



Potato Progress

Research and Extension for Washington's Potato Industry

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September 19, 2003

Mustard Green Manure Field Day

Thursday, October 23rd, 2003

10 am at the Dale Gies Farm

1.5 miles west of Rd. M on Rd. 5 SE

Moses Lake, Washington

New Information on

Early planting Wind erosion control Mustard varieties

And Two Nematologists

Ekaterini Riga, WSU-Prosser will talk about her screening of mustards and other brassicas for nematode control

Russ Ingham, OSU, will talk about his work using combinations of green manures and nematicides

For More Information Call Andy McGuire

Center for Sustaining Agriculture and Natural Resources

WSU Cooperative Extension, Grant-Adams Area

509-754-2011 ext. 413, amcguire@wsu.edu

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Potato Nutrition – Letter to Scientific American**

Andrew Jensen, Washington State Potato Commission

**The following is the text of a letter submitted to the popular magazine *Scientific American* earlier this year. The article this letter responded to is in the January edition of *Scientific American* and, among other things, proposes a new food pyramid which places potatoes in the same category as refined sugar. An edited version of the letter was published in the May issue of the magazine.

One of the main arguments made by the article, “**Rebuilding the Food Pyramid**,” is that the 1992 USDA Food Guide Pyramid was flawed due to oversimplification of dietary recommendations. Ironically, the article itself seriously falls prey to oversimplification and misrepresentation of facts in its discussion of carbohydrates and vegetables.

Under the heading, “Carbo-loading,” the authors discuss the detrimental effects of diets high in carbohydrate, especially “refined carbohydrates.” The authors imply in the first paragraph of this section that carbohydrates in refined grains are different than in whole grains. The starch in refined grains and in whole grains is chemically identical. What the authors are actually driving at with this line of argument is that eating carbohydrate in the absence of other characteristics of whole grains, such as fiber, protein, and other nutrients, can be harmful.

The authors further imply that potatoes should be considered a “refined carbohydrate.” To be fair, the starch in potatoes should be treated with the same consideration as the starch in grains. One of the main things that differentiates whole grains from refined grains is the greater amount of fiber in the former; another is protein content. Willett and Stampfer ignore the fact that whole potatoes have about as much fiber per calorie as whole grain. Table 1 compares whole potatoes to Wheat Chex and whole wheat bread in terms of fiber and protein. While potato is slightly lower than the other two, I would argue that all three are comparable relative to these nutrients. Table 1 also compares flesh only of baked potato to two refined grain products, Rice Chex and white bread. Potato flesh contains more than 4 times as much fiber as Rice Chex, and almost twice as much as white bread. Potato flesh has more than 4 times as much protein as Rice Chex, and slightly more than two thirds as much as white bread. It is clear that, in terms of fiber and protein, potatoes should be considered more “whole” than “refined,” as these terms are used by the authors.

The “Eat Your Veggies” section of Willett and Stampfer’s article contains further generalizations or misunderstandings of the nutritional content of potatoes. Here and elsewhere, the authors argue that the potato should not be considered a vegetable, as it was by the 1992 USDA Food Guide Pyramid. Whole potatoes contain plenty of the nutrients that Willett and Stampfer attribute to what they call vegetables, yet they seem to be completely unaware of this fact. The second paragraph of this section states, “The real value of eating fruits and vegetables may be in reducing the risk of cardiovascular disease. Folic acid and potassium appear to contribute to this effect. ... The inclusion of potatoes as a vegetable in the USDA pyramid has little justification, however; being mainly starch, potatoes do not confer the benefits seen for other vegetables.” Table 2 compares baked whole potato to carrots and broccoli in terms of several notable nutrients. While each vegetable has its strong and weak points, these data clearly show that potatoes compare favorably to other well-known vegetables nutritionally. The nutritional quality of the potato is abundantly clear historically – by the 18th and 19th centuries, many Irish peasants lived almost exclusively on potatoes (Lang, 2001). Were potatoes such an empty food as Willett and Stampfer argue, how was survival on a potato-only diet possible?

Table 1. Grams of dietary fiber per 100 calories in six carbohydrate-rich foods (data from USDA National Nutrient Database for Standard Reference, Release 15 (August 2002)).

Food	Grams of Dietary Fiber per 100 Calories	Grams of Protein per 100 Calories
Whole Foods		
Baked Whole Potato	2.37	2.69
Wheat Chex	3.19	2.90
Whole Wheat Bread	2.80	3.94
Refined Foods		
Baked Potato, Flesh Only	1.61	2.11
Rice Chex	0.39	0.50
White Bread	0.86	3.07

Table 2. Brief comparison of nutritional content of baked whole potato, raw carrot, and raw broccoli per 100 g (data from USDA National Nutrient Database for Standard Reference, Release 15 (August 2002)).

Food	Calories	Fiber (g)	Protein (g)	Potassium (g)	Folate (mg)	Thiamin (mg)	Niacin (mg)	Vitamin B ₆ (mg)
Potato	93	2.2	2.5	535	28	0.064	1.410	0.311
Broccoli	28	3.0	2.98	325	71	0.065	0.638	0.159
Carrot	43	3.0	1.03	323	14	0.097	0.928	0.147

Besides these obvious points, Willett and Stampfer's position on potatoes may also benefit from some review of the literature and current research regarding the antioxidant content of potatoes. There is much research, ongoing in the U.S. and elsewhere, showing that potatoes are high in certain classes of antioxidants (see especially the work of Dr. Chuck Brown at the USDA-ARS lab in Prosser, WA).

While many points in "Rebuilding the Food Pyramid" are well made and valid, it is clear that the article's portrayal of potatoes is incorrect, and their new pyramid would benefit from revision to reflect this fact.

Reference Cited:

Lang, James. 2001. *Notes of a Potato Watcher*. Texas A&M University Press, College Station. 365 pp.

USDA-ARS/WSU 2003 Specialty Potato Field Day

Wednesday, September 24, 2003, 10 AM

Vegetable & Forage Crops Research Unit, Patterson, Washington

You are invited to attend the 2003 USDA-ARS/WSU Specialty Field Day. The USDA-ARS in cooperation with WSU will hold this event on Wednesday, September 24, 2003, at the Vegetable & Forage Crops Research Unit in Patterson, Washington.

This field day will feature 30 specialty potato cultivars and 100 new breeding lines, including yellow, red, and purple fleshed potatoes for fresh market and processing. Also included will be new russet potatoes with resistance to root-knot nematodes.

The field day will begin at 10:00 am and research and extension faculty from the USDA-ARS and WSU Extension will be on hand to discuss new potato cultivars. The potato plots are located at the USDA-ARS/WSU Research Farm off Christy Road immediately south of Highway 14 east of Patterson. Refreshments will be served. For more information call Erik Sorensen, WSU Extension in Pasco, 509-545-3511, or Chuck Brown, USDA-ARS in Prosser, 509-786-9252.

Potato Conference Topics/Speakers

If you have a particular topic that you would like to have covered at the annual Potato Conference in Moses Lake, we want to hear from you. We are currently gathering topic ideas from scientists and from industry. If you have a topic of interest, but not a speaker who can cover it, please let us know anyway. We can likely locate a person knowledgeable in that area. All topics received by September 30 will be considered by the program committee, which prepares the conference agenda. If you have a topic to suggest, please call or e-mail Andrew Jensen at the potato commission (ajensen@potatoes.com) or Gary Pelter with WSU Cooperative Extension (509-754-2011 ext 413).

Upcoming Educational Events

- ✓ Hermiston Farm Fair & Trade Show Potato Seminar, December 3.
- ✓ Columbia Basin Potato Workshops
 - January 7, Moses Lake.
 - January 8, Pasco.
- ✓ Washington State Potato Conference and Trade Show, February 3-5, Moses Lake.
- ✓ Western Washington Potato Workshop, February 27, Mount Vernon.