

In January FEMA approved \$12.6 million to reimburse the state for the innovative poultry disposal methods used below. The N.C. Department of Agriculture and Consumer Services first used this method for bird disposal for Hurricane Matthew in 2016. For Hurricane Florence, NCDA&CS and its team of subject matter experts used the composting method on 4.2 million birds and poultry litter. This method met the core tenants of FEMA's disaster response which are protecting public health and protecting the environment.

The following article was written by Joe Hudyncia, environmental programs specialist with the N.C. Department of Agriculture and Consumer Services and Bobby Clark, senior extension agent with Virginia Cooperative Extension. Joe served as a poultry mortality disposal and composting co-lead during the Hurricane Florence disaster response. Bobby is one of the compost subject matter experts who assisted with the response.

Hurricane Florence caused devastating losses across a large portion of eastern North Carolina. The damage caused to homes, farms, businesses, churches, schools and infrastructure has impacted all aspects of many communities. The poultry industry was no exception. Fifty poultry farms experienced damage from the storm to the extent that farmers requested and received assistance with recovery from the N.C. Department of Agriculture & Consumer Services disaster recovery program. Most of these farms had flooded poultry houses. After the flood waters receded farmers were left with poultry litter that was too wet to handle using traditional equipment.

In many cases, these flooded houses also included drowned livestock. To respond to this catastrophic disaster, the department teamed up with the Federal Emergency Management Agency to assist with the clean-up of the wet litter and livestock mortality.

“Our primary goals included protecting the environment and protecting public health,” said Joe Reardon, assistant commissioner for consumer protection. “Our other goal was to get farmers back in operation as soon as possible.

“Our livestock farmers spent the week leading up to the storm moving animals from areas that would likely be impacted by the hurricane,” Reardon said. “Of the 255 million poultry in the state, only 4.2 million birds were lost.”

With the exception of a few farms; the vast majority of the poultry litter and dead birds are being composted. The entire on-farm process is overseen by experts with extensive experience in animal mortality composting.

The process starts with individual farm assessments by an expert and discussions with the farmer. Woody “carbon” materials (woodchips, shavings, or similar material) are delivered to individual farms in specified amounts needed for composting. This carbon serves to absorb the excess water and provide structure to maintain air flow for the composting process. Experienced teams with skid loaders and other equipment are deployed to the farms to utilize the carbon materials for drying and building compost windrows inside and outside the houses.

Compost windrows are constructed using a protocol created by years of research and experience from across the United States. A base of coarse carbon is placed on the ground about 12-to-18-inches deep. Next, the mixture of litter, dead poultry and fine carbon is placed on top. Finally, the entire windrow is covered with another blanket of carbon. Long rows of these compost “windrows” (piles that are 10 to 14 feet wide; 6 to 8 feet tall and triangular in shape) can be seen dotting the landscape in eastern North Carolina.

Windrow temperatures are monitored to ensure that composting proceeds as intended. The interior of these windrows will reach temperatures between 110 and 160 degrees within days. Once the active composting phase is complete, the material can then be sampled and analyzed by the NCDA&CS Agronomic Services Division to determine the concentration of crop nutrients contained in the final product. When handled through this process the material is considered compost, and not litter.

Composting is a natural biological process. The microbial action and subsequent heat generated during composting inactivates pathogens and results in an end product that is safe to apply to farmland. If stockpiled over the winter, the compost will continue to break down the carbon added for the drying process and will produce a material that will contain macro and micro nutrients for crops planted in the spring. The compost will also have a significant amount of organic matter that will benefit soil structure and soil health, especially in the sandy coastal plain soils of eastern North Carolina. Early sample results from the Agronomic Services lab indicate 5 pounds of plant-available nitrogen, 13.5 pounds of phosphorus and 8.3 pounds of potassium per ton of compost. The carbon-to-nitrogen ratio is 23 to 1.

Farmers will be responsible for land applying the material correctly and in accordance with applicable regulations. Stockpiling the composted material for land application ahead of spring planting is acceptable. Farmers are encouraged to consult with their local Regional Agronomist, Cooperative Extension Agent, Soil and Water Conservation District staff or other certified professionals for assistance with nutrient management planning.