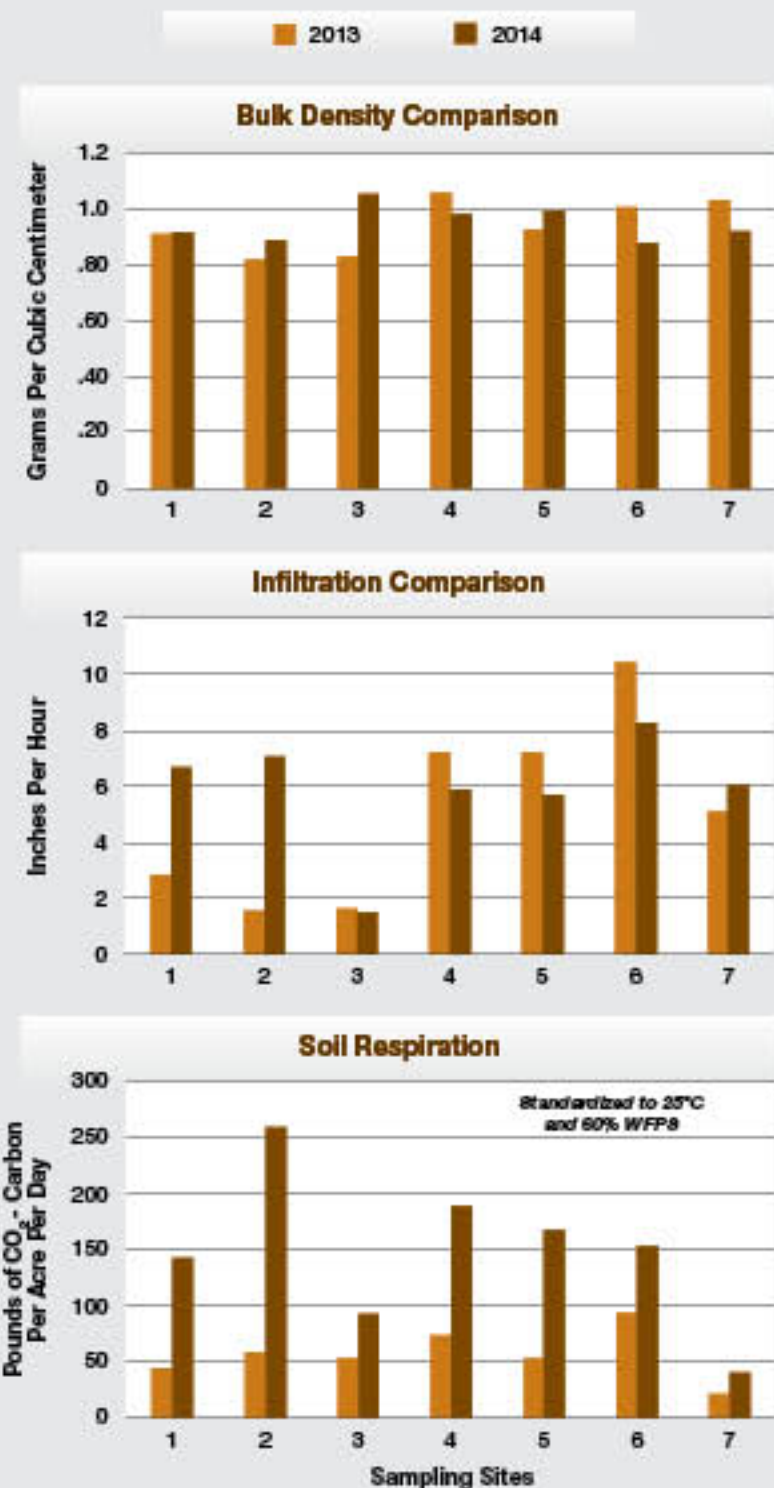


Consistent Versus Inconsistent Field Tests

Some results from in-field soil health tests were consistent from year to year, while other tests produced varied results because of changing environmental conditions. Bulk density readings at seven sites varied only slightly. But water infiltration and soil respiration varied by season.



at the same time of year, sampling during a drought or during a wet season seemed to vary the results. Even conditions on the day of sampling seemed to have an effect.

“For example, the results for H3A phosphorus [P] and potassium [K] varied significantly depending on the time of year and the soil moisture when we did the testing,” Ferrie says. “The H3A P and K results are accurate on the day they are taken, but they seem to be constantly moving values. The same is true of the nitrate extraction test.”

Among the labs, the volume of soil organisms and microorganisms (obtained by measuring the amount of carbon dioxide released from soil, or the “carbon dioxide burst”) had the widest variance.

With one lab, results varied when an identical soil sample was submitted twice. This suggests the lab’s procedures need to be more standardized.

Despite the challenges, Ferrie’s research showed soil health tests provide valuable information to start improving your soil. Healthier soil will ultimately yield more, he emphasizes—but soil health improvements take time. “Sick soil usually didn’t get that way in just one or two years—in many cases, it takes decades,” he says.

“The good news from our research is we can look at soil health test results and pick out the healthiest and unhealthiest areas within a field,” Ferrie says. “When we look at our yield maps and history, we can confirm the correlation between higher-scoring soil and higher yield. Regardless of the lab, the healthier soil always received a higher overall score.”

Equally important, soil health testing can help you zero in on the most cost-effective ways to improve soil health. For example, on one very sick

Inconsistent Results From One Lab to the Next

When soil samples were submitted to multiple testing labs, sometimes the results varied from one lab to the next. The results for organic phosphorus, inorganic phosphorus and soil respiration varied significantly between Labs A and B. The variance in CO₂ readings among the three labs in the third chart is of the highest concern because CO₂ is the cornerstone of soil health calculations.

