Why Wool Pellets?

In horticultural settings, pelletized waste wool has proven to act as both a nitrogen fertilizer and water saving technology.

Some manufacturers claim that **wool pellets** can **reduce irrigation needs by up to 25%.**
Wild Valley Farms

There is a critical information gap, however, regarding the scalability of wool pellets for conventional, broad-acre production.

Sherry Haugen, of Haugen Lamb, pioneered this initiative to couple a byproduct of the sheep industry with the San Luis Valley's most precious input: water.

With pumping fees anticipated to increase from $150/acre-foot to $500/acre-foot in Subdistrict 1, irrigation efficiency is crucial for potato producers.

The objective of this study is to assess the water retentive capacity of wool pellets in conventional potato production.

Utilizing an integrated science approach, we have partnered directly with local stakeholders for the purpose of assessing product efficacy, economic feasibility, supply chain capacity, and demand.

Litterature

Bradshaw, Terence, and Hagen, Kimberly. **Wool Pellets Are a Viable Alternative to Commercial Fertilizer for Organic Vegetable Production.** *Agronomy*. 2022.

Hagen, Kimberly, and Hodgson, Suzy. **Vermont Sheep Wool: Value-Added Products from Raw Wool**. *University of Vermont, Center for Sustainable Agriculture.* 2018.

San Luis Valley
Producer Innovation

Impact of Wool Pellets on Soil Water Retention in Potato Cultivation

This study aims to explore the efficacy and feasibility of coupling the demand for agricultural water saving technologies with the surplus of raw wool in the San Luis Valley.

Project Team

Sherry Haugen Sheep Producer
Haugen Lamb
Kyle Beiriger Potato Producer
Beiriger Farms
Maya ter Kuille Miller Agronomist
Cactus Hill Ag. Consulting
Mattea Freel Fiscal Agent
Center & Rio Grande Conservation Districts
Madeline Wilson Project Manager
CSU Extension

Overview

PHASE 1: PRODUCT EFFICACY

Assessing the efficacy of scaling wool pellets for broad-acre potato production requires assessing the application methods and water holding capacity of various application rates.

Future extensions of phase 1 include assessing the efficacy of wool pellets under deficit irrigation, and as a nitrogen amendment.

PHASE 2: ECONOMIC FEASIBILITY

In order to determine the economic feasibility of scaling wool pellets for local commercial demand requires a supply chain assessment and the development of a production budget.

Phase 2 is running concurrently with this two year efficacy study.

Approach

PELLET APPLICATION

Pellets were spread at various application rates prior to planting.

MOISTURE MONITORING

We installed *Acclima* soil moisture sensors after cultivation at 10" deph to monitor the water holding capacity, temperature, electrical conductivity & porosity of the various application rates.

YEILD ANALYSIS

Packout data including yeild and weight will be measured during harvest.

LESSONS LEARNED

- Application: Static cling impacts application rate, could be mitigated with increased volume.
- Irrigation: Variability in nozzle pressure / span of the center pivot can impact applied moisture.

Trial Plots

1 205#/A	2 250#/A	3 515#/A	4 C
5 C	6 295#/A	7 1000#/A	8 45#/A

Plot Size: 1395' x 50'

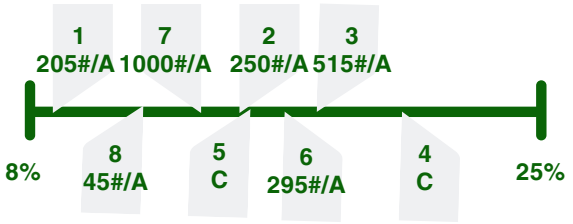
N

INITIAL RESULTS

Test plot soil moisture averages

1. 9.5%*
2. 16.7%
3. 18.4%
4. 20.4%
5. 16.7%
6. 17.5%
7. 14.6%
8. 12.7%

*Sensor malfunctioning for 1wk**



No statistically significant data proving impact of wool pellets on moisture retention. Slight variations in sensor depth, span of the sprinkler, and soil type could account for this variation. Extensions of this study should aim to further control these variables. Extensions of this study should also test pellet efficacy under 25% deficit irrigation.