Assessing damage by manuka beetles (*Pyronota* spp.) in “flipped” West Coast pastures

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Manuka beetles (*Pyronota festiva* and *P. setosa*) have become a major problem in dairy pastures developed on “flipped” soils on the South Island’s West Coast. The beetles rapidly invaded these new pastures and signs of damage appeared within 1–3 seasons. Damage is caused by beetle larvae feeding on the roots of grasses and clovers, creating damage patches of dead and dying plants. A visual damage scale has been prepared to assist farmers to grade damage and provide a basis to make control decisions. Damage rankings were estimated by assessing both the proportion of the paddock with obvious damage patches and the overall vigour of the pasture. Increasing damage severity was shown to be strongly correlated with numbers of beetle larvae in the soil. Pastures invaded by manuka beetles had lower autumn production and, if untreated, overall pasture production declined to very low levels within 2–3 seasons due to poor pasture composition and low pasture covers. It is estimated that milk yields on affected farms have been depressed by 30% where no controls have been implemented. It is recommended that pastures with high damage gradings should either be treated with insecticide or renewed.

Invertebrate abundance and diversity in intensively managed dairy pastures

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The invertebrate community richness, diversity and abundance associated with pasture productivity and plant species richness at the Lincoln University Research Dairy Farm was examined. Invertebrates were sampled in November 2010 (spring) and March 2011 (late summer) by pitfall traps in two pasture types: simple (perennial ryegrass/white clover) and complex (perennial ryegrass, white clover, prairie grass, chicory, plantain, red clover). Pooled across seasons, invertebrate richness was greater in the complex pasture compared to the simple pasture, but there were no differences in invertebrate community diversity or total abundance between pasture types. However, greater productivity of the complex pasture in late summer resulted in greater invertebrate abundance in this pasture type, but without a concomitant increase in invertebrate species richness or diversity. These preliminary results suggest that pasture productivity drives invertebrate abundance, and that pasture plant richness drives invertebrate richness, regardless of productivity.