

# SUSTAGRAIN® RESEARCH REFERENCES



Sustagrain, the highest fiber whole grain, is a proprietary identity-preserved barley variety that is both low in starch and high in soluble fiber (heart healthy beta glucan) and total dietary fiber. With three times the fiber of oats and corn flour, and 10 times the fiber of brown rice, it's the ideal way to add whole grain nutrition and fiber to a variety of applications. Available as fine flour and quick flakes, Sustagrain is ideal for: breads, hot and RTE cereals, baked goods, energy bars, soups, pastas, tortillas and extruded applications.



Sustagrain has been extensively researched in a variety of categories:

## HUNGER/WEIGHT MANAGEMENT

- Liljeberg, et al., Breakfast including Sustagrain delayed between-meal fasting, increased satiety & improved glucose tolerance at lunch, *AJCN*, 69:647, 1999.
- Lifschitz, C.H., et al., Carbohydrate digestion in humans from a beta-glucan-enriched barley is reduced, *J. Nutr.*, 132:2593, 2002
- Schroeder, N., et al., Influence of whole grain barley, whole grain wheat, and refined rice- based foods on short-term satiety and energy intake, *Appetite*, 53:363, 2009.

## DIGESTIVE HEALTH

- Martinez, et. al. Gut microbiome composition is linked to whole grain-induced immunological improvements. *ISME J.*, 2012.
- Ranhotra, G.S., et al., Fecal bulking effect of whole-grain flour from selected grains, *Cereal Chem.*, 68:556, 1991.
- Dongowski, G., et al., Dietary fiber-rich barley products beneficially affect the intestinal tract in rats, *J. Nutr.*, 132:3704, 2002.

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*Sustagrain® Research References, continued*

## **BLOOD SUGAR MANAGEMENT**

- Behall, K.M., et al., Comparison of hormone and glucose responses of overweight women to barley and oats, *J. Am. Coll. Nutr.*, 24:182, 2005.
- Rendell, M., et al., Effect of a barley breakfast cereal on blood glucose and insulin response in normal and diabetic patients, *Plant Foods Human Nutr.*, 60:63, 2005.
- Rao, S. and Singh, M., Functional foods in India: A low-GI atta flour, Abstr. 103-6, 2005 IFT Annual Mtg, The Assn., Chicago, 2005.
- Foster-Powell, K., et al., International table of glycemic index and glycemic load values:2002, *AJCN*, 76:5, 2002.
- Liljeberg, H.G.M., et al., Effect of the glycemic index and content of indigestible carbohydrates of cereal-based breakfast meals on glucose tolerance at lunch in healthy subjects, *AJCN*, 69:647, 1999.
- Liljeberg, H.G.M., et al., Products based on a high fiber barley genotype, but not on common barley or oats, lower postprandial glucose and insulin responses in healthy humans, *J. Nutr.*, 126:458, 1996.

## **HEART HEALTH**

- Bourdon, I., et al., Postprandial lipid, glucose, insulin and cholecystokinin responses in men fed barley pasta enriched with beta-glucan, *AJCN*, 69:55, 1999.



## **GENERAL**

- Andersson, A.A.M., et al., Chemical composition and microstructure of two naked waxy barleys, *J Cereal Sci.*, 30:183, 1999.
- Arndt, E.A. Whole-grain barley for today's health and wellness needs, *Cereal Foods World*, 51:20, 2006.
- Moreau, R., et al., Composition of functional lipids in hulled and hulless barley in fractions obtained by scarification and in barley oil, *Cereal Chem.*, 84:1, 2007.
- Toma, A., et al., Children's acceptance, nutritional, and instrumental evaluations of whole grain and soluble fiber enriched foods, *J Food Sci.*, 74:139. 2009.

*To learn more about Sustagrain, visit [ardentmills.com/sustagrain.html](http://ardentmills.com/sustagrain.html)*



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