

Can Forage Radish Undo 90 Years Of Compaction?

James Haynes, a beef and forage producer in Rock Creek, BC, has a deep commitment to the land he farms. The third generation of his family to work the farm, he believes his job is to caretake the land for future generations. That's why he invests effort testing out various crop types and techniques that best suit his dryland acres. In 2019, James conducted an on-farm tillage radish trial in hopes of improving his soil health through enhanced water infiltration.

For the purposes of the trial, James seeded 60 acres with a 110lb/ac mix of triticale, oats and peas. On one half of that field he attached a grass seeder attachment to his no-till drill to seed in approximately 6lbs/ac daikon radish.

While total yields between the control and test plots were not markedly different, forage production patchiness was much lower in the test area and the radishes helped suppress weeds (Figure 1).

“Because daikons will grow up to four feet tall, we started out thinking mostly about the forage aspect of the radishes. We were pleased that the radishes helped the forage quality quite a bit,” James says. “Where we planted the radishes, it cut way back on

weeds, especially Russian thistle. You could almost draw a line through the field: where we planted the radishes there wasn't much thistle.”

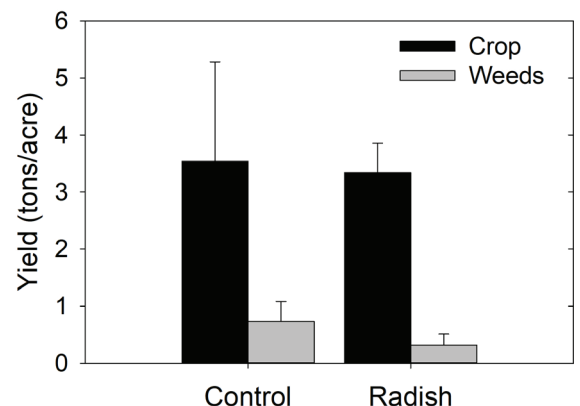


Figure 1 - A comparison of wet yield (crop and weeds) within the plot with radishes versus the control.

CASE STUDY



Though soil erosion has decreased markedly since James switched to no-till a decade ago, 90+ years of heavy tillage has left the acres heavily compacted. James learned that the forage radish had more trouble breaking through the hardpan than anticipated.

“What we noticed is that the radishes ended up bending: they went down maybe two inches and then curled sideways. That’s when we realised we had much more serious compaction than we thought.”

The trial’s water infiltration results proved the radishes are creating a ‘swiss cheese’ effect in the soil, allowing the soil to capture and retain more moisture. Whereas the control area allowed approximately 40 cm of water to infiltrate per hour, the test plot almost doubled that rate to 70cm/hour (Figure 2). Getting water into the soil is critical to building soil health and supporting a healthy plant community during the dry summer season.

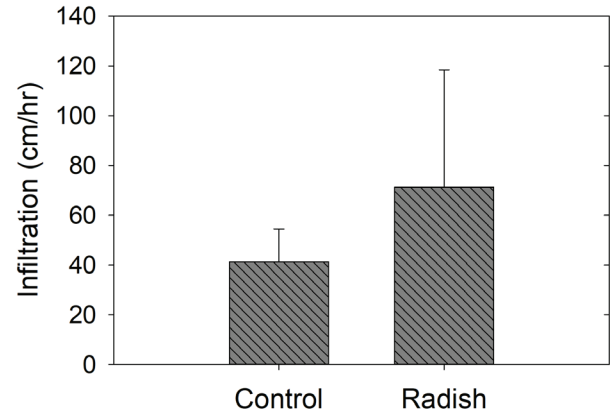


Figure 2 - Infiltration rate (cm/hr) of water within the plot with radishes versus the control.

Compaction from nearly a century of tillage can’t be undone in a year. However, Haynes’ results show creative solutions can offer above and below ground benefits.

“This trial shows how quickly a site can respond when you really think about the root cause of the problem,” says Dr. Catherine Tarasoff, of Agrowest Consulting Scientists, who is overseeing James’ trial.

“I was very pleased with the whole experiment,” says James. “We have 26 different fields we own and lease, each with a different slope, different aspect, different soil. I’d like to try this again on different fields, since every one of those needs to be managed a little differently and every one would show different results.”

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