

Greenhouse study report

10-01-2010. Planted pots with corn and soybeans.

Followed the following protocol.



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8" X 8" pots filled with a half/half mixture of soil and potting soil, inside each pot will be planted 5 corn seeds from the seed (same procedure with soybean seed) in the greenhouse.

In each pot is wetted with water prior to planting. Each pot will be marked with a small plastic stake describing the treatment. 10 treatments X (2) corn and soy X 4 reps X (2) liquids with and without Pursa Lax system = number of pots needed

Treatment list for both corn and soybeans:

1. zero treatment or control with no fertilizer
2. 8-19-3 (2.5 gal.) starter & water
3. 8-19-3 (2.5 gal.) with Micro-Pack (26 oz.)
4. 21-0-0 (30 gal) N side-dressed fertilizer beside the row
5. Vatche powder
6. is number 2. and 4.
7. is 3. and 4.
8. foliar VE to V2 Foliar Stimulate 24 oz and Defender G 1qt
9. is 2. 4. and 8.
10. is 3. 4. and 8.

Equals Ten total treatments.

10-01-2010 The starter 8-19-3 was applied at 2.5 gallons per acre on treatments 2,3,6,7,9,10. with and with out Micro-Pak & Defender G , and also using tap water or Pursa water. Inside greenhouse temperatures averaged from a low temperature of 55 degrees F to high temperature of 95 degrees F. on sunny days which occurred from October 1st to 22nd, and during the month of November 55 degrees F to high temperature of 65 degrees F. on sunny days and partly cloudy day after when high temperatures were 60 degrees F.

Plants were watered when soil became dry, about every 2-3 days depending on temperature and humidity.

10/07/2010 Planted flats of corn and soybeans to calculate emergence of seed. 94% of corn emerged and 49% soybeans emerged.

The following pictures show emergence of corn and soybean plants from pots.

Corn emerging in pots. 10-07-2010
6 days after planting



Corn growing 12 days after planting



Corn and soybeans 20 days after planting.



Corn and soybeans 30 days after planting.



Summary of Observations:

10-11-2010 Eleven days after planting corn and soybean plants that have starter were bigger and greener than those that did not get starter, and no difference between Pursa watered plants and the regular water plants.

The above observations did not change for the next 6 days 10-17-2010.

Overall the corn emerged earlier and in a greater emergence % than did the soybeans. As reflected in the emergence flats I did.

On 10-15-2010 side-dress (21-0-0) applications were made to treatments 4, 6, 7, 9, 10 with 30 gal/A 21-0-0 corn was at V-1 to V-2.

On 10-22-2010 Foliar Stimulate & Defender G applications were made to treatments with foliar corn was at V-3, and soybeans were at V-3.

The following graphs show differences in nutrient uptake in corn and soybeans, that were planted 10-01-2010, and harvested at the end of the month, so that the plants could be sent in to Intl. Ag. Labs. For plant tissue analysis. This plant tissue analysis is probably the best measure of the plant health and yield potential, because the plants in the greenhouse cannot be taken to maturity and the yield obtained.

The graphs produced are just a few of the large number that can be looked at. The graph examples are typical of the total number of graphs that show:

Pursa water versus tap water

And Fertilizer combinations of ; no fertilizer i.e. untreated control
Starter 8-19-3 fertilizer with and without Micro-Pack
Vatchie powder alone
Side-dress 21-0-0 fertilizer
Foliar Stimulate & Defender G fertilizer

First look at the Vatche powder treatment it does pop up occasionally as the highest nutrient level in the graphs.

Briefly, my comments on what the graphs are showing about nutrient uptake in the graphs comparing; tap water versus Pursa water are;

The graphs for **corn** looking at major nutrients (N, Ca, P, K) tap water versus Pursa water, the Pursa water shows **more** N and P uptake by plants and **less** Calcium and Potassium uptake in the majority of treatments.

The graphs comparing tap water versus Pursa water for corn looking at trace elements (Cu, Fe, Zn, Mn) shows mostly **higher** uptake of zinc for the tap water vs. the Pursa water.

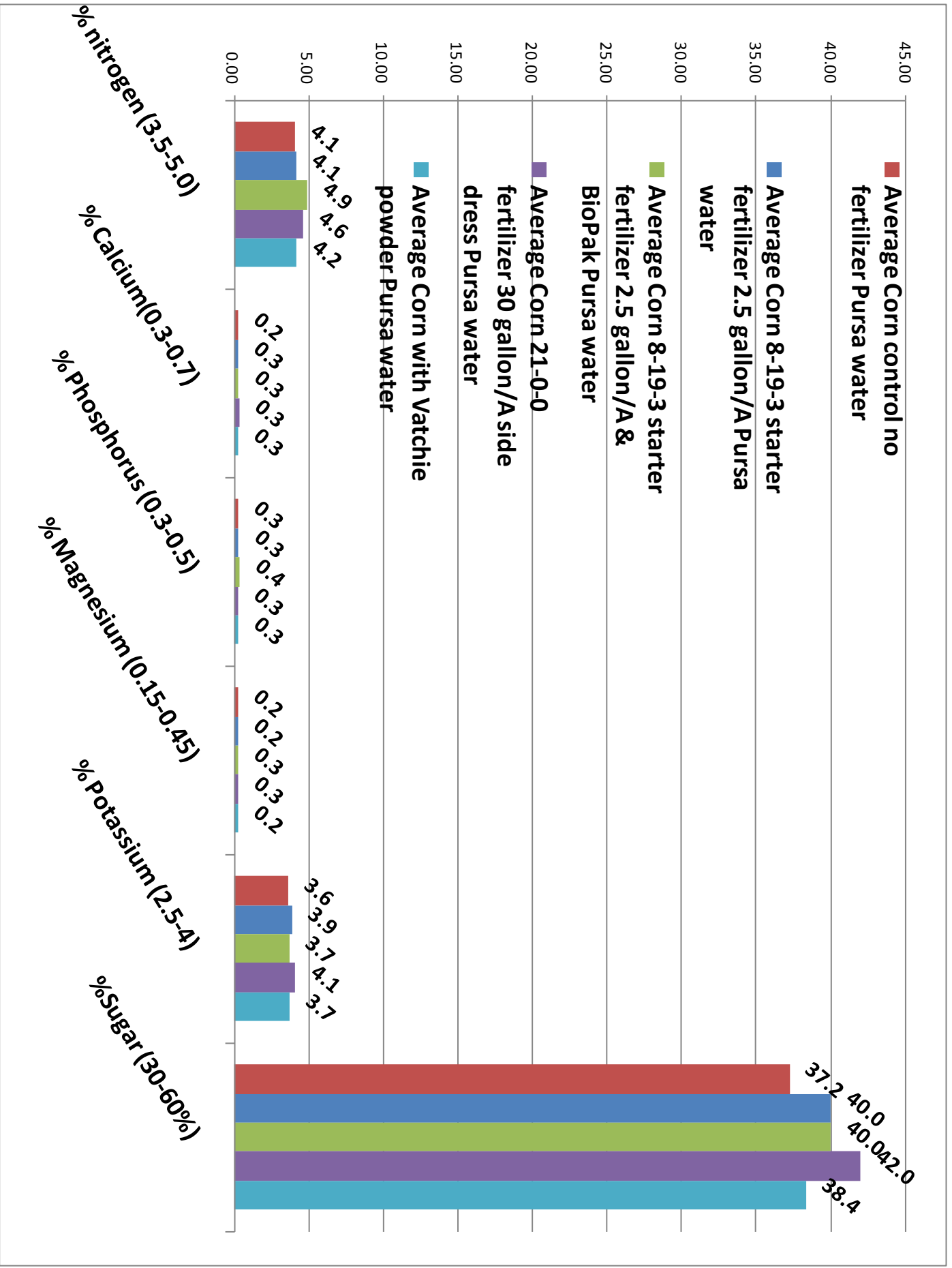
The graphs comparing tap water versus Pursa water for corn looking the other trace elements (Mn, Fe, Cu) show **mixed** uptake results, no definitive trend is seen.

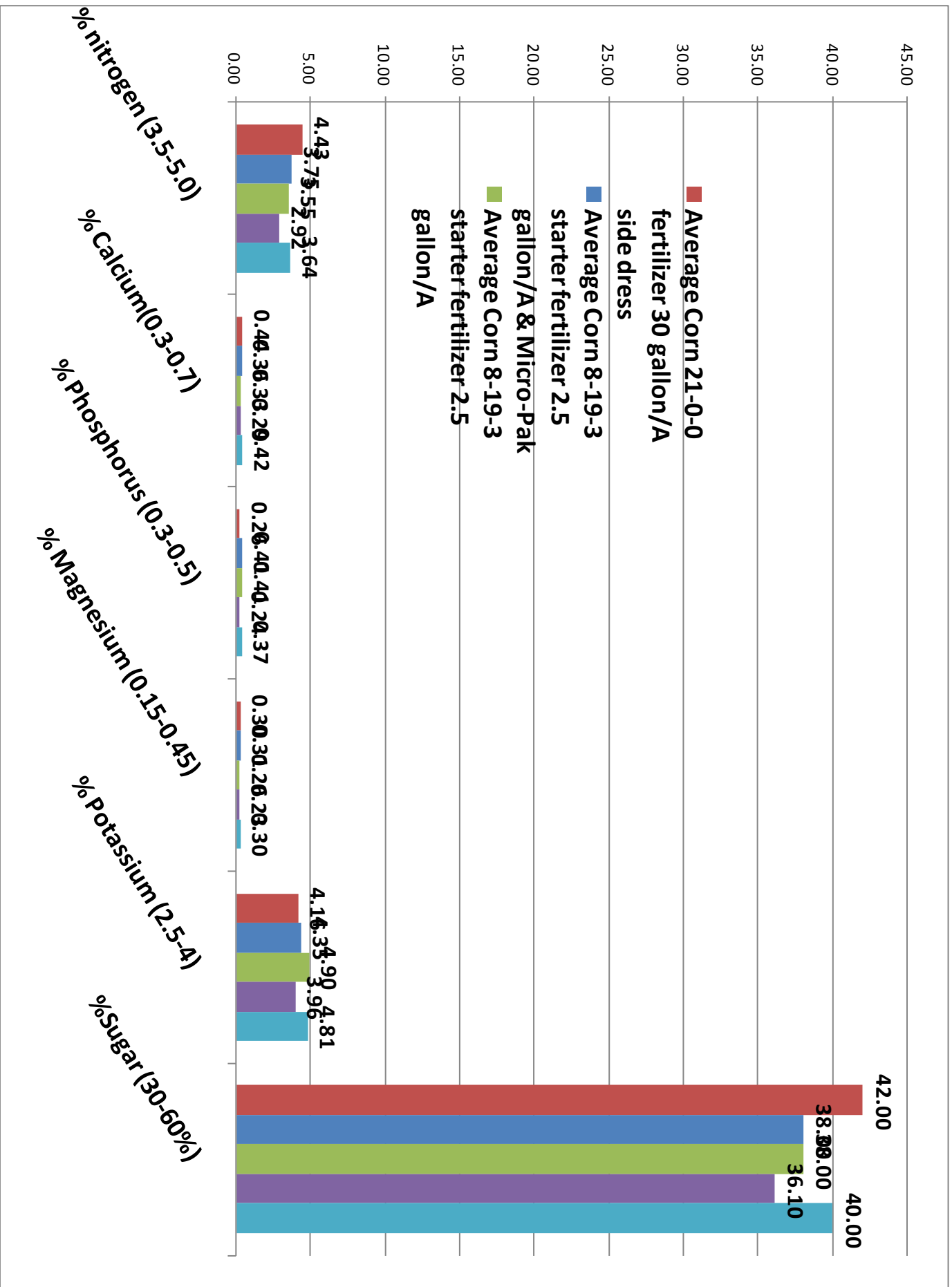
The graphs for **soybean** looking at major nutrients (N, Ca, P, K) tap water versus Pursa water, the tap water shows **more** N, Ca, P, and K uptake by plants than the Pursa water in the majority of treatments.

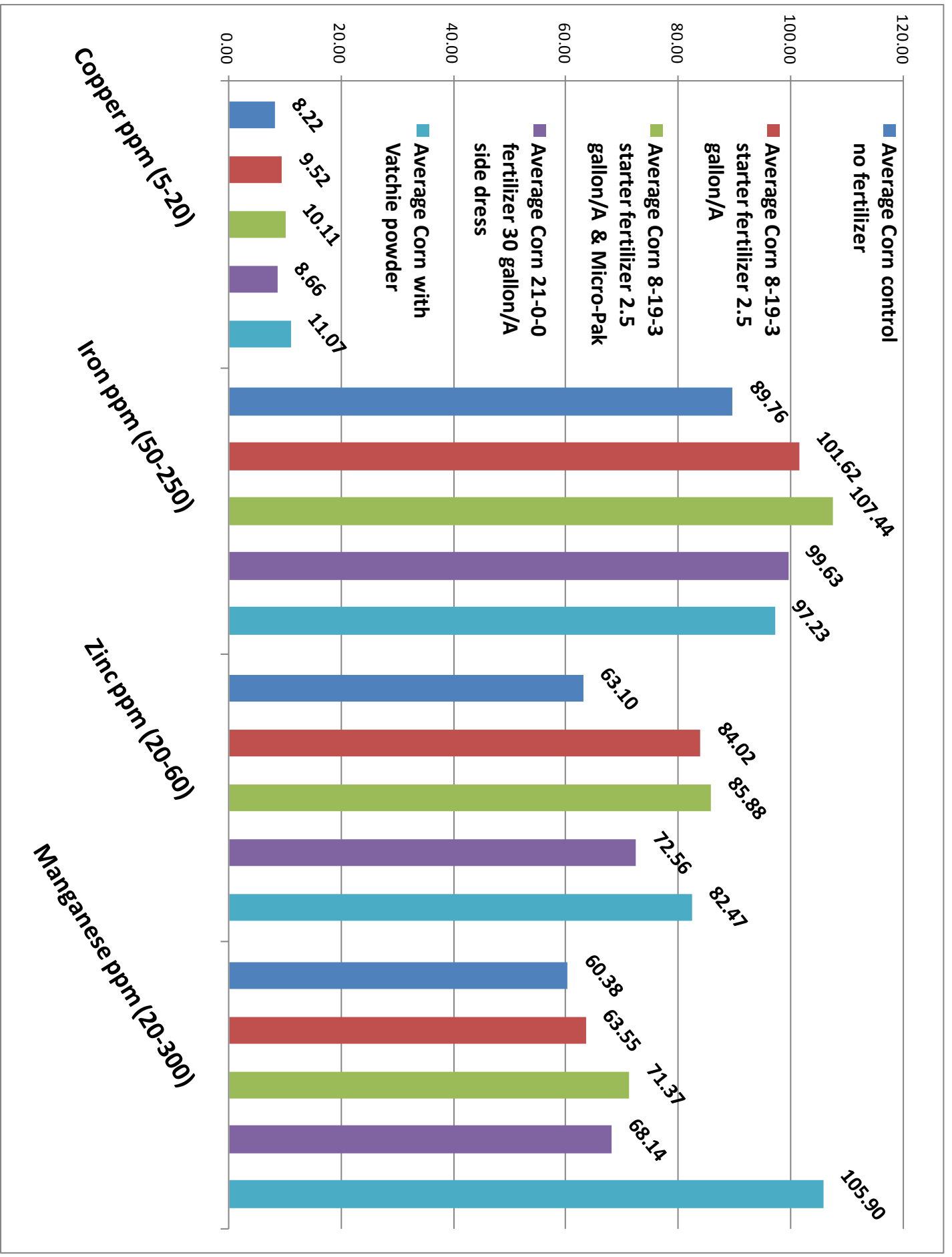
The graphs comparing tap water versus Pursa water for **soybean** looking at trace elements (Cu, Fe, Zn, Mn) shows mostly **higher** uptake of Mn for the tap water vs. the Pursa water. With the Fe levels higher for the Pursa water, while Cu & Zn showed mixed results, no definitive trend is seen..

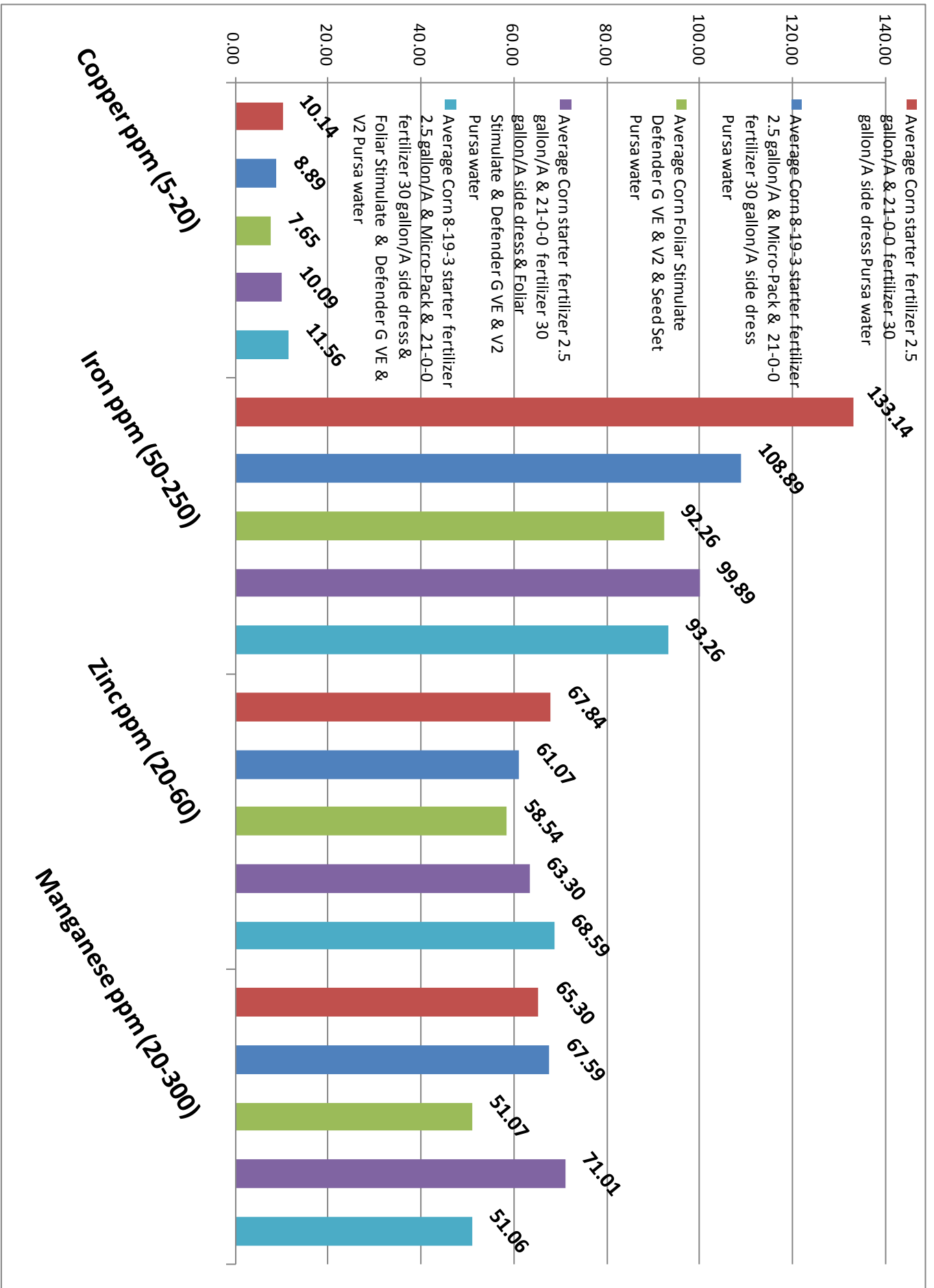
Looking at all the results; no trend showing all the nutrients are taken up by Pursa water vs. tap water, but some nutrients are preferably taken up by Pursa water or tap-water, so the increased greenness and taller plants seen with Pursa water vs. tap-water may be from single nutrients.

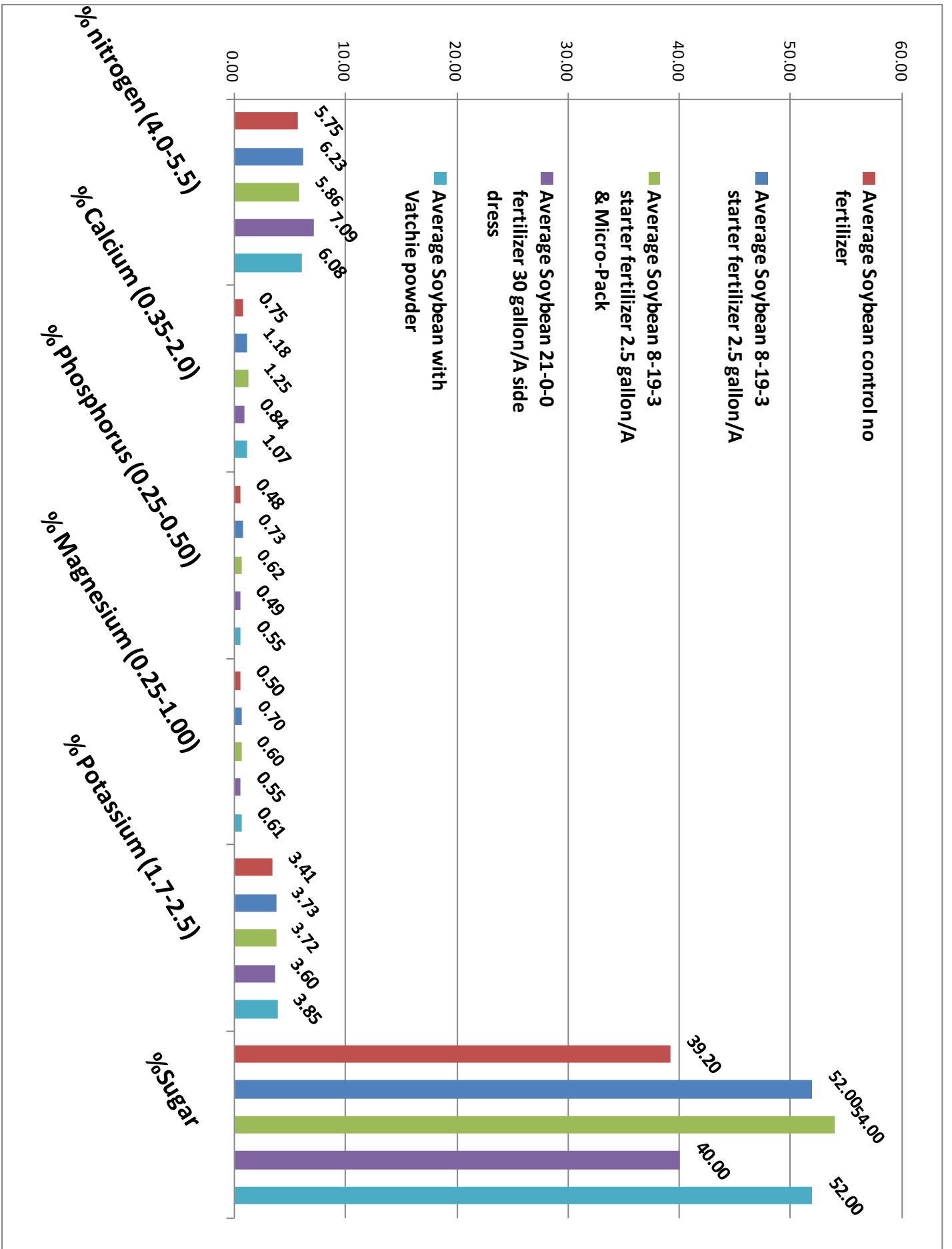
Or if we see a lack of nutrient uptake trends in these data it **may not be nutrient uptake** that is showing vegetative differences we are seeing, it may be electrical or some other influence on the plants.

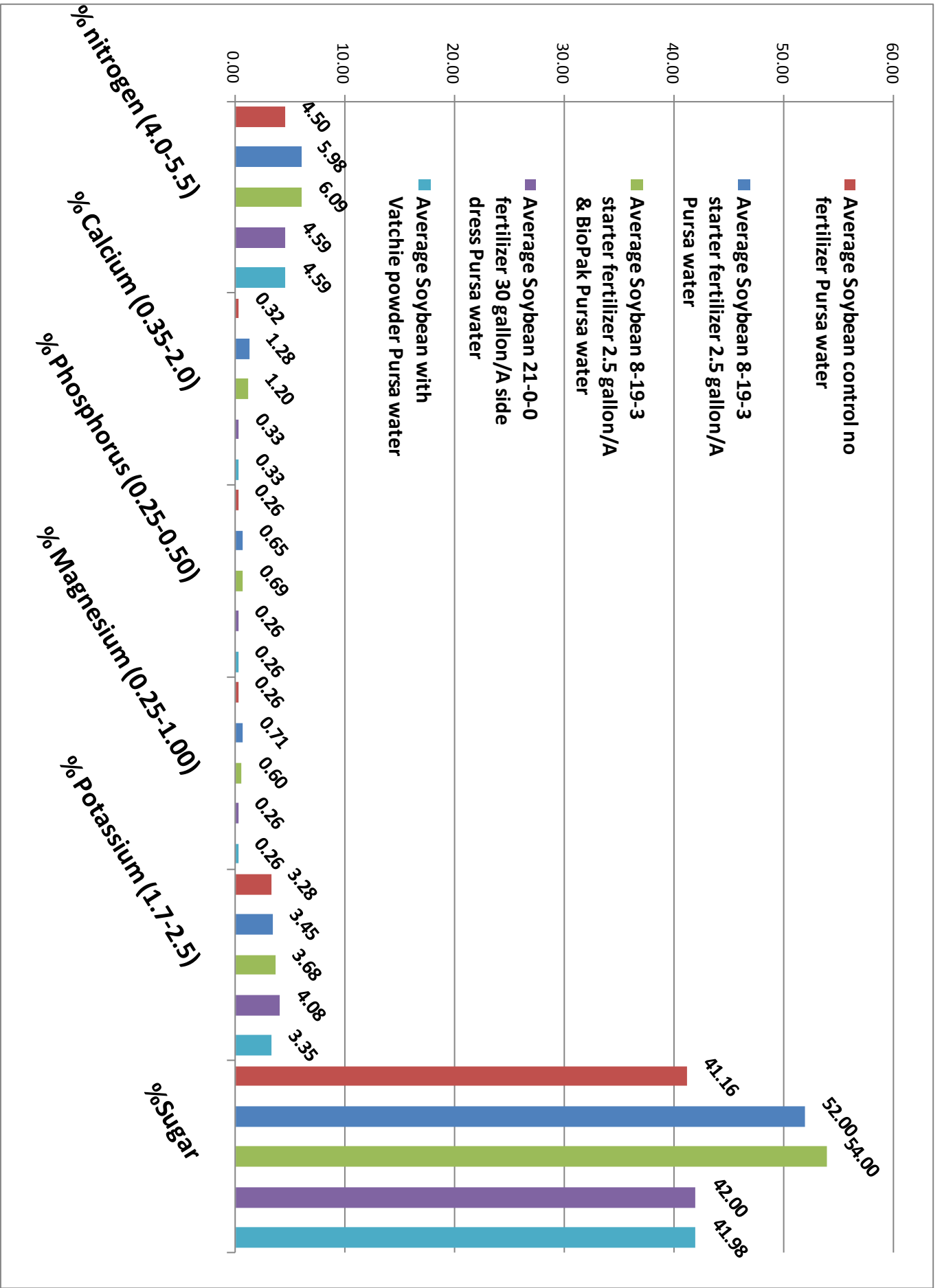


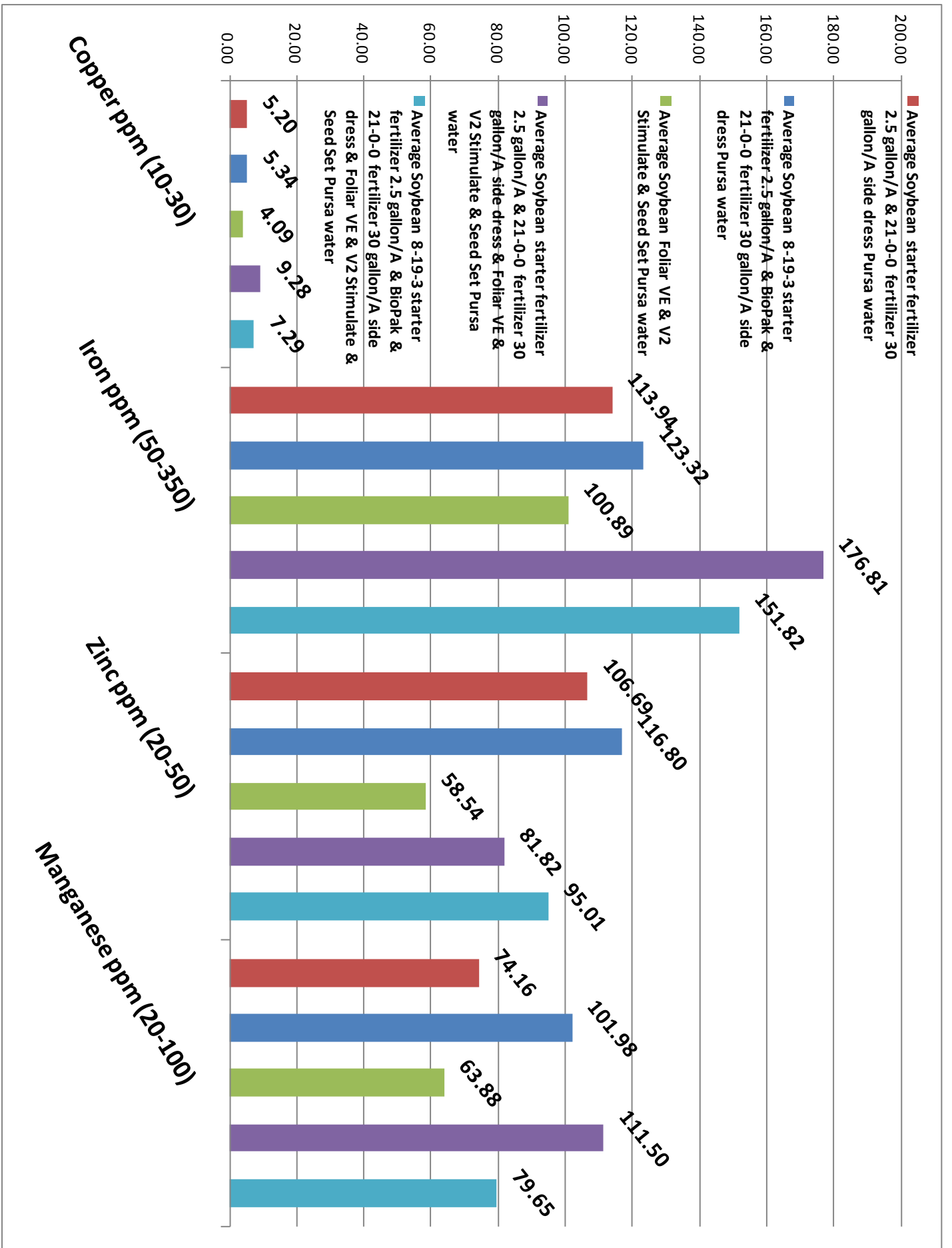


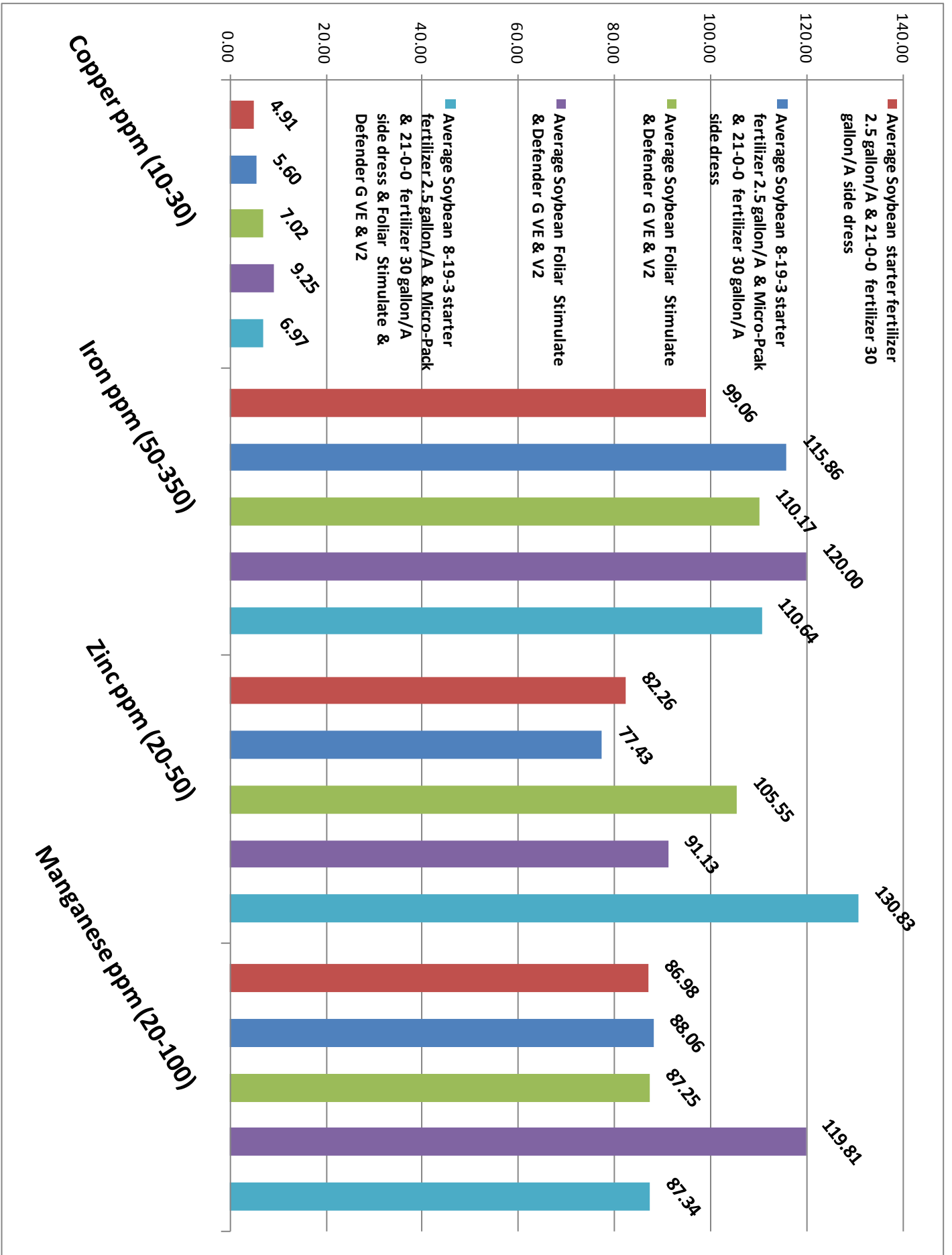








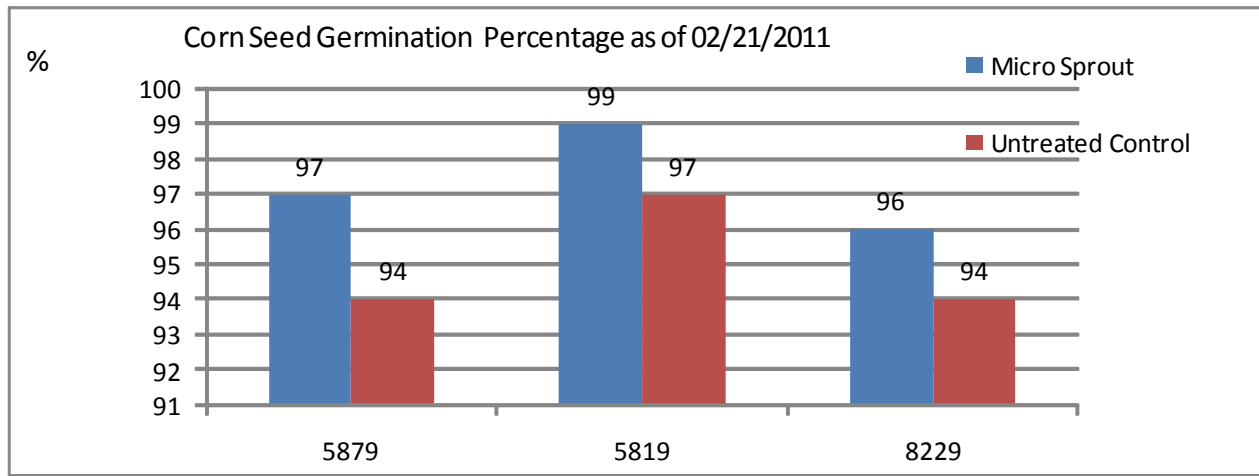




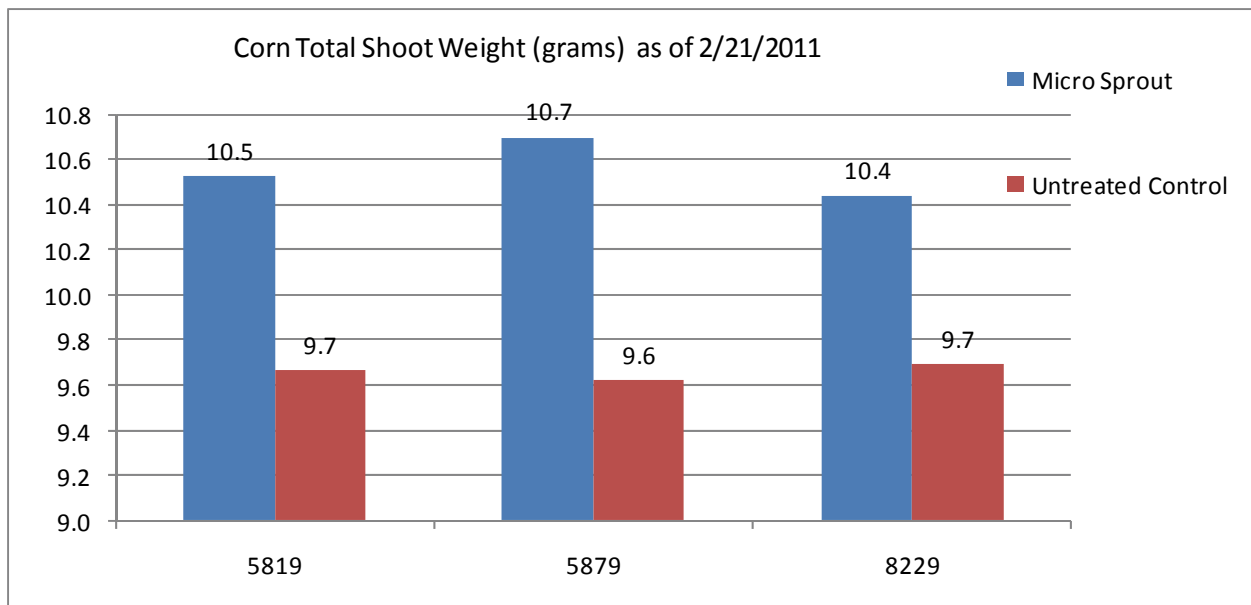


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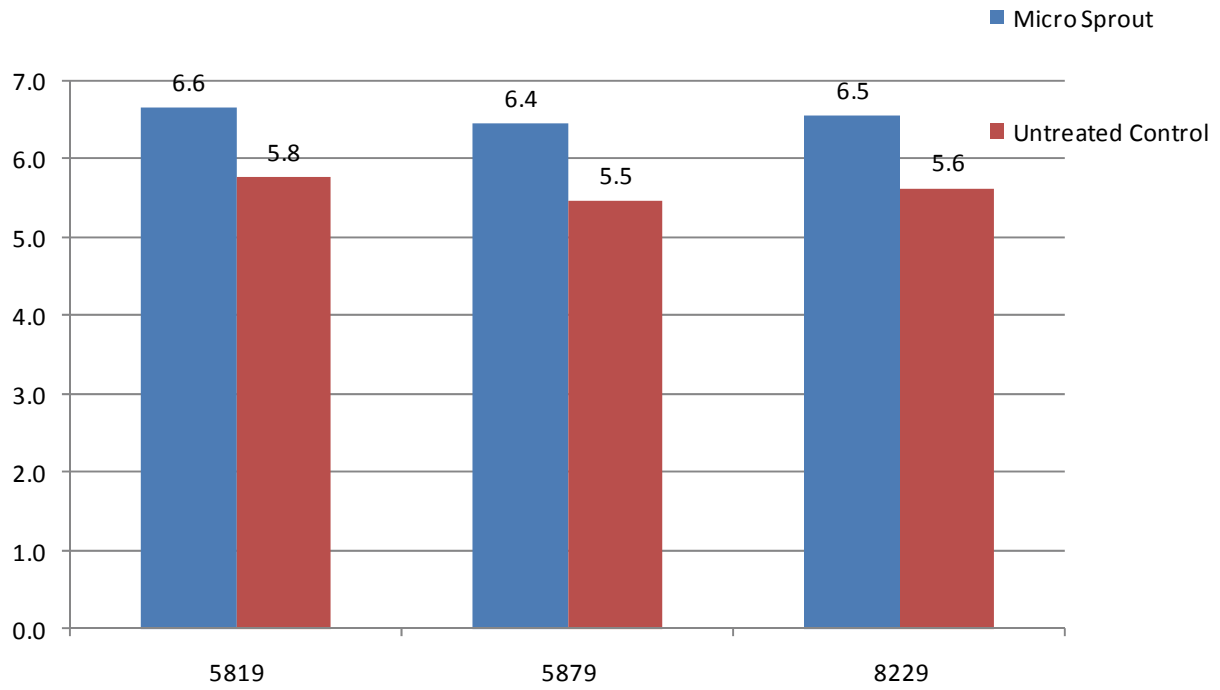
The following graphs show results of greenhouse studies as of 02/21/2011. The germination tests have been done twice as of today, so those numbers have changed since the last report, as the following graph illustrates.



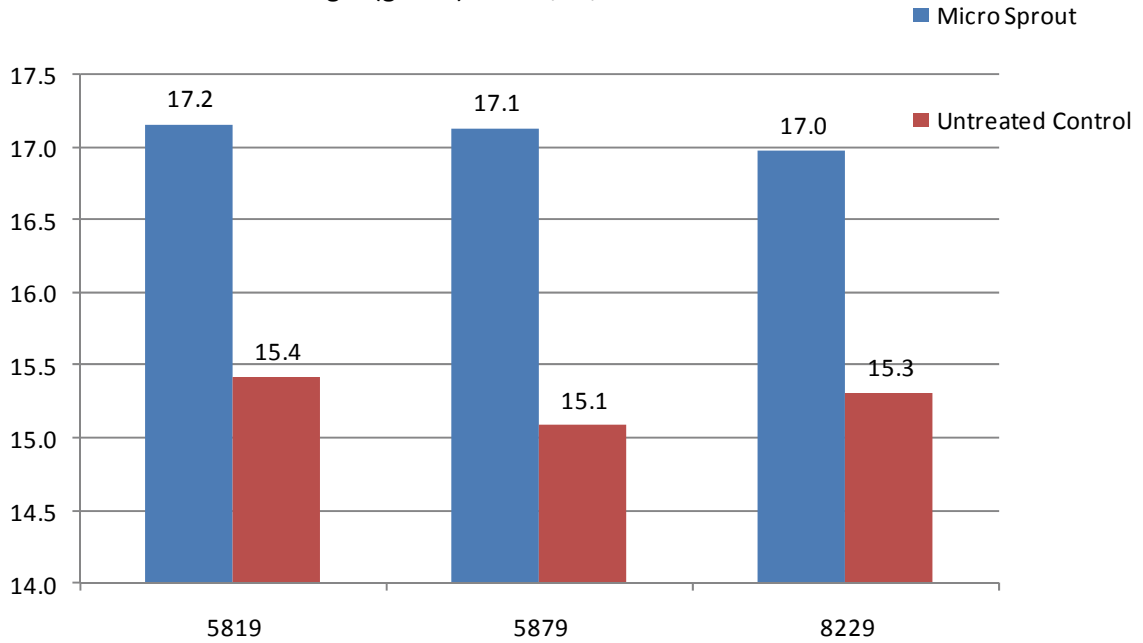
The following graphs show the weight of the entire individual corn plants, weight of just the roots of the corn plant and just the shoots of the corn plants; comparing Micro Sprout to an untreated control, germinated in the green house over a period of three weeks. I am continuing to germinate the same treated corn seeds, that have been treated with Micro Sprout, to see if delayed planting of the treated seed affects germination.



Corn Total Root Weight (grams) as of 2/21/2011



Corn Total Plant Weight (grams) as of 2/21/2011



The following graphs show the total results from the 2010—2011 greenhouse trials for Prairie corn hybrid seed; Seed Germination, Total Shoot Weight, Total Root Weight, And Total Plant Weight.

