

Appendix A: Field methods

November 14, 2014

Initial monocultures were established in Fall 2007, with Dutch white clover seed and a perennial ryegrass mix planted at respective densities of $> 1.28 \text{ kg}/100 \text{ m}^2$, and $> 7.5 \text{ kg/ha}$. For ease of planting and establishment, plots were arranged (with one exception) so the initial monocultures of a plot border the monoculture of the same species in the next row. Experimental blocks were arranged linearly from the northeast to the southwest. Spatial constraints required two rows within each block, aligned from the northwest to the southeast. One row in each block contained plots of $L = 1$ and 16 m side by side, separated by their buffer areas, plus an additional one meter gap to ensure independence of the plots. The other row contained plots of the remaining L in the same manner. The order of the rows within the block and the position of plots within a row were randomly selected. Blocking exerted no significant statistical effects on the results.

The ryegrass mix consisted of 40% Barclay, 30% Passport, and 30% Goalkeeper varieties. The area was watered as necessary, and the well drained, sandy loam soil prevented excessive moisture accumulation. The ryegrass required fertilization twice before it became fully established (on 7/7/2008 and 9/19/2008; each time we applied 25kgN/ha). To remove weeds without disturbing the soil, we sprayed herbicide twice (7/7/2008 and 9/19/08). The clover was sprayed with a grass control herbicide (*Poast Ultra*, 1L/ha), and

the grass with a broad-leaf control herbicide (*Par 3*, 55mL/100m²). Throughout the experiment, we removed weeds manually, unless removal would disturb the interface.

In spring 2009, monocultures achieved densities sufficient for the experiment. On May 20, plastic barriers between monocultures were removed. Plots were mowed weekly to 5 *cm* above ground through the end of October 2009. There was very little advance of the front in this first season (no movement in most plots) possibly due to the intense mowing regime. In 2010, we mowed only once a month to 8 *cm* above ground, and the clover steadily advanced. We took monthly photos just after mowing.