

eLearning: Pilot project for blueberry growers in BC

New growers are entering our industry every year from different cultures/backgrounds. It is evident that there is lack of knowledge on BC blueberry production practices. Prior farming experience and knowledge may not apply to the current industry. We need to bridge this gap in an innovative and effective manner. This project aims to develop Multilanguage tools in different formats such as videos, printed material and multimedia. As a result of this pilot program, growers and industry stakeholders will be better informed, environmentally-aware, innovative and market-responsive to their industry.



Connect Learn Grow



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The Blueberry health message

The Blueberry Health Message Maintaining the Gold Standard for Health



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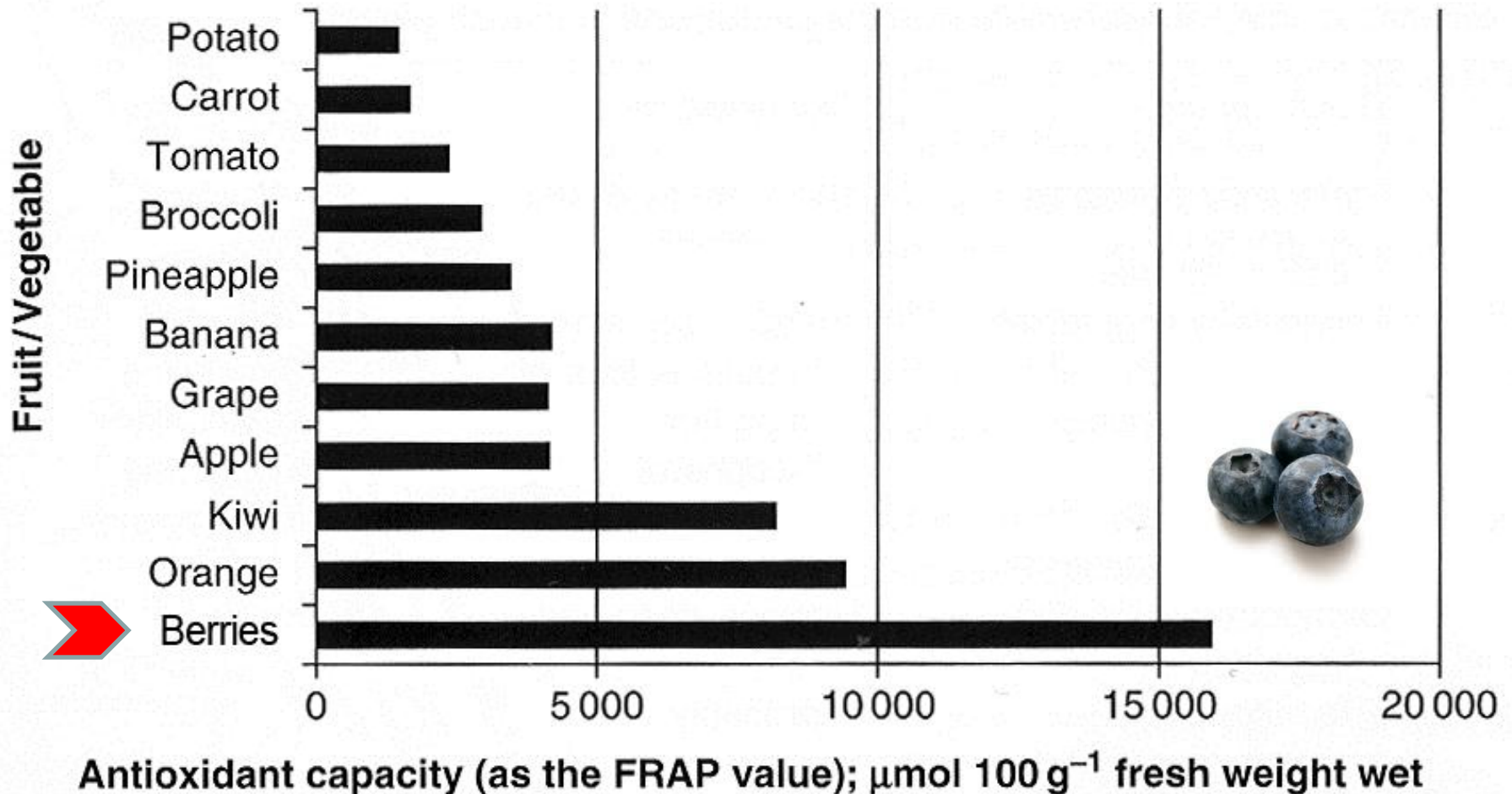
Blueberries

One of the healthiest fruits

Why?

- Wide array of diverse phytochemicals
- Broad portfolio of compelling research
- Communication of the health messages

Potent Antioxidant Activity



Health Benefits of Blueberries Go Far Beyond Antioxidant Activity!



Current Studies Underway Supported by USHBC Health Research

- High blood pressure
- Breast cancer
- Traumatic brain injury
- Gout
- Heart disease risk factors
- Insulin resistance
- Cognitive brain aging
- Body's response to a high fat meal
- Fat cell development

Metabolic Syndrome

If you have any 3 of these conditions:

- ✓ *Abdominal obesity (pot belly)*
- ✓ *High cholesterol/Triglycerides*
- ✓ *High blood pressure*
- ✓ *High blood sugar/Insulin resistance*
- ✓ *Inflammation (High CRP)*

You are at increased risk for:

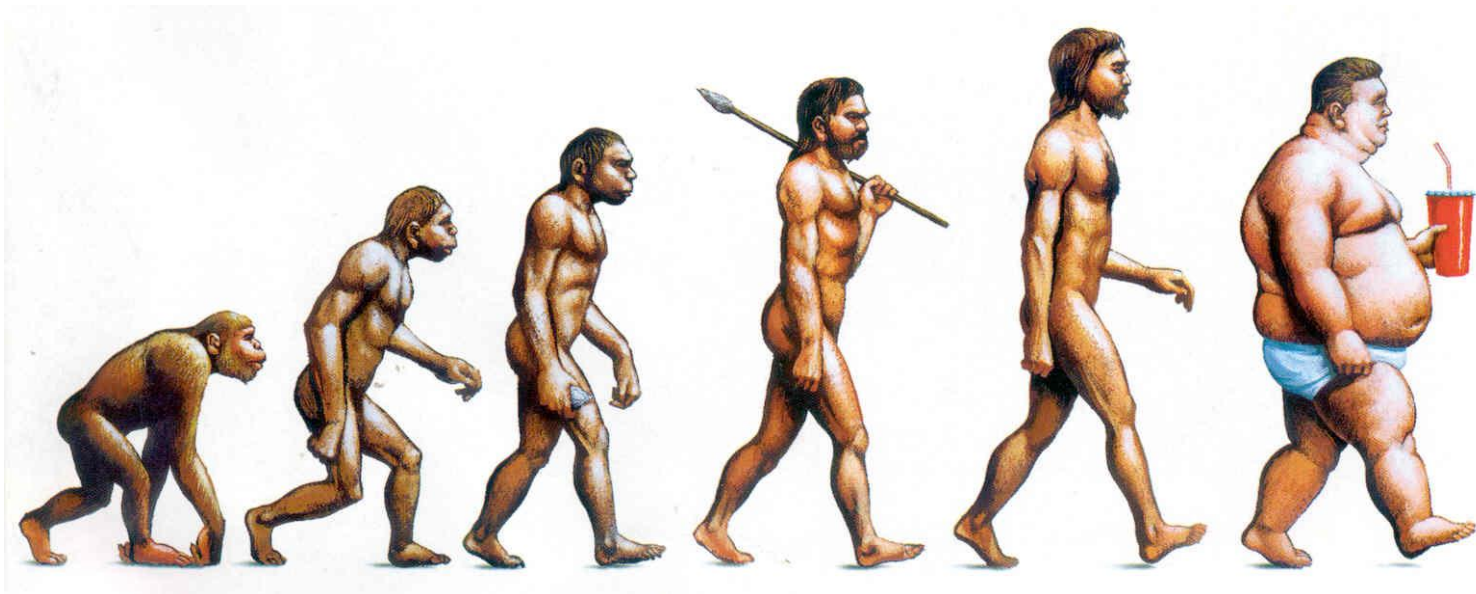
Diabetes, Heart Disease, (Reduced Cognitive Functioning)

1 in 5 Canadians has Metabolic Syndrome

Prevalence Increases with Age

Ages 18-39: 10% have it

Ages 60-79: 40% have it

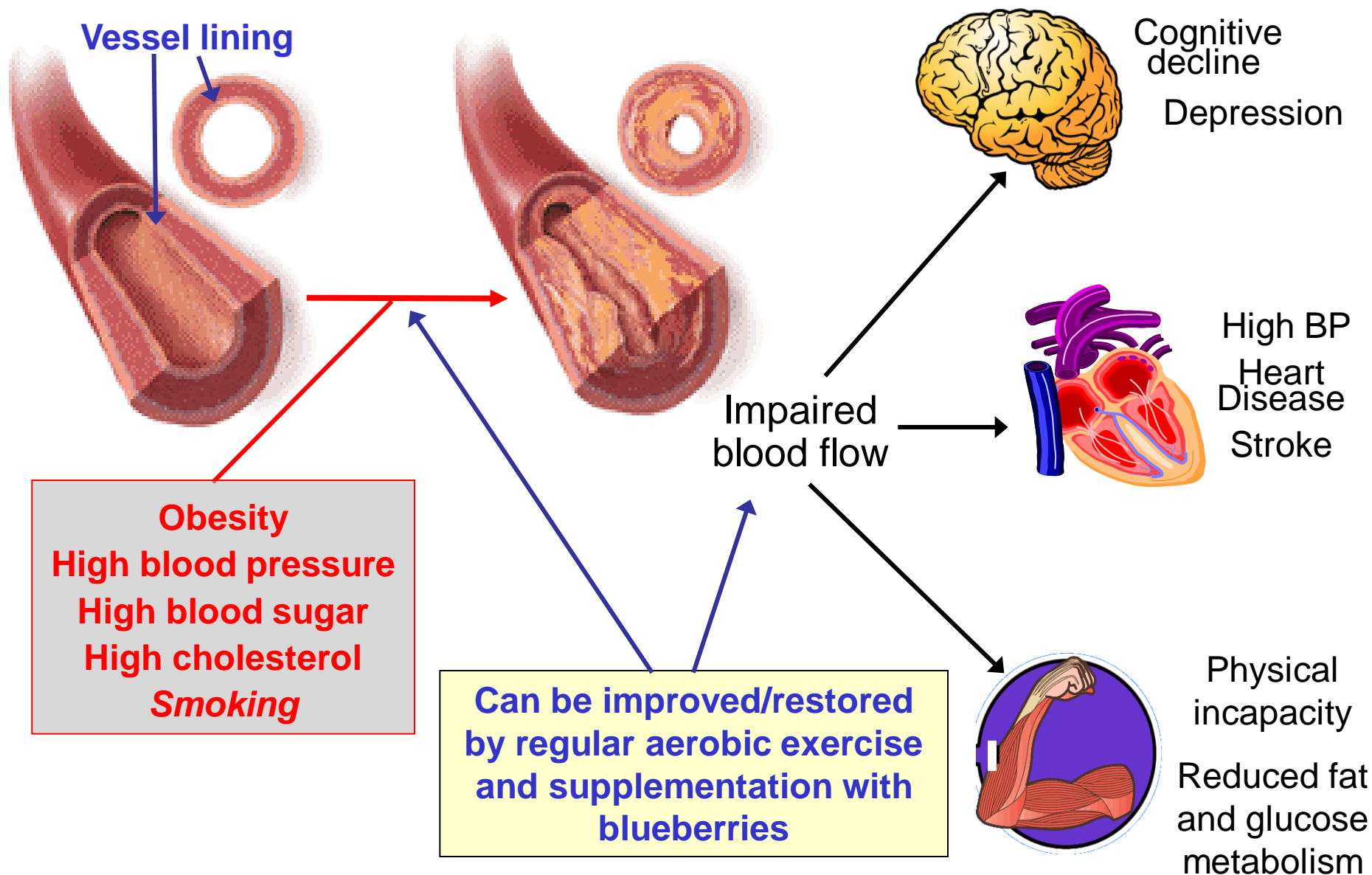




After a two year loan to the United States and Canada Michelangelo's *David* is being returned to Italy



Negative Effects of Blood Vessel Constriction



Reduction in Abdominal Fat



The Journal of Nutrition
Nutrition and Disease



Dietary Blueberry Attenuates Whole-Body Insulin Resistance in High Fat-Fed Mice by Reducing Adipocyte Death and Its Inflammatory Sequelae¹⁻³

Jason DeFuria,⁴ Grace Bennett,⁴ Katherine J. Strissel,⁴ James W. Perfield II,^{4,6} Paul E. Milbury,⁵ Andrew S. Greenberg,^{4*} and Martin S. Obin^{4*}

⁴Obesity and Metabolism Laboratory and ⁵Antioxidants Research Laboratory, Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University, Boston, MA 02111

Reduction in Blood Pressure

Blueberries Decrease Cardiovascular Risk Factors in Obese Men and Women with Metabolic Syndrome Basu et al. 2010 *Journal of Nutrition* 2010 140: 1582-7



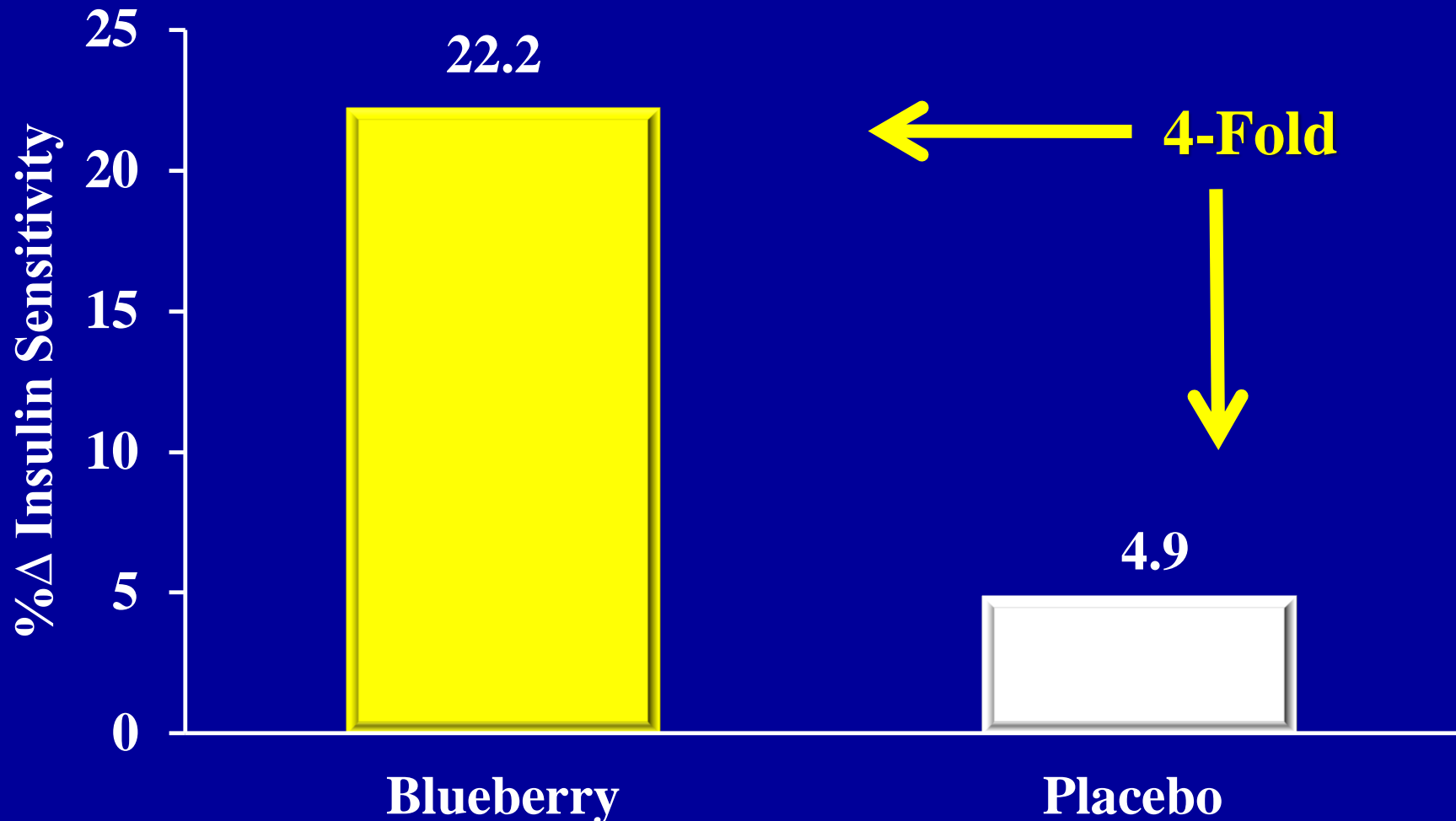
Increase in Sensitivity to Insulin (Pre-diabetes)



Bioactives in blueberries improve insulin sensitivity in obese, insulin-resistant men and women

Stull AJ, Cash KC, Johnson WD, Champagne CM, Cefalu WT.
Journal of Nutrition, 2010 Oct;140(10):1764-8.

Blueberries Improved the Ability of Insulin to Work



Δ insulin Sensitivity = ability of insulin to work from week 0 to week 6

Lower Cholesterol



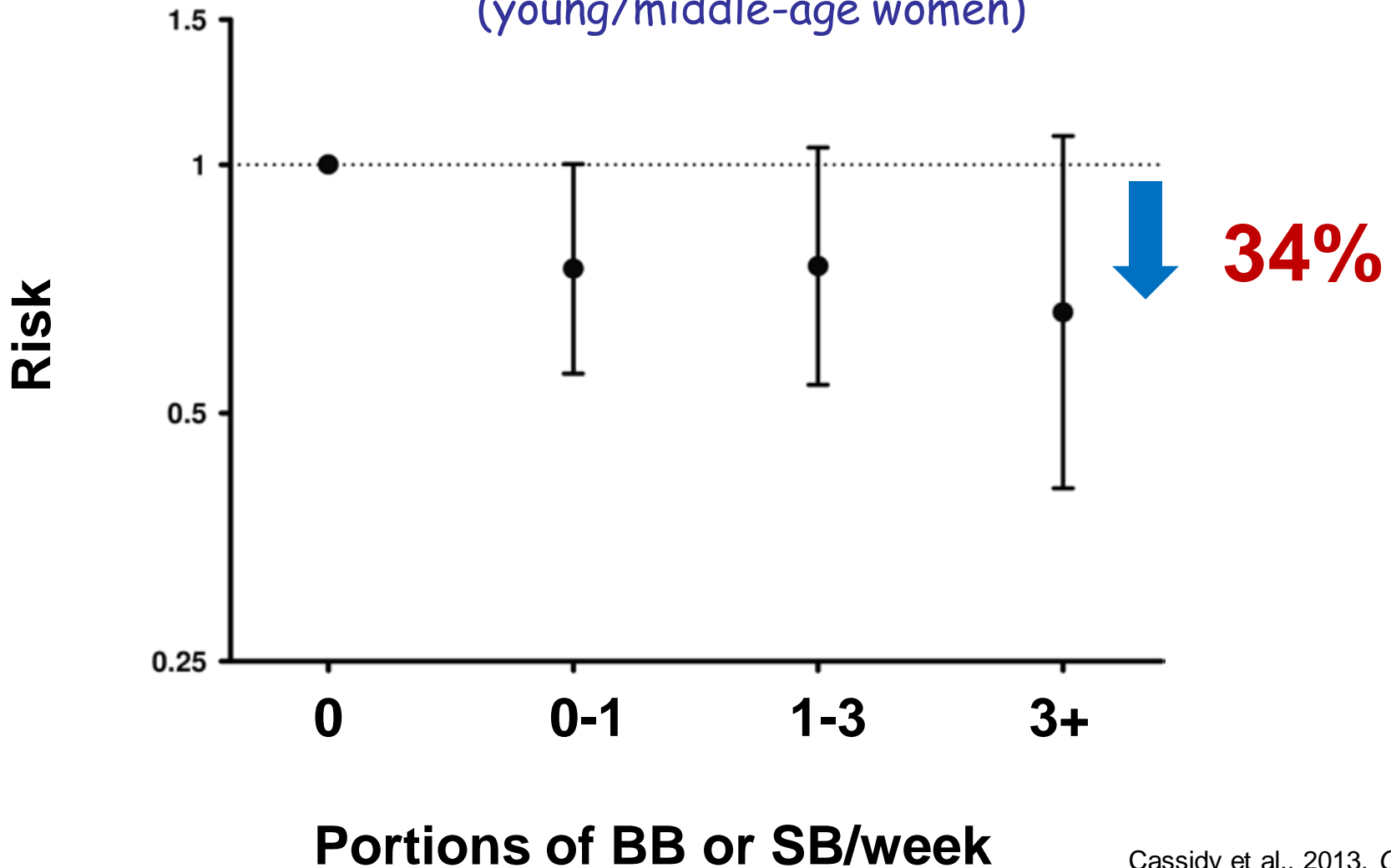
- Blueberry lowered total cholesterol 12%
- In phytochemical poor diet, blueberries counteracted effects of added cholesterol, sugar and salt
- Worked better at lower BB dosages: 1 or 2 cups

Kalt et al., Effect of blueberry feeding on plasma lipids in pigs, *British Journal of Nutrition*, 2008, 100, 70-78.

Heart Attack Risk

Decreased with Blueberry Intake

(young/middle-age women)



Health Benefits Due to the Interplay of a Mixture of Complex Molecules



Eat the whole fruit!!

"Rising consumption of blueberries prompted a flurry of new plantings, largely expected to reach full production capacity in 2012."

(Source: Ag Marketing Resource Center, January, 2012)



How do you increase consumer interest in blueberries?



Health
Research



Promotion



Consumer
Demand/Sales

Product
Appeal

US Highbush Blueberry Council (USHBC)

Health Research Committee funds proposals every 2 years

Funding Strategy:

- Exploratory areas to broaden health halo for blueberries
- Targeted funding in areas with preliminary positive data

Approach Centers of Excellence to solicit proposals for clinical trials - improves chances of success

- Work with USHBC Promotion to help bring media attention to health research with positive human clinical trial data



5-fold Increase in Consumption

Combined with consumer marketing expenditures, the USHBC efforts investing in health research appear successful, as USDA-ERS calculations revealed an impressive increase in national per capita consumption of blueberries, rising from 0.26 pounds in 2000 to 1.3 pounds per person in 2011.

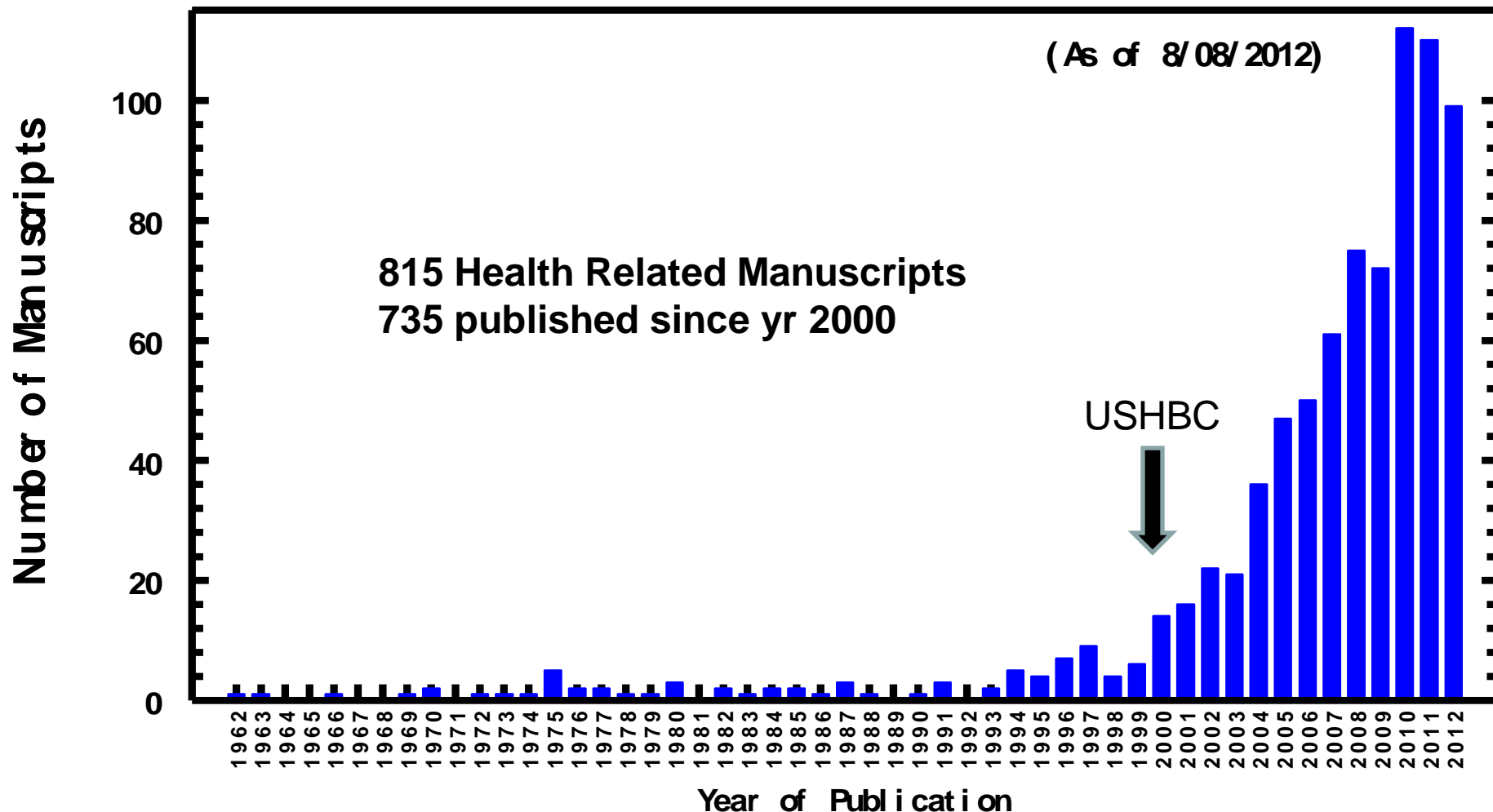
(Source: Ag Marketing Resource Center, January, 2012)

Health Research Publications

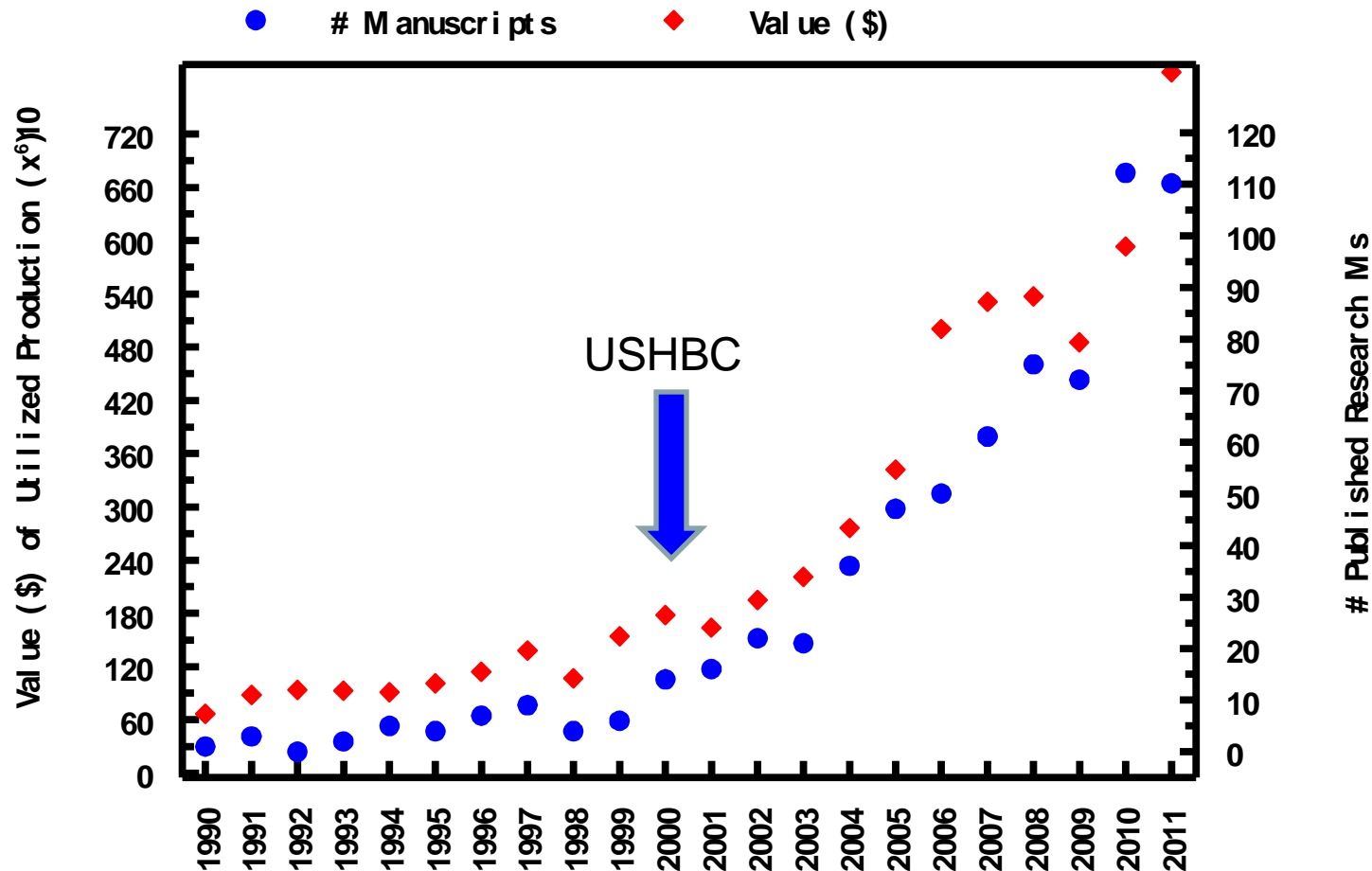


BLUEBERRY/BILBERRY

Health Related Research Publications



Crop Value Tracks with Health Research Publications



Source: USDA, ERS, May 2012

USHBC Research Committee Plan

- Fund a large clinical trial on blueberries and Metabolic Syndrome
- Approach world-renowned Center on Metabolic Studies (Harvard, etc.)
- Solicit a proposal from them on blueberries and metabolic syndrome
- Publish in a major medical journal
(*JAMA, New England Journal of Medicine*)
- Need to take immediate action! Soliciting additional funds from Highbush Council (~\$1 million)

Positive results could be used in a major blueberry promotional campaign!

- Be the first fruit or vegetable to be associated with improving metabolic syndrome - (like cranberry and UTI)
- Will help to drive consumer demand for blueberries as production increases world-wide



Questions?





For more information

-*The blueberry health message* (video) 2013, Episode 4.

May be viewed or downloaded from the web. Visit our website and look for the eLearning program: <http://www.bcblueberry.com/>

Copies of our publications and videos are also available in our office. Contact us by fax (604-864-2197); e mail: (research@bcblueberry.com), or phone (604-864-2117)

-Berry production guide. BCAGRI. <http://productionguide.agrifoodbc.ca/guides/14>

Disclaimer:

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