

Long-term sustainability of a low-input organic farm

ABSTRACT

Farming systems are often criticized for overreliance on expensive or fossil fuel based inputs. Many organic, biodynamic and low-input farmers attempt to limit their reliance on off-farm inputs, attempting instead to live within the carrying capacity of their own land or local environment. These farmers often accept lower farm productivity because they see the benefits of reduced reliance on expensive and ultimately non-renewable inputs as more sustainable. The potential danger in such an approach is that internally generated fertility is not sufficient to adequately offset export of nutrients through off farm sales. S&S Homestead Farm on Lopez Island, Washington, is a 50 acre diversified smallholding raising animals, vegetables and forages for on farm use and local markets. The farm has been managed organically with few purchased inputs for over 38 years. The goal of our study was twofold. Firstly, to determine whether biodynamic (BD) preparations could offset the need for standard liming practice on plant production, forage quality, soil microbial activity and pH in an acidic pasture soil; and secondly, to place our findings within the context of a whole farm analysis of economic, plant and animal health. Treatments included lime, the Pfeiffer Field Spray plus BD compost preparations, and untreated controls. Soil pH, total C and N, microbial activity, forage biomass, and forage quality were evaluated over two growing seasons. Our results indicate that both lime and the Pfeiffer Field Spray and BD preparations were only moderately effective in moderating soil pH, with no effect on soil microbial activity or forage yield. Lime significantly reduced forage crude protein but the practical implications of this are questionable given the overall low quality of the forage. While

the farm and animals are currently healthy, the need for future nutrient inputs cannot be ruled out for sustainable long-term production.

We present a replicated on farm trial and case study comparing the efficacy of lime and biodynamic preparations in the context of overall farm sustainability.