Engineering

The current most common use for wool pellets is in horticultural settings. With the assistance of our engineering committee and staff at Colorado Mill Equipment and Rapid Granulator, our prototype equipment will generate a pellet that is more durable and compact than standard wool pellets, which will allow them to be applied using agricultural equipment. These pellets will be created using unwashed, commercial wool and will be 75-95% wool, depending on the amount additive for soil conditioning and pellet integrity.

Market Analysis

Wool pellets hold up to 25% of their weight in water, provide an NPK of 9-0-2, improve soil porosity, and release up to 50% of their weight in Carbon that stays in the soil. Improving soil health and water retention with wool pellets can drastically reduce input costs for the crop producer while also providing an outlet for excess wool.

2026 Study

The SOCOWPP has received funding from the Colorado Water Conservation Board, Colorado State Conservation Board, Saguache County, and Colorado Ag Water Alliance to purchase prototyped wool pellet equipment to produce pellets that have the integrity and durability to withstand agricultural application methods, without compromising in-soil benefits. This equipment is expected to be ready for production in April 2026 to supply pellets for the 2026 field trials.

This equipment will also be mobile! The Center Conservation District recently purchased a curtain trailer to house the equipment, which will be generator-powered, so we can meet the sheep and crop producers where they are: in the field!

We are looking for partners to expand the 2026 field trials! If you are interested in partnering with the Southern Colorado Wool Pellet Project, please contact the Center Conservation District today!

Possible areas of interest for field studies include crop fields, forestry, and range/pasturelands.

Southern Colorado Wool Pellet Project

An agricultural wool pellet application study

Developed by the Center Conservation District

Introduction

The Southern Colorado Wool Pellet Project (SOCOWPP) was developed as a research study to determine the efficacy of wool pellets as a means of increasing the soil moisture holding capacity and organic matter in agricultural applications while providing a unique market for local sheep growers.

Field 3 in Center, CO. Wool pellets were combined with a companion seed mix and drilled directly into rows

Purpose

The Rio Grande and Arkansas River basins are facing severe drought conditions. Combined with groundwater irrigation withdrawals and depleting aquifer levels, many producers, especially in the San Luis Valley, face permanent well retirement and increased pumping fees. To remedy this water crisis and build a new market for unwashed, "undesirable" wool for our local sheep growers, the SOCOWPP was created.

Methodology

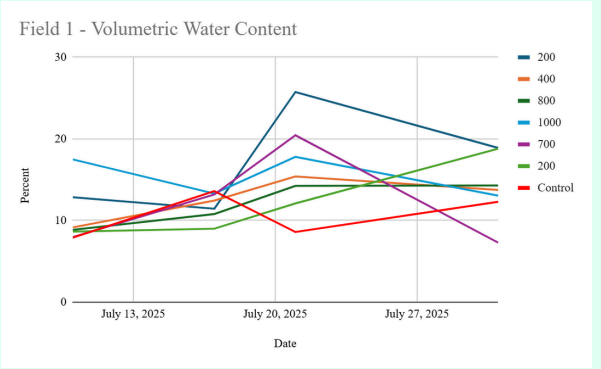
There are three components of the SOCOWPP:

Field Trials: The SOCOWPP just concluded its second year of field trials, with three fields involved in the study. Each field was monitored for soil moisture levels, different application rates were tested, and the study was performed using varying soil types and crop structures.

Business Planning: Building a market for the wool pellets in the agricultural industry is key to the project's longevity. The SOCOWPP has determined the following necessities for its business plan: the target supply chain, value proposition, market analysis, and a revenue model.

Engineering: To ensure that wool pellets are being made to a standard that can withstand agricultural equipment, the SOCOWPP's team of engineers has been developing prototype mill equipment to produce pellets with high integrity.

2025 Results

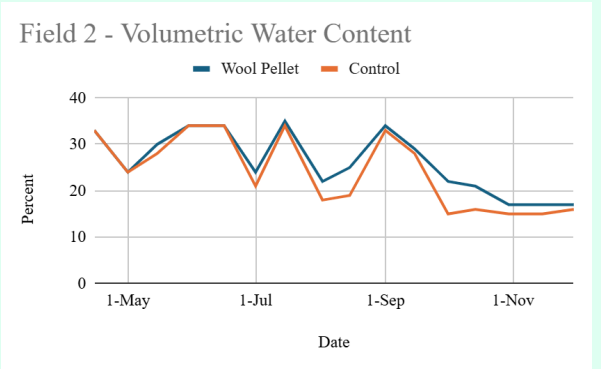


Field 1; Located: Center, CO; Potato Crop; Sandy Loam Soil

Multiple application rates studied: 1,000lb rate showed highest average volumetric water content

Collective average volumetric water content:

~34% increase with wool pellets



Field 2; Located: Rocky Ford, CO; Oat Crop; Clay Loam Soil

Application Rate: 100lbs/acre

Average volumetric water content:

~12% increase with wool pellets

2025 Total Average: ~23% increase