



While no longer used to predict the weather or deduce truth, potatoes remain a food staple around the world. Originally found and cultivated in the Andean mountain range in South America, many varieties of the potato traveled back to Europe with the early Spanish explorers. As European explorers ventured into other regions of the world, potatoes traveled with them - periodically to be intentionally introduced and sometimes that introduction happened just as a result of being a food staple on the ship. As members of the Solonaceae family, potatoes are in good company alongside tomatoes, eggplants, and - yes - even nightshade. They are relatively easy to grow, yield good sized crops with moderate inputs and despite many misconceptions have excellent value as a food crop and low incidence of toxin issues.

Food value first - in the dietary realm, potatoes have been perceived as being on the low end of the healthy choice vegetables. In reality, a medium sized potato has only about 100 calories and does not contain any fat or cholesterol (until it's loaded with butter, sour cream, bacon bits...), have more potassium than a banana, provide half the daily requirement of iron and 45% of the daily requirement of vitamin C, are low in sodium, and have loads of digestible protein. How bad does that sound? Maybe it's time to rethink fitting a potato in the diet.

Glycoalkaloid can be found in potatoes and while it can be a fatal substance when ingested in huge quantities, death remains an extremely rare occurrence. This glycoalkaloid - or solanin - occurs when the tubers are exposed to light either during the growth phase (happens when there is not enough light exclusion cover over the developing tubers) or if not stored post-harvest under conditions of suitable darkness. In both instances the skins of the tubers react to that light by turning green. This green coloration is the visible symptom exhibiting the development and presence of solanin. Complete removal of the green areas will remove toxins from the tubers making them completely edible, although the quality will not be as good as those unaffected. Again - ingesting huge and excessive amounts of affected tubers can cause illness but there has not been

a case of solanin poisoning reported in 50 years in this country.

Potatoes are grown from a seed (not usually) or a piece of tuber (seed potato), with the above ground stem arising to produce the leaves and flowers which provide the carbohydrates that provide for the growth of the true roots as well as the underground stems producing the edible tubers portion we call the potato. Okay, on to the good stuff - let's grow some. The soil preference is a loose, well-drained loam to slightly sandy composition with a pH between 5 and 7 - high organic content is a bonus. Clay or waterlogged soils will need vast improvements to get good potato production. (You may want to consider raised beds or container plantings in the interim.) Water should be adequate to ensure good tubers size. For a 100' foot row, expect to use about ten pounds of good quality, certified seed potatoes. There are so many potatoes to choose from early, mid late, fingerlings - within all of these categories they may be russets which have reddish-brown skin, white flesh with high starch content; whites that have smooth, whitish skins and white flesh with lower starch content; reds - red, smooth skin with white flesh (often the lowest starch content); yellows - smooth, yellow skin with a yellow, creamy textured flesh; blue/purples - deep blue or purple skin with like colored flesh that lightens somewhat during the cooking process (South American origins); fingerlings which have a narrow elongated shape, smooth skin with waxy, yellowish flesh (German origin), 'Red Crescent' has red "heart". When choosing seed potatoes look for firm flesh and healthy eyes (the indentations on the outside of the tuber). In the potato growers industry the optimal seed potato is a small tuber about the size of a small chicken egg with two to three good eyes on it - these are planted whole. Most of the time seed potatoes will be purchased at the almost full grown size you can expect for the chosen variety. At this point there are a couple of different ways to handle potatoes. You can begin the sprouting process by placing the seed potatoes in a single layer in a box - in an area that gets a bit of light, turning them periodically for uniform light exposure. This will force the eyes into sprouting prior to planting. Don't worry about

handling - those eyes that do sprout will be strong and will withstand whatever you can throw at them during the planting process, even if they break off. Whether the eyes are pre-sprouted or not, cut seed tubers into at least two ounce chunks with two to three eyes per seed piece. This should not be done more than a day or two in advance of planting into the prepared soil.

About three to four weeks before last hard frost, potatoes can be planted if the soil is prepped and ready although they will not begin to actively grow until the soil temperature reaches 45 degrees F. Rotate all Solanaceae crops so that they are not planted in the same area for three to four years to limit disease pressures. Plant seed potatoes from 4" – 6" deep and cover with a couple inches of soil. My Grandma had a great system for planting that was efficient and kept me (young, energetic, and annoying) occupied in the garden. She would mark off the row then begin at one end with a hoe and an apron filled with cut seed potatoes. Walking from one end to the other, she would dig a hole, and I would have to promptly drop a potato in – eyes up. She would then dig the next hole, with that soil going to cover the previously placed potato. How efficient and it kept me on my toes and paying attention because I was not going to be responsible for an empty row that should have potatoes growing in it. Spacing between plants should be about 9 – 12 inches, with rows about 2 ½ feet apart if you are hand cultivating. If using equipment for weed control, space rows at about five feet apart. Be careful in weed control – the roots are voracious spreaders and must be allowed space to expand for optimum tuber growth. Shallow hand and mechanical tilling are best. When stems reach about six to eight inches tall it is time to begin hilling the around the potatoes. This serves a couple valuable purposes – one is to restrict light to prevent the development of the alkaloid toxins previously mentioned. The second is to provide a nice loose soil area in which the tubers can develop. And as all tuber development occurs between the above-ground stem and the planted seed potato, this area is extremely important. Hill again about two weeks later - expect to hill the potatoes about three times during the growing season, never covering more than the bottom third of the plant with each hilling.

Questions on fertilizing always arise. It is difficult to know

what to apply unless you know where you are starting from. Get a soil test. In general, using an appropriate formulation based on soil test results, should be applied a couple of weeks prior to planting and at a depth that will ensure no contact with the tubers. Once the stems reach about eight inches in height, another application can be made. Rates are important as too much will cause fast growth, producing weak stems - an invitation for insect and disease invasion. Timing is important as well. If applied too close to flowering, excessive vegetative growth will inhibit tuber development and growth. If applied too close to harvest, weak tuber tissue and disease can result.

Alternate methods of planting can be fun to try and rewarding in production. One way is to use mulch as a cover rather than soil. Plant the seed potatoes a few inches under soil level or lay on top of soil and cover with a nice loose mulch material, continue to cover as top grows – cover only bottom third at a time. Remove mulch cover for harvest. Another is to plant in containers. Plant in clean, sanitized containers or use fencing to build an area for plant growth. Just be sure to allow for material to be easily added from the top or sides. Either soil or mulch (or a mix) can be used as a growing medium. For both of these methods, monitor water needs closely as the loose material and exposed side areas will use moisture at a quicker rate than traditional planting.

Disease and insect invasions are always a possibility but if soil is healthy, adequate water is provided, plant health is good, and clean, certified seed is used – you have given the potatoes the best start possible. When growing conditions and plant health are good, a harvest of about 150 pounds per 100' row is a reasonable expectation.