

Alternative fish feeds use less fishmeal and fish oils

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As consumers eat more fish as part of a healthy diet, U.S. Department of Agriculture (USDA) scientists are helping producers meet this demand by developing new feeds that support sustainable aquaculture production.

Commercial fish farms have traditionally fed feeds that include high levels of fishmeal and fish oil, according to fish physiologist Rick Barrows with USDA's Agricultural Research Service (ARS). But the fishmeal in these feeds comes from small, bony fish species like menhaden, herring and capelin, which are in short supply.

Also, more people around the globe are turning to fish as a source of lean protein, driving the growth of aquaculture worldwide. Aquaculture now supplies half of the seafood produced for human consumption.

To satisfy these demands, Barrows and his colleagues at the ARS Small Grains and Potato Germplasm Research Unit in Hagerman, Idaho, are developing alternative fish feeds made from concentrated plant proteins.

Barrows produces the feed himself using a piece of food manufacturing equipment called a "cooking extruder." Barrows is formulating and manufacturing feeds for several [fish species](#), including trout, salmon, white sea bass and yellowtail.

At the ARS National Cold Water [Marine Aquaculture](#) Center in Franklin, Maine, research leader William Wolters works with Barrows to

develop diets for [Atlantic salmon](#), using concentrated plant proteins. Protein levels in most grain and oilseed sources are low and need to be concentrated to reach the high protein requirements of fish.

Wolters is currently evaluating six experimental diets which contain combinations of alternative proteins, plus a fishmeal diet being fed to fish for comparison. According to Wolters, the ongoing studies seem to indicate that the modern alternative diets work better for the fish than previous alternative diets.

Feeds for warm-water fish are being developed at the Harry K. Dupree Stuttgart National Aquaculture Research Center's facility in Fort Pierce, Fla. ARS fish biologist Marty Riche is working with Barrows to develop feed for pompano, one of Florida's highest valued [fish](#). Riche uses ingredients such as corn, gluten meal, and soy proteins to develop feeds that contain less fishmeal.

More information: Read more about this and other aquaculture-related research in the October 2010 issue of Agricultural Research magazine, available online at:

www.ars.usda.gov/is/AR/archive/oct10/feeds1010.htm

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