

Renewable Farming Report

Our field trial indicates WakeUP Spring enhances corn yield benefits of AgriEnergy Resources' proven "SP-1" biological



One of our field research surprises of 2013 was that tank-mixing three ounces of WakeUP Spring per acre, in-furrow with AgriEnergy Resources' biological SP-1, nudged corn yields about 8 bu. per acre beyond benefits of SP-1 alone.

This points to a need for additional replicated field tests.

We know from many tissue tests and yield checks that WakeUP enhances absorption and translocation of NPK and trace nutrients when applied as foliar sprays.

Farmers also tell us they see yield gains by adding two or three ounces per acre of WakeUP Spring with NPK and traces applied in-furrow or row support. Thus we recommend using WakeUP Spring with starter and side-dress nutrients.

Until now, we've had very little data for WakeUP tank-mixed with biological products applied as seed treatment or in-furrow.

This in-furrow field trial completed 24 strip plots of six 30-in. rows, alternating across a four-acre field. This gave us:

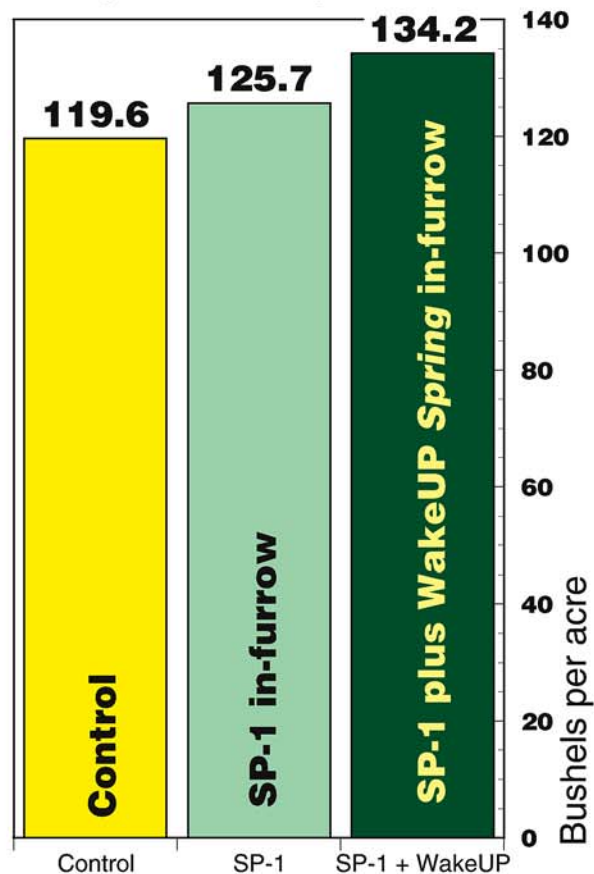
- ✓ Six replications of the recommended 1-gal. per acre rate of SP-1 alone, applied in-furrow with water,
- ✓ Six replications of the same rate and solution of SP-1, plus three ounces per acre of WakeUP, and
- ✓ Twelve control strips with no in-furrow SP-1 or WakeUP.

The planter was set for a population of 34,000. We planted Prairie Hybrids Seeds 2730, a 102-day non-traited hybrid.

The field had 100 units of N broadcast in early spring as ammonium sulfate, plus a ton of gypsum (Power Lime from BRT) and a ton of local ag lime.

Just before tasseling, The field was uniformly foliar-fed with 4 gal. per acre of Kugler 2075 in 20 gal. of water, with WakeUP as the surfactant/mobilizer in this foliar feeding. (The fertilizer rate should have been only 2 gal. per acre, as we saw some leaf burn. This plot was beside our front driveway, and some of our

SP-1 plus WakeUP in-furrow showed a significant corn yield response in 2013, with six replicated strips





Yield variability was high amid weather stresses of 2013. When weather extremes amplify the effect of soil type and moisture, plot yields can vary widely and it's essential to have as many replications as you can. We try to set up field trials to provide 10 treatment replications, so we can analyze at least six valid data points per treatment. Consistent stands like this create usable data.



visitors teased us about burned leaf edges on the corn.)

We used 1 gal. per acre of SP-1 as recommended by the label, plus 5 gal. of water for a total of 6 gal. of solution, plus 3 oz. of WakeUP *Spring* in the planter tanks. We use *Spring* for soil application because it's longer-lasting in plant phloem, with less surface tension reduction than WakeUP *Summer*. Delivery was by a calibrated squeeze pump on a JD 7000 planter.

AgriEnergy describes SP-1 as "a blend formulated to supply the greatest diversity of bacteria, fungi, algae, enzymes, carbon substrates, vitamins, and minerals to help support the growth of microbial life."

Note: Our well water is treated with a Pursanova structuring system. In greenhouse tests with corn, we've seen earlier emergence when watered with Pursanova structured water. Thus, the tank-mix water we used for this trial with SP-1 may have had an influence on corn which wouldn't occur with ordinary well water.

Our goal was not maximum yield, but an effort to reduce variables so any effect of SP-1, with and without WakeUP *Spring*, could be detected. At harvest, the stand was reasonably uniform on most of the plot (see photo above). However, we excluded several 6-row strips because of variability from wet spots (photo at right).

We had to adjust some strip lengths because a spring flood sliced across them, and flooded a corner of the field. Another research hazard: This field lies beside a busy highway. Just before harvest, a car ran off the road and slashed a 60-foot diagonal path through three strips. We had to adjust those strip lengths.

The field is pattern tilled, but has sandy and heavy variations across the four-acre patch.

Substantial yield variability persisted: Control strips across the entire plot ranged from 87.8 to 145.1 bu. per acre. Plots treated with SP-1 had a tighter band of yields:

The six plots with SP-1 plus WakeUP ranged from 109.6 to 145 bu. per acre. Plots were weighed in a weigh wagon (photo above) provided by Pioneer dealer Tyler Schmidt.

Using a conventional T-test of paired comparisons between control and treated strips, *the strips treated with SP-1 plus WakeUP showed statistically significant yield differences from controls*. However, the benefit of SP-1 alone is also encouraging, simply from the raw data.

Plots with SP-1 plus WakeUP *Spring* averaged 16.4% moisture, about two points lower than either SP-1 alone or the control plots. Test weight per bushel on the SP-1 plus WakeUP plots averaged 57.6 lbs. — about two pounds higher than SP-1 alone or the control plots. (If you'd like a table of all plot data, e-mail jerry@renewablefarming.com).

There's enough promise here that we'll work toward a wider range of random-rep field studies to evaluate WakeUP's benefits as a partner for *in-furrow and side-dress* biologicals and other fertility products.



We excluded several strips from the data based on wet-spot stand variability. In other yield trials, we've often lost some plots to deer damage. Deer congregate on our non-GMO corn plots every fall!