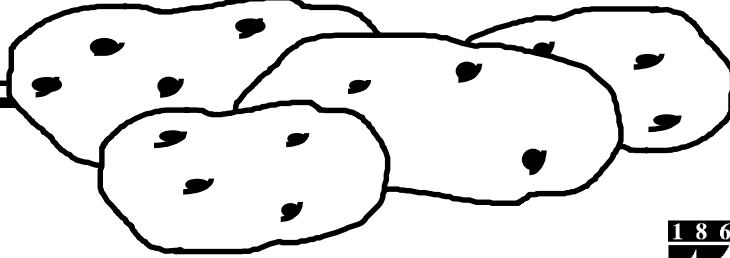


SPUDLINES



MARCH 2004
VOL. 42 NO. 1

SEED AND
MARKETING ISSUE



Dear Potato Grower,

As everyone knows, this has been a very difficult season for marketing tablestock potatoes in the northeast. Supplies are up and demand is weak. The Potato Board has been actively seeking support for a cull disposal program. The first article in this issue outlines methods for proper disposal of cull potatoes and gives details on EQIP funds from the NRCS to cost share disposal. The second article addresses seed treatments for control of late blight. We also have an article on seed cutting and management.

On the marketing side, potatoes seem to have gotten a bad rap from low-carbohydrate diet gurus. We asked our Extension Nutrition Specialist, Nellie Hedstrom, for her opinion on the matter. Her article is in this issue. Potatoes as a food crop have benefited the human race for about 10,000 years - the crop must have something going for it nutritionally. Sometimes though, society forgets the obvious. For now, we have to deal with a soft market. We also have interviews from three different angles (processing, direct-marketing, and tablestock) on where the potato market is going. Two themes that came up in the interviews were the importance of producing quality products that the market wants, and the increasing role of competition from other areas in a global economy. I hope the information provided is useful, and that better times lie ahead.

Sincerely,

Peter Sexton, Ph.D.
Crops Specialist, UMCE

Upcoming Programming of Interest 2004

March 23, 30 April 6 7:00-9:00 PM	Ag. Seminars Room 32 Houlton High School
March 22, 29 April 5, 12 6:30-8:30 PM	Winter Ag. School St. John Valley Tech. Center

For further information, call 764-3361
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It is not cold everywhere. January harvest of potatoes in New Zealand. Photo compliments of Dr. Steven Johnson.

Cull Potato Disposal

Timothy J. Hobbs, Maine Potato Board
James D. Dwyer, Crops Specialist, UMCE

Proper disposal of cull potatoes is extremely important to the safety of the Maine Potato Industry. Proper disposal of cull potatoes reduces the risk of disease spread and provides an environmentally sound method of disposing of unwanted potatoes. Cull potatoes will generate leachate, odor, and potential fly problems. The negative aspects of breakdown need to be anticipated in order to prevent problems that can arise from disposal.

On March 4, 2004 the Natural Resources Conservation Service (NRCS) in Maine announced that \$750,000 will be available for a special Environmental Incentives Program (EQIP) project to assist in the safe disposal of cull potatoes. Interested farmers that wish to take advantage of this program need to make an application at their local NRCS office prior to disposal. Certification by the Maine Department of Agriculture identifying the volume of potatoes to be disposed of will be required as part of the application process. This program is for field spreading only, and applications must have been made by March 11, 2004 for counties south of Aroostook and by March 19 for Aroostook County. Spreading must be completed in Aroostook County before March 30 and south of Aroostook County prior to March 15.

All cull piles need to be controlled by June 10 as mandated by state regulation. The Maine Potato Board is the clearinghouse for information for cull potato disposal and is cooperating with NRCS, Maine DEP, Maine Dept. of Agriculture and Cooperative Extension. As growers and packers request information regarding cull potato disposal the Maine Potato Board will assist in directing them to the best source of information for their situation.

The following is a summary of the several methods cull disposal available to growers and packers. **Please be aware that this is a summary. Prior to cull disposal please contact the Maine Potato Board to insure that you have the best and most complete information for your situation.**

Cull potatoes may be disposed of by:

1) *A long-term cull potato storage site.* These potatoes must be covered to prevent sprouting and potentially spreading disease. Covers may include 6 inches of sawdust or 12 inches of soil or 6 mill black plastic—all of which must completely cover the pile. Pl A set back of a minimum of 100 feet from dwellings, property lines, wells, and water bodies is required. If leachate will be discharged into the soil, the site must be well drained, and deep (40 inches or more to seasonal water table or bedrock). The stockpile should be surrounded on three sides by a berm that is at least two feet thick. The berm may be constructed from earth, hay bales, sawdust, or similar materials. A leachate trap must be constructed in order to control leachate movement.

2) *Winter field spreading.* (These are the guidelines for the NRCS EQIP program. **Please contact NRCS prior to spreading.**) Field spreading of potatoes can be an effective method of disposing of cull potatoes when temperatures will be low enough to freeze the tubers completely.

Appropriate deadlines for field spreading:

South of Aroostook County **Aroostook County**

March 15

March 30

300 to 400 barrels of cull potatoes may be uniformly spread on moderately well-drained soils and well-drained deep soils, respectively. Do not spread on fields with slopes greater than 15° or within 100 feet of sensitive areas.

3) *Ensiling cull potatoes.* The pile should be located at least 100 feet from sensitive areas. If not a self-contained structure, it must be sited upon deep, well-drained soils. Care should be taken to manage leachate. Pile must be covered.

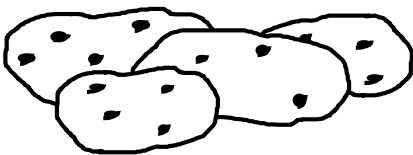
4) *Fresh animal feed.* Cull potatoes can be fresh-fed to livestock; however, please note that “free range feeding of fresh cull potatoes is considered a cull-spreading practice”. Reasonable maximum daily feed volumes are considered to be 100 pounds

of potatoes per 1,000 pounds of animal weight for animals being fed cull potatoes.

5) *Composting.* Cull potatoes may be composed as a disposal method. Compost piles should be located in such a manner so that leachate will not become an issue. Compost piles should also be actively turned in accordance with good composting practices so that volunteers and diseases will be controlled.

6) *Burial of cull potatoes.* Cull potatoes may be buried only under “permit by rule” and in an approved location. Growers must contact the Maine Department of Environmental Protection in order to obtain a permit for cull potato burial. Location for cull burial must be approved by the Natural Resource Conservation Service or a licensed soil scientist. Criteria for location and dimensions of the trench are very specific. Trenches can be a maximum of 12 feet wide, and potatoes may not exceed 2 feet depth. There must be at least 18 inches from the seasonal high water table and 24 inches from the cull potatoes to bedrock. Under this rule, abutting property owners, municipalities, and the Maine Department of Environmental Protection must be notified 15 days prior to the cull burial.

Cull potato disposal is a difficult task; one that our industry must take very seriously in order to prevent negative environmental effects and to protect the 2004 crop.



This publication is in part supported by a grant from the Educational Committee of the Maine Potato Board. The potato growers, processors and brokers of Maine pay assessments. Portions of these assessments were approved for the educational purpose of keeping Maine potato growers and related Maine industry people informed.

Importance of Late Blight Control in Potato Seed

Dr. Dave Lambert, Plant Pathologist
University of Maine

About 10 years ago, I visited a field with severe seed-borne late blight. Most of the 6-8” plants in the first-planted rows had infected leaves. Emergence in rows planted with the next load of seed was little more than 50%, and the following rows were similar to the first strip. How could stored seed be so heavily infected and survive, and why wouldn’t so much blighted seed have been noticed? Why was there a strip in which blight was uniformly more severe? Another grower who also had seed-borne blight that year said that his seed looked wonderful and that he would have been happy to grow a crop that looked so good. What happened to him? The only answer seemed to be that blight was spreading at some stage of seed handling. In both cases, the seed had been pre-cut and not treated with anything with activity against late blight. Was it possible that infection was spreading from diseased to healthy seed before planting?

Normally, blighted whole tubers produce a few spores in their eyes. However, when a diseased potato is cut, large numbers of spores develop on the fresh surface in one to two days. When healthy tubers are cut, a large area is exposed that is more susceptible to infection than either sprouts or eyes. In addition, the organism can grow directly from infected to healthy potatoes where cut surfaces meet. Consequently, infection can spread among pre-cut seed held for more than a day. Once infected seed produces spores, these are spread around when the pieces are tumbled around during pile movement, loading and planting. If cut seed is held for a week, a second disease cycle is possible.

When disease spreads in this way, the number of diseased seed pieces increases, improving the probability of an outbreak. However, the fact that the newly infected seed are nearly intact may be more critical. Growth of the more recent late blight strains through fall-infected potatoes is so rapid that very few survive through storage and planting.

Newly infected seed pieces are much more likely to survive to emergence, allowing blight to develop above ground and spread through foliage. Stems may be infected by mycelium growing up from the attached seed piece or by spores produced in the soil around the decaying seed piece. Consequently, tops may be infected as soon as they emerge.

Unfortunately, disease which develops this way is usually not spotted until hilling. By then, multiple secondary infections have occurred, and latent infections are present in a still wider circle.

Because complete fungicide coverage on rapidly growing foliage is impossible to maintain, destruction of the affected area is essential.

How can this be prevented? Early trials of seed treatments indicated that even a very systemic material like Ridomil could not eradicate blight in seed which was already infected. Fortunately, defending healthy seed is the first priority, and this is possible with appropriate protectant fungicides. Studies in various states have shown the benefit of EBDC fungicide seed treatments, usually as mancozeb or mancozeb-containing mixtures. Protection has not always been complete in these experimental situations, where heavy inoculum pressures were generally used. The best protection has been achieved with Evolve, which contains cymoxanil (Curzate) in addition to TOPS-MZ. This material is specifically designed for blight control on potato seed. Generally, most seed treatment fungicides are available as mixtures with mancozeb. The new formulation of liquid Maxim does not contain mancozeb, but mancozeb may be applied consecutively as a dust over the sprayed liquid for added blight control. An initial study in Maine showed that reduced emergence associated with blight may actually be more severe with certain seed treatments lacking mancozeb than with no treatment at all. Seed should be treated immediately after cutting.

Another safeguard against seed-borne blight is the banded application of cymoxanil or another local systemic as the plants emerge and develop. This is a standard practice for some growers in western Washington. Three weekly applications are typical to combat any blight which might have escaped seed treatment.

Seed treatment can be effective in reducing late blight. Nationally, there is a general consensus that seed treatment has been an important component in the decline of late blight over the past several years. In Maine, seed-borne blight has not been detected since the 1990's, when mancozeb-containing seed treatments were not in general use and when perhaps the majority of blight outbreaks were associated with seed problems.



Seed Cutting and Management

Peter Sexton, Crops Specialist, UMCE

Physiological Age and Temperature

As seed physiologically ages bud dormancy tends to break down. This is often associated with faster emergence and more stems and daughter tubers per plant. However, plants from physiologically old seed also tend to go through their lifecycle faster – they tend to set tubers earlier, have less foliage, senesce earlier, produce smaller tubers, and have lower yield potential. If the seed tuber shows extreme physiological age, it may skip most of its lifecycle; instead of producing a shoot, it will produce a tuber directly from the seed piece (“potato no-top”). Excessive aging decreases productivity, especially in early varieties. On the other hand, varieties that do not set tubers well might benefit from slight physiological aging, as this will help break bud dormancy, and promote heavier set. Stress in the previous growing season, warm temperatures in storage, rough handling, pre-cutting seed, and desprouting all increase the physiological age of seed tubers. Where a grower has young unsprouted seed they would like to age, pre-cutting four to six weeks ahead of planting and holding at 50°F will increase the age of the seed. However, aging seed by this process is a risky proposition because defining physiological age is difficult, and predicting when you can get in the field is an uncertain science. For seed that is “middle-aged”, pre-cut one to two weeks ahead of planting and hold at 45 to 50°F in order to prevent excessive aging. Seed that is physiologically old should not be pre-cut. Basically, seed will age

proportionally to the time and temperature above 45 that it is held at. The longer the seed is held at warm temperatures (> 45°F) the older it will be. Warming seed longer than 2 weeks or at temperatures greater than 55°F is usually counter-productive as it causes excessive physiological aging and sprouting of seed.

Tubers should be allowed to warm up slowly over a 7 to 10 day period prior to handling. The tubers should be at a temperature of 45 to 50°F before they are handled for cutting. The tubers' rate of metabolism is directly related to temperature above 45°F. At temperatures less than 45°F, their metabolism is essentially at a stand still. Processes that require metabolic activity, such as wound healing, recovering from bruise injury, and development of new sprouts, will not go forward at any appreciable rate at temperatures below 45°F. Rate of metabolism increases with temperature above 45°F; however, at 46°F the tuber is not much above zero progress. That is why 50°F is usually considered a good temperature to work at for cutting potatoes, as well as for planting potatoes. At 50°F the potato's metabolism is not running hard, but at least it is moving.

When pre-cutting seed, relative humidity and adequate, but not excessive, ventilation are additional factors to manage, if possible. Relative humidity should be kept at 90 to 95 percent, and temperature should be kept at about 50 °F to promote wound healing. Maintaining sufficient relative humidity is important; however, condensation must be avoided as free water on the surface of the tuber restricts oxygen diffusion to the tuber and promotes establishment of soft rot bacteria. To allow for adequate ventilation during the wound healing process, cut seed should not be piled more than 4 to 6 feet deep. Suberization is usually complete within about 4 days after cutting. If the cut seed is going to be stored longer than this, the temperature should be brought below 45°F, preferably to 40°F, to prevent excessive aging. In this case, rewarm seed again for two days before planting. Use of a proper seed treatment at cutting is highly recommended and will help prevent development of fusarium and spread of late blight in the seed piece pile (see Dr. Dave Lambert's article in this issue of *Spudlines*).

Cutting

Potato diseases, especially soft rot, late blight, and fusarium dry rot, can readily spread through the cutting operation. The more frequently a cutter is cleaned, the less likely pathogens will spread. Equipment should be disinfected daily and between seed lots. Workers should be provided with disinfectants and washing facilities to minimize introduction of pathogens into the seed cutting/handling area.

Keep cutter knives sharp to avoid rough cuts and an uneven tuber surface. Rough cuts present more of an opportunity for pathogens to infect the seed and decrease the effectiveness of seed treatments.

Optimum seed size and spacing depends on variety, price and availability of seed, and market requirements. For most varieties, optimum returns are obtained when seed size is between 1.5 and 2.5 oz. In general, as seed size increases up to 2.5 oz per seed, the number of stems per plant tends to increase, which in turn tends to increase tuber set and total yield. Above 2.5 oz, this response diminishes. Varieties with fewer eyes per tuber tend to benefit more from larger seed size; this helps to avoid having blind seed pieces.

Growers are advised to discard seed pieces less than 1.5 oz in size. Researchers at the University of Idaho estimate that planting undersized seed causes Russet Burbank growers in Idaho an average yield reduction of 50 to 60 cwt per acre. One can estimate that if 10 percent of the total seed weight is less than 1 oz, approximately 20 percent of the land area will be planted to undersized seed. This small seed in turn will produce plants with poor yield potential. These plants will still use water, nutrients, and sunlight, but they won't produce much economic yield; they almost act as weeds - competing with productive plants for resources, but producing little themselves. Given high per acre input costs for potato cultivation, planting small seed pieces does not appear to be economical.

Seed tubers outside the 3 to 10 oz range should not be cut for seed. Tubers larger than 10 oz should be sold in other markets. Larger tubers (greater than 10 oz) often produce blind seed pieces. Also,

multiple cut seed may not perform as well as single cut or uncut seed. Tubers in the 3 to 10 oz range should be cut for seed. Tubers in the 1.5 to 3 oz range should be planted uncut. Tubers and seed pieces less than 1.5 oz in size should be discarded. Estimated amounts of cut seed needed per acre for varying seed sizes and plant spacings are shown in the following table.

Table 1. Amount of cut seed required per acre with different seed sizes and plant spacing, assuming a 36 inch row width. Note that values are for cut seed.

	----- Plant spacing within 36-inch rows ---					
Seed size (oz)	8"	10"	12"	14"	16"	18"
	Estimated amount of cut seed required (cwt/acre)					
1.50	20.4	16.3	13.6	11.7	10.2	9.1
1.75	23.8	19.1	15.9	13.6	11.9	10.6
2.00	27.2	21.8	18.2	15.6	13.6	12.1
2.25	30.6	24.5	20.4	17.5	15.3	13.6
2.50	34.0	27.2	22.7	19.4	17.0	15.1
2.75	37.4	29.9	25.0	21.4	18.7	16.6

Here is a simple method for determining seed size distribution:

- 1.) Take a representative sample of 15 to 20 lb.
- 2.) Using an accurate scale, weigh each seed piece individually.
- 3.) As the pieces are weighed, separate them into three groups:
 - those that fall within your desired size range,
 - those larger than the desired size range,
 - those smaller than the desired size range.
- 4.) Count the number of seed pieces in each group.
- 5.) Divide the number in each group by the total number of seed pieces in your sample. Multiply this by 100 % to get a percent value for each group.

As a minimum, at least 70 percent of the seed pieces should be within a 1.5 to 3 oz range.

Stand Uniformity

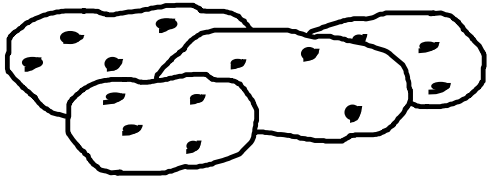
Soil temperature is an important factor in developing a healthy, uniform stand of potatoes. As mentioned before, potatoes basically stand still at temperatures of 45 °F and below. Between 45 and 50 °F they are not moving very fast. The recommended time for planting potatoes is when soil temperature reaches 50 °F. Besides planting into cold soil, planting small seed and planting at excessive depths (more than 4 inches) can also contribute to non-uniform stands.

Assuming you have a good seed bed environment and the planter is in good order, the other large variable to consider is accuracy of seed placement by your planter. Here is a simple method for estimating seed placement accuracy. First, uncover 10 feet of row across the width of the planter. Take care to choose a representative area (consistent with the speed and ground conditions you are working under). Leave the seeds where the planter placed them (don't move the seed pieces). Count the seed pieces to determine if the planter is putting out the desired number of seed within the row. The number of seed pieces should be equal to: [# of rows * 10] divided by [plant spacing/12]. Then look at seed distribution. Count seed pieces that are less than 50 percent of the intended plant spacing as doubles and those that are more than 150 percent of the intended plant spacing as skips. To estimate percent planter error, add the number of doubles and skips together and then divide this by the total number of seed pieces present; then multiply by 100 to put it on percentage terms (percent accuracy would simply be 100 minus the percent error you just calculated).

There are two factors that can be managed to increase planter accuracy. Number one is planter speed. Driving too fast causes seed to tumble within the row when it hits the ground and results in haphazard, inaccurate placement. Number two is uniformity of seed size. Oversized and undersized seed pieces contribute to skips and doubles within the row. Not outpacing the equipment, and uniform seed size distribution, will maximize planter accuracy, and consequently, uniformity of the potato crop.

Good seed, and good seed management, pay for themselves. The use of poor seed and/or poor seed

management, costs the grower profit. Take the effort to select good seed and think through how you will manage and protect it. Healthy, vigorous seed is the first step towards growing a healthy crop, and having a healthy yield at season's end.



Low-Carb Craze

Nellie Hedstrom

Nutrition Specialist and Extension Professor,
UMCE

Standing at the edge of the field hockey fence at a high school game, a mom excitedly told about her new diet. She could eat meat, fish, eggs and bacon, and have cream in her coffee. But at the local fast food restaurant she couldn't eat the fries or the cheeseburger bun because of the carbohydrate content. Another friend ordered the largest steak on the menu when eating out with our group, but cancelled the baked potato, and returned the salad dressing because it had a minuscule amount of sugar. Both were following the diet book, "*Dr. Atkins' New Diet Revolution*."

These people were looking for the benefits of losing weight, being healthier, and having lots of energy. The shelves of many shopping venues entice shoppers with the never-ending variety of paperback diet books. Subsequent books are usually forthcoming to support the first, including how to plan menus, shop and cook for the diet. You may wonder, "How popular is low carbohydrate dieting?" To answer I looked at the best selling non-fiction books listed in a February 1, 2004 newspaper. Of the top ten selections listed, four were diet-related books.

Top on the list was *The South Beach Diet Good Fats/ Good Carbs Counter*. The *500 Low-Carb Recipes* made the list. Many of today's popular best sellers hail the low-carb diet as the best way to lose weight and stay healthy. Potatoes, spaghetti, and

white bread are often the examples of the foods that are either eliminated or recommended to use in sparing amounts.

Supermarkets are responding to consumers by adding low-carb products to the grocery shelves. Breads, cereals, pasta, cookies, beer, and now even milk have low-carb versions. The name Atkins on a product increases sales. Even eggs have increased in sales in Maine by 70 percent.

One might assume that the term "low-carb" is well defined and has a recognized meaning. Some may assume that a product so labeled is low in calories. These assumptions may not be accurate. The Food and Drug Administration does not have a definition for a "low-carb" food. To manufacture a product that is low-carb, a food processor has to replace some of the carbohydrate with another component. The source usually chosen is a protein food, yet protein has as many calories as do carbohydrates. In that case, the final calorie content of the product would be the same.

Low-carb recommendations are not new. The original "*Dr. Atkins' Diet Revolution*" came out in 1972. Today's shelf clogging options are variations of the original low-carbohydrate books. Some authors distinguish carbohydrates as good vs. bad carbohydrates. Many of the newer books have their basis in the following claims:

- Carbohydrates cause a quick rise in blood sugar.
- Insulin levels rise to meet the need to carry sugar to the cells (insulin helps the body store fat and leads to more hunger).
- Some carbohydrates are digested and raise blood sugar faster than others.
- The glycemic index of food indicates how fast the blood sugar is raised.
- When blood sugar rises rapidly, it will also fall rapidly and to a level below the original level causing more hunger.
- Weight is gained when carbohydrate foods with a high glycemic index are consumed.

Diet book authors, as well as some credible researchers, denounce the value of our current nutrition guidelines, including the Food Guide Pyramid.

Some authors use the glycemic index scale to explain the rationale for new recommendations. The glycemic index is a scale to measure the speed and degree with which a given quantity of food raises a person's blood sugar. The glycemic index for a food can vary depending on the amount of processing, style of preparation, amount of cooking, the form in which the food is eaten, and the other foods with which the food is eaten.

Recently, researchers at Harvard coined the term glycemic load. This is a value determined by the size of the typical serving times the glycemic index of the food. Evidence was shown that the long-term consumption of a diet with a high glycemic load leads to an increased risk of type 2 diabetes and heart disease. Examples of the glycemic load of products were recently reported in the American Journal of Clinical Nutrition. The complete reference can be found in the website <http://www.ajcn.org/cgi/reprint/76/1/5.pdf>

Harvard professor Walter Willett reports his ideas in a suggested revised form of the food guide pyramid. Called the "Healthy Eating Pyramid," it depicts starches including potatoes, white bread and rice, along with saturated fats (red meat and butter), and sweets on the top of the pyramid, and recommends that they be eaten sparingly. His pyramid does not promote high fat foods in large quantities. Potato consumption in Willett's dietary recommendation is for lean people who exercise often or people who are manual laborers. Potatoes are not classified as a vegetable, but as a starch in his system.

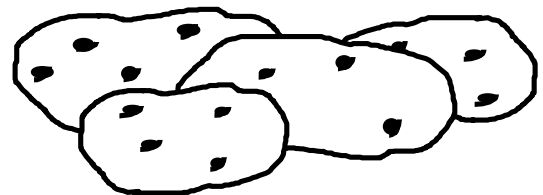
The public wants a quick fix to a problem that is epidemic. We know that Americans and Maine people are obese and overweight in numbers that we have never seen before. Additionally, the amount of time committed to physical activity is far below the recommended amount. Statistics show that 37.9 percent of Maine adults are overweight (Body Mass Index of 25 to 30) and 20.7 percent are

obese (Body Mass Index 30 or above); 41.4 percent of Mainers are currently trying to lose unwanted pounds. Weight loss plans eliminating food groups seem to promise a "quick fix" solution. A well balanced diet limiting amounts of all foods is a healthier answer.

The Center for Disease Control recently released a study showing an increased intake of calories by Americans. The study indicated that the greatest source of increased calories was from carbohydrates, but not from vegetables and fruits. The culprits were cookies, pasta, sweets and soda. The problem in most cases is the *amount* of food that is eaten. The public should look at eating with self-discipline and at increasing physical activity.

It is important to point out that carbohydrates are in many foods and are a basic source of energy used by the body. Carbohydrates include both sugars and starches. Simple carbohydrates are found in fruits, vegetables, milk and milk products and in simple sugars such as honey and table sugar. Starches and fiber carbohydrates are referred to as complex carbohydrates. Regardless of the source, the body converts sugars and starches to glucose - the body's primary source of energy. Protein and fat also supply the body with energy.

Potatoes have many good qualities to recommend them in a healthy diet. Potatoes are not highly processed. They are low in calories when high fat toppings are not added. They contain many necessary nutrients. A 156 gram baked potato (approx. 6 oz) without the skin has 145 calories, 3.1 grams protein, 33.6 grams carbohydrate, 2.3 grams fiber, 20 milligrams vitamin C, necessary B vitamins, calcium, and other minerals. The potato can be a very valuable component of a well-balanced diet.



**A View on the Potato PROCESSING MARKET:
Interview with Mr. Vern DeLong of the Agricultural
Bargaining Council.**

Peter Sexton, Crops Specialist, UMCE.

How do you currently see the processing market in the US?

We are in a position of very little expansion. Low carbohydrate diet fads have led some of the public to decrease their potato consumption. I believe this is a short term effect, but it is real for now and it has a negative influence on demand. Exports are a significant portion of the market, but that will require extra effort to maintain or expand, because the buyers and processors will try to move production as close as possible to where their consumer is located.

Where do you see production moving in the future?

The newest plants are the most competitive – they will run more efficiently and have greater rates of product recovery. Older plants will be vulnerable to being closed down. The exchange rate of the Canadian dollar has favored development of processing plants and potato production in Canada, for export into the USA. We are now net importers of processed potatoes. The recent increase in the value of the Canadian dollar will slow this movement down, but once a production system and plant are brought on-line, the commitment is made for several years to come. Even if the exchange rate changed enough to favor production in the US, it would be a long slow process to reverse the trend. NAFTA has not served us well, at least not in the northeast. California and some other areas may have enjoyed some benefits of increased sales to Canada, but it has hurt this region of the country. They say global trade is good for the national economy, but I suspect the people doing the work in various industries are not the ones benefiting from free trade.

Production acreage is always shifting. Years ago production shifted from east to west. Now it is moving north and northeast from there. I think this trend will continue, and acreage will keep shifting to areas further east in order to trim transportation costs. The Pacific Northwest will continue to produce potatoes, but it will become more of a challenge over time, in my opinion.

Where does this put the processing industry in Maine?

I think we are in a strong position in the processing market. We have proximity to the markets. We have an efficient plant. Our growers deliver quality potatoes.

The products from the Easton plant are good enough for any market. I don't expect to see volume change much in the short run. I believe in the long run that we will see another processing plant located here in Maine – that is my hope. There are several factors which favor a new plant being built here: proximity to the large east-coast market; the ability of our growers to produce high-quality potatoes; and the stronger Canadian dollar. I think we are in a good position to expand once demand picks up again.

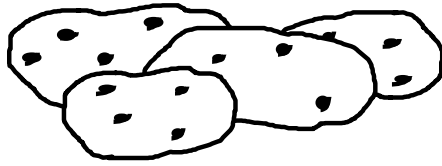
The trend over the last 40 years is for increasing farm size, do you see any reason for this to change in the future?

No. This trend is apparent in agriculture across the country. We are not alone; everyone is in the same boat. The trend is to have fewer and bigger farms. About three companies dominate the market for processed potatoes in the country, and only six companies control most of the tablestock here in the east. The trend over time is for fewer buyers and tighter margins. The smaller margins force the movement to bigger farms to try and acquire greater efficiency through the economy of large scale production. There were about 1600 some potato growers in Maine in 1966; today there are about 400 full-time potato growers in the state. I am not saying it is a good trend – I am not saying I am in favor of it. But at this point I don't see anything that is going to make it change.

How can the Maine industry improve its competitiveness?

Potato prices will always be a struggle. We need to increase yields in order to increase our competitiveness in the marketplace. We need to review our methods and diligently seek out ways to increase productivity. If we can increase our yield potential, we will be more competitive. We also need a market for off-grade potatoes – a place that would make use of off-grade potatoes and provide some return to the grower.

Potatoes are the main crop in Aroostook County, and we will live and die with them. But we can grow other crops also. I see vegetables – carrots, turnips, pumpkins – sometimes hand dug and washed - being produced in other areas and sold in New England markets. Why shouldn't these things be produced here? I think this is an area where some young entrepreneurs might be able to start some business, or small-scale processing plant, and make a go of it. The key to success will be in marketing. We can grow many crops, but marketing quality products is the key.



A View From a DIRECT MARKETER: Interview with Mr. Jim Gerritsen

Peter Sexton, Crops Specialist, UMCE

Note: Jim Gerritsen produces organic seed and tablestock potatoes in Bridgewater, Maine. Most of his production is sold either through his mail-order catalog or via the internet.

How do you currently see the market for organic potatoes in the US?

People have a growing interest in knowing more about where their food comes from. There are several reasons for this. First, there is an interest in supporting local, or at least domestic, production. Second, there is increasing interest in how the food we eat may impact the well-being of one's family. People want to know where their food comes from so they have a better idea of how healthy it is for them. Some people are worried that environmental regulations may be lax in other countries, and that the food they buy may have pesticide residue problems. This concern is accentuated due to product labeling (or lack thereof) that prevents the purchaser from knowing where the item came from. There also is a growing lack of confidence that government regulatory structures can be trusted. As a result of all this, people want to know more about where their food comes from, and many want to have some connection with the grower who is producing their family's food. I believe demand for organic products is only going to increase in the future – I don't see it declining.

Where do you see potato production for your market moving in the future?

Since the demand for organically produced food has grown, several large corporations have jumped into the market by buying out smaller companies that produce and/or market organic products. This is part of an alarming trend we see in the whole economy where there is centralization of economic power and production. This trend is worrisome in general and also it is worrisome for organic producers. It defeats the goal of having a connection between the grower and the consumer. Also, I don't think the big corporations will show any loyalty to local communities or to domestic production in the future. In the long run, if big

corporations control organic markets, they will move the production overseas to wherever labor is cheapest and they face the least costs. There is an increasing amount of organic products being imported from China and other third world countries. This has not affected the potato market yet, but it has affected other markets, such as organically produced dry beans.

How much of the organic production will be done by large corporate farms, or will be done overseas, depends on what the consumer is willing to accept. People vote everyday with their pocketbook. The market will decide these issues, but in order for the market to function, people have to have good information so they know what their choices will lead to. The agricultural sector in general needs to do a better job of informing the public. It is an uphill difficult battle, but the stakes are too high not to engage in it. Everybody should be in favor of labeling country of origin. The more information the consumer has on where their food came from, and preferably where there is fair trade and wages, the more likely they will make a good decision.

We have a real challenge in that the larger part of society does not value the agricultural sector. There is less and less relation between the prices farmers receive versus the costs and risks they have to meet in order to produce a crop. We are becoming a nation of price-buyers. But people need to remember there is more to life than saving pennies. Family, being able to hold your head up in your own town, faith – these things are all more important than making money. Where will we be if all we think about is money?

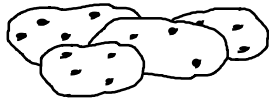
What advantages and disadvantages do you see for organic producers in Maine?

Maine is close to the east coast markets. This is good for both dairy and vegetable production. The price of land here is relatively low. Irrigation, while beneficial, is not a requirement. These are all advantages. Also, there is a strong sense of regional pride and loyalty in New England. New Englanders like to buy products made in New England. This is a real asset for producers here. But you still have to deliver a quality product. If the product is good, people will tell their neighbors – "try this out, it was produced in New England". If it is bad they will never purchase your product again and will tell neighbors to avoid it. So regional loyalty is helpful only as long as the potatoes are of good quality.

In your opinion, how can producers in Maine improve their competitiveness?

Quality is everything. We need to produce a quality product and market it well. To be more competitive we can try to increase volume, but it is just as effective, and

I think more profitable, to increase the value of our products. We need to differentiate our products and increase the perception of their value. Varietal selection is part of this. The packaging should also reflect well on the product and on who the producer is. We need to inform the consumer why our product is different and is worth more than the lowest priced item on the shelf. People don't buy cars based solely on their price. They look for quality and often buy more expensive machines. We need to help the consumers to look for quality when they are purchasing food and to think about where their food comes from. The round white market is small enough that it might be possible to "reinvent" it as a niche market if someone pushed a high value variety, such as Katahdins. It is important to stick with good culinary varieties. Varieties like Ontario, Snowden, and Atlantic won't work. Our product needs to be of good quality and fit what the customer wants, or they won't come back - and no one can afford that.



A View on the TABLESTOCK MARKET: Interview with Mr. Andy Yaeger

Peter Sexton, Crops Specialist, UMCE

Note: Andy Yaeger works with a packer/shipper company (H. Smith Packing) marketing tablestock potatoes.

Where do you see the tablestock market going?

In order for the market to increase, the consumer will have to be educated to prepare food at home. People don't allow much time for meals and meal preparation. Cooking skills also seem to be on the decline. The tablestock market will be stagnant, or decline over time, unless people take more time for food preparation and meals. The less time people allow for food preparation, the more likely they are to choose processed foods for their meal.

The USPB is working hard on analyzing markets and consumer preferences. One thing that might increase demand, would be a set of recipes for quickly preparing potatoes, in 20 minutes or less. If people are going to devote less time to cooking, presenting them with relatively quick methods of preparation might encourage them to include potatoes in their meal.

What do you see as reasons for the very difficult marketing situation tablestock growers are facing?

There are several reasons. Low carbohydrate diets have decreased demand. Retail prices in many areas do not reflect the lower prices farmers are receiving. If retail

prices dropped, the consumer might purchase more – but that has not happened in most areas. Also the weather delayed production all along the east coast – Delaware was still in the market in October and November, when they are usually done by the end of September. This delayed entry of Maine potatoes on the market, so we lost sales in October and November.

What challenges do you see in marketing?

The market is looking for a product that the consumer sees as a premium, uniform, product. For example the size range that some stores will take is rather limited. They want a more uniform product in the bag. This means that after grading to meet their specifications, we are left with more undersized and oversized potatoes. There is a challenge to find an alternative market for these potatoes.

Buyers often times have had their responsibilities increased as companies have expanded, as a result they have less time to think about how to merchandise products. So, the burden of thinking about how to market a new variety, for example, or of how to promote potato sales in general, falls more on the producers' shoulders. In past years retailers had more time to reflect on how to present and merchandise different items.

Generic bagging limits the ability of the consumer to identify where their potatoes came from. This makes it more difficult for a grower or a packer to develop a reputation for supplying good quality potatoes. The retailer knows where the potatoes came from, and they will certainly speak up if inferior potatoes are delivered. But if the potatoes are above average, there is no way for the consumer to identify who produced them. This is done because it strengthens the position of the retailer. The use of generic or store labels allows the retailer to readily switch suppliers without altering how the product is presented to the consumer.

In your opinion, how can the Maine potato industry be more competitive in the future?

Everyone will have to find their own niche. I think it will be different for everyone. Each person needs to see what resources and potential markets they have, and what they do well, and go forward from there. We have good luck with several varieties. We grow the varieties we do well at, and that have good market potential. Over time we have developed a market for them. If our market wants other varieties, then we work with other growers, who like to raise those varieties, and purchase from them. We have to sell what the market wants; within that we try to focus on varieties we feel we can grow well.

Round white potatoes represent less than 20 % of the tablestock market. The consumer tends to associate russet potatoes for baking with Idaho. We might be able to turn this somewhat to our advantage if we were to promote round white varieties with good culinary traits for specific uses where they have superior performance – such as in mashed potatoes, in soups, or in salads. If we can create a positive association of round white varieties with these uses, and if the consumer thinks of round whites as a “Maine” potato, then when they need potatoes for mashed potatoes, for example, they will think – “I need a Maine potato”. One would have to start with good varieties, and promote them for specific uses in order to enhance their perceived value.

Focus on Employee Safety

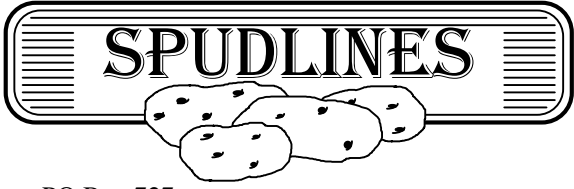
Otis Smith, Houlton Adult Education

You know the safety basics around your farm or warehouse, but are your employees always working safely? The Northeast Center for Agricultural Health is providing free safety training this spring and summer for Maine growers, their family members and employees, and employees of suppliers and equipment dealers. In approximately three hours, participants will receive valuable training on PTO reaction timing, mechanical hazards, roll-overs, and protective equipment. This training is very interactive, using real and scale models of equipment and potential hazards.

Trainers from University of Maine Cooperative Extension, Maine Emergency Medical Services, Vocational Education, Adult Education, Inland Fisheries and Wildlife, and Maine Public Health Nursing are ready to bring this training to you and your employees at your farm, at your local Adult Education center, or at a supplier’s outlet near you. This training has already been held at extension’s Houlton Agricultural Seminar Series. If you interested in learning more about this free training, call Peter Sexton or Jim Dwyer at the Central Aroostook Cooperative Extension office at (207) 764-3361 or Otis Smith at Houlton Adult Education at (207) 521-3154.

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