Published online April 19, 2018

Society Science

Irrigating Blueberry in Pine Bark Amended Soils

In central Florida, blueberries are raised in 30-cm-high pine bark beds over native sandy soil. Despite having a high C:N ratio (300:1), pine bark continually degrades to less than 15 cm in less than five years. This degradation is due to high doses of nitrogen fertilizer and high summer temperatures coupled with frequent irrigations and summer rainfall. A constant irrigation schedule over five years is not helpful as blueberry root-zone depth decreases continually, reducing plant available water.

In an article recently published in the *Soil Science Society of America Journal*, researches reported how physical and hydraulic properties dynamically changed as pine bark degraded over five years in two blueberry farms representing two soil drainage classes in central Florida and the role of soil water sensors in determining these changes reliably.

Field capacity water content (θ_{fc}) increased from 7 to 21% in two years. After this, θ_{fc} remained constant, which was attributed to the lack of change in capillary size porosity as pine bark progressively degraded.

Knowledge of these processes is imperative to reduce excessive irrigations and minimize nitrate leaching to ground water as the main source of drinking water comes from aquifers.

Adapted from Bandaranayake, W.M., D.M. Kadyampakeni, and L.R. Parsons. 2018. Temporal changes of soil water in sandy soils amended with pine bark and efficient blueberry irrigation. Soil Sci. Soc. Am. J. 82. View the full article online at http://dx.doi.org/doi:10.2136/sssaj2017.05.0141

Two blueberry rows with five-year-old (**left**) and new (**right**) pine bark.

doi:10.2134/csa2018.63.0404

Choose Your Cover Crop Wisely

Cover crops can benefit production agriculture, particularly by providing nutrients accumulated or fixed during winter and early spring to the cash crop. However, understanding rates of nutrient release from different cover crop species will be critical to time termination to optimize nutrient availability and reduce potential losses.

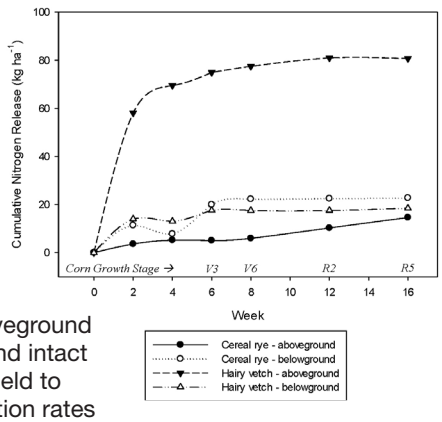
In the January–February 2018 issue of the *Soil Science Society of America Journal*, researchers in southern Illinois report on the timing of nitrogen release from above- and belowground biomass of two popular cover crops: hairy vetch and cereal rye.

The group found that hairy vetch shoots and roots decomposed much faster than cereal rye, likely due to higher initial N content. In fact, hairy vetch released 70 kg N ha^{-1} within just four weeks, whereas cereal rye only released 5 kg ha^{-1}. This burst of nitrogen by hairy vetch could be lost if termination occurs too early or planting happens too late.

These results suggest that if growers choose hairy vetch, they should delay termination until as close to planting as possible to decrease the risk of N loss prior to crop uptake. Future work could explore cover crop mixes to optimize nutrient cycling and synchronize N release with crop uptake.

Adapted from Sievers, T., and R.L. Cook. 2018. Aboveground and root decomposition of cereal rye and hairy vetch cover crops. Soil Sci. Soc. Am. J. 82:147–155. View the full article online at http://bit.ly/2FSYYCV

doi:10.2134/csa2018.63.0405



Right: Cumulative nitrogen release over time from cereal rye and hairy vetch residue over the 16-week experiment with observed corn growth stage. **Below:** Taylor Sievers, study co-author, extracts aboveground biomass litterbags and intact root cores from the field to measure decomposition rates and nutrient release.