Season Overview of Integrating Cover Crops, Intercrops, and Grazing into Organic Grain Production

Sophia Partyka

Legume intensification and livestock integration are strategies to improve productivity and resilience in organic grain systems. However, limited research has examined how these practices perform together. The objective of this study is to evaluate the performance and benefits of legume intensification system while incorporating sheep grazing. A randomized complete block design with three replicates was established at the Glenlea Research Station. Three systems (that make up the legume intensified rotation in the study) were monitored in 2025: oat–pea intercrop under-sown to hairy vetch and subterranean clover (grazed), wheat–red clover (grazed), and flax–lentil intercrop (not grazed). The dry season resulted in almost no red clover growth during the growing season. However, post-harvest precipitation resulted in red clover biomass rising from 0 kg/ha to 754 kg/ha, reaching 1,196 kg/ha by October 2. In the oat–pea system, hairy vetch biomass declined from 500 to 92 kg/ha after grazing, representing 81.6% utilization. Under the dry conditions, the lentils produced greater biomass than flax. Final pre-harvest biomass was 2,728 kg/ha for lentils and 1,744 kg/ha for flax. These results provide an overview of the performance of legume intensification and grazing under the 2025 growing conditions. This work offers insight into how these practices function together and can inform future organic production strategies.