

Organic Fertility for Winter Wheat—First Year Results
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Research on the effects of variety and organic sources of fertility for winter wheat production and bread quality is currently in its second year at the University of Vermont. The study is being conducted at the UVM Horticultural Research Farm in South Burlington, VT and the Cornell Baker Research Farm in Willsboro, NY.

A randomized split block design with four replications was used at each site. The results reported in this article were recorded at the UVM Horticultural Research Farm from the first year. Soils at the Hort. Farm are a loamy sand, and the test plots were irrigated as needed. Winter wheat was seeded on September 19, 2007 at a rate of 2 bushels/acre in 4' by 25' plots. The wheat was harvested on July 29, 2008 with a small plot combine.

Three hard red winter wheat varieties (Harvard, Maxine, and Zorro) were compared within nine fertility treatments (see below). The three cover crop treatments were planted in mid June and plowed down in late August.

Fertility Treatments

1. Cover Crop of Soybeans, contributed 5,596# d.m./acre
 2. Cover Crop of 25% Oats/ 60% Peas/ 15% Vetch, contributed 3,566# d.m./acre
 3. Cover Crop of 60% Rye/ 40% Red Clover, contributed 2,502# d.m./acre
 4. Finished dairy manure compost (tilled in just prior to seeding, at a rate to provide 50 lbs. of nitrogen/acre)
 5. Fresh cow manure (same management and N rate as Treatment 4)
 6. Chicken manure compost (same management and N rate as Treatment 4)
 7. Chilean Nitrate – (50 lbs of N per acre, split application - half in the fall at seeding and half in the spring at pre-anthesis)
 8. Chilean Nitrate - (50 lbs of N per acre, split application - half in the fall at seeding and half in the spring at post-anthesis)
 9. Control—no treatment
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Although it rained often last summer, the wheat did not lodge. Harvard's average yield was 1,534 lbs/acre, significantly higher than both Maxine—1,327 lbs/acre—and Zorro—1,264 lbs/acre.

Wheat grown with the soybean cover crop and cow manure amendments was the highest yielding—both treatments yielded over 2,000 lbs/acre. Also high yielding was the wheat grown with chicken manure (1,926 lbs/acre) and the cover crop of Oats, Peas, and Vetch (1,875 lbs/acre). Further analysis on nitrogen availability throughout the growing season will aim to explain the differences in yield observed here. Look for future results on protein and grain quality based on the effects of these organic fertility treatments.

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