

Nature Safe[®] Research

University Research Data

TITLE: Impact of Soil Temperature on Nature Safe Fertilizer

**TEST CONDUCTED BY: Agriculture and Agri-Food Canada, Pest Management Research Center,
Dr. George Lazarovits**

I. Introduction and Procedures

It has been assumed over the years that organic fertilizer, which depends on microbial activity for mineralization, will perform poorly in cold soil. Wayne Kussow, who conducted a study using Milorganite applications in Wisconsin soil in November, found that microorganisms mineralized the organic nitrogen at soil temperatures of 50°F and lower.

Dr. George Lazarovits, Agriculture and Agri-Food Canada, London, Ontario, examined this same issue using Nature Safe organic fertilizers. Nature Safe 10-2-8 fertilizer was added at 1% w/w ratio to Alliston and Simcoe soil types in Ontario, Canada. Measurements were taken every 10 days at soil temperatures of 10°C, 17°C, and 25°C. Germination of *V. dahliae* microsclerotia in the two different soil types were examined as well as ammonia release.

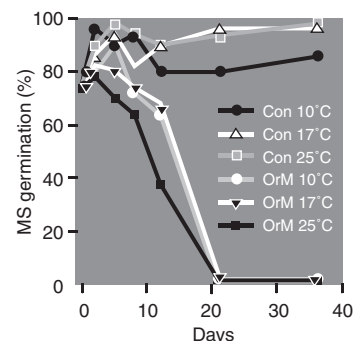
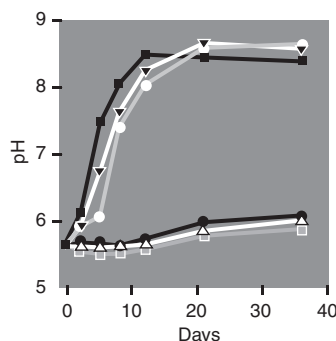
II. Test Results

In the Simcoe soil there was no difference in microbial germination or ammonia release with each varying temperature. In the Alliston soil the higher temperature resulted in marginally faster ammonia release than the coolest temperature. The cooler temperature only moderately slowed the release of ammonium from the Nature Safe organic fertilizers, but extended its persistence in the soil significantly.

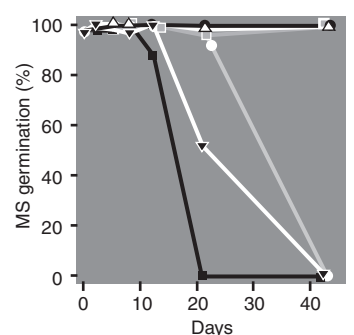
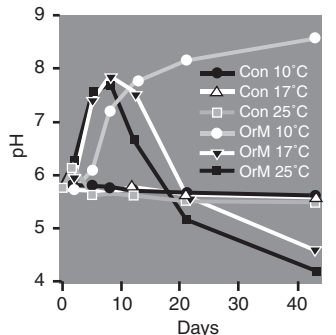
IMPACT OF SOIL TEMPERATURE

KEY	
CON	= Control
OrM	= Nature Safe

Effect of organic amendment (1% w/w) at various temperatures on pH and germination of *V. dahliae* microsclerotia (MS) in Simcoe soil.



Effect of organic amendment (1% w/w) at various temperatures on pH and germination of *V. dahliae* microsclerotia (MS) in Alliston soil.



III. Conclusion

Nature Safe performs well in cold soils and should not impede its use as a dormant feed. Use of Nature Safe as a dormant feed should result in mineralization of organic nitrogen and be available for uptake by the root as needed.