

Evaluation of Pelletized Poultry Litter to improve Specialty Crop Production in West Virginia

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INTRO:

West Virginia's poultry industry is the state's most profitable agriculture sector. The resulting poultry litter is spread on pasture; however, future applications could increase already high soil phosphorus levels. Our research seeks to find an alternative use for poultry litter that will add value and increase utilization away from the poultry growing counties.

METHODS:

1. **Pellet Evaluation** – West Virginia broiler litter was purchased and transported to Kreher Farms in New York where it was pelletized in a mill that specialized in poultry litter fertilizer production.



Hampshire County broiler litter after pelletizing.

2. **Fertility Response Trials** – a cabbage fertility response trial has been established at Mountain Harvest Farm in Morgantown, WV. Three response rates (75, 150 and 225 lbs N) and a control are currently under evaluation. Harvested cabbage plants will be evaluated for total and marketable yield and the wrapper leaves will be used to determine sap nitrate concentration.

3. **Pathogen Destruction during Pellet Production** – the microbial composition of the litter was evaluated before and after the pelletizing process. We are looking for target organisms *Salmonella* sp. and *Escherichia* coli.

4. **Statewide Survey of WV Gardeners and Farmers** – A survey will be completed to determine the level of interest for adding pelletized poultry litter to gardens, pasture or hay fertility programs.

RESULTS

Initial results from the Fall 2022 Fertility Trials will be available in Nov 2022. This trial will be repeated in Spring and Fall of 2023 at three farms in WV: Mountain Harvest Farm in Morgantown, PowderKeg Farms in High View, and West Farms in Lewisburg. The fertilizer rates will be adjusted depending on the results of the initial trial.



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Spreading the wealth.



Turning excess poultry litter into a specialty crop fertilizer



Cabbage Fertilizer Trial Setup – Fall 2022

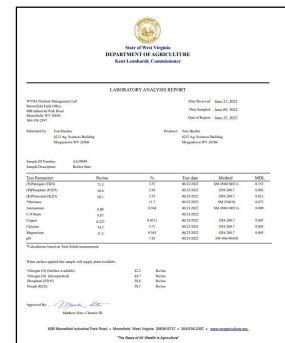
Pounds of pellets per treatment plot
 75 pounds of N per acre = 2.7 pounds, doubled because of 50% organic N mineralization = 5.4lb
 150 pounds of N per acre = 5.4 pounds, with 50% mineralization = 10.8lb
 225 pounds of N per acre = 8.1 pounds, with 50% mineralization = 16.2lb

Top of Field

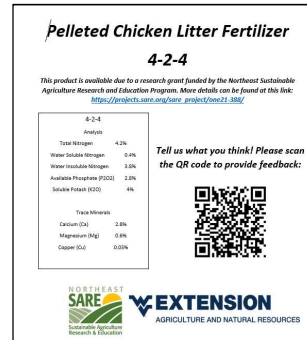
Plot #	Red Cabbage Patch	13	12	11	10
Treatment	150N	150N	225N	75N	75N
Rep		4		3	

Plot #	1	2	3	4	5	6	7	8	9
Treatment	75N	150N	225N	Check	150N	75N	Check	225N	Check
Rep		1				2			3

Pelletized Fertilizer Lab Analysis



Label for Bagged Litter



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