

New OSU Organic Fertilizer and Cover Crop Calculator now available

By Nick Andrews and Dan Sullivan

The OSU Organic Fertilizer and Cover Crop Calculator has been online since 2010, and is widely used by farmers, students and agricultural professionals. It is a free online tool that predicts nitrogen release from cover crops, organic fertilizers and compost using nitrogen mineralization models. You can also enter your input and labor costs to compare the cost and nutrient value of different management plans.

We have recently moved the Calculator to a new [website](#), and updated to version 5 of the Calculator. Changes to version 5 include revised cover crop nitrogen mineralization models that provide 4-week and 10-week nitrogen release estimates. The revised models also predict nitrogen immobilization from low nitrogen cover crops. Version 4 only allowed entry of up to three cover crop fields, version 5 allows entry of up to eight cover crop fields at a time. The nitrogen mineralization models for organic fertilizers and compost are the same as in version 4. Like version 4, the new version 5 is also available in two formats: one for per acre calculations, another for per 1000 ft² calculations.

A new Extension Publication “OSU Organic Fertilizer & Cover Crop Calculator: Predicting Plant-available Nitrogen” ([EM 9235](#)) describes the research that went in to developing the nitrogen mineralization models. If you sample your cover crop biomass and submit a sub-sample to a laboratory for total N and dry matter analysis, you can use the Calculator to predict the fertilizer value of your cover crop stand. You can enter these results into the Calculator to predict the fertilizer value of your cover crop. Table 3 and figure 2 from the publication show the Calculator’s predicted amount of nitrogen that is immobilized or mineralized by cover crops with different nitrogen concentrations.

The OSU Calculator website links to the new Calculators, and includes a quick guide and records sheet to help you sample cover crops and use the Calculators. It also links to OSU Publication EM 9235 and PNW Extension Publication 636 “Estimating plant-available nitrogen release from cover crops” that describes cover crop sampling methods in detail and additional research background.

We are using the Calculator to evaluate crop performance in on-farm cover crop trials. If you have any questions about the Calculator, please contact nick.andrews@oregonstate.edu.

Table 3. Predicted PAN release from cover crop residues at 4 and 10 weeks after field application¹

Cover crop N concentration	Plant-available N (PAN) predicted by the OSU calculator			
	% of total N		lb/dry ton	
	4 wk	10 wk	4 wk	10 wk
1.0	-32	-12	-6	-2
1.5	-11	7	-3	2
2.0	11	26	4	10
2.5	28	38	14	19
3.0	34	42	20	25
3.5	39	46	28	32
4.0	45	50	36	40

¹ PAN estimated via OSU calculator prediction equations. Source: OSU calculator

² Obtain a total N analysis (on DM basis) from a laboratory analysis report or a database. For additional explanation, see "Calculator data input" (page 2).

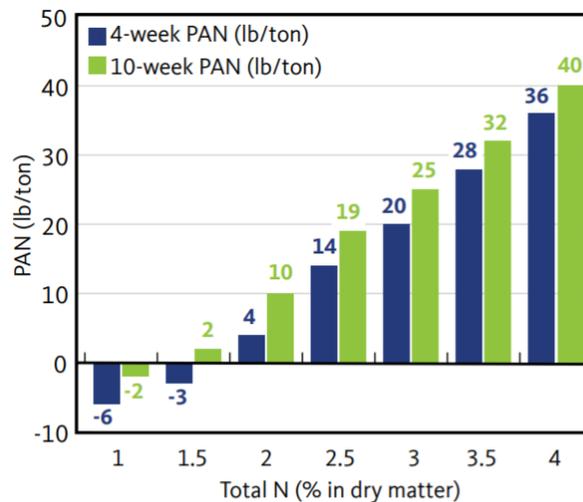


Figure 2. Calculator predictions for PAN from cover crop residues; PAN in units of lb/dry ton