

Practice: 591 - Amend. for Treat. of Ag. Waste

Scenario: #2 - Litter Amendments for Water Quality With Partially Treated Brood Chamber

Scenario Description:

This practice scenario includes the application of a litter treatment amendment that is approved by NRCS to the entire poultry house to reduce ammonia emissions and water-soluble phosphorous in the poultry litter. An entire poultry house is treated year round for air and water quality impacts. In the winter, the producer or integrator treats the brood chamber between flocks with litter amendments solely for bird health and production. The amount being applied by the producer or integrator in winter months does not meet the air and water quality resource concerns. Additional litter amendments are added in winter for Air Quality benefits not being applied by the integrator. Litter amendments are applied spring through fall for entire flocks. NRCS is not responsible for the litter amendments already being applied by the integrator for the purposes of production and bird health. The purpose of the practice is to address resource concerns related to water quality degradation due to excess nutrients and pathogens and air quality impacts due to particulate matter and associated precursors, and objectionable odors.
 Associated practices: Nutrient Management (590).

Before Situation:

No litter amendments are being applied during the spring through fall months. An amendment is being applied at a lower application rate during the winter months, typically half the house and only two flocks. Partial winter application is solely for production purposes and the lower application rate is not enough to address resource concerns from existing nutrient levels which may contribute to water quality degradation from nutrient runoff and leaching from fields fertilized with poultry litter and cause adverse air quality impacts such as objectionable odors and ammonia emissions. The operation raises 4 flocks per year and the integrator partially treats 2 flocks in the winter months. Approximately 18.7% of the needed litter amendments are being applied and only during the winter months.

After Situation:

An NRCS approved amendment is applied between each flock. All flocks are optimally treated with litter amendments year-round. A typical broiler operation with 4 flocks in a 42' x 500' house (21,000 square feet) is treated to reduce the impacts on air and water quality. Typically 100 pounds of litter amendments per 1000 square feet are applied 4 times annually. The total amendment applied is adjusted by 81.3% to account for the portion of the brood chamber that is receiving partial application during the winter months. The amendment is proven to reduce ammonia emissions and soluble phosphorus in the litter. The selected amendment is applied in conformance with the manufacturer's recommendations and the rates required. The resulting litter contains higher levels of nutrients and nutrient management plans must account for this. Nutrient level testing of the litter and nutrient planning shall be in conformance with CPS Nutrient Management, Code 590. The amendment successfully addresses water quality degradation from nutrients in surface and ground water and air quality impacts due to objectionable odors, ammonia emissions, PM and PM precursors and bird health resource concerns.
 Formula to calculate the number of 1000 SF units:
 (Square Feet of house) / 1000 SF X (Number of houses) X (Number of applications/year) = Number of 1000SF/year.
 21,000 SF / 1000 SF X 1 house X 4 app/yr = 84 units of 1000SF

Scenario Feature Measure: Number of 1000SF applications per year

Scenario Unit: 1,000 Square Foot

Scenario Typical Size: 84

Scenario Cost: \$2,152.57

Scenario Cost/Unit: \$25.63

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Application of ag waste amendment for poultry litter	2020	Litter amendment application performed in house. Includes equipment, power unit and labor costs.	Ton	\$54.67	3.4	\$185.88
Materials						
Ag Waste Amendment, aluminum sulfate, alum	1684	Aluminum sulfate, alum, poultry Litter amendment. NRCS approved for air and water quality concerns to reduce ammonia emissions and soluble phosphorus in the litter. Materials only.	Ton	\$578.44	3.4	\$1,966.70