



FOOD LOSS & WASTE

IN THE SWINE AND POULTRY INDUSTRIES IN NORTH CAROLINA

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PROJECT GOALS & METHODS

The primary goal of our project is to identify why and where food loss occurs in the pre-consumer stages of poultry and swine production in the state of NC for the Environmental Defense Fund (EDF) in Raleigh. EDF recognizes that food waste is a significant contributor to climate change through the emission of greenhouse gasses at different stages of the supply chain, and as a top producer of poultry and swine, this challenge is pertinent to NC. Our team conducted an in-depth analysis of secondary data and literature and conducted primary research with relevant stakeholders to explore this topic.

STAGES OF THE FOOD SYSTEM

(WWF-UK, 2021)



CHALLENGES

Project Challenges:

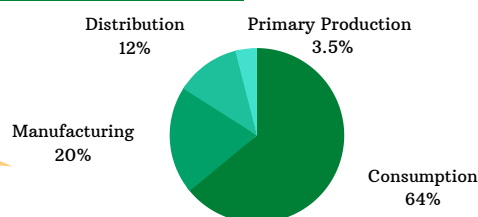
- Lack of data on specific location, quantity, and cause of food loss and waste
- Data primarily specific to consumption-level waste
- Federal and state policies overseeing and regulating these industries are lacking

Internal Challenges:

- Non-response & majority swine-representing interviewees.
- More third-party organizations than farms or processing facilities/ integrators
- Lack of specific data to support testimonies about where the most waste is actually occurring

MEAT LOSS & WASTE

The largest pre-consumer stage of meat loss & waste is manufacturing (Karwowska et al., 2021).



335,000 tons

OF FOOD IS WASTED ANNUALLY IN MANUFACTURING

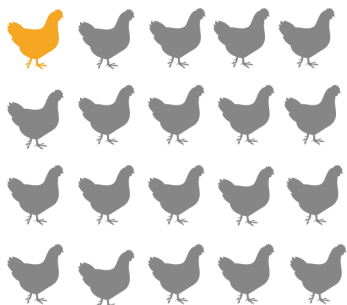
(Gibeson, 2021).

ROUGHLY 34% OF THIS WASTE IS PREVENTABLE

POULTRY FINDINGS

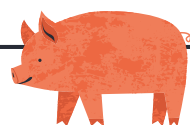


- Small processors dominate poultry industry in NC
- Poultry excluded from major federal regulations such as the 28-Hour Law, Humane Slaughter Act, and the Animal Welfare Act
- Inconsistency in reporting of waste & byproducts in top poultry producing facilities

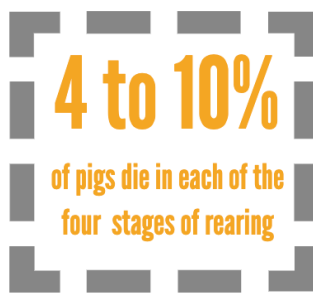


450 million
CHICKENS NATIONALLY

SWINE FINDINGS



- Swine industry is more regulated than the poultry industry.
 - Swine Health Protection Act & 28-Hour Law
- There are no available policies on preventing deaths in the swine supply chain from causes other than disease
 - Main regulations and guidelines focus on humane treatment



Respiratory problems and mothers lying on their piglets are major causes of mortality amongst swine.

INTERVIEW FINDINGS

- 1 of 8 Farms
- 2 of 6 Processing Facilities
- 8 of 39 Third-Party Contacts

Key Interview Insights:

- farms and small processors as the locations of greatest loss
- regulations could be difficult due to industry hesitancy

Mortality Disposal Options Have Changed Throughout the Years:

BURIAL	RENDERING	INCINERATION	COMPOSTING
<ul style="list-style-type: none"> • <u>lowest GHG emissions</u> • requires retiring land from the use of other purposes <ul style="list-style-type: none"> • Ex. growing crops • can cause <u>issues with groundwater health & quality</u> 	<ul style="list-style-type: none"> • <u>biosecurity concern</u> = transporting dead animals • decline in popularity • farm needs 250+ animals to be contracted with rendering company <ul style="list-style-type: none"> • small farms excluded 	<ul style="list-style-type: none"> • <u>most environmentally harmful</u> option • high GHG emissions • uses a large amount of propane • incinerators are <u>costly</u> • can produce nutrient-rich ash 	<ul style="list-style-type: none"> • <u>environmentally-sound</u> because it contains the mortalities as they decompose • results in a <u>biomaterial</u> that can be used on-site

Farms are required to cover the costs of animal disposal.

Factors that Influence Food Loss In Pre-Consumer Stages of Poultry and Swine Production:

- Loss of byproducts
- Perishability of products in retail
- Federal regulations to protect human health
- Living conditions that foster stress, disease, and cause mortality

POLICY RECOMMENDATIONS

Recommended Strategies for Reducing Food Loss

1. Reduce animal stress and implement emergency planning.
2. Develop a regulatory scheme that establishes waste treatment on farms and improves ventilation within hog barns & chicken houses.
3. Improve rendering options for small farms & processing plants through a policy that facilitates the aggregation of byproducts
4. Provide state funding for on-farm composters & mortality reduction research.
5. Include poultry in major federal regulations such as the 28-Hour Law, Humane Slaughter Act, and the Animal Welfare Act



Potential Limitations & Considerations

- Sources of funding
- Political feasibility
- Resistance within national & international markets