

East Devon District Council – Environmental Health

Free Range Egg Production

Best Practice Note for the Avoidance of Fly Infestations

Large scale free range egg production has now been carried out for over 20 years and production methods have been established to suit the system required. It is usual for manure within the sheds to build up over the whole of the cycle – in the region of 13 months. If the manure can be kept dry, this system can be used successfully, with no negative impact on the health of birds, the quality of eggs produced or local communities. However, many producers suffer from significant infestations of common and lesser house flies most summers. There are many reasons for this happening and this note has been prepared for managers to establish systems of work which prevent these infestations. We have found that farms which have implemented these methods also have better working conditions, and have little need for pesticides which has both ecological and economic benefits. Conversely farms which are relying on regular treatment with pesticides are struggling to keep flies under control, and may have contributed to the insecticide resistance currently being seen in this area. This approach has now made fly control all the more difficult for everyone.

1. Staff and Management.

- One of the things that we have been most concerned about is that some managers and staff appear to consider the presence of large numbers of flies to be unavoidable. If low levels of flies are ignored, these flies will breed and there will already be an infestation sufficient to cause a nuisance before any effective remedial action is taken. The consequences of this are that it will take much longer to control the infestation, a range of pesticides and control measures will need to be used and there may be impacts on the quality of the eggs. If there are neighbours nearby (within 1km in our experience) it is likely that a proportion of flies will leave the sheds and cause nuisance in their homes.
- Managers should establish **written procedures** for the management of the sheds and for reacting to early evidence of flies. They must ensure that all staff are **trained** in and expected to follow these procedures. This would have the added benefit of encouraging all staff to use the same procedures, and will underline the fact that this is considered to be an important part of their job.
- Procedures should include auditing water sources, checking the condition of the manure, monitoring numbers of flies, and the use of pesticides. Managers also have specific important responsibilities under the Health and Safety at Work Act to ensure the Health, Safety and Welfare of their staff (which also covers working conditions) and in relation to the safe application of pesticides.

2. Control of Water.

- **This is the most important aspect for the avoidance of fly nuisance.**
- **It is essential to keep manure dry** – as a rule of thumb the manure should have a crumbly texture when handled. We recommend that an **audit of water sources** is carried out to ensure that all water is properly contained and drained so that it cannot get into the pits. This is even more important where the pits are not easily accessible during the cycle, as in these systems the manure cannot easily be checked and wet manure is difficult to remove.
- The audit should include :
 - a) **Groundwater** – entering the pits through porous walls or joints or via mud floors. Ideally the walls and floors of the pits should be impervious to the ingress of ground water.
 - b) **Surface Water** – entering the sheds or pits as run-off from the surrounding land. If this is likely to occur drainage should be installed to protect the buildings and discharge collected water away from the vicinity of the buildings.
 - c) **Rainwater** – All sheds should be provided with guttering and downpipes which effectively collect roof water and discharge it away from the vicinity of the buildings, or into sound piped drainage systems.
 - d) **Water Supplies** – The water supply pipes and fittings should be in good condition and checked daily for leaks – preferably visually but also by recording water usage. A written record should be kept so that changes can be easily seen.
 - e) **Drinkers** – It is important that drinkers are fitted and maintained in such a way that water does not leak or spill from them.
 - f) **Other sources** – We have found waste water pipes from sinks and other equipment discharging into pits, and in other houses it has been the usual procedure for drinkers to be emptied into them during cleaning. If only 4 buckets of water are used to clean a shed full of bell drinkers on weekdays, this would equate to 400 gallons being poured in over 10 weeks! Almost all of the water poured into the manure will remain there until the shed is cleared. The percentage of water only needs to increase a small amount for the manure to become attractive to flies as a breeding ground. An audit should identify all potential sources, and preventative measures put in place.
 - g) **Feed** - It appears that some feeds will cause wetter faeces. If this persists this could be sufficient to increase moisture levels in the manure. If this is the case you should introduce alternative feeds which do not cause the problem.

3. Manure Removal.

- If manure does get wet from whatever source, arrangements should be put in place to **remove it** - ideally within 7 days. This will be possible in all pits accessible by vehicles from underneath, but might be quite difficult elsewhere. Floors may need to be adapted to enable smaller areas of wet manure to be removed but if there is a more serious leak, removing the manure may not be feasible whilst the flock is still in.
- If Lesser House Fly numbers were high in the late summer, it is likely that the manure will contain large numbers of fly pupae that will hatch and cause problems the following Spring. To prevent this, removal of the manure from the sheds before the end of the winter should be carried out if possible.
- Any manure removed from sheds should ideally be immediately spread on arable land and ploughed in – certainly if it is infested with larvae and flies. If manure has to be stockpiled before spreading, the piles should be completely sheeted to prevent fly emergence.

4. Monitoring.

- Monitoring of adult fly numbers on sticky papers is not an absolute method; it is an indicative method and helps to identify trends. Indicator papers should be put up in the egg packing room, poultry house and/or pits. Numbers of flies on the papers should be counted each week and recorded.
- **Manure** should be examined weekly from March to October for the presence of wet patches, **larvae and pupae**. Common Housefly larvae are smooth, cylindrical, white-ish and quite active, while Lesser Housefly larvae are brown, spiky, relatively inactive and difficult to spot. Several samples should be removed from various locations with a trowel and examined in the light for larvae and pupae.
- As an illustration, throughout the winter and early spring **fly numbers** on the papers may, for example, be between 0 and 10 per week. This establishes a baseline, so if the numbers start to increase, perhaps beyond 20, this suggests that the situation is deteriorating. Staff may also then notice more adult flies around. It is at this stage that the cause of the problem must be investigated. Manure removal, adult fly control and treatment of the manure may be needed. Reacting at an early stage should ensure that the problem is dealt with before it becomes serious.
- If **Adulticide treatment** is used it should be carried out and repeated as per the instructions with the product until the fly numbers drop. As far as the manure is concerned, if **larvicides** are applied they will take effect within a few days and you should re-examine the manure to ensure that the larvae have actually been killed. Unfortunately you cannot just assume that the treatment has worked. The larvicide must be applied as a spray (see attached guidance on application of larvicides), although granules can be used on wet patches. Written records should be kept of control measures and treatment used, including application rates, (for example on the poultry record sheets). The active ingredients of pesticides used should be alternated to slow resistance build up and to maintain effectiveness.
- Fly problems are often worst in the few months after a new flock has been introduced, particularly if this happens in the Spring or early Summer. Farmers should pay special attention to new flocks.

5. Non-Chemical Control.

- Non chemical means of control are preferable, and the options available include Electric Fly Killers (EFK) and a Fly Catcher Turbine, which combines UV light with a vacuum system. EFKs will catch small numbers of flies and are useful to deal with the early stages of an infestation, however they are not always effective against Lesser House Fly.

6. Treatment.

- The decision to use pesticides must take into account the issue of adulticide and larvicide resistance. We have been warning of this for several years, which is why we have put so much emphasis on preventative measures and the control of manure moisture levels. It is the case that farms with dry manure are hardly using any insecticides at all, so when and if they do they are still more likely to be effective.

This Best Practice Note includes a wide range of suggestions and control measures, not all of which will be necessary for every shed. It is for Managers to decide what is necessary for each shed, to implement control measures and to be aware of changes. Some farms may find it necessary to take advice from a Professional Entomologist.

Managers must be aware that Local Authorities have a duty to serve an Abatement Notice once they are satisfied that a nuisance has occurred and is likely to recur. If complaints of fly nuisance are received we visit the residents, identify the flies and assess the impact of the numbers being reported. It is only the very worst situations, where the flies are Common and Lesser house flies which can be associated with nearby breeding colonies, which could be determined as a Statutory Nuisance. Local Authorities are responsible for nuisance enforcement on sites where there are fewer than 40,000 birds, and will initially work together with farmers in order to give advice about how best to deal with the infestation and prevent a recurrence. Service and Enforcement of Abatement Notices are used as a last resort. Larger sites must have Environmental Permits regulated by the Environment Agency. The permits include requirements for Management Controls which if complied with during the design and operation of the units should ensure that fly infestations do not occur.

For further advice, help or information, please contact Environmental Health at East Devon District Council, 01395 517456 or environmentalhealth@eastdevon.gov.uk.

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