Why Wool Pellets for Vermont?

Wool costs sheep farmers money

For decades the market price for raw wool has been very low – below the cost to shear sheep and transport the wool. A small percentage of the ‘clip’ is fine enough for small batch value-added products, but generally, if they do not sell to the local wool pool collection, many producers simply pile it in a corner of their barn or haul it out to the woods to dump it.

Environmental & Agronomic Qualities

Wool pellets may in some ways be superior to the peanut meal that many farmers currently use. Wool’s hygroscopic quality means an ability to ameliorate the current wild swings in precipitation because it can absorb, hold and release moisture as well as nutrients, over time.

NPK Profile

Analysis of wool pellets reveals an NPK profile average of 9-0-2. Generous of nitrogen, virtually no phosphorous, and small amounts of potassium. The nitrogen slowly releases due to the physical properties of the fibrous wool pellet and slow breakdown. For many vegetable farmers in Vermont this is an ideal combination. Many are over their limit for P, and need a slow release N to avoid the risk of runoff before plants can utilize the nutrient.

Carbon sequestration

Up to fifty percent of the weight of wool is carbon. When pellets are incorporated into the soil, that carbon stays in the ground.

Methodology & 2019 Field Trials

In the 2019 growing season, three Vermont vegetable farms served as initial sites to test the pellets.

- All sites used raw wool pellets purchased from Wild Valley Farm in Utah.
- All sites trialed broccoli in side-by-side 100 ft. rows.
- One row was treated by incorporating wool pellets into the soil. A control row utilized the farm’s usual fertilizer protocol. At Golden Russet Farm, a third row had no treatments.
- Because of varied on-farm conditions, the researchers’ working assumption is that the comparison between results on the same farm is more important than the comparison of yields between different farms.

Golden Russet Farm

- Hand broadcast application
- Tilled in to 4” depth
- Spring crop
- Heavy clay soil

Yields:

- Wool pellets - 74.5 lbs./100 ft.
- Control - 68.25 lbs./100 ft.

Shelburne Farms

- Hand broadcast application
- Tilled with crown vetch cover crop to 2” depth
- Clay loam soil
- Compared with crown vetch cover crop and 5:3:2 fertilizer

Yields (identical):

- Wool pellets - 74.5 lbs./100 ft.
- Control - 74.5 lbs./100 ft.

UVM Catamount Farm (picture at right)

- Hand broadcast application
- Tilled in 2” depth
- Late fall crop
- Sandy dry soil

Yields:

- Wool pellets - 61.5 lbs./100 feet.
- Control row - 59.5 lbs./100 feet.

What’s Next?

A locally produced fertilizer that releases nitrogen slowly and has no phosphorous could be an extremely attractive and sustainable resource for both livestock farmers and produce growers.

Based on extremely promising early results, the project’s next step is to secure funding for the next two-pronged research approaches:

1. Conduct in-depth longer trials on a single farm before planning for a larger field trial with multiple growers.
2. Test of at-scale production of pelletized wool in order to determine actual cost of production and practical viability.

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