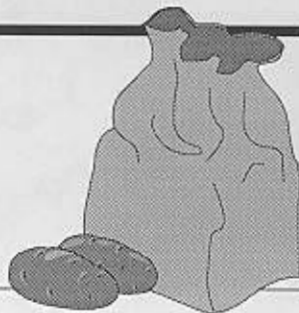


POTATO EYES



Vol. 12, Issue 3, June 2000 • Alexander D. Pavlista, Extension Potato Specialist

INSECT UPDATES

False Chinch Bugs overwinter on wild mustards in alfalfa fields. The first cutting of alfalfa is underway and according to past experience false chinch bugs will move from these alfalfa fields to nearby potatoes. So, be on the alert. If the potatoes are in early to mid bulking, they may have to be treated. Recently Diazinone has been reported to work great. Other possibilities are Dimethoate and Thiodan.

Potato Psyllids have been a problem the last two years. They overwinter in the Rio Grande River Valley. They're appearance in Colorado have not been reported yet and they would not be expected in Nebraska until mid to late July. If or when they show up in Colorado or Kansas, I'll issue an alert. The best is to treat fields before they show up since they settle on the underside of leaves and are difficult to hit with insecticides there. Coverage is the problem.

There are several insecticides that can be used such as Thiodan /Phaser, Admire/Provado, pyrethroids such as Asana. New from Novartis is Actara. For early season control, not usually applicable to Nebraska, is Thimet. Be aware that the carbamates such as Furadan tend to increase psyllid population by killing off predators; this is not as much of a problem with Fulfill, Monitor or Thiodan.

European Corn Borer's first adult generation is in flight in mid-June. Check with the local entomologist at the Research & Extension Center (Concord, Clay Center and North Platte) to determine their population and stage. Traps are usually set up in corn fields.

INSECT PRODUCT UPDATES

Actara (thiamethoxam) for psyllids, potato beetles and leaf hoppers, and Fulfill (pymetrozine), fast-acting systemic, for aphids, both from Novartis. Baythroid (cyfluthrin) for beetles, psyllids, corn borer, and leaf hopper from Bayer. Vydate (oxamyl) for nematodes, beetles and aphids from DuPont.

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Yukon Gold

CHARACTERISTICS

Yukon Gold was crossed and developed at the University of Guelph, Ontario, Canada in the 1960s and 70s, and released in 1980 by Agriculture Canada at the University of Guelph (Johnston and Rowberry. 1981. Amer Potato Jour 58:241-244). As a yellow-fleshed cultivar, it was considered a specialty or gourmet variety and didn't gain popularity until the past few years. Last year, over 160 acres of Yukon Gold were grown for seed in Nebraska and over 1800 seed acres nationwide. It has become a popular supermarket sale commanding a premium price from shoppers.



Due to Yukon Gold's new found popularity and since several Nebraska growers are producing this variety, it is time to review its characteristics and present information known for managing its production.

Summary of Plant Characteristics

- Purpose** – fresh market - boil and bake, possible for French frying
- Maturity** – early to mid season similar to Superior; determinate
- Vine** – medium, very erect, some tendency to spread
- Flowers** – violet to light violet; low frequency
- Leaves** – olive green, moderately shiny
- Stem** – 1 to 3 per plant
- Root** – moderately compact
- Emergence** – rapid
- Set** – few tubers set high
- Bulking** – early and very rapid
- Dormancy** – medium to long
- Eyes** – shallow, pinkish; few and not well distributed
- Tuber Color** – light yellow flesh
- Tuber Skin** – yellowish white, smooth
- Tuber Shape** – slightly oval and flattened, width to length = 88
- Yield** – medium
- Specific Gravity** – medium-high, 1.080s
- Storage** – well, dry rot with rough handling, soft rot due to large lenticels
- Glycoalkaloids** – low-medium (4.6 mg/100g fresh weight)
- Cooking Quality** – good with dry texture after boiling or baking; chips dark
- Internal Defects** – hollow heart in larger tubers
- Disease Reactions** – moderately susceptible to common scab, PVY, early blight, dry rot, silver scurf and black scurf; susceptible to soft rots in storage
- Pollution Sensitivity** – susceptible to ozone damage (can induce early dying)
- Herbicide Sensitivity** – none to metribuzin

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Yukon Gold

Conclusions and Comments



Yukon Gold is primarily for the fresh market where it is gaining popularity. Light yellow coloring of the flesh gives the illusion that it is pre-battered. Performance data in Ontario shows higher yields compared to Superior at some locations but not others (Table 1 summarizes). In Nebraska,

Yukon Gold was included in trials conducted at Imperial, O'Neill and Scottsbluff over the past three years. Tables 2 through 4 summarize the data from the nine site-years and compares Yukon Gold to Russet Burbank and Russet Norkotah. Yukon Gold had less small-sized tubers resulting in significantly higher yields of tubers greater than 1 inch (Table 2). Its specific gravity was higher than the two russets and it fried slightly lighter. Table 3 shows that, in the Nebraska trials, Yukon Gold was more susceptible to common scab than the two russets but less susceptible to black scurf than Russet Burbank. It had less off-shaped tubers than Russet Burbank as well (Table 4). There was slightly more hollow heart and heat sprouting (5%) occurred at Imperial in 1997. In taste tests conducted in Canada, Yukon Gold was rated good with a dry texture for both boiling and baking.



Yukon Gold is establishing a key market niche in Nebraska's potato industry and is recommended for grower evaluations. Note, however, that Yukon Gold has some special characteristics

that cause problems with stands and marketing size. To overcome these, some key production practices need to be employed.

YUKON GOLD: MANAGEMENT PROFILE

Market Characteristics

Yukon Gold matures in 80 to 95 days after planting, so may be harvested as an early season crop. Tubers are set early and bulk quickly. Summer yields under good conditions range between 300 and 400 cwt/acre and, in the autumn (full season), yields may get over 500 cwt/acre. Specific gravity is usually between 1.080 to 1.085 (about 20-21% dry matter). Sugars are in the medium range and the variety can fry like a russet frier. Tuber shape is 'cylindrical' and reported as slightly oval and flattened. Highest market recommendation is for the 'count-carton' baking market. One of its drawbacks is a strong tendency for tubers to oversize due to setting few tubers and to green due to a high set close to the surface. Because of these set characteristics, some more unusual management strategies are needed for high marketable yield.



Seed (KEY practices)

For best stand, small whole seed ("single-drops") should be used due to uneven distribution of eyes which are mostly at the bud end. For cutting to seed pieces, small to medium size tubers need to be used to avoid "blind" pieces. Cutting and then planting immediately is very strongly discouraged, clearly not a recommended practice which results in poor stands, uneven emergence and seed decay by bacterial soft rot (*Erwinia carotovora*). Cut pieces need to be warmed, treated with a fungicide dust and allowed to heal; 7-10 days at 65F or two weeks at 60F before planting are recommended.

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Table 1. Early and full season harvest of Yukon Gold versus Superior in Ontario, 1999 (5 locations each).

Cultivar	Marketable Yield, cwt/acre	
	Early Harvest	Late Harvest
Yukon Gold	182 *	316 *
Superior	161	340

* No significant difference between the two cultivars.

Table 2. Nebraska trials: Yield data from 1997, 1998 and 1999; locations were Imperial, O'Neill and Scottsbluff each year.

Cultivar	Total Yield	Yield	Specific Gravity	Fry Color
	cwt/a	>1.88" cwt/a		^
Yukon Gold	390	402 A*	1.080 A*	2.6 A*
Rus Burbank	369	326 B	1.074 B	3 B
Rus Norkotah	362	333 B	1.074 B	3 B
site mean	356	327 B	1.075 B	2.9 B

^ SFA Chart: 1=lightest, 5=darkest

* When columns are followed by letters, numbers followed by the same upper-case letter are not different at 95% confidence

level.

Table 3. Nebraska trials: Disease data from 1997, 1998 and 1999; locations were Imperial, O'Neill and Scottsbluff each year.

Cultivar	Common Scab ^	Black Scurf ^	Vascular Discolor ^
	Yukon Gold	3.7 A*	4.7 B*
Rus Burbank	0.3 B	12.8 A	1.8
Rus Norkotah	0 B	1.1 B	0.5

^ Percent of Tubers Harvested

* When columns are followed by letters, numbers followed by the same upper-case letter are not different at 95% confidence level.

Table 4. Nebraska trials: Defects data from 1997, 1998 and 1999; locations were Imperial, O'Neill and Scottsbluff each year.

Cultivar	Off Shape ^	Hollow Heart ^	Sprouting ^
			[1997 only]
Yukon Gold	3.0 B*	0.7 a	1.7
Rus Burbank	12.0 A	0.1 ab	0
Rus Norkotah	4.9 B	0 b	0

^ Percent of Tubers Harvested

* When columns are followed by letters, numbers followed by the same upper-case letter are not different at 95% confidence

Yukon Gold

Planting (KEY practices)

Yukon Gold sprouts slowly, therefore, sprouts are susceptible to *Rhizoctonia* stem canker and planting in cool soils needs to be avoided. Because few tubers are set and they grow rapidly, whole or cut seed tubers must be planted close; 8-10 inches apart in the row are recommended for fresh market production. Else, tubers will oversize out of the market range and many may develop hollow heart. Seed pieces or tubers need to be planted deep, about 6 inches below row top. If not, due to the

high set, many tubers will jut out of the ground near harvest and greening will be a grade-out problem. Avoid alkaline soils. The vine grows fast and tubers set quickly; therefore, late planting has little effect on yield potential.

Fertilization

Recommendations run 150 lb. N/acre, 100-150 lb. P₂O₅/acre, and 100-150 lb. K₂O/acre for fresh market. [Recommendations from the San Luis Valley, Colo., are 120-180 lb N, 100-200 lb P and 0-60 lb K/acre with a 70-120 lb N/acre applied pre-plant and 60-70 lb N/acre applied through sprinklers at 20 lb N per application.] All N may be applied pre-plant or N may be split with half as starter and half at emergence. Recommendations for seed production are not available. No petiole nitrate-N levels have been reported.

Irrigation

Sprinkler irrigation at maximum ET (evapotranspiration) should be every 2½ to 3 days. Yukon Gold has a low to moderate tolerance to drought stress. In the middle of the season, it may wilt easily. But, water use drops off quickly when vines begin to senescence. Late season monitoring is essential to avoid over-watering and the development of black leg and soft rot, pink rot and leak.

Vine Desiccation (KEY practice)

Yukon Gold is a determinate variety and senescence occurs 70-90 days after emergence (about 100 days after planting); natural die-off is mid to late August with an early May planting.

Since tuber set is light, 5-8/plant, and tubers grow rapidly, there is a strong tendency to oversize and, therefore, tuber size needs to be closely monitored 9-10 weeks after emergence, beginning of August. Vine desiccation is recommended and Yukon Gold is quite responsive in August. Because tuber set is high and tubers may be close to the surface, chemical desiccation is preferred over mechanical. Skin set takes 2 to 3 weeks.

Storage

Tubers are resistant to bruising and store very well when cured well. Sprouting is minimal due to dormancy. When properly stored, tubers lose less moisture than many varieties. Humidity of 90-95% is desirable. If lenticels are swollen or skin is bruised, tubers are susceptible to storage wet rots – soft rot, leak and pink rot. With rough handling, dry rot may occur. Silver scurf and early blight on tubers can be problems.

Pest and Defect Reactions

Vines are sensitive to air pollution (ozone) injury. Yukon Gold competes well against weeds. There is a low aphid preference for

Yukon Gold, so spread of viral problems are not common. Seed is susceptible to Fusarium decay and a fungicidal dust treatment is recommended. Yukon Gold is susceptible to PVY and tolerant of leaf roll (PLRV); symptoms are easily discerned. The vine is very susceptible to both early and late blights. The tuber is prone to common scab; so/so to dry rot at harvest, and tolerant to net necrosis. Soft rot problems in storage have been associated with high field incidence of black leg. Leak has been associated with high late-season watering. Tubers are prone to hollow heart and heat necrosis when oversized. They are slow to green but set high in the hill.

A disease reaction summary is:

Very Susceptible to: seed decay, black leg, early blight (foliar & tuber), late blight, early dying (V. wilt), PVY, soft rot, dry rot, leak, pink rot, silver scurf, black scurf.

Susceptible to: common scab.

Moderately Tolerant to: leaf roll and leaf roll net necrosis.

Tolerant to: PVX.

Key Management Points for Yukon Gold

vine maturity	90-100 days from planting
seed	whole or large cut pieces, warm, treat and heal
planting	in warm soil, close in-row spacing, deep in hill
fertility	~ 150 lb N ~ 60 lb P ~ 100 lb K
irrigation	avoid late over-watering
tuber growth	early initiation and rapid bulking
senescence	monitor for over-sizing, chemically desiccate
storage	medium to long term possible late dormancy break
market defects	over-sizing, greening, hollow heart
diseases	susceptible to most, tolerant to leaf roll, tolerant to mild mosaic
insects	disliked by aphids
weeds	competes well, tolerant to herbicides

GARLICKY YUKON GOLD

(old Czech recipe - taken from *the Denver Post*)

Ingredients:

1½ tablespoon butter, margarine or olive oil

2 medium garlic cloves, minced

2 medium, unpeeled Yukon Gold tubers

slice them 1/8 inch thick

½ teaspoon dried rosemary

Salt and pepper to taste

Preparation:

Place butter/margarine/ olive oil and garlic on a 9-inch pie

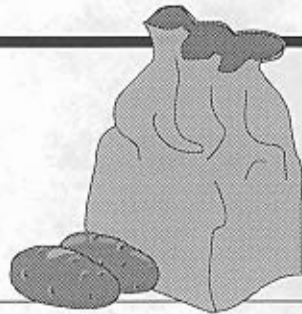
plate and place into a pre-heated oven, 450F, until butter/margarine melts or oil is hot, usually about one minute.

Remove from oven and pour off most of the liquid into a small dish and save. Place potato slices into pan, slightly overlapping them in a circular pattern. Sprinkle them with rosemary, salt and pepper. Pour saved garlic liquid over the potato slices. Bake at 450F for about 40 minutes or until bottom potato slices are crisp and tender. Serves two people.



University of Nebraska
Panhandle Research and Extension Center
4502 Avenue I
Scottsbluff, NE 69361

NEBRASKA POTATO EYES



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Literature: Johnston, GR and RG Rowberry. 1981. Yukon Gold: A new yellow-fleshed, medium-early, high quality table and french-fry cultivar. *Am Potato J* 58:241-244.

Chase, RW, GH Silva and RB Kitchen. 1989. Pre-cutting of seed potatoes. *Am Potato J* 66:723-729.

Photos were obtained from Agriculture Canada, Scottish Agricultural Science Agency and University of Wyoming.

Check out the Nebraska Potato Eyes on the WWW
at: <http://www.panhandle.unl.edu/peyes.htm>



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