

Evaluation of Micro Essentials SZ (MESZ) Fertilizer in Corn Silage

(Thunder Bay Major Grant Project)

Purpose:

The purpose is to determine the effectiveness of Micro Essentials SZ® as a starter fertilizer for silage corn.

Methods:

Micro Essentials SZ is a granulated fertilizer that combines several nutrients within each granule, which should reduce the chance that seedlings cannot access all the nutrients because they are not close enough to a plant root. It also includes a significant amount of sulphur, split between the sulphate and elemental forms. The analysis is shown in Table 1.

Table 1: MicroEssentials® SZ Typical Analysis:

Total Nitrogen	12%
Available P ₂ O ₅	40%
Total Sulphur	10%
Sulphur as Sulphate	5%
Sulphur as elemental S	5%
Total Zinc	1%

Starter fertilizer blends were prepared by blending urea and ammonium sulphate with either MAP (11-52-0) and Zinc sulphate or the MESZ. These blends provided are very close to the same rate of N and S, and comparable levels of phosphate and zinc.

Table 2. Treatment Summary of Field Plots Established on a Silage Corn Field Near Thunder Bay.

Treatment	Actual N	Actual P ₂ O ₅	Actual Sulphur	Actual Zinc
Mix 1 (Urea, MAP + Zn)	28	19	4.7	0.47
Mix 2 (Urea + MESZ)	29	30	4.9	0.5
Mix 3 (check)	0	0	0	0
Soil test recommendation (before manure credits)	110	77		
Available Manure Nutrients, applied in fall.	38	27		1.04

Each treatment was replicated four times. Fertilizer treatments were applied through the planter in a 2x2 band. Field operations were carried out as follows:

- Fall, 2007 Sprayed with Round-Up Weather Max

Crop Advances: Field Crop Reports

- Fall 2007 Plowing was done
- Fall 2007 Field received 1.4 loads of manure per acre (5899 gal/ac)
- May 17 Soil samples taken
- May 17 Planting
- October 11 Corn Silage harvest

In contrast to 2007, the planting season started out with a 3 inch rainfall just after planting. There was adequate rainfall during the growing season, and conditions in the fall were conducive to timely silage harvest.

Results:

Visual differences between treatments were much less evident in 2008 than in 2007, probably due at least in part to the difference in the amount of rainfall received during the growing season, and to the fact that manure had been applied to the entire field (including the plot area).

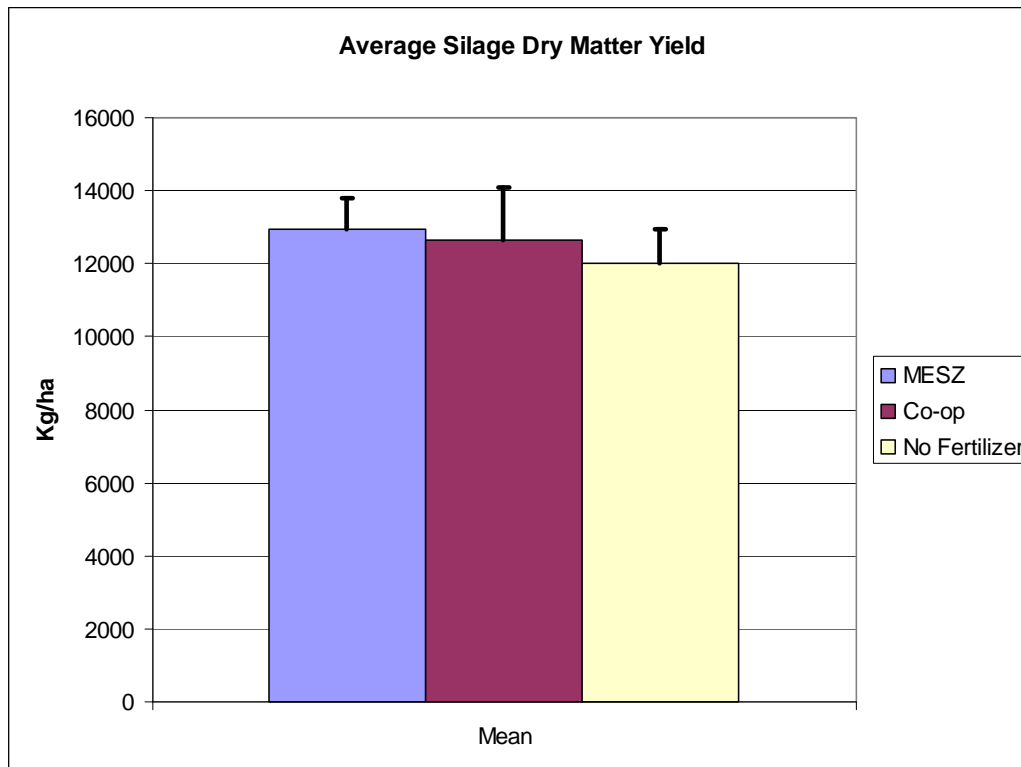


Figure 1. Silage Dry Matter Yield Comparison of Fertilizer Treatments.

There were no statistically significant yield differences between any of the treatments in 2008 (Figure 1). The above graph shows the average yields for the four replicates, along with the standard deviation.

Feed analysis varied between treatments, but there was no consistent pattern to the differences and none of the samples were outside of the normal range expected for corn silage.

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Summary:

MESZ appears to be a good starter fertilizer for corn, but there was not enough yield increase from using the MESZ formulation in 2008 to conclude that it is any better than a conventional blend with the same nutrients.

Next Steps:

This is the second year of a three year trial. A final summary will be prepared after the 2009 harvest.

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