**Mapping Cache Valley Livestock Sources**

Jeffery Huffman, Ryan Thalman, Snow College

Jaron Hansen, Brigham Young University

The geography of Cache Valley lends itself to wintertime inversions, and livestock operations contribute to poor air quality by releasing pollutants such as ammonia and volatile organic carbon compounds (VOCs) which are precursors to aerosol formation. The purpose of this project is to estimate the air quality impact of commercial livestock in Cache County, Utah. Because of how the State of Utah keeps agricultural records, little is known about the location and numbers of livestock, and this project attempts to begin to bridge the data gap. Large scale, concentrated livestock operations in Cache County were mapped using satellite imagery in ArcGIS Pro using polygons around areas of high animal concentration and recording data such as acreage, number of buildings, etc. in attempt to estimate the number and type of livestock at the operation, and thereby extrapolate the approximate emissions produced by the farm. This data will be compared to the USDA’s most recent livestock estimates.