

## Could Wheat Bran Fight Colon Cancer?

It's long been known that raw wheat bran helps laboratory animals battle colon cancer. Now, ARS scientists and colleagues from Kellogg Co., Battle Creek, Michigan, have teamed up to find out if processed wheat bran can have a similar effect.

Bran is the thin outer layer of the wheat kernel. Processed bran is found in breakfast cereals, whole-wheat breads, and other foods. The new research is being conducted under a cooperative research and development agreement.

Earlier medical studies found that lab animals fed raw wheat bran have fewer aberrant colonic crypt cells. These cells are thought to be precancerous, and no one knows exactly how raw bran reduces their formation.

The ARS scientists are experimenting with samples of bran processed at their laboratory and at Kellogg Co. They seek to learn whether lab animals fed processed wheat bran in place of raw bran also have fewer aberrant colonic crypt cells. And they want to know if differences in the way the bran is processed affects cell turnover—that is, the rate at which the body replaces old colon cells with new.

The studies may uncover new clues to how wheat bran reduces formation of the aberrant colonic crypt cells.

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## Obesity Research Could Lead to Leaner Pork

Leaner pork for consumers could be a spinoff benefit of research on human obesity. Scientists in ARS and elsewhere have been intrigued by two hormones, neuropeptide-Y and leptin.

The hormones have similar roles in pigs and people. Neuropeptide-Y, found in the brain, is a "green light" that stimulates appetite. Leptin, a "red light," is in fat; it tells the brain that the body is nourished. ARS researchers in Athens, Georgia, found that giving pigs leptin injections increased the amount of growth hormone in their bodies—and made them eat less.

Since growth hormone produces muscle, the findings suggest this approach might lead to a new way to produce leaner pork. And since the pig's body naturally breaks down the hormone, the pork would not contain any residue. But the scientists caution that they need to learn much more about leptin.

A group of researchers at ARS and the University of Georgia are trying to understand how animals process this hormone. ARS scientists in Beltsville, Maryland, are working on treatments to counter its appetite-suppressing effects. And ARS scientists in Columbia, Missouri, are examining how young piglets use leptin.

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## New Equations Reduce Manure Risk

New, simple-to-use equations estimate how much manure a specific dairy herd produces. ARS scientists developed the equations to help agricultural engineers design waste storage systems that adequately protect streams and rivers from nitrogen and other nutrients in manure.

Farmers store manure in pits and other holding facilities until it's safe to apply to fields or recycle as compost. And more jurisdictions now monitor water quality and hold dairy farmers accountable for preventing water pollution. But a herd may produce more manure than the facility was designed to contain—especially with high-milk-producing cows that eat more.

Traditional manure-estimating methods use an average value gleaned from many observations, but the new equations account for the farmer's own herd statistics. These include the animals' body weight, milk production and composition, feed makeup, and number of lactating cows.

The research is part of the scientists' effort to improve management of manure nutrients by studying their complete cycle—from the soil into the forage into the cow and back to the soil.

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