

Natural Resources Conservation Service

Soil and Plant Sciences Division

Soil Survey Region 5 Office



Buffalo, WY, MLRA Soil Survey Office

Compaction Issues on the Carr Ranch, Wyoming

Purpose

The Carr Ranch landowner asked us at the NRCS MLRA 5 office to inspect their winter wheat fields because the turnips in the cover crop mix were showing signs of lateral growth. These fields had been in a winter wheat/fallow system for decades before the current operator moved to no-till management and growing cover crops. The rancher explained that the fields were mostly just disked and planted before he arrived and changed the land management strategy.

The turnip roots were growing laterally from about 2-4 inches in depth. We found no soils evidence of compaction at those depths. A classic plow pan with platy structure at 9 inches was identified in some of our probe sites, but not predominately across all fields. We were asked there to help the farmer decide whether he should pull a subsoiler through the fields to break up the legacy compaction to create an even more perfect palette for no-till agriculture. The recent farming method changes have been extremely successful, with four tons per acre of winter wheat and more hay bales than the local ranchers had seen in those fields in a long time, if ever. This success brought the question: can we improve on this level of success? Another factor in the decision-making is that the lateral root growth of the fall-planted turnips was likely caused by the depth of the wetting front achieved during the recent fall rains.

Key Outcomes

Clearly, they are at the high end of normal production for the area, so my recommendation was that subsoiling would be beneficial to break up the platy plow pan areas still existing; however, I question whether there would be a financial benefit to do so, or if patience with the current cover crop system would be the better call. In other words, which side of the check does the landowner want to sign?

On-site and hands-on, giving honest, unbiased, and educated advice on how to improve crops, increase ranch production, and more: that's how we *help people help the land*.





Inspecting turnip growth on Carr Ranch in Wyoming.



NRCS scientists use a probe to search for problems impeding the turnip cover crop.