Starling control on dairy farms

Introduction

Starlings are a significant problem on some dairy farms; the following summary has been compiled to consider what practical changes can be made on-farm which may help prevent and/or control feed losses due to Starling infestation. This information draws from DairyCo-funded trials on the Somerset levels in 2012 and 2013.

Key points:
- Starlings consume around half their body weight in food each day
- The daily cost of a Starling infestation from feed and milk yield loss averaged £106 per 100 cows in 2012/13 – plus any losses from the spread of bacterial infections
- Legally, only 50 Starlings a year can be culled on-farm
- Simple changes in daily routine can reduce the impact of infestations; otherwise, netting or various scaring tactics have proved successful when implemented early in the season.

Why do Starling numbers peak seasonally?

Migratory Starlings account for the huge increase in the Starling population which occurs when birds from northern Europe arrive to spend the winter in the UK. The extent of annual migration can depend on the severity of winter conditions in central and northern Europe. Starlings normally start arriving in September and continue into November, before the winter weather sets in. They then leave the UK in March and April to return to their breeding sites.

What numbers of Starlings can arrive on-farm?

Migrating Starlings will flock together in large numbers with some of our resident ones to form huge and spectacular roosting flocks.

The number of Starlings visiting each farm daily averages around 10,000. However, this can vary considerably from 100 to 50,000 birds depending on the location of the site, attractiveness of feed sources, mitigation methods in place, infestations on neighbouring farms and accessible perching sites.

As an example, Somerset Level roosts in 2013 were concentrated on the Ham Wall nature reserve. Maximum numbers for 2012/13 were recorded in late December and January. While lower than the previous year, they still peaked at 1,500,000 in February 2012.
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What attracts Starlings to a dairy farm?

Exposed feed (TMR with grain, and particularly maize), water sources and open feed stores are all features that attract Starlings while they are searching for feed sites during the early part of the migration period (October/November). Accessible perching sites such as trees for roosting will also add to the attractiveness of the site. Once feed sites are established, Starlings will develop responsive behaviour of frequent and regular visits to the same farm. Starlings have also been known to return to the same farm year after year, this was particularly evident when an albino Starling returned to the same farm in consecutive years.

How much do Starlings eat?

Each Starling can consume approximately 30-50g per day (approximately half its body weight). When invertebrates and other natural feedstuffs are not readily available, they turn their attention to farm-based sources of feed. Starlings are ‘selective’ feeders, which means they sort rations, selecting out the parts they want to eat and in doing so, changing the overall nutrient balance of the intended diet.

How much do Starlings cost dairy farmers?

Increased costs arise from feed loss and associated reduced milk production, as well as the hidden costs of poor fertility arising from poorer nutrition. DairyCo-funded studies carried out in Somerset put daily average cost of infestations due to feed and milk yield loss at £96 per 100 cows in 2011/12, increasing to £106 in 2012/13.

Can Starlings be detrimental to the health of my herd?

European Starlings are known to carry several microbial pathogens capable of transmitting diseases to humans and livestock, in particular Escherichia coli, Salmonella spp, Mycobacterium avium subsp Paratuberculosis (Johne’s disease) and Campylobacter. All these can lead to further, hidden financial losses.

It has been suggested that Starlings are also a source of Salmonella enterica contamination. Starling faecal contamination may pose a hazard both to livestock and farm staff, and can also contaminate drinking water supplies. If recycled roof water is directed to livestock drinking water without treatment, cattle may be vulnerable to pathogenic diseases from the elevated bacterial counts and faecal coliform contamination.

The Environment Agency has reported high rates of ammonia, usually accompanied by high levels of potassium and the presence of faecal coliforms, in watercourses. Analysis of watercourses on one farm with a heavy winter Starling infestation has shown very high levels of ammonia; the source was traced to faecal contamination beneath Starling perching sites.
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What can I do to reduce Starling numbers on my farm?

A reduction in Starling numbers is possible on all farms through selection of the right control methods. However, this does not mean that total eradication is necessarily achievable, and indeed, this is unlikely in certain areas of the UK with methods that are currently available. Starlings are also protected by law and culling is limited to 50 a year – and even then only under licence. Once winter feeding preferences have been made by the birds, it is very difficult to implement successful control measures.

Not all control strategies are appropriate for all farms and although changes in feed management, for example, avoiding feeding maize, has a dramatic effect on Starling numbers, this might not be economically viable for many producers. This needs to be discussed with a good nutritionist to ensure that cow performance and health is not compromised; alternative feeds need to be considered carefully.

Changing the time of feeding may be an alternative approach to consider. By altering the feeding time from morning to afternoon (after the Starlings have left the farm), cows would be presented with a fresh uncontaminated ration, with the intended nutrient balance, for 16 hours before the Starlings start their feeding period again. Although some change to daily routine is required, this makes the farm less attractive as an early morning feed source.

Results from the DairyCo-funded study on altering feeding times showed:

- Bird numbers were lower as a result of a change in feeding time, giving rise to reductions in feed losses of between 14% and 22% (falling from 8% loss to 6.88%, and 8.05% to 6.27% in each of the two trials) – simply by switching from morning to afternoon feeding.
- Starting this feeding regime early in the autumn before Starlings arrive could reduce the attractiveness of the farm to Starlings when they are establishing good feeding sites for the winter, and result in an even greater impact from switching feeding times.
- A potential increase in milk yield could result from reducing feed losses.
- There is potential to reduce the overall cost of a Starling infestation – even if the on-farm Starling numbers remain the same.
- Cows rapidly adapt to any change of routine; furthermore, when feeding times were switched from morning to late afternoon, a noticeable increase in lying and cudding time was observed during the day.
- This is a particularly worthwhile option if it is easy to adapt labour routines.

Most effective control methods:

- Exclusion: using <28mm hole netting, mesh, fitted roller blinds and doors, ventilated wall cladding
- Disturbance from farm labour, shooting to scare etc, particularly early in the morning and random gas guns or rockets
- Fly a bird of prey (Harris Hawk or Sparrowhawk)

Most effective control approaches:

- Implement preventative measures completely and persistently before and during the migration period (October/November)
- Use of several methods of mitigation simultaneously or sequentially.
A range of products are commercially available, are these effective?

There are a multitude of products on the market claiming to provide a solution; however, not all are appropriate for every farm. They include: bio-acoustics, species-specific distress calls, gas guns, pyrotechnics, scarecrows, kites and other visual displays and devices, birds of prey, shooting to scare, and exclusion and proofing methods (netting).

DairyCo’s most recent study trialled feed additive BLAST® repellent (currently the only feed-flavouring additive on the market in the UK) on three farms suffering from moderate to high levels of Starling numbers over a 10-day trial period. Cost of treatment was £6 per tonne and under the trial conditions, no change in Starling numbers was recorded.

How much will it cost me to put control methods in place?

**Netting buildings:**
Starling exclusion using netting is possible with a hole size of <28mm. You can cost this option by calculating the quantity of netting required by measuring all gaps and openings. Suitable netting is available at £1.07 per square metre.

**Shooting to scare:**
To employ someone during the winter specifically for Starling control is likely to cost around £7 per hour, with cartridges at an additional cost. A number of patrol visits to the farm each week will be required. An application under licence WML-A08 is required for lethal shooting, with a limit of 50 Starlings a year.

**Auditory scaring devices:**
Bio-acoustic distress devices are available at various costs depending on make and model, an average cost is £585. Frequent changes of sequence, location and species cards are essential.

Auditory control techniques are considered to be relatively effective, but are usually only of short-term benefit. Visual techniques vary from extremely effective (human disturbance) to ineffective (static scarecrows).

There is no evidence that ultrasonic devices deter birds – most species of birds do not hear ultrasonic range (>20KHz).

**Deployment of bird-scaring rockets:**
The number of rockets used will depend on how they are being used – alongside other mitigation methods as part of a concentrated programme, or at specific time periods, for example the beginning of the day (around 08:00) to prevent Starlings descending on the farm. You should expect to pay approximately £15 for a box of 10 rockets.
Flying a Hawk: 
At present, there are no laws preventing anyone owning a bird of prey, as long as it is captive-bred. Some birds are registered, and most have an identifying mark (usually a ring); an Article 10 document is necessary if bought, sold or otherwise used commercially. The UK has 50% of the world’s falconers and 80-90% of the birds kept are Harris Hawks. 

Some falconers offer a hawk-flying service if the thought of owning a hawk does not appeal. The strategy is to fly the hawk to disrupt the formation of the Starling flock, before they enter cattle buildings. A hawk can be seen by Starlings at 50 metres, prompting them to fly away. Depending on the farm situation, flying should be carried out for about two hours a day, every day for a week early in the migratory season.

Charges for the service are approximately £20 per hour and 50p per mile for travel costs; it may be possible to negotiate the travelling expenses if several farms in the area can be visited at the same time. A single farm location with a hawk flying for a week (seven days) will cost approximately £520.

To purchase a bird of prey is likely to cost you around £300, however additional associated costs such as equipment, aviaries, personal clothing, feed and insurance are likely to amount to ten times that.

A copy of the full report on the DairyCo-funded trials can be accessed through the website at [www.dairycoboard.org.uk](http://www.dairycoboard.org.uk).