

Project No: 315735

Dust and Bioaerosol Management Plan

Prepared for:

Shoby Poultry Partnership

Lodge Farm
Old Dalby
Melton Mowbray
Leicestershire
LE14 3NB

Contents Amendment Record

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Section 1.0: Introduction

1.1 Guidance

The Dust and Bioaerosol Management Plan has been undertaken following the guidance in SGN EPR6.09 '*How to Comply with your environmental permit for intensive farming – Appendix 11 – Assessing dust control measures on intensive poultry installations*', dated March 2011.

A dust and bioaerosol management plan are required where there are sensitive receptors within 100m of the Site.

1.2 PM₁₀ objectives

The likelihood of a poultry farm exceeding the PM₁₀ AQS objective is influenced by a number of factors:

- The proximity of the closest sensitive receptor to the poultry sheds, as the objective is only likely to apply in locations where members of the public are regularly present. Although particulate concentrations fall off rapidly with distance from the emitting source, if the sheds are located very close to a residential property, concentrations may be higher.
- The orientation of the sensitive receptor to the poultry sheds with respect to the prevailing wind direction. If the sensitive receptor is downwind of the poultry sheds then it is likely to experience a greater frequency of higher particulate concentrations than if the sensitive receptor was the same distance away but upwind of them.
- Background concentrations of PM₁₀ in the local area. Poultry sheds located in rural areas where background levels tend to be relatively low (seasonally) are less likely to exceed the AQS objective than poultry sheds located near urban areas and busy roads and motorways where levels of PM₁₀ are already quite high, year-round.

1.3 Source of dust

Dust from poultry houses mainly originate from feathers, skin particles and used litter, and to a lesser extent from feed, bedding, micro-organisms and fungi.

1.4 Dust abatement techniques

The control of dust can be divided into two categories:

- control at source
- control at exhaust.

1.4.1 Control at source

Many of the dust 'control at source' methods, i.e. those used inside a poultry building, are limited in the amount of dust they can remove. Most farmers already ensure that good quality feed pellets are fed to birds using modern feeders that do not break up the feed and are not over-filled. They also properly clean houses and equipment on a regular basis. Dust extracted bedding material is commonly used because it is better for the birds, more bio-secure and affordable.

1.4.2 Control at exhaust

Dust particles that have not been trapped or eliminated at source may become airborne within the building and ultimately exhausted to atmosphere by the ventilation system. Since in many poultry houses air is exhausted via the fans, there is an opportunity to either vent exhaust air at high velocity or trap dust as this air leaves from these exhaust locations by using 'end of pipe systems'. These typically consist of either passive air-cleaners or active systems, such as wet cleaning or air scrubbers. Exhaust cleaning systems have been proven to be an effective way of reducing not only dust, but also ammonia emissions from livestock housing, both in trials and in the commercial industry. However, they require a significant capital outlay on systems with high air change rates and may have high running costs.

Section 2.0: The Site

2.1 Sensitive Receptors

The following receptors are present within 100m of the Site boundary, as shown in Table 2.1 and Appendix A.

Table 2.1 Sensitive receptors within 100m of the Site

Receptor	Location	Distance from boundary	Grid Reference		Direction from the Site
			x	y	
SR1 Dwelling (farmers)	799 Fosse Way, Thrussington, Leicestershire	Adjacent to Site boundary	463765	318641	NE

The receptor is located adjacent to the Site, the nearest poultry house is located approximately 18m away.

2.2 Wind direction

The predominant average hourly wind direction in Melton Mowbray is from the west throughout the year¹. The receptor is located upwind of the poultry houses, therefore, likely to experience a lower frequency of higher particular concentrations.

2.3 Local area

The Site is located in a rural area, therefore and the background concentrations of PM₁₀ would be expected to be relatively low in wet/winter conditions but may be elevated in dry and harvest seasons. The A46 runs parallel to the Site, so there may be areas of slightly elevated concentrations of PM₁₀.

2.4 Control of dust

The preference for dust control at the Site is at source rather than at exhaust.

¹ [Melton Mowbray Climate, Weather By Month, Average Temperature \(United Kingdom\) - Weather Spark](#)

Section 3.0: Source Control Methods

Table 3.1 shows the source control methods for particulate reduction at the Site.

Table 3.1 Source control methods

Source of dust	Method	Reduction Measures	Comments
Poultry feed	Dust from silos	Silo feed pips covered.	
	Dust extraction in feed mill areas	No milling onsite.	
	Storage of feed	Feed stored in contained silos.	
	Feed spill control	Feed spill is collected to avoid dust being generated.	Good housekeeping is maintained onsite, and the Site is operated in accordance with its EMS.
	Fat content	Fat content in feed match to nutritional requirements.	
	Spraying oil or water mist into feed	Water fogging and oil spraying is considered inappropriate due to day-old chicks and wet litter leading to animal welfare issues and the requirements to maintain dry litter to reduce ammonia emissions.	
	Feed ingredients	Pelleted feed will be used as it is considered to withstand handling without excessive breakage, and not creating significant dust.	
	Feeding Methods	Automatic feeders with screw augers are provided which are covered to prevent loss of feed and drop into feed pans to reduce release of dust.	Hand feeding impractical with large numbers of birds.
	Over administration of feed to birds	Feed is metered carefully dependent on bird numbers to prevent overfeeding. This avoids spilled feed crushed on the floor into particles which become airborne.	
Bedding material	Type of bedding	Floors will be covered bulk wood shavings, considered to produce less dust than wheat, barely or rye straw	
	Treatment of bedding	Wood shavings used to reduce dust levels.	
	Amount of bedding	Deep bedding is not suitable for broilers.	

Source of dust	Method	Reduction Measures	Comments
	Application of bedding	Bedding applied indoors, reducing chance of dust emissions to air.	
	Age of bedding	Poultry houses cleaned out at the end of each flock and collected via purpose built, low sided trailers with dust sheets.	
Litter system	Floor applied litter	A Litter system is used on the grounds of animal welfare and size of the operation. All litter is contained indoors with sealable emission points.	No practical alternative for the broiler system.
Relative humidity	Increasing humidity	Flocks sensitive to increased humidity which may also lead to increase in ammonia production and odour generation. Relative humidity maintained between 55-60%.	Ideal humidity level to be constant
Ventilation	Increasing ventilation	Ventilation levels are carefully controlled to ensure optimum flock health.	Increased ventilation may be required during hot periods.
House cleaning	Good management	Sheds are cleaned between flocks.	Litter is collected via purpose built, low sided trailers with dust sheets.
	Dust removal by vacuum cleaner	Not suitable for broilers.	Only applicable for layers in cage systems.
Genotype	Animal activity	Commercially available chicks are chosen for a range of factors.	
	Feather crunchiness	Commercially available chicks are chosen for a range of factors.	
Number of birds	Reduced flock numbers	Flock density is chosen due to meet animal welfare requirements and flock profitability.	
Crop cycle length	Lower final body weight	Birds will be housed at day old and de-population at around 33 days for Pullets and 46 days for Cockerels.	Market demands set crop cycle length.

Appendix A: Sensitive Receptors within 100m



- Legend:
- Permit boundary
 - Sensitive receptors
 - 100m buffer

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Client:
Shoby Poultry Partnership

Site:
 Fosseway 775, Thrusington

Drawing title:
 Sensitive Receptor Plan 100m

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