



# Composting News

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## Maturity tests give conflicting results

By Ken McEntee

**C**onflicting results of compost maturity tests have reopened concerns about the best way to test for maturity. At issue is the use of cucumber to evaluate compost maturity by labs following the criteria of the Seal of Testing Assurance (STA) program of the U.S. Composting Council.

Will Brinton, of Woods End Research Laboratories said a client recently split a compost sample and sent it to two labs. One lab, using the cucumber test as mandated by STA, reported excellent maturity. The second lab, Woods End, also an STA-accredited lab, used a broader range of tests to conclude that the compost sample was extremely immature. One of the tests used by Woods End was the cress test commonly used in Europe.

"The client's response was one of concern since the various indicator tests at Lab A, including CO<sub>2</sub>, CN and Cuke growth, yielded a contradictory picture of the status of the compost," Brinton said. "The customer believed the compost was immature, since it was still very hot and smelled like silage."

Brinton said he is skeptical of the cucumber test because seeds of the cucumber and other members of the squash family are very tolerant of noxious conditions and resilient to immature compost.

"Therefore such a test would be an incorrect indicator of compost



completion," Brinton said.

He cited a recent study at Ohio State University in which the cucumber test indicated positive growth under conditions associated with nearly raw manure, high in ammonia.

"The TMECC cuke test might make a viable soluble-nitrogen indicator, with some qualifications," he said. "In its present form, it represents using a plant test improperly in a way that obscures, and potentially misinterprets, compost maturity."

Brinton said the issue of maturity testing needs to be reviewed by the composting industry.

"The question that was never asked when the TMECC (Test Methods for the Evaluation of Compost and Composting - the testing guidelines on which the STA program are based) was developed is what exactly do we mean by maturity," Brinton said. "Somebody settled on a plant test, but I think that is too naïve. You have to know more about the plant and what it reacts to. Everybody loves it when the cucumber grows well but cucumbers can grow in a mature or an immature compost."

While opining that cress, a member of the cabbage family, is a better plant to use for testing, Brinton proposes using multiple tests to determine maturity rather than relying on a single test.

"There is a problem when the STA test for maturity is giving incorrect results at least half the time," he said. "I sent out an email almost a year ago about this and there was only one person responded with any interest."

The cucumber was adapted as the test plant for maturity by TMECC developers who sought a plant that is not sensitive to varying soluble salt concentrations.

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