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Oregon's Agricultural Progress (/)

Home (/) » Summer 2015 (/summer-2015)

THE NEXT BIG THING: SEA VEGETABLES



Expect to see seaweed on the menu

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The Fancy Food Show in San Francisco is the West Coast's largest food and beverage trade show. This is where the next big thing shows up first. In recent years, it was kale, kombucha, and almost anything that tastes like bacon. This year, it's seaweed.

The trade show excitement didn't surprise the folks at Oregon State University's Food Innovation Center (<http://fic.oregonstate.edu/>), where they've been cooking up their own food innovations with seaweed. They're using a succulent red alga called dulse that grows wild on wave-swept shores of the north Atlantic and Pacific coasts. As a sea "vegetable," dulse has been used for centuries in the local foods of Ireland, Iceland, and Scandinavia. It's nutritious, fast growing, and, when it's fried, they say it tastes like bacon.

Chris Langdon, an aquaculture researcher at OSU's Hatfield Marine Science Center (<http://hmsc.oregonstate.edu/>) in Newport, began growing dulse in the lab to feed abalone as part of his shellfish polyculture research. Over the past 15 years, Langdon has developed a patented strain of dulse (*Palmaria mollis*) that he grows in bubbling vats of cold seawater just outside his office. Looking like a translucent red lettuce, Langdon's cultured dulse grows faster than wild dulse. The abalone love it. But more to the point, so does Chuck Toombs.

As food for people, dulse is an excellent source of minerals, vitamins, and antioxidants, and it contains up to 16 percent protein by dry weight. That inspired Toombs, a professor in OSU's College of Business, who came to Langdon looking for a project for his marketing students. "Dulse is a super food, with twice the nutritional value of kale," Toombs said with bright-eyed excitement. "And OSU has developed a variety that can be *farmed*, with the potential for a new industry on the Oregon coast."

Toombs took his enthusiasm to OSU's Food Innovation Center in downtown Portland. There, the product development team began to cook up a vision for dulse as a primary ingredient for a slew of new foods. Langdon delivered a cooler full of fresh dulse, and food scientists Qingyue Ling and Sarah Masoni got busy, directing the creative energy of two Saturday Academy students, Isaac Morrisse and Emily Highkin, to see what could be created from Langdon's seaweed.

If you think seaweed is only used in sushi, think again. Food manufacturers use processed seaweeds as ingredients in many foods, from ice cream to salad dressing. At the Fancy Food Show, seaweeds were prominently featured in chips, crackers, and salads. Masoni and Ling saw the potential. So did their colleagues at the Oregon Department of Agriculture, who helped get Langdon's farmed dulse recognized as a specialty crop by the U.S. Department of Agriculture.

"This is a huge step forward," said Michael Morrissey, the OSU director of the Food Innovation Center. "Until now, there had never been a seafood included on the specialty crop list." This meant that the Food Innovation team could apply for a specialty crop grant.

The grant funds helped bring Jason Ball onto the project. A research chef and self-described culinologist, Ball had been working at the University of Copenhagen's Nordic Food Lab, where he was helping to reinvent Nordic cuisine focused on local ingredients. Now at the Food Innovation Center, Ball has a similar challenge: to help expand Pacific Northwest cuisine. His first assignment is dulse.

At the Nordic Food Lab, dulse is foraged from the wild. At OSU, because Langdon's strain of dulse is cultured in tanks of seawater, it's consistent in quality, available year round, and harvested without impact on fragile intertidal habitats. Aquaculture also makes it possible for Langdon to develop new varieties for new culinary uses.

Ball is pushing the envelope, testing dulce veggie burgers, trail mix, and even dulce beer. Working directly with Langdon, Ball can experiment with different strains that have different flavors and attributes. With fresh dulce, he's looking for a tender chewiness and slightly salty finish. "Pan-fried," he says, "dulce can be light and crispy with a savory saltiness, like bacon."

Anxious to see this savory crispiness make it to the marketplace, Toombs helps deliver fresh dulce from Langdon's Newport lab to Ball's Portland kitchen each week. Ball created 14 prototype dulce products, tested them with consumers, and narrowed the field to the top five for further testing—trail mix, rice crackers, salad dressing, sesame seed chips, and smoked dulce popcorn peanut brittle.

Meanwhile, Toombs's graduate students are preparing a marketing plan for this hot new line of specialty foods. Among the many things they'll consider is how to scale production from a few tanks at Langdon's lab to a potential new aquaculture industry for coastal communities. With a plant breeder, a production facility, a research chef, a product development team, a consumer sensory lab, and a classroom full of MBA students, OSU has the entire supply chain to take dulce from production to plate within a year.

"There are few places in the world with this much collaborative talent from start to finish," Toombs said.

And did I mention that it tastes like bacon?

Published in: [Food Systems \(/topic/food-systems\)](/topic/food-systems), [Water \(/topic/water\)](/topic/water), [Innovations \(/topic/innovations\)](/topic/innovations), [Economics \(/topic/economics\)](/topic/economics)



(/sites/oregonprogress.oregonstate.edu/2015/dulce1.jpg?itok=Vh8WxwA-)
Chris Langdon, who leads research in shellfish aquaculture at Oregon State University, has been breeding new varieties of dulce at Hatfield Marine Science Center for several years. (Photo by Stephen Ward.)



(/sites/oregonprogress.oregonstate.edu/2015/dulce2.jpg?itok=LUmo1gY5)
Jason Ball, a research chef at the Food Innovation Center in Portland, prepares dishes made with dulce to be taste-tested by the general public. (Photo by Stephen Ward.)



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Crispy dulce rice crackers are one of several concoctions the Food Innovation Center is testing with consumers. (Photo by Stephen Ward.)



Dulse: a great tasting seaweed

(<http://youtube.com/embed/T9...fs=1&width=640&height=480&>)

In this issue



Editor's Note (</summer-2015/editors-note>)

(</summer-2015/editors-note>)



Get the app (</summer-2015/get-app>)

(</summer-2015/get-app>)



Things are Moooo-ving at the OSU Dairy (</summer-2015/things-are-moooo-ving-osu-dairy>)

(</summer-2015/things-are-moooo-ving-osu-dairy>)



Growing an Educated Workforce (</summer-2015/growing-educated-workforce>)

(</summer-2015/growing-educated-workforce>)



Ensuring Safety in a Fast-Paced Fishery (</summer-2015/ensuring-safety-fast-paced-fishery>)

(</summer-2015/ensuring-safety-fast-paced-fishery>)



The Next Big Thing: Sea Vegetables (</summer-2015/next-big-thing-sea-vegetables>)

(</summer-2015/next-big-thing-sea-vegetables>)



Getting to the Meat (</summer-2015/getting-meat>)

(</summer-2015/getting-meat>)



The Seed -to-Supper Economy (</summer-2015/seed-supper-economy>)

(</summer-2015/seed-supper-economy>)



Student Entrepreneurs (</summer-2015/student-entrepreneurs>)

(</summer-2015/student-entrepreneurs>)



Build a Better Oyster (</summer-2015/build-better-oyster>)

(</summer-2015/build-better-oyster>)



Ingredients for Success (</summer-2015/ingredients-success>)

(</summer-2015/ingredients-success>)



Chez Marie (</summer-2015/chez-marie>)

(</summer-2015/chez-marie>)



(</node/2512?>

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