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EYE ON NUTRITION

Illustration by Randy Wrighthouse/EO Media Group

Concept of breeding for enhanced nutrition may finally be coming of age

By JOHN O'CONNELL
Capital Press

For the past decade, Pat Hayes has participated in a project with a surprisingly unusual goal among the nation's crop breeders — selecting seed with nutrition in mind.

Even in his own lab, the Oregon State University barley breeder said, yield and disease resistance remain the top priorities. But Hayes believes the concept of breeding for enhanced nutrition may finally be coming of age.

"It ought to be at the top of the list," said Hayes, who has been breeding human food barley lines containing 4-7 percent of a heart-healthy fiber, betaglucan. "At the end of the day, we eat to avail ourselves of nutrition."

Crop researchers throughout the country agree there's historically been little attention to bolstering levels of key vitamins, minerals and compounds in fresh foods.

But times may be changing as produce departments slowly introduce unique varieties making bold health claims — such as Del Monte's pink pineapple, genetically engineered with high levels of cancer-fighting lycopene.

Fresh meats, dairy products and eggs with elevated heart-healthy Omega 3 fatty acid content have also made their way into supermarkets. And the trend hasn't been missed by commodity crops, where public and private breeders are racing to develop soybeans without artery-clogging trans fats.

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John O'Connell/Capital Press

Victor Raboy, a crop scientist with USDA's Agricultural Research Service in Aberdeen, Idaho, holds corn he raised in an experiment to demonstrate the effects of epigenetics, a burgeoning science that finds environmental factors can have heritable impacts on DNA of progeny. Raboy has been active in research to enhance nutritional qualities of food and believes epigenetics demonstrates that nutritional decisions of parents can impact subsequent generations.

> **"A farmer is not going to grow low phytic acid corn if they're getting 5 to 10 percent less yield. ... The low phytic acid corn is so much more nutritious, but there's less yield."**
>
> **Victor Raboy**
> Crop scientist with USDA's Agricultural Research Service in Aberdeen, Idaho

Washington ecology signals softening on manure rules

Dairy leader: Department of Ecology is listening

By DON JENKINS
Capital Press

OLYMPIA — The Washington Department of Ecology likely will exempt smaller dairies from expensive new manure-handling rules and also drop its assumption that clay-lined lagoons always pollute groundwater, a DOE official said Friday.

The dairy industry remains alarmed by the prospect of DOE regulating manure lagoons, which has been the Washington State Department of Agriculture's job since 1998. But Washington State Dairy Federation policy director Jay Gordon said DOE has at least been listening to dairy farmers' concerns.

"I will give ecology credit. Their ears are open," he said.

DOE has proposed regulating manure lagoons in a fashion similar to industrial plants that discharge wastewater, The agency says the rules are necessary to protect groundwater.

DOE maintains that even clay-lined manure lagoons built to Natural Resources Conservation Service standards leak. But at a Senate committee meeting and in an interview afterward, DOE special assistant Kelly Susewind said the department is moving away from its stance that the seeping manure always reaches groundwater.

The department likely will assume the burden of proof to document groundwater pollution at individual farms before requiring a producer to obtain a confined animal feeding operation permit, a shift in position from the DOE's tentative proposal in October. "It's a huge change," Susewind said.

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Don Jenkins/Capital Press

A lagoon stores manure at a dairy farm in Ferndale, Wash.. The Washington Department of Ecology has proposed new lagoon regulations, alarming dairy farmers who argue the rules are unnecessary and be expensive to comply with.

Oregon's water demand to grow by 15 percent by 2050

Longer and warmer growing seasons will require more water

By MATEUSZ PERKOWSKI
Capital Press

By 2050, Oregon's annual demand for water will increase by 1.3 million acre feet — enough to fill 640,000 Olympic swimming pools, according to state water regulators.

That's an increase of roughly 15 percent from today's annual usage of about 8.425 million acre feet.

Oregon's agricultural industry, which uses about 85 percent of the state's water, is expected to need 6-9 percent more water over the next 35 years because growing seasons are expected to become longer and warmer, according to the Oregon Water Resources Department.

Because of a projected population increase of 1.5 million people, Oregon's municipal and industrial water use is projected to grow by 20 percent by 2050, according to the agency's findings.

Based on crop and irrigation trends, the southeastern portion of the state will likely see the greatest increase in water demand, particularly Klamath, Lake and Harney counties, said Rachel Lovellford, an OWRD hydrologist, during the Nov. 20 meeting of the Oregon Water Resources Commission.

As average annual temperatures are expected to rise — between 2 and 8 degrees Fahrenheit, according to OWRD — crops will require more water earlier in the season, Lovellford said.

Farmers of alfalfa, for example, are expected to increase the number of cuttings they harvest each year, she said.

Meanwhile, growers are expected to become more dependent on irrigation, rather than rainfall, Lovellford said.

Currently, rainfall accounts for 30 percent of water needs of Oregon crops, while irrigation provides 70 percent, she said.

That ratio is expected to shift to between 26 and 29 percent rainfall and 71 and 74 percent irrigation by 2050, Lovellford said.

The agency arrived at its conclusions by analyzing several climate scenarios under

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