressure late in the season after foliage begins senescence. Failure of a weed control program late in the season will impact tuber bulking and the ease at which potatoes can be harvested. Water furrows should be maintained weed free as they can serve as a weed seed bank to re-infest the planted acreage. Herbicides labeled for weed control in potatoes are listed in Table 6.

**POTATO VINE DESICCANTS**

Potatoes grown in Florida fit into two marketing niches. A few potato varieties are grown for the processing market (chip or diced). For the processing market, it is often not necessary to produce a fully mature tuber with excellent skin quality as the potato will be processed shortly after harvest. However, many tubers in Florida enter the fresh market. Fresh market tubers are sold on appearance and taste. It is important for these tubers to have excellent skin quality and the ability to maintain quality for a short period of time.

Non-mature tubers will “skin” when harvested. Skinned tubers appear untidy due to bits of protruding skin. Skinned areas will also discolor turning from tan to dark brown. Non-mature tubers also lose significantly more weight than unskinned tubers in storage and transit. Skinned areas are sites of soft rot infection resulting in rejected loads.

Tubers can be induced to mature in the field by killing the potato vines either mechanically, with herbicides, or a combination of both. Rapid killing of vines under stressful (water or heat) conditions can result in discoloration of the tuber vascular tissue. Discoloration does not increase in storage or affect storage quality.

Killing the potato vines induces tubers to mature rapidly and causes the periderm to set. Tubers should remain in the field at least 14 to 21 days after vine kill and dependent on herbicide label information. The longer the period between vine kill and harvest, the less chance tubers will skin at harvest. The time it takes for tubers to mature after vine kill is variety dependent. A small plot of tubers should be dug periodically by hand and rubbed to test for skin slippage. It is difficult to get the skin to slip on mature tubers. It will take tubers longer to mature when plants are killed under active growing conditions (vines green and vigorous) compared to tubers under senescing vines.

When vines are killed, sunburning and/or greening can affect tubers not sufficiently covered with soil. Hilling soil around the plant to keep tubers covered is important. Vine desiccants are listed in Table 7.
Table 6. Chemical weed controls: potatoes.

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Labeled crops</th>
<th>Time of application to crop</th>
<th>Rate (lbs. Ai./Acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carfentrazone</td>
<td>Potatoes</td>
<td>Directed-hooded row-middles</td>
<td>0.008-0.025</td>
</tr>
<tr>
<td>(Aim)</td>
<td></td>
<td></td>
<td>0.008-0.025</td>
</tr>
<tr>
<td><strong>Remarks:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aim may be applied as a post-directed hooded burn-down application to emerged broadleaf weeds in row middles. Aim is not labeled for grassy weeds. May be tank mixed with other herbicides registered for this treatment pattern. May be applied at 0.33 oz (0.008 lb ai) to 1 oz (0.025 lb ai). Use a quality spray adjuvant such as crop oil concentrate (coc) or non-ionic surfactant (nis) at recommended rates.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carfentrazone</td>
<td>Potatoes</td>
<td>Preplant Directed-hooded Row-middles</td>
<td>0.031</td>
</tr>
<tr>
<td>(Aim)</td>
<td></td>
<td></td>
<td>0.031</td>
</tr>
<tr>
<td><strong>Remarks:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aim may be applied as a preplant burn-down treatment and/or as a post-directed hooded application to row middles for the burn-down of emerged broadleaf weeds. May be tank mixed with other registered herbicides. May be applied at up to 2 oz (0.031 lb ai). Use a quality spray adjuvant such as crop oil concentrate (coc) or non-ionic surfactant at recommended rates.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clethodim</td>
<td>Potatoes</td>
<td>Postemergence</td>
<td>0.09-0.25</td>
</tr>
<tr>
<td>(Select 2 EC)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Arrow)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Select Max)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Remarks:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postemergence control of actively growing annual grasses. Apply at 6-16 fl oz/acre (Select, Arrow) or 9-16 fl oz/acre (Select Max). Higher rates are listed for perennial grasses. Use a crop oil concentrate for Select and Arrow, but a non-ionic surfactant may be used for Select Max. Do not apply within 30 days of harvest.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DCPA</td>
<td>Potato</td>
<td>Preemergence or early layby</td>
<td>6.0-8.0</td>
</tr>
<tr>
<td>(Dacthal W-75)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Remarks:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controls germinating annuals. Apply to moist soil. Note label precautions of replanting non-registered crops within 8 months.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPTC</td>
<td>Potato</td>
<td>Postemergence or early layby; Preplant, Dragoff, Layby</td>
<td>3.0 3.0</td>
</tr>
<tr>
<td>(Eptam 7E)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Eptam 10G)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Remarks:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Granular formulation may be applied Preplant incorporated, at Dragoff and incorporated or at Layby and incorporated into clean cultivated soil. Emulsifiable formulation should not be applied on winter and early spring potatoes. Apply only after potatoes have emerged and true leaves have formed or at layby. There is a 45-day preharvest interval for application.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flumioxazin</td>
<td>Potato</td>
<td>Pre emergence</td>
<td>0.048</td>
</tr>
<tr>
<td>(Chateau)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Remarks:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chateau may be applied to potatoes at 1.5 oz product after hilling for the preemergence suppression of several broadleaf weeds. A minimum of 2 inches of soil must cover the potato at the time of application. Chateau should be tank-mixed with other labeled herbicides for broad spectrum weed control, especially the grass weeds.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S-Metolachlor</td>
<td>Potato</td>
<td>Preemergence; Preplant incorporated; Postplant incorporated</td>
<td>.95 - 1.9</td>
</tr>
<tr>
<td>Herbicide</td>
<td>Labeled crops</td>
<td>Time of application to crop</td>
<td>Rate (lbs. Al./Acre)</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>S-Metolachlor + Metribuzin</td>
<td>Potato</td>
<td>Preemergence</td>
<td>1.5 to 2 pints</td>
</tr>
<tr>
<td>(Boundary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Remarks:</strong> Boundary is a preemix herbicide of s-metolachlor and metribuzin. The product contains 5.25 lbs of s-metolachlor and 1.25 lbs of metribuzin per gallon. Apply the product after planting but before potato emergence. This includes after drag-off. Do not incorporate. Post emergence applications to 'Atlantic' are precautioned against.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metribuzin</td>
<td>Potato</td>
<td>Preemergence</td>
<td>0.5 - 1.0</td>
</tr>
<tr>
<td>(Sencor DF) (Sencor 4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Remarks:</strong> Apply to soil surface after drag-off but before crop emergence. Do not incorporate. Use lower rate on sandy soil.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metribuzin</td>
<td>Potato</td>
<td>Postemergence</td>
<td>0.25 - 0.5</td>
</tr>
<tr>
<td>(Lexone DF) (Sencor DF) (Sencor 4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Remarks:</strong> Not to be used on early maturing white or red skinned varieties. Apply only if there have been 3 consecutive days of sunny weather. Treat before weeds are 1” tall. Do not apply within 60 days of harvest. Split applications of pre plus postemergence may be made. Do not use more than 1 lb. per season.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paraquat</td>
<td>Potato</td>
<td>Preemergence</td>
<td>0.47</td>
</tr>
<tr>
<td>(Gramoxone Inteon) (Firestorm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Remarks:</strong> Controls emerged weed seedlings. Apply after planting, but before potatoes emerge. Use a non-ionic spreader.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pelargonic Acid</td>
<td>Potato</td>
<td>Preplant Directed-Shielded</td>
<td>3-10% v/v</td>
</tr>
<tr>
<td>(Scythe)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Remarks:</strong> Product is a contact, nonselective, foliar herbicide. There is no residual activity. May be tank mixed with soil residual herbicides. Consult label for rates and timings of applications.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pendimethalin (Prowl)</td>
<td>Potato</td>
<td>Preemergence; Preemergence Incorporated</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Remarks:</strong> May be applied after planting but before potatoes and weeds emerge or after drag-off. Most effective when incorporated by rainfall or mechanically into top 1 to 20 of soil within 7 days after application. Will not control established weeds. May also be applied early postemergence (from emergence to 6-inch stage of growth). Use this application on trial basis only. May be tank mixed with Sencore/Lexone, Eptam. Label states not for use on peat or muck soils.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rimsulfuron (Matrix)</td>
<td>Potato</td>
<td>Preplant Directed-Shielded</td>
<td>0.25-0.38 oz</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Remarks:</strong> Apply at a rate of 1 to 2oz of product to clean soil following hilling or drag-off. Product must be activated by irrigation or rainfall with 5 days. Apply postemergence to actively growing small weeds after crop emergence. Add as non-ionic surfactant to postemergence applications. Do not apply within 60 days of harvest. Do not exceed 2.0 oz product per acre/growing season. Preemergence tank mixes of Matrix with Lexone, Eptam, Prowl, Lorox or Dual are labeled. Postemergence tank mixes of Matrix plus Lexone and Eptam are labeled. Note and follow rotational crop guidelines.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sethoxydim (Poast)</td>
<td>Potato</td>
<td>Postemergence</td>
<td>0.188 - 0.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Remarks:</strong> Controls actively growing grass weeds. A total of 5 pts. product per acre may be applied in one season. Do not apply within 30 days of harvest. Apply in 5 to 20 gals. of water adding 2 pts. of crop oil concentrate per acre. Unsatisfactory results may occur if applied to grasses under stress. Use 0.188 lb ai (1 pt.) to seedling grasses and up to 0.28 lb ai (1.5 pts.) to perennial grasses emerging from rhizomes, etc. Consult label for grass species and growth stage for best control.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 7. Chemical desiccants for potato production.

<table>
<thead>
<tr>
<th>Active Ingredient</th>
<th>Common Name</th>
<th>Manufacturer</th>
<th>Product Rate</th>
<th>PH Interval¹</th>
<th>Relative Desc. Rate²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carfentrazone</td>
<td>AIM</td>
<td>FMC</td>
<td>3.2-5.8 fl oz/A</td>
<td>7 days</td>
<td>Fast</td>
</tr>
<tr>
<td>Diquat</td>
<td>Reglone</td>
<td>Syngenta</td>
<td>1-2 pt/A</td>
<td>7 days</td>
<td>Fast</td>
</tr>
<tr>
<td>Endothal</td>
<td>Desicate II</td>
<td>Cerexagri</td>
<td>1.5-2 qt/A</td>
<td>10 days</td>
<td>Slow</td>
</tr>
<tr>
<td>Gulfosinate</td>
<td>Rely</td>
<td>Bayer</td>
<td>3 pints/A</td>
<td>9 days</td>
<td>Slow</td>
</tr>
<tr>
<td>Pelargonic Acid</td>
<td>Scythe</td>
<td>Dow</td>
<td>7-10% sol.</td>
<td>1 day</td>
<td>Fast</td>
</tr>
<tr>
<td>Pyraflufen</td>
<td>ET</td>
<td>Nichino</td>
<td>2.75-5.5 fl oz/A</td>
<td>14 days</td>
<td>Slow</td>
</tr>
</tbody>
</table>

¹ Preharvest interval is the minimum time between application and harvest. It is not necessarily the time required to achieve tuber maturity and good skin-set.

² Relative desiccation rate for each herbicide.

Table 8. Potato fungicides and other disease management products.

<table>
<thead>
<tr>
<th>Chemical (active ingredient)</th>
<th>Fungicide Group¹</th>
<th>Max Rate / Acre</th>
<th>Min. Days to Harvest</th>
<th>Pertinent diseases or pathogens</th>
<th>Remarks²</th>
</tr>
</thead>
<tbody>
<tr>
<td>(copper compounds)</td>
<td>M1</td>
<td>SEE INDIVIDUAL LABELS</td>
<td>See individual labels</td>
<td>Early blight Late blight</td>
<td>See individual labels</td>
</tr>
<tr>
<td>Many brands available:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Badge SC, Badge X2,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Copper 53, COC DF,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COC WP, COCS WDG, Champ DP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dry Prill, Champ 2 FL,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Champ WG, Champion WP,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cuprofix Ultra 40 Dispers,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copper-Count-N, Cuprofix MZ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dispers, Copper sulfate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>crystals, Copper Sulfate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instant Powder, Kentan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DF, Kocide 2000, Kocide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DF, Kocide 3000, Nordox,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nu Cop 50WP, Nu-Cop 3L,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nu-Cop 50DF, Nu-Cop HB,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quimag Copper Sulfate Crystal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mankocide 61.1DF (copper</td>
<td>M1 / M3</td>
<td>5 lb</td>
<td>74.66 lb</td>
<td>Early blight Late blight</td>
<td>See label</td>
</tr>
<tr>
<td>hydroxide + mancozeb)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(sulfur)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Many brands available:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dusting sulfur, Kumulus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DF, Micro Sulf, Microfine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sulfur, Microthiol Dispers,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sulfur 90W, Super Six,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thiosperse 80%, Wettable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sulfur, Wettable Sulfur,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow Jacket Wettable Sulfur</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maneb 75DF (maneb)</td>
<td>M3</td>
<td>2 lb</td>
<td>14.9 lb</td>
<td>Early blight Late blight</td>
<td>Same as for Maneb 80 WP</td>
</tr>
</tbody>
</table>

Be sure to read a current product label before applying any chemical.
<table>
<thead>
<tr>
<th>Chemical (active ingredient)</th>
<th>Fungicide Group</th>
<th>Max Rate / Acre</th>
<th>Min. Days to Harvest</th>
<th>Pertinent diseases or pathogens</th>
<th>Remarks*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maneb 80WP (maneb)</td>
<td>M3</td>
<td>2 lb</td>
<td>14 lb</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Early blight</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Late blight</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 lb/10 gal. water for seed piece treatment. Allow to dry and do not use as livestock feed.</td>
<td></td>
</tr>
<tr>
<td>Manex (maneb)</td>
<td>M3</td>
<td>1.6 qt</td>
<td>11.2 qt</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Early blight</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Late blight</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.8 qt./10 gal of water for seed piece treatment. Allow to dry and do not use as livestock feed.</td>
<td></td>
</tr>
<tr>
<td>(mancozeb)</td>
<td>M3</td>
<td>SEE INDIVIDUAL LABELS</td>
<td>3</td>
<td>Early Blight Late Blight (see label)</td>
<td>See label for seed piece treatment.</td>
</tr>
<tr>
<td>Many brands available:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dithane M45, Dithane DF Rainshield, Dithane F45 Rainshield, Manzate Flowable, , Manzate Pro-Stick, Nubark Mancozeb, Penncozeb 4FL, Penncozeb 80WP, Penncozeb 75DF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polyram 80DF (metiram)</td>
<td>M3</td>
<td>2 lb</td>
<td>14 lb</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Early blight</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Late blight</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Limit is 7 appl./season</td>
<td></td>
</tr>
<tr>
<td>Potato Seed Treater 6% (Mancozeb)</td>
<td>M3</td>
<td>1 lb/100 lb seed</td>
<td></td>
<td>Fusarium</td>
<td>Seed treatment</td>
</tr>
<tr>
<td>(chlorothalonil)</td>
<td>M5</td>
<td>SEE INDIVIDUAL LABELS</td>
<td>7</td>
<td>Late blight Early blight See label</td>
<td>Read label for application directions</td>
</tr>
<tr>
<td>Many brands available:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bravo Ultrex, Bravo ZN, Equus 720SST, Bravo Weather Stik 6L, Chloronil 720, Chlorothalonil 720SC, Echo 90DF, Echo 720, Echo ZN, Equus DF, Initiate 720</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topsin M WSB T-Methyl Thiophanate Methyl (thiophanate-methyl)</td>
<td>1</td>
<td>SEE INDIVIDUAL LABELS</td>
<td>21</td>
<td>White mold</td>
<td></td>
</tr>
<tr>
<td>Tops MZ (thiophanate-methyl + mancozeb)</td>
<td>1 &amp; M3</td>
<td>1 lb/100 lb seed</td>
<td></td>
<td>Fusarium and Rhizoctonia-caused seed decays</td>
<td>Seed-Piece treatment</td>
</tr>
<tr>
<td>Ultra Flourish (mefenoxam)</td>
<td>4</td>
<td>0.84 oz/1000 linear ft</td>
<td></td>
<td>Pythium and Phytophthora-caused seed decays</td>
<td>At planting</td>
</tr>
<tr>
<td>Rovral 4F, Nevado, and Iprodione 4L (iprodione)</td>
<td>2</td>
<td>2 pt</td>
<td>8 pt</td>
<td>14</td>
<td>Early blight Sclerotinia</td>
</tr>
<tr>
<td>MetaStar 2E AG (metalaxyl)</td>
<td>4</td>
<td>8 pt</td>
<td></td>
<td>Pythium and Phytophthora decay on seed pieces</td>
<td>See label for banding applications; for use at planting</td>
</tr>
<tr>
<td>Ridomil Gold Copper 64.8W (mefenoxam + copper hydroxide;)</td>
<td>4 / M1</td>
<td>See label</td>
<td>See label</td>
<td>14</td>
<td>Late blight</td>
</tr>
<tr>
<td>Ridomil Gold Bravo SC (mefenoxam + chlorothalonil)</td>
<td>4 / M5</td>
<td>2.5 lb</td>
<td>See label</td>
<td>14</td>
<td>Late blight Early blight (See label)</td>
</tr>
</tbody>
</table>
Table 8.  Continued.

<table>
<thead>
<tr>
<th>Chemical (active ingredient)</th>
<th>Fungicide Group</th>
<th>Max Rate / Acre</th>
<th>Min. Days to Harvest</th>
<th>Pertinent diseases or pathogens</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Application Season</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ridomil Gold MZ (mefenoxam + mancozeb)</td>
<td>4 / M3</td>
<td>2.5 lb</td>
<td>10 lb</td>
<td>3</td>
<td>Late blight Early blight (See label)</td>
</tr>
<tr>
<td>Endura 70WP (boscalid)</td>
<td>7</td>
<td>10 oz</td>
<td>20.5 oz</td>
<td>10</td>
<td>Early blight See label</td>
</tr>
<tr>
<td>Moncut 70DF (flutolanil)</td>
<td>7</td>
<td>1.1 lb</td>
<td></td>
<td></td>
<td>Rhizoctonia In-furrow use only</td>
</tr>
<tr>
<td>Scala SC (pyrimethanil)</td>
<td>9</td>
<td>7 fl. oz</td>
<td>35 fl. oz</td>
<td>7</td>
<td>Early blight (See label)</td>
</tr>
<tr>
<td>Amistar 80DF (azoxystrobin)</td>
<td>11</td>
<td>5 oz</td>
<td>2.5 lb</td>
<td>14</td>
<td>Early blight Late blight (Various: See label)</td>
</tr>
<tr>
<td>Dynasty (azoxystrobin)</td>
<td>11</td>
<td>3.75 fl oz/100 lb seed</td>
<td></td>
<td></td>
<td>For suppression of black scurf and stem canker and seed-borne black dot and for protection against silver scurf</td>
</tr>
<tr>
<td>Evito 480SC (fluoxastrobin)</td>
<td>11</td>
<td>3 fl oz</td>
<td>22.8 fl oz</td>
<td>7</td>
<td>Early blight Late blight</td>
</tr>
<tr>
<td>Gem 500SC (trifloxystrobin)</td>
<td>11</td>
<td>3.8 fl oz</td>
<td>23 fl oz</td>
<td>7</td>
<td>Early blight Late Blight</td>
</tr>
<tr>
<td>Headline 2.09F (pyraclostrobin)</td>
<td>11</td>
<td>12 fl oz</td>
<td>72 fl oz</td>
<td>3</td>
<td>Early blight Late blight (See label)</td>
</tr>
<tr>
<td>Heritage (azoxystrobin)</td>
<td>11</td>
<td>10.5 oz</td>
<td>4.0 lb</td>
<td>14</td>
<td>Early blight Late blight (See label)</td>
</tr>
<tr>
<td>Reason 500SC (fenamidone)</td>
<td>11</td>
<td>8.2 fl oz</td>
<td>24.6 fl oz</td>
<td>14</td>
<td>Late blight Early blight (See label)</td>
</tr>
<tr>
<td>Quadris 2.08FL (azoxystrobin)</td>
<td>11</td>
<td>15.5 fl oz</td>
<td>2.0 lb ai/A</td>
<td>14</td>
<td>Late blight Early blight (See label)</td>
</tr>
<tr>
<td>Quadris Opti (azoxystrobin + chlorothalonil)</td>
<td>11 / M5</td>
<td>1.6 pt</td>
<td>See label</td>
<td>14</td>
<td>Late blight Early blight (see label)</td>
</tr>
<tr>
<td>Quadris Ridomil Gold (azoxystrobin + mefenoxam)</td>
<td>11 / 4</td>
<td>0.82 fl oz/1000 ft. of row</td>
<td>See label</td>
<td></td>
<td>Rhizoctonia canker, Pythium (See label)</td>
</tr>
<tr>
<td>Maxim 4FS (fluoxastrobin)</td>
<td>12</td>
<td>0.16 oz/100 lb seed</td>
<td></td>
<td></td>
<td>See label</td>
</tr>
<tr>
<td>Maxim Potato Seed Protectant (fluoxastrobin)</td>
<td>12</td>
<td>0.5 lb/100 lb seed</td>
<td></td>
<td></td>
<td>See label</td>
</tr>
<tr>
<td>Maxim MZ (fluoxastrobin + mancozeb)</td>
<td>12 / M3</td>
<td>0.5 lb/100 lb seed</td>
<td></td>
<td></td>
<td>See label</td>
</tr>
</tbody>
</table>

Be sure to read a current product label before applying any chemical.
<table>
<thead>
<tr>
<th>Chemical (active ingredient)</th>
<th>Fungicide Group¹</th>
<th>Max Rate / Acre</th>
<th>Min. Days to Harvest</th>
<th>Pertinent diseases or pathogens</th>
<th>Remarks²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blocker 4F (pentachloronitrobenzene (PCNB))</td>
<td>14</td>
<td>10 pt/A</td>
<td>20 lb</td>
<td>Stem canker Black scurf</td>
<td>Apply at planting</td>
</tr>
<tr>
<td>Terraclor 75WP (pentachloronitrobenzene (PCNB))</td>
<td>14</td>
<td>6.66 lb</td>
<td>Rhizoctonia</td>
<td>At planting</td>
<td></td>
</tr>
<tr>
<td>Terraclor F (pentachloronitrobenzene (PCNB))</td>
<td>14</td>
<td>10.4 fl oz 1000 linear ft 10 pt 15 pt 45</td>
<td>Rhizoctonia</td>
<td>At planting or see label for white mold</td>
<td></td>
</tr>
<tr>
<td>Forum (dimethomorph)</td>
<td>15</td>
<td>6 oz 30 oz 4</td>
<td>Late blight</td>
<td>Tank mix with another chemistry. Do not make more than 2 sequential applications before alternating to a non-group 15 fungicide</td>
<td></td>
</tr>
<tr>
<td>Ph-D (polyoxin D zinc salt)</td>
<td>19</td>
<td>6.2 oz 31 oz 0</td>
<td>Early blight</td>
<td>Limit is 5 appl./season</td>
<td></td>
</tr>
<tr>
<td>Gavel 75DF (zoxamide + mancozeb)</td>
<td>22 / M3</td>
<td>2.0 lb 12 lb 3</td>
<td>Early blight Late blight</td>
<td>This product contains 66.7% mancozeb so do not exceed maximum allowed for mancozeb considering this and other mancozeb-containing products.</td>
<td></td>
</tr>
<tr>
<td>Ranman (cyazofamid)</td>
<td>21</td>
<td>2.75 fl oz/A 27.5 fl oz 7</td>
<td>Late blight (See label)</td>
<td>Alternate with non-group 11 chemistry between applications</td>
<td></td>
</tr>
<tr>
<td>Agri-Mycin 17, Bac-Master, Firewall (streptomycin sulfate)</td>
<td>25</td>
<td>100 ppm</td>
<td>Soft Rot Blackleg</td>
<td>Seed treatment</td>
<td></td>
</tr>
<tr>
<td>Curzate 60DF (cymoxanil)</td>
<td>27</td>
<td>3.2 oz 22.4 oz 14</td>
<td>Late blight</td>
<td>Limit is 7 apps/year. Use in combination with a protectant fungicide. It is best to alternate Curzate with other fungicides such as mancozeb or chlorothalonil.</td>
<td></td>
</tr>
<tr>
<td>Evolve (cymoxanil + mancozeb + thiophanate-methyl)</td>
<td>27/ M3/ 1</td>
<td>Seed infection of late blight, dry rot, black scurf and canker and silver scurf</td>
<td>Potato seed piece treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tanos (cymoxanil + famoxadone)</td>
<td>27 / 11</td>
<td>8 oz 48 oz 14</td>
<td>Early blight Late blight (See label)</td>
<td>Do not make consecutive applications. Rotate to material with different mode of action</td>
<td></td>
</tr>
<tr>
<td>Previcur Flex (propamocarb hydrochloride)</td>
<td>28</td>
<td>1.2 pt 6.0 pt 14</td>
<td>Late blight Early blight</td>
<td>Use with a tank mix. See label for seed piece treatment.</td>
<td></td>
</tr>
<tr>
<td>Omega 500F (fluazinam)</td>
<td>29</td>
<td>8 oz 3.5 pt 14</td>
<td>Late blight White mold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agri-tin (triphenyltin hydroxide)</td>
<td>30</td>
<td>3.75 oz 11.5 7</td>
<td>Early blight Late blight</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Be sure to read a current product label before applying any chemical.
### Table 8. Continued.

<table>
<thead>
<tr>
<th>Chemical (active ingredient)</th>
<th>Fungicide Group&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Max Rate / Acre</th>
<th>Min. Days to Harvest</th>
<th>Pertinent diseases or pathogens</th>
<th>Remarks&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Super-Tin 80WP (triphenyltin hydroxide)</td>
<td></td>
<td>30</td>
<td>3.75 oz</td>
<td>11.25 oz</td>
<td>7</td>
</tr>
<tr>
<td>Alude Fosphite Fungi-Phite Topaz Phostrol Prophyt (potassium phosphite)</td>
<td></td>
<td>SEE INDIVIDUAL LABELS</td>
<td></td>
<td>Late blight</td>
<td></td>
</tr>
<tr>
<td>Acrobat 50WP (dimethomorph)</td>
<td></td>
<td>40</td>
<td>6.4 oz</td>
<td>32 oz</td>
<td>4</td>
</tr>
<tr>
<td>Revus (mandipropamid)</td>
<td></td>
<td>40</td>
<td>8 fl. oz</td>
<td>32 fl oz</td>
<td>14</td>
</tr>
<tr>
<td>Revus Top (mandipropamid + difenoconazole:)</td>
<td></td>
<td>40 / 3</td>
<td>7 fl. oz</td>
<td>28 fl oz.</td>
<td>14</td>
</tr>
<tr>
<td>Rhapsody Serenade ASO Serenade Max (Bacillus subtilis strain QST 713)</td>
<td></td>
<td>44</td>
<td>SEE INDIVIDUAL LABELS</td>
<td>Early blight Late blight</td>
<td></td>
</tr>
<tr>
<td>Regalia (extract of Reynoutria sachalinensis)</td>
<td>P</td>
<td>1.0% vol:vol dilution</td>
<td>0</td>
<td>Early blight Late blight (see label)</td>
<td></td>
</tr>
<tr>
<td>Actinovate AG (Streptomyces lydicus WYE108)</td>
<td>NC</td>
<td></td>
<td>0</td>
<td>Soil and foliar pathogens/diseases See label</td>
<td>OMRI listed for organic production. Can be applied as either soil drench or foliar spray</td>
</tr>
<tr>
<td>Oxidate (hydrogen dioxide)</td>
<td>NC</td>
<td></td>
<td></td>
<td></td>
<td>See label for specific instructions for use with potato</td>
</tr>
<tr>
<td>Sonata (Bacillus pumilus strain QST 2808)</td>
<td>NC</td>
<td>4 qt</td>
<td>0</td>
<td>Early blight Late blight</td>
<td>Tank mix with other fungicide for late blight</td>
</tr>
</tbody>
</table>

<sup>1</sup> FRAC code (fungicide group): Numbers (1-44) and letters (M, NC, U, P) are used to distinguish the fungicide mode of action groups. All fungicides within the same group (with same number or letter) indicate same active ingredient or similar mode of action. This information must be considered for the fungicide resistance management decisions. M = Multi site inhibitors, fungicide resistance risk is low; NC = not classified, includes mineral oils, organic oils, potassium bicarbonate, and other materials of biological origin; U = Recent molecules with unknown mode of action; P = host plant defense inducers. Source: FRAC Code List 2009; http://www.frac.info/ (FRAC = Fungicide Resistance Action Committee).

<sup>2</sup> Information provided in this table applies only to Florida. Be sure to read a current product label before applying any chemical. The use of brand names and any mention or listing of commercial products or services in the publication does not imply endorsement by the University of Florida Cooperative Extension Service nor discrimination against similar products or services not mentioned.
Table 9. Selected insecticides approved for use on insects attacking potatoes.

<table>
<thead>
<tr>
<th>Trade Name (Common Name)</th>
<th>Rate (product/acre)</th>
<th>REI (hours)</th>
<th>Days to Harvest</th>
<th>Insects</th>
<th>MOA Code¹</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actara (thiamethoxam)</td>
<td>1.5-3.0 oz</td>
<td>12</td>
<td>14</td>
<td>aphids (higher rate), Colorado potato beetle, flea beetles, potato leafhopper</td>
<td>4A</td>
<td>Toxic to bees. Do not use following soil application of Platinum. Maximum 6 oz/acre per season.</td>
</tr>
<tr>
<td>Admire Pro (imidacloprid)</td>
<td>5.7-8.7 fl oz or as seed piece treatment: 3.5-7.0 fl oz/100 lb seed</td>
<td>12</td>
<td>at planting, see label for options</td>
<td>aphids, Colorado potato beetle, flea beetles, potato leafhopper, wireworms (seed-piece protection only)</td>
<td>4A</td>
<td>Do not apply more than 0.31 lb ai per acre per season. Seed piece rate is based on seeding rate of 2000 lb/acre.</td>
</tr>
<tr>
<td>Agree WG (Bacillus thuringiensis subspecies aizawai)</td>
<td>1.0-2.0 lb</td>
<td>4</td>
<td>0</td>
<td>lepidopteran larvae (caterpillar pests)</td>
<td>11</td>
<td>Apply when larvae are small for best control. OMRI-listed².</td>
</tr>
<tr>
<td>*Agri-Mek 0.15 EC (abamectin)</td>
<td>8-16 fl oz</td>
<td>12</td>
<td>14</td>
<td>Colorado potato beetle, Liriomyza leafminers, spider mites</td>
<td>6</td>
<td>No more than 2 sequential applications. See label for resistance management.</td>
</tr>
<tr>
<td>*Ambush 25W (permethrin)</td>
<td>3.2-12.8 oz</td>
<td>12</td>
<td>14</td>
<td>cabbage looper, Colorado potato beetle, potato aphid, potato flea beetle, potato leafhopper, potato tuberworm</td>
<td>3</td>
<td>Do not apply more than 1.6 lb active ingredient per season (102.4 oz).</td>
</tr>
<tr>
<td>*Asana XL (0.66 EC) (esfenvalerate)</td>
<td>2.9-9.6 fl oz</td>
<td>12</td>
<td>7</td>
<td>beet armyworm (aids in control), cabbage looper, Colorado potato beetle, cucumber beetles (adults), cutworms, flea beetles, grasshoppers, potato aphid, potato leafhopper, potato tuberworm, tarnished plant bug</td>
<td>3</td>
<td>Do not apply more than 0.35 lb ai/acre per season (7 applications at highest rate).</td>
</tr>
<tr>
<td>Assail 70WP Assail 30SG (acetamiprid)</td>
<td>0.6-1.7 oz 1.5-4.0 oz</td>
<td>12</td>
<td>7</td>
<td>aphids, Colorado potato beetle, cucumber beetle, flea beetle, leafhoppers</td>
<td>4A</td>
<td>Do not make more than 4 applications per season. Do not exceed a total of 0.3 lb ai per acre per season.</td>
</tr>
<tr>
<td>Avaunt (indoxacarb)</td>
<td>2.5-6.0 oz</td>
<td>12</td>
<td>7</td>
<td>cabbage looper, Colorado potato beetle</td>
<td>22</td>
<td>Do not apply more than 24 oz/acre per crop.</td>
</tr>
<tr>
<td>Aza-Direct (azadirachtin)</td>
<td>1-2 pts, up to 3.5 pts, if needed</td>
<td>4</td>
<td>0</td>
<td>aphids, beetles, caterpillars, leafhoppers, leafminers, mites, stink bugs, thrips, weevils, whiteflies</td>
<td>un</td>
<td>Antifeedant, repellent, insect growth regulator. OMRI-listed².</td>
</tr>
<tr>
<td>Azatin XL (azadirachtin)</td>
<td>5-21 fl oz</td>
<td>4</td>
<td>0</td>
<td>aphids, beetles, caterpillars, leafhoppers, leafminers, thrips, weevils, whiteflies</td>
<td>un</td>
<td>Antifeedant, repellent, insect growth regulator.</td>
</tr>
<tr>
<td>*Baythroid XL (beta-cyfluthrin)</td>
<td>0.8-2.8 fl oz</td>
<td>12</td>
<td>0</td>
<td>cabbage looper, Colorado potato beetle, cutworms, flea beetles, potato leafhopper, potato tuberworm, tarnished plant bug</td>
<td>3</td>
<td>Allow at least 5 days between applications. A maximum of 16.8 oz may be applied per acre per season.</td>
</tr>
<tr>
<td>Belay 50WDG (clothianidin)</td>
<td>1.9-2.8 fl oz 1-1.5 oz</td>
<td>12</td>
<td>14</td>
<td>aphids, Colorado potato beetle, flea beetle, leafhoppers</td>
<td>4A</td>
<td>See label for in-furrow or side dress applications.</td>
</tr>
<tr>
<td>Trade Name (Common Name)</td>
<td>Rate (product/acre)</td>
<td>REI (hours)</td>
<td>Days to Harvest</td>
<td>Insects</td>
<td>MOA Code¹</td>
<td>Notes</td>
</tr>
<tr>
<td>--------------------------</td>
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<td>---------</td>
<td>-----------</td>
<td>-------</td>
</tr>
<tr>
<td>Beleaf 50 SG (flonicamid)</td>
<td>2.0-2.8 oz</td>
<td>12</td>
<td>7</td>
<td>aphids, plant bugs</td>
<td>9C</td>
<td>Begin applications before pest populations reach damaging levels. Do not apply more than 8.4 oz/acre per season.</td>
</tr>
<tr>
<td>Biobit HP (Bacillus thuringiensis subspecies kurstaki)</td>
<td>0.5-2.0 lb</td>
<td>4</td>
<td>0</td>
<td>caterpillars (will not control large armyworms)</td>
<td>11</td>
<td>Treat when larvae are young. Good coverage is essential. Can be used in the greenhouse. OMRI-listed.</td>
</tr>
<tr>
<td>BotaniGard 22 WP, ES (Beauveria bassiana)</td>
<td>WP: 0.5-2 lb/100 gal ES: 0.5-2 qt/100 gal</td>
<td>4</td>
<td>0</td>
<td>aphids, thrips, whiteflies</td>
<td>--</td>
<td>May be used in greenhouses. Contact dealer for recommendations if an adjuvant must be used. Not compatible in tank mix with fungicides.</td>
</tr>
<tr>
<td>*Brigade 2 EC (bifenthrin)</td>
<td>9.6-19.2 oz at-plant (soil); 3.2-9.6 oz at lay-by (soil); 2.1-6.4 oz (filiar)</td>
<td>12</td>
<td>21</td>
<td>cucumber beetles, flea beetles, sweetpotato weevil adults (filiar), whitefringed beetle adults, white grub adults, white grubs (lay-by), wireworm adults, wireworms (at-plant and lay-by)</td>
<td>3</td>
<td>No more than 2 foliar applications, at least 21 days apart. Do not apply more than 0.5 lb active ingredient per acre per season, including soil applications.</td>
</tr>
<tr>
<td>*Capture LFR</td>
<td>1 lb</td>
<td>12</td>
<td>0</td>
<td>fire ants</td>
<td>6</td>
<td>Apply when ants are actively foraging. Apply after dew or rainfall has dried for maximum effectiveness. Do not apply if rainfall is anticipated within 4-6 hours.</td>
</tr>
<tr>
<td>Coragen (rynaxypyr)</td>
<td>3.5-5.0 fl oz</td>
<td>4</td>
<td>14</td>
<td>cabbage looper, Colorado potato beetle</td>
<td>28</td>
<td>Do not apply more than 15.4 fl oz per acre per crop per season. Foliar or overhead sprinkler irrigation systems only.</td>
</tr>
<tr>
<td>Crymax WDG (Bacillus thuringiensis subspecies kurstaki)</td>
<td>0.5-2.0 lb</td>
<td>4</td>
<td>0</td>
<td>caterpillars</td>
<td>11</td>
<td>Use high rate for armyworms. Treat when larvae are young.</td>
</tr>
<tr>
<td>Deliver (Bacillus thuringiensis subspecies kurstaki)</td>
<td>0.25-1.5 lb</td>
<td>4</td>
<td>0</td>
<td>caterpillars</td>
<td>11</td>
<td>Use higher rates for armyworms. OMRI-listed.</td>
</tr>
<tr>
<td>Dimethoate 4 EC, (dimethoate)</td>
<td>0.5-1.0 pt</td>
<td>48</td>
<td>0 if mechanically harvested</td>
<td>aphids, grasshoppers, leafhoppers, leafminers</td>
<td>1B</td>
<td>Highly toxic to bees.</td>
</tr>
<tr>
<td>DiPel DF (Bacillus thuringiensis subspecies kurstaki)</td>
<td>0.5-2.0 lb</td>
<td>4</td>
<td>0</td>
<td>caterpillars</td>
<td>11</td>
<td>Treat when larvae are young. Good coverage is essential. OMRI-listed.</td>
</tr>
<tr>
<td>Entrust (spinosad)</td>
<td>1-3 oz</td>
<td>4</td>
<td>7</td>
<td>armyworms, Colorado potato beetle, loopers, thrips</td>
<td>5</td>
<td>Do not apply to consecutive generations of Colorado potato beetle. Do not apply more than 4 times/crop. OMRI-listed.</td>
</tr>
<tr>
<td>Extinguish ((S)-methoprene)</td>
<td>1.0-1.5 lb</td>
<td>4</td>
<td>0</td>
<td>fire ants</td>
<td>7A</td>
<td>Slow-acting IGR (insect growth regulator). Best applied early spring and fall where crop will be grown. Colonies will be reduced after three weeks and eliminated after 8 to 10 weeks. May be applied by ground equipment or aerially.</td>
</tr>
<tr>
<td>Trade Name (Common Name)</td>
<td>Rate (product/acre)</td>
<td>REI (hours)</td>
<td>Days to Harvest</td>
<td>Insects</td>
<td>MOA Code¹</td>
<td>Notes</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------------</td>
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<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Fulfill (pymetrozine)</td>
<td>2.75-5.5 oz</td>
<td>12</td>
<td>14</td>
<td>green peach aphid, potato aphid</td>
<td>9B</td>
<td>Apply when aphids first appear. Do not exceed 11.0 oz/acre/season.</td>
</tr>
<tr>
<td>*Furadan 4F, LFR (carbofuran)</td>
<td>1-2 pts</td>
<td>48</td>
<td>14</td>
<td>Colorado potato beetle, flea beetles, leafhoppers</td>
<td>1A</td>
<td>See label for restrictions based on soil type and water table.</td>
</tr>
<tr>
<td>Imidan 70 W (phosmet)</td>
<td>1.3 lb</td>
<td>5 days</td>
<td>7</td>
<td>Colorado potato beetle, flea beetles, potato leafhopper</td>
<td>1B</td>
<td>Use only on potatoes to be harvested by machine.</td>
</tr>
<tr>
<td>Javelin WG (Bacillus thuringiensis subspecies kurstaki)</td>
<td>0.12-1.5 lb</td>
<td>4</td>
<td>0</td>
<td>most caterpillars, but not <em>Spodoptera</em> species (armyworms)</td>
<td>11</td>
<td>Treat when larvae are young. Thorough coverage is essential. OMRI-listed².</td>
</tr>
<tr>
<td>Kryocide (cryolite)</td>
<td>10-12 lb</td>
<td>12</td>
<td>0</td>
<td>Colorado potato beetle</td>
<td>--</td>
<td>Application to exposed tubers may result in excess residues.</td>
</tr>
<tr>
<td>*Lannate LV; *SP (methomyl)</td>
<td>LV: 1.5-3.0 pt</td>
<td>48</td>
<td>6</td>
<td>aphids, beet armyworm, fall armyworm, flea beetles, leafhoppers, loopers, potato tuberworm, variegated cutworm</td>
<td>1A</td>
<td>Do not make more than 10 applications per crop or apply more than 15 pt (LV) or 5 lb (SP) per acre per crop.</td>
</tr>
<tr>
<td>Malathion 8F (malathion)</td>
<td>1-3 pt</td>
<td>12</td>
<td>0</td>
<td>aphids, false chinch bugs, grasshoppers, mealybugs, leafhoppers</td>
<td>1B</td>
<td></td>
</tr>
<tr>
<td>*Mocap 15 G, *EC (ethoprop)</td>
<td>See labels</td>
<td>48</td>
<td>preplant or at planting</td>
<td>symphylans, wireworms</td>
<td>1B</td>
<td></td>
</tr>
<tr>
<td>*Monitor 4 EC (methamidophos)</td>
<td>1.5-2 pts</td>
<td>4 days</td>
<td>14</td>
<td>aphids, armyworms, cabbage looper, Colorado potato beetle, cutworms, flea beetles, Lygus bug, potato leafhopper, potato tuberworm</td>
<td>1B</td>
<td></td>
</tr>
<tr>
<td>Movento (spirotetramat)</td>
<td>4.0-5.0 fl oz</td>
<td>24</td>
<td>7</td>
<td>aphids, psyllids, whiteflies</td>
<td>23</td>
<td>Maximum of 10 fl oz/acre per season.</td>
</tr>
<tr>
<td>M-Pede 49% EC Soap, insecticidal</td>
<td>1-2% V/V</td>
<td>12</td>
<td>0</td>
<td>aphids, Colorado potato beetle, leafhoppers, plant bugs, thrips, whiteflies, mites</td>
<td>--</td>
<td>OMRI-listed².</td>
</tr>
<tr>
<td>*Mustang (zeta-cypermethrin)</td>
<td>1.4-4.3 oz</td>
<td>12</td>
<td>1</td>
<td>cabbage looper, cucumber beetles, cutworms, flea beetles, grasshoppers, leafhoppers, tarnished plant bug, vegetable weevil, white-fringed beetle (adult), yellowstriped armyworm; aids in control of aphids and beet armyworm</td>
<td>3</td>
<td>A maximum of 0.3 lb ai/acre per season may be applied.</td>
</tr>
<tr>
<td>Oberon 2SC (spiromesifen)</td>
<td>8-16 fl oz</td>
<td>12</td>
<td>7</td>
<td>potato psyllid, twospotted spider mite, whiteflies</td>
<td>23</td>
<td>Maximum amount per crop: 32.0 fl oz/acre. Maximum applications: 2.</td>
</tr>
<tr>
<td>Trade Name (Common Name)</td>
<td>Rate (product/acre)</td>
<td>REI (hours)</td>
<td>Days to Harvest</td>
<td>Insects</td>
<td>MOA Code¹</td>
<td>Notes</td>
</tr>
<tr>
<td>--------------------------</td>
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<td>-----------</td>
<td>-------</td>
</tr>
<tr>
<td>*Penncap-M (methyl parathion)</td>
<td>2-6 pt</td>
<td>12 days</td>
<td>5</td>
<td>Colorado potato beetle, cutworms, flea beetles, grasshoppers, potato leafhopper, tarnished plant bug</td>
<td>1B</td>
<td>Do not apply more than 24 pt per acre per year.</td>
</tr>
<tr>
<td>Platinum Platinum 75SG (thiamethoxam)</td>
<td>5-8 fl oz</td>
<td>12</td>
<td>applied at planting or at plant emergence</td>
<td>aphids, Colorado potato beetle, flea beetles, potato leafhoppers, wireworms (seed-piece only)</td>
<td>4A</td>
<td>For many crops that are not on the label, a 120-day plant-back interval must be observed. To manage resistance, avoid using Actara or Provado in conjunction with Platinum.</td>
</tr>
<tr>
<td>*Pounce 25 WP (permethrin)</td>
<td>6.4-12.8 oz</td>
<td>12</td>
<td>14</td>
<td>aphids, aster leafhopper, beet armyworm, cabbage looper, Colorado potato beetle, cutworms, flea beetles, leafhoppers, potato tuberworm, tarnished plant bug</td>
<td>3</td>
<td>Do not apply more than 0.8 lb ai/acre per season.</td>
</tr>
<tr>
<td>Provado 1.6 F (imidacloprid)</td>
<td>3.8 oz</td>
<td>12</td>
<td>7</td>
<td>aphids, Colorado potato beetle, flea beetles, leafhoppers</td>
<td>4A</td>
<td>Do not use if other 4A insecticides have been used at planting.</td>
</tr>
<tr>
<td>Pyrellin EC (pyrethrin + rotenone)</td>
<td>1-2 pt</td>
<td>12</td>
<td>12 hours</td>
<td>aphids, Colorado potato beetle, cucumber beetles, flea beetles, leafhoppers, leafminers, loopers, Lygus bugs, mites, plant bugs, stink bugs, thrips, vegetable weevil, whiteflies</td>
<td>3, 21</td>
<td></td>
</tr>
<tr>
<td>Radiant (spinetoram)</td>
<td>6-8 fl oz</td>
<td>4</td>
<td>7</td>
<td>armyworms, Colorado potato beetle, Liriomyza leafminers, loopers, thrips</td>
<td>5</td>
<td>No more than 4 applications per year.</td>
</tr>
<tr>
<td>*Regent 4SC (fipronil)</td>
<td>3.2 fl oz</td>
<td>0</td>
<td>90</td>
<td>wireworms</td>
<td></td>
<td>Supplemental label. Many plant-back restrictions. One in-furrow application at time of planting only. Must be incorporated and covered with soil.</td>
</tr>
<tr>
<td>Requiem (extract of Chenopodium ambrosioides)</td>
<td>2-3 qt</td>
<td>4</td>
<td>0</td>
<td>green peach aphid</td>
<td>un</td>
<td>Treat when threshold reached.</td>
</tr>
<tr>
<td>Rimon 0.83EC (novaluron)</td>
<td>9-12 fl oz</td>
<td>12</td>
<td>14</td>
<td>armyworms, Colorado potato beetle, loopers, other foliage feeding caterpillars, potato tuberworm, whiteflies (suppression)</td>
<td>15</td>
<td>Do not apply more than 24 oz per acre per season. Limited to 2 applications.</td>
</tr>
<tr>
<td>Sevin XLR, 4 F; 80 S (carbaryl)</td>
<td>XLR, 4F: 0.5-2.0 qt 80S: 0.63-2.5 lb</td>
<td>12</td>
<td>7</td>
<td>Colorado potato beetle, corn earworm, cutworms, fall armyworm, flea beetles, leafhoppers, stink bugs, tarnished plant bug</td>
<td>1A</td>
<td>Do not apply more than a total of 6 qt (4F, XLR) or 7.5 lb (80S).</td>
</tr>
</tbody>
</table>
### Table 9. Continued.

<table>
<thead>
<tr>
<th>Trade Name (Common Name)</th>
<th>Rate (product/acre)</th>
<th>REI (hours)</th>
<th>Days to Harvest</th>
<th>Insects</th>
<th>MOA Code¹</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spintor 2 SC (spinosad)</td>
<td>3.2-9.6 fl oz</td>
<td>4</td>
<td>7</td>
<td>armyworms, Colorado potato beetle, leafminers (<em>Liriomyza</em> spp.), loopers, thrips</td>
<td>5</td>
<td>Do not apply to consecutive generations of Colorado potato beetle, or make more than 2 applications per single generation.</td>
</tr>
<tr>
<td>Sun Spray 98.8%, JMS Stylet-Oil, others (oil, insecticidal)</td>
<td>3-6 qt/100 gal (JMS)</td>
<td>4</td>
<td>0</td>
<td>leafhoppers, leafminers, thrips, whiteflies, mites</td>
<td>--</td>
<td>See label for tank mix cautions. Organic Stylet-Oil is OMRI-listed².</td>
</tr>
<tr>
<td>*Telone C-35 (dichloropropene + chloropicrin)</td>
<td>See label</td>
<td>5 days - See label</td>
<td>preplant</td>
<td>symphylans, wireworms</td>
<td>--</td>
<td>See supplemental label for additional use restrictions for certain counties.</td>
</tr>
<tr>
<td>*Telone II (dichloropropene)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Temik 15 G (aldicarb)</td>
<td>14-20 lb</td>
<td>48</td>
<td>At planting</td>
<td>aphids, Colorado potato beetle, flea beetles, leafhoppers</td>
<td>1A</td>
<td>Do not apply after planting. See label for other restrictions.</td>
</tr>
<tr>
<td>*Thimet 20 G (phorate)</td>
<td>See label - varies with soil type and time of application.</td>
<td>48</td>
<td>90</td>
<td>aphids, Colorado potato beetle, flea beetles (larvae), leafhoppers, leafminers, wireworms</td>
<td>1B</td>
<td>One application per season.</td>
</tr>
<tr>
<td>*Thionex 3 EC *Thionex 50W (endosulfan)</td>
<td>0.66-1.33 qt</td>
<td>48</td>
<td>1</td>
<td>aphids, armyworms, Colorado potato beetle, false chinch bugs, flea beetles, leaffoppers, plant bugs, potato tuberworm, stink bugs, three-lined potato beetle, whiteflies</td>
<td>2</td>
<td>No more than 4 applications per year. Do not exceed 2 lb ai/acre per year.</td>
</tr>
<tr>
<td>Trigard (cyromazine)</td>
<td>2.66-5.32 oz</td>
<td>12</td>
<td>7</td>
<td>Colorado potato beetle larvae, leafminers</td>
<td>17</td>
<td>Most effective for control of 1st and 2nd instar larvae.</td>
</tr>
<tr>
<td>Trilogy (extract of neem oil)</td>
<td>0.5-2.0% V/V</td>
<td>4</td>
<td>0</td>
<td>aphids, mites, suppression of thrips and whiteflies</td>
<td>un</td>
<td>Apply morning or evening to reduce potential for leaf burn. Toxic to bees exposed to direct treatment. OMRI-listed².</td>
</tr>
<tr>
<td>Venom Insecticide (dinotefuran)</td>
<td>foliar: 1-1.5 oz soil: 6.5-7.5 oz</td>
<td>12 foliar - 7 soil - at planting</td>
<td></td>
<td>Colorado potato beetle, flea beetle, potato leaffopper, psyllid</td>
<td>4A</td>
<td>One soil application, either pre-plant, preemergence, or at ground crack.</td>
</tr>
<tr>
<td>Voliam Flexi (thiamethoxam, chlorantraniliprole)</td>
<td>4 oz</td>
<td>12</td>
<td>14</td>
<td>aphids, beet armyworm, cabbage looper, Colorado potato beetle, flea beetles, potato leaffopper</td>
<td>4A, 28</td>
<td>No more than two applications.</td>
</tr>
<tr>
<td>*Vydate L (oxamyl)</td>
<td>foliar: 1-4 pt</td>
<td>48</td>
<td>7</td>
<td>aphids, Colorado potato beetle, flea beetles, leaffoppers, tarnished plant bug</td>
<td>1A</td>
<td>No more than 8 foliar applications per crop.</td>
</tr>
<tr>
<td>Xentari DF (<em>Bacillus thuringiensis</em> subspecies aizawai)</td>
<td>0.5-2.0 lb</td>
<td>4</td>
<td>0</td>
<td>caterpillars</td>
<td>11</td>
<td>Treat when larvae are young. Thorough coverage is essential. May be used in the greenhouse. Can be used in organic production.</td>
</tr>
</tbody>
</table>
The pesticide information presented in this table was current with federal and state regulations at the time of revision. The user is responsible for determining the intended use is consistent with the label of the product being used. Use pesticides safely. Read and follow label instructions.

1 Mode of Action codes for vegetable pest insecticides from the Insecticide Resistance Action Committee (IRAC) Mode of Action Classification v. 6.1 August 2008.

1A. Acetyl cholinesterase inhibitors, Carbamates (nerve action)
1B. Acetyl cholinesterase inhibitors, Organophosphates (nerve action)
2A. GABA-gated chloride channel antagonists (nerve action)
3. Sodium channel modulators (nerve action)
4A. Nicotinic acetylcholine receptor agonists (nerve action)
5. Nicotinic acetylcholine receptor allosteric activators (nerve action)
6. Chloride channel activators (nerve and muscle action)
7A. Juvenile hormone mimics (growth regulation)
7C. Juvenile hormone mimics (growth regulation)
9B and 9C. Selective homopteran feeding blockers
10. Mite growth inhibitors (growth regulation)
11. Microbial disruptors of insect midgut membranes
12B. Inhibitors of mitochondrial ATP synthase (energy metabolism)
15. Inhibitors of chitin biosynthesis, type 0, lepidopteran (growth regulation)
16. Inhibitors of chitin biosynthesis, type 1, homopteran (growth regulation)
17. Molting disruptor, dipteran (growth regulation)
18. Ecdysone receptor agonists (growth regulation)
22. Voltage-dependent sodium channel blockers (nerve action)
23. Inhibitors of acetyl Co-A carboxylase (lipid synthesis, growth regulation)
28. Ryanodine receptor modulators (nerve and muscle action)
un. Compounds of unknown or uncertain mode of action

2 OMRI listed: Listed by the Organic Materials Review Institute for use in organic production.

* Restricted Use Only.