

probably is the case more than anyone realizes.

Others are skeptical that the advantages haven't been proven in replicated studies over many years. While we shouldn't throw caution to the wind, we definitely need to keep focused on improving water and nutrient cycling in soils, and on having sufficient diversity to keep pests off-balance and create healthier cash crops. There is considerable evidence that cover crops do this.

We are excessively focused on having the bucket (soil moisture profile) full up at planting time of our cash crop, *and not nearly focused enough on efficient water usage during the growth of the cash crop* (increasing

infiltration, decreasing evaporation, and improving root growth). You do not need the profile full at planting if you are efficient enough in terms of water storage and usage *while the crop is growing*. We do this partly by not tilling the soil, but the 'big stone' is still the amount of mulch covering the soil surface. We need 100% cover most of the time, and in many warm regions it takes cover crops to do this.

Mindemann, one of the most diligent cover-crop users, offers this observation: "Cover crops are the shortest path to a productive no-till system, and will rapidly improve soil structure. From what I've experienced, low-residue no-till versus high-residue no-till—*big* difference." 🌱

## Correction

In the March 2003 issue, p. 96, we erred in the rendition of a graph which should have its vertical axis labeled "Soil Organic Matter Oxidized," not "Carbon Oxidized." Soil organic matter is ~ 58% carbon. We apologize for any confusion.

—The Editors.

# Skip, Skip, . . . Crash?

by Matt Hagny

Planting with ultra-wide gaps—for instance, row spacing of 30-60-30 (inches), a.k.a. "single-skip"—has gotten considerable attention lately, especially in eastern Colorado and western Nebraska & KS. Some credible and conscientious researchers have showered favorable commentary on it.

Wait a minute. Haven't we learned anything about plant spacing, crop competition, or the value of residue cover? It seems like this stuff goes in cycles, with various myths and fads re-emerging every decade or so. We get all these reductionist studies and practices without any regard for how the system works.

The theory is the wide gap stores water that the crop doesn't find till late in the season, during grain-fill. And, studies in western Nebraska and eastern Colorado do tend to show some yield advantage to skip-row in extremely dry years (sub-60-

bu/a corn). However, the skip-row falls apart badly if you get average or above-average precip (which is when you make the money anyway; insurance covers the dry years). Skip-row typically *lags* normal (plant-every-row) 30-inch spacing by 10+ bu/a once you get into the 70 bu/a and up range. That's a big hit.

Another downside to skip-row is weed control, with nearly everyone agreeing that it requires extra pre-plant and in-crop herbicide applications. A couple more hits.

What about residue production? Take out 1/3 of the rows, and you'll be losing up to 1/3 of your biomass and soil cover. To my knowledge, no one has measured the effect of skip-row on subsequent crops, but it certainly can't be good. (For the value of mulch, see the March '05 *Leading Edge* 'Maximize Crop Residues.')

Whack!

Row-spacing and plant-population jiggering is a recurring theme. While we appreciate inventiveness, a bit more conceptual framework could be useful so we don't spend so much time and money testing concepts that are ultimately frivolous or even harmful. There *are* underlying principles governing crop production. Ultra-thin plant populations or super-wide rows fail to consider other effects on the field ecosystem, and aren't all that effective at guarding production in dry years anyway (think of all the sunlight and wind getting down to the soil surface and increasing evaporation). Skip-row was big in Australia's summer crops, in regions notorious for hot dry summers (much worse than western KS or eastern CO). Yet even the Aussies are abandoning skip-row. So let's work on solving some real problems instead of chasing these distractive mirages. 🌱