

National Institute of Food and Agriculture

Manure Happens! Distribution of Delmarva's Poultry Litter

CENTER FOR EXPERIMENTAL & APPLIED ECONOMICS



Figure 6: Storage

(Source: Delmarva

Poultry Industry)

of poultry litter

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Introduction

- Efficient utilization of nutrient-rich poultry litter (manure) is challenging due to issues associated with its distribution.
- The poultry industry has various moving parts, where multiple groups constantly interact with one another; the poultry growers, manure brokers, and crop growers
- The objective of this study is to understand the individuals who raise poultry, how many flocks per year, how often they clean out the litter from the houses, and where it goes afterward.
- Litter is high in Phosphorus and in historically poultry producing areas the soils is rich with P, when excessive poultry litter is applied it increases the chance of runoff which could negatively impact local water quality

Poultry Producers

- The farmers who own chicken houses; their chickens produce litter which needs to be cleaned out of the houses periodically
- They need people to move their litter when they do cleanouts even if it is not during spreading season for crop growers

Manure Brokers

- They buy, transport, and sell chicken litter
- The further away they move the manure, the less money they receive per mile; they increase prices as the distance increases

Crop Growers

- They buy chicken litter either from manure brokers or directly from poultry growers; they use the manure to spread on their fields to fertilize their soils
- When farmers are farther away from poultry production, it is more difficult to buy litter at a reasonable cost.

Relocation of manure from Delaware Legend Light Gray Canvas Reference GIS csv Events — 0-200 tens 3000-4000 tens 2000-3000 tens 800-1000 tens 200-400 tens Light Gray Canvas Base Easton Eur. Sellie Salmin, a OpenStreedillap contributors, and the GIS Liser contributors.

Figure 1: Depiction of the movement of poultry litter in the region (Source: Bass et al., 2018)

Methods

- Designing a survey for Delmarva poultry growers to learn more about the supply of litter in the region; pretesting with small groups, and getting feedback from people and organizations within the poultry industry
- Preparing documents for IRB approval
- Compiled a complete contact list of poultry growers around Delmarva

Expected Results

- We expect that approximately 20% of poultry growers will complete the survey
- From this data, we plan to analyze how much litter is removed from each house, how often, and where it goes after it is removed

Example Survey Questions

- By understanding the relationship between how often a farmer uses litter management practices and how many flocks they have per year, we can calculate the average amount of litter produced

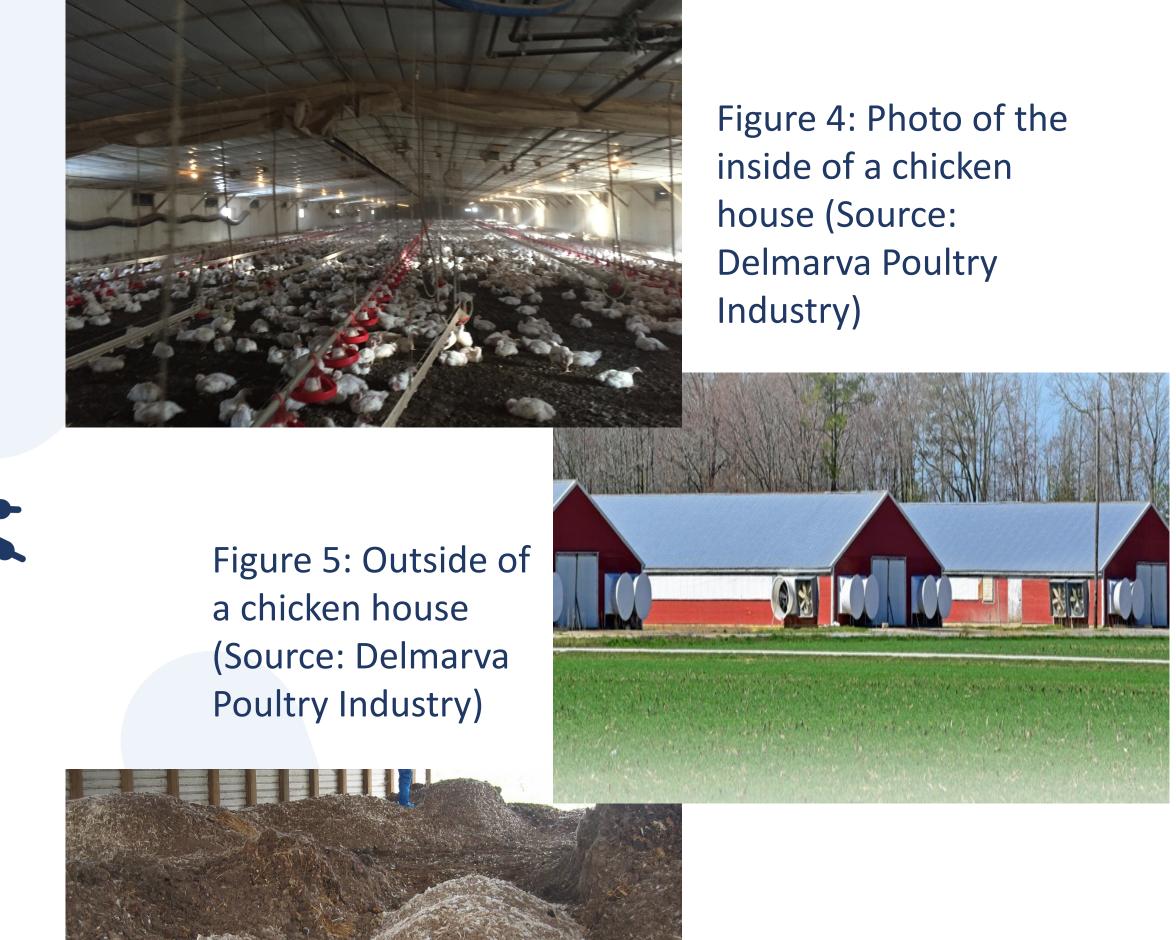
Current litter management practices frequencies

		-			
	How often do you conduct this practice?	Approximately homeometric manure is removed for this pract	per house		
Partial clean-out	\$	\$			
Windrow	\(\phi\)	\$			
Pulverize	\Delta	*			
Considering only partial clean-outs, how much poultry litter do you remove from all of your houses over an entire year, on average?					
Note: Do not include total clean outs in this calculation.					
Tons per	r year				
igure 2: Sample qu	uestion from survey	showing frequen	icies of litter		

Figure 2: Sample question from survey showing frequencies of litter management practices

Please answer the following questions about litter that is transported off of your farm by you or someone you work with (not a broker): (Total must sum to 100)			
What	% of the removed litter is transported to another location in your county?	0	
What	% of the removed litter is transported to another county within your state?	0	
What	% of the removed litter is transported to another state?	0	
What	% are you unsure about where it goes?	0	
Total		0	

Figure 3: Sample question from survey; this is an important questions as it shows where the poultry litter is being transported to



Next Steps

- A survey for crop growers is also being implemented to learn about the demand for poultry litter as a nutrient source. The survey is being distributed by the National Agricultural Statistics Service (NASS)
- Analysis of data from both surveys will begin in June 2020.
- Results of these surveys will inform the development of a market platform to connect the people who have litter to the people who want it.

References and Acknowledgements

- Bass, D.A., Palm-Forster, L.H, Shober, A.L, "Mapping the movement of poultry litter produced on the Delmarva Peninsula", DENIN Research Symposium, Newark, DE, May 2018
- Delmarva Poultry Industry, Inc., "All About Delmarva's Chicken Industry"
- Stephen Wemple and Laura Taylor for pretesting the initial survey countless times.