

## **Improving Soil and Forage Quality to Maximize Organic Dairy Systems**

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### **Abstract**

Certified organic dairy operations heavily rely on pasture-based forages as well as perennial forage crops grown right on the farm. The challenge that these farms face include difficulty meeting the dry matter and nutrient needs of their livestock due to a) limitations of organic nitrogen sources for their perennial and annual forage crops, b) weather extremes that range from periods of prolonged wetness to drought that have caused crop failures and/or reduced forage productivity, and c) lack of research data and farmer knowledge on forage cropping systems that excel under organic management.

The author conducted research and outreach in Vermont to address these challenges. On-farm research trials screened adaptation of perennial forages to low nitrogen field conditions and explored alternative pasture and nutrient management strategies on-farm that address weather related feed shortages. Annual cool and warm season forage mixtures were evaluated for their potential to enhance yield and quality throughout the growing season while enhancing soil productivity.

On-farm trials focused on the effectiveness of a pod irrigation system on perennial pasture production during drought conditions, particularly the “summer slump,” as a climate change adaptation strategy. The projects also developed an innovative planning, recordkeeping and monitoring tool that helps farmers monitor nutrient flows, crop, soil, and economic productivity while also meeting standards of the National Organic Program.

The goal of the research and outreach projects is for organic dairy farmers to become better informed about nutrient management strategies to employ on their pasture-based farms to reduce potential environmental degradation and increase soil quality and livestock feed quality and quantity, thereby creating increased milk quantity and improved farm financial viability.

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