

# Hydrolyzed fish fertilizer tested in organic vegetable production

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In the production of organic vegetables, nitrogen is important, yet can be quite costly to manage. Nitrogen management is even more challenging when production practices call for the use of polyethylene mulch combined with fertigation. The authors of a new study published in *HortScience* have found that hydrolyzed fish fertilizer holds promise as an "economically feasible" nitrogen source for growing organic vegetables.

"Soluble organic [nitrogen](#) sources suitable for fertigation in organic vegetable production are much needed," said lead author of the study, Charles Ogles. Ogles and colleagues at Auburn University studied the effects of three different nitrogen sources during a 2-year crop sequence of yellow squash and collards. The scientists used hydrolyzed fish fertilizer, [inorganic nitrogen](#) (N) source with secondary and micronutrients, inorganic nitrogen without secondary or micronutrients, and a zero nitrogen control for the study. Nitrogen was applied at: recommended rates for both squash and collards, 80% of the recommended rates, and 60% of the recommended rates. The study design included a zero nitrogen treatment used as the control. "To eliminate the rotation order effect, the crops were switched each year: yellow squash-collard in year one, and collard-yellow squash in year two," explained Ogles.

In the first year of the study, the researchers found that yellow squash had a 30% higher yield when grown with inorganic nitrogen as compared with squash grown in hydrolyzed fish fertilizer. Collards showed a 21%

higher yield when grown with inorganic nitrogen source with secondary and micronutrients as compared with collards grown in the hydrolyzed fish fertilizer.

"In the second year of the study, highest yields of collards were again produced with inorganic nitrogen source with secondary and micronutrients treatments, followed by those grown in the hydrolyzed fish fertilizer treatments," the authors said. "Second-year squash grown in the inorganic N treatments produced highest yields, while squash grown in the fish fertilizer had a 16% lower yield as compared with those grown in the two inorganic N sources."

Additional results revealed that inorganic nitrogen without secondary or micronutrients produced lower marketable collard yields than the other treatments, an outcome the authors attributed to sulfur deficiency.

After performing economic analyses, the authors concluded that if growers can obtain the price premiums associated with organic produce, the use of hydrolyzed fish fertilizer could be an economically feasible option in organic vegetable production. "Although yields were reduced in the crops grown in hydrolyzed fish fertilizer treatments, the premium price and resultant profit associated with organic products were enough to offset the reduced yield," the authors said.

**More information:** The complete study and abstract are available on the ASHS *HortScience* electronic journal web site:

[hortsci.ashspublications.org/c ... ent/50/1/51.abstract](http://hortsci.ashspublications.org/c...ent/50/1/51.abstract)

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