

RESEARCH

It should be noted that the

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monoammonium phosphate (11-52-0). Annual treatments were repeated every year in the same plot so that cumulative treatment effects on soil test nutrients and yield over 3 years could be determined.

Composted dairy manure was applied to the soil prior to planting at a standard rate of compost (C1X) and twice the standard rate (C2X), and incorporated to a 6 inch (15-cm) depth prior to seeding alfalfa. Different batches of compost were applied in subsequent years to the same plots (4 x 2 m) at 0 (control), 4 for C1X, and 8 tons per acre for C2X treatments (8.93 and 17.9 Mg DM ha⁻¹ yr⁻¹, respectively) on 10 April 2001. In 2002 the actual rates were 2.22 (C1X) and 4.44 tons per acre (C2X) (5.0 and 10.0 Mg ha⁻¹) on an as-delivered basis.

A 30 by 20-foot (9.1 by 6.1-m) tarp was used to collect and weigh compost spread by the truck to determine actual application rates for each batch. A commercial compost spreader truck applied the compost in randomized 30-foot (9.1-m) wide strips, and plots were established within the strips as 30 by 100-foot (9.1 by 30.4-m) plots.

Soil and Compost Sampling and Analyses

Soil samples were taken from the field using a Giddings Probe and a 1.25 inch (3-cm) hollow core sampler. Samples were taken in October 2000, before treatment initiation; March of 2001, 2002, and 2003; and October 2002 and 2003 at the conclusion of the study. Each time, 7 soil cores were composited for each plot from 0 to 3, 3 to 12, and 12 to 24 inches (0 to 7.6, 7.6 to 30.5, and 30.5 to 61 cm). Samples were analyzed for Olsen P.

Compost samples were collected as grab samples from the tarp and composited for each batch, and stored frozen until analyzed.

RESULTS

Compost Characteristics

The composition of the compost was similar in both 2001 and 2002. The average nutrient analysis and application of nutrients for the dairy compost is shown in Table 1.