ANNUAL REPORT

Grant Code: AP7218

Title: SnOi.OOrOOOOntOt-1OOOO-EMC 3 TwTd (: )T EMC 2 Tc -0.002 Tw 0.66[(U

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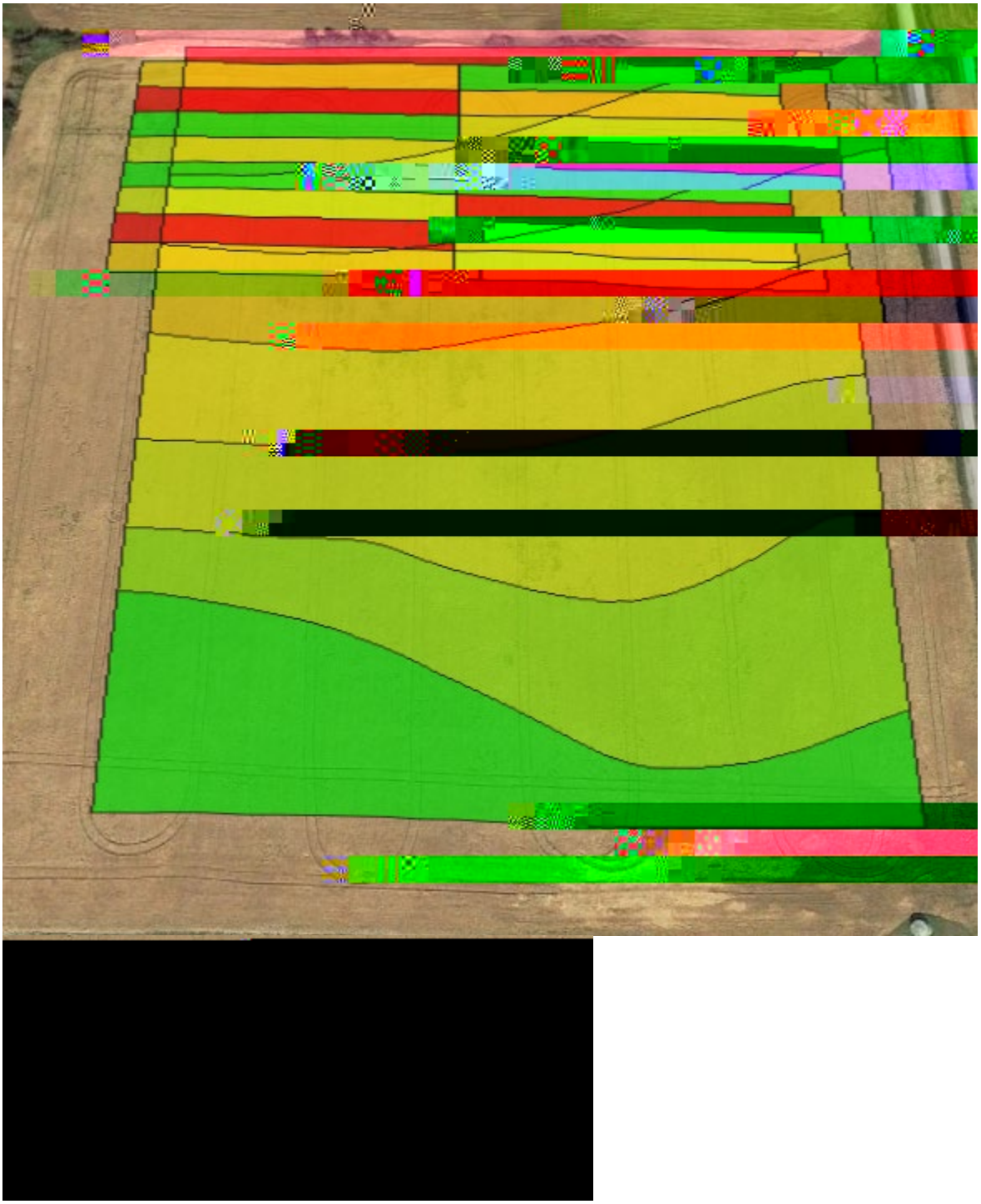
Accomplishments: Describe accomplishments relative to the proposed objectives.

Objectives:

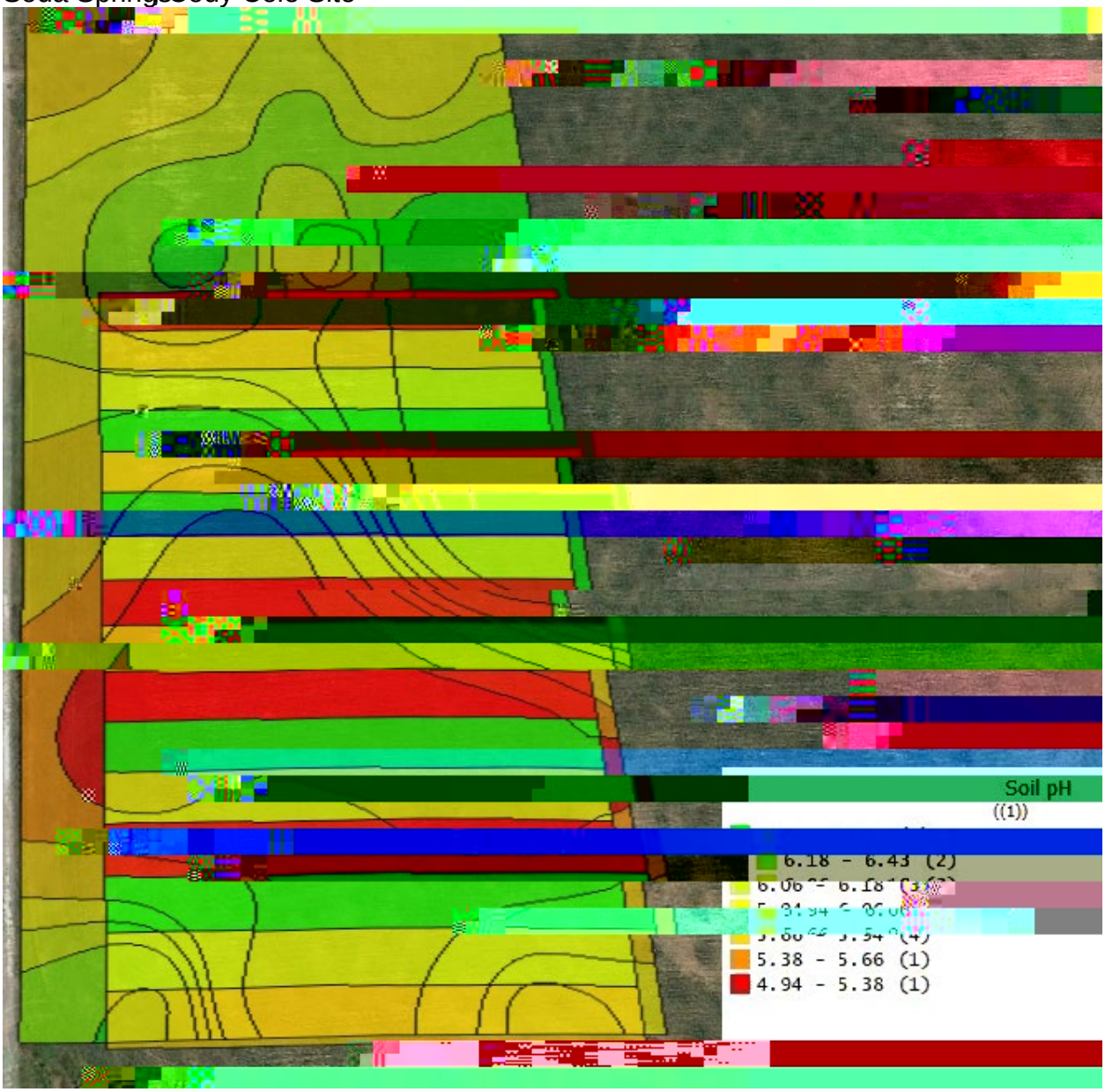
1) Conduct on-farm field trials to identify the PCC application rate required to raise soil pH to 6, determine the time required for PCC to fully react, and the duration of soil pH modification.

We successfully established 2 field sites utilizing funds from this grant and 3 field sites utilizing funds from a WSARE grant. 4 field sites were established at acidic fields north of Soda Springs and 1 field site was established in Lamont, halfway between Ashton and Driggs. We worked with Crapo Trucking to ship precipitated calcium carbonate from Amalgamated Sugar in Paul to each of the field sites. We worked with Valley Wide to use their equipment to spread the lime at 0, 2, 4, and 6 tons per acre with four replications in October 2023. To verify the lime application rate, we measured the applied lime every 100

Lamont, Idaho Harshbarger Farms Site. Plots overlain in red received no lime and plots in orange, yellow, or green received 2, 4, or 6 ton/ac respectively.

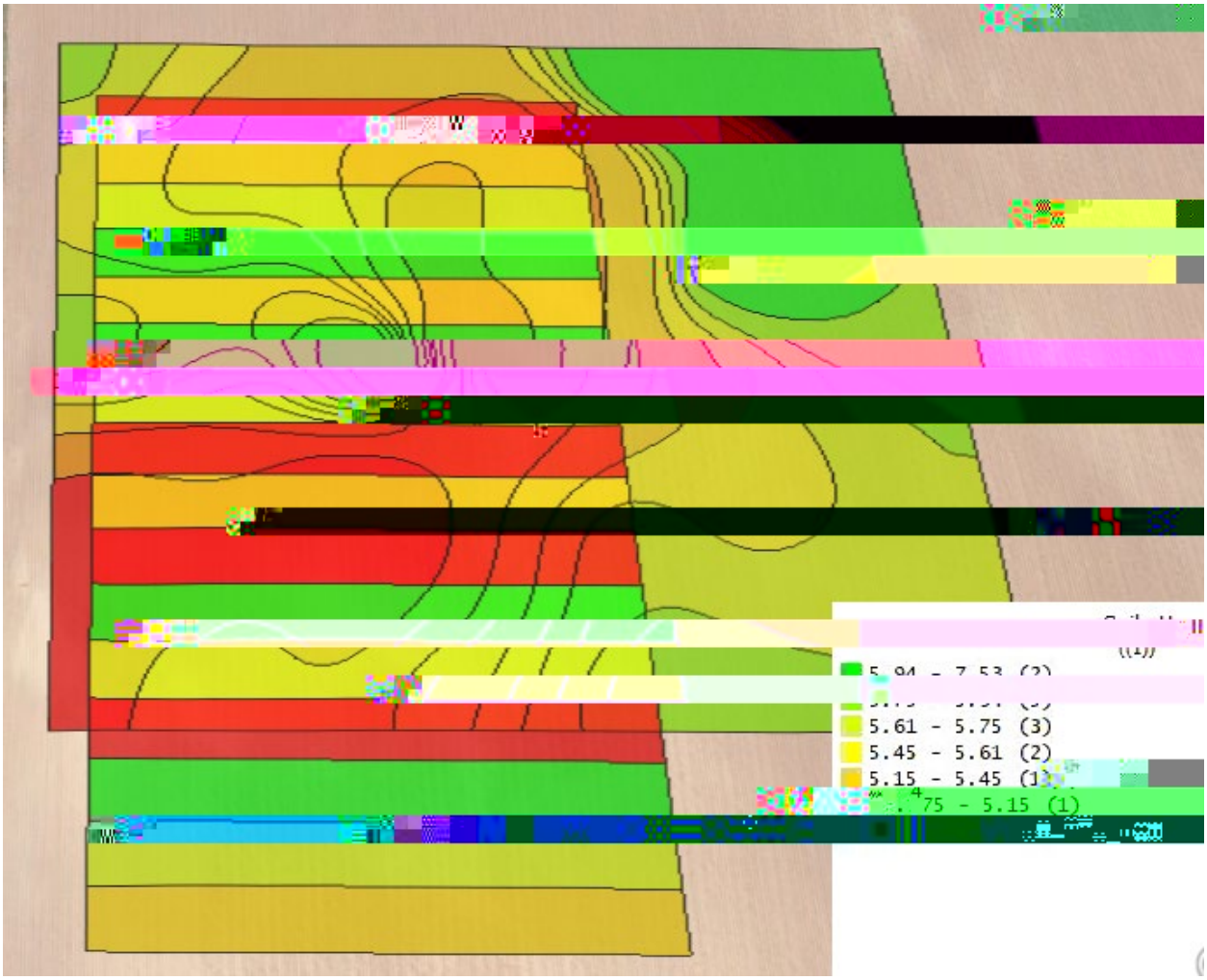


Soda SpringsCody Cole Site



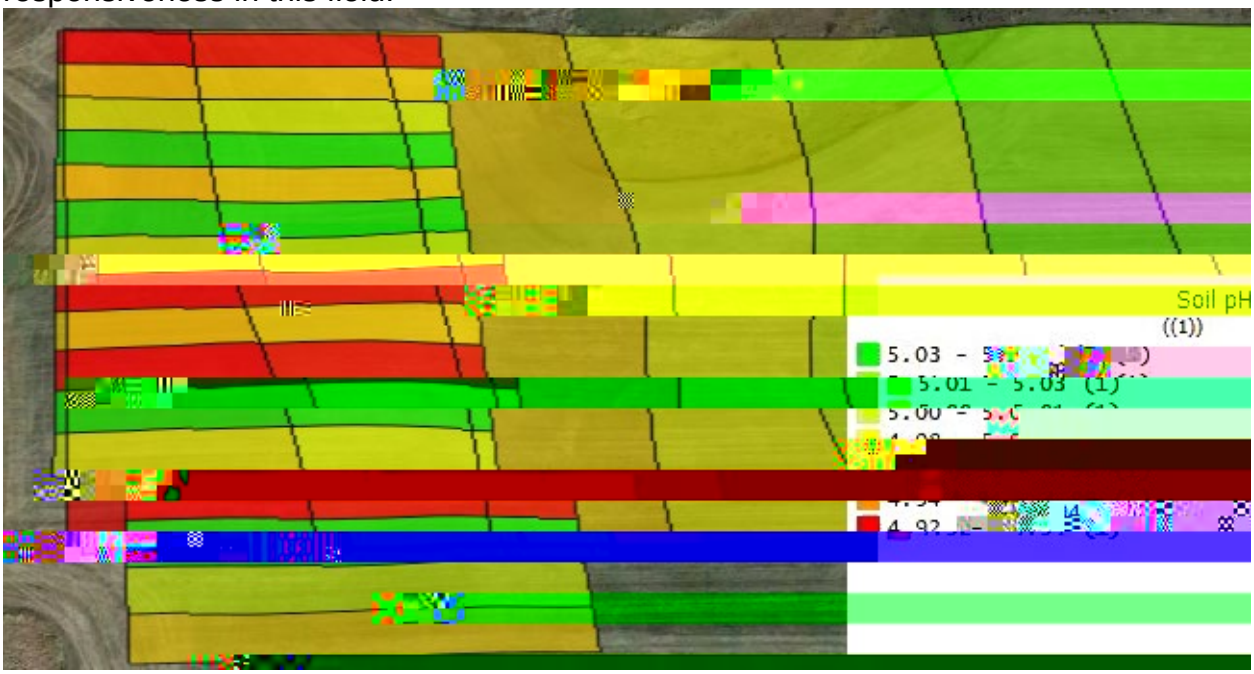
Soda Springs, Jake Ozburn

This site is particularly exciting as the soil pH is so low that there were visible areas where the 2023 barley crop would not/could not grow. This field is a prime example of one of the negative consequences of using acidifying nitrogen fertilizers (especially anhydrous ammonia) for 100 years. We anticipate seeing drastic differences in crop performance between treatments in the coming years.



Soda Springs, Kyle Wangeman Site

This site will be interesting due to the plots running up from a potentially excessively wet lowland up and over the top of a hill. Topography could have some major impacts on lime responsiveness in this field.



Soda Springs, Jeff Godfrey Site

This is the site that we might eventually apply crushed limestone to other plots.

2) Evaluate tools like the DualEM electrical conductivity sensor to map changes in soil texture across a field and to develop variable-rate lime prescriptions across the field.

We worked with Valley Wide Ag to attempt to map out the fields for electrical conductivity. However, their equipment malfunctioned several times. So, we will attempt to collect this data utilizing equipment from the College of Southern Idaho, Amalgamated Sugar, and/or the Soil and Water Systems department in Moscow, Idaho this spring. I am currently negotiating equipment rental/usage and data processing with each of the organizations to find the best deal.

Projections:

I will be discussing this research project and additional results from a liming study done on irrigated acres funded by the IWC at the February 2024 cereal school meetings in Ashton and Soda Springs. The results from these studies will be shared with the Fertilizer Research Support Tool- Liming team to build a national database of lime research.

Publications: Cite all publications (or abstracts) that have resulted from the project.

There have been no publications from this specific IWC-funded project yet. However, below are the citations from the IWC-funded project I have also attached posters describing our results given at the ASA-SSSA-CSSA and Western Nutrient Management Conferences.

1) Mookodi, K.L. 2023. Liming for Improved Nutrient Utilization and Weed Management. Aug. 2023. https://www.lib.uidaho.edu/digital/etd/items/mookodi_idaho_0089n_12704.html
2) Mookodi, K., J.A. Spackman, A. Adjesiwor. First-year evaluation of precipitated calcium carbonate as a lime amendment in Eastern Idaho. Plant

5) T. Jacobsen, J.A. Spackman, A. Adjesiwor, Mookodi, K., J. Sagers, K. Schroeder, and J. Bevan. 2023. First-Year Ev