

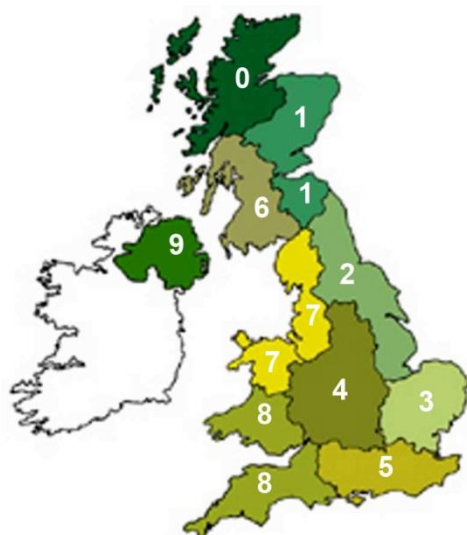
As part of AMTRA's online CPD Programme for livestock SQPs, each month AMTRA will send you the Parasite Forecast which will highlight the parasitic challenge facing livestock in your area for that month. At the end of the Parasite Forecast you will find a series of multiple choice questions (quiz button) based on its contents. Answer the quiz online and you will be emailed a certificate with your score. This will form part of your SQP CPD requirement. The Parasite Forecast has been developed by NADIS (National Animal Disease Information Service) and is written by leading veterinary parasitologists and based on detailed data from the Met Office

NADIS Parasite Forecast – December 2019

Use of meteorological data to predict the prevalence of parasitic diseases

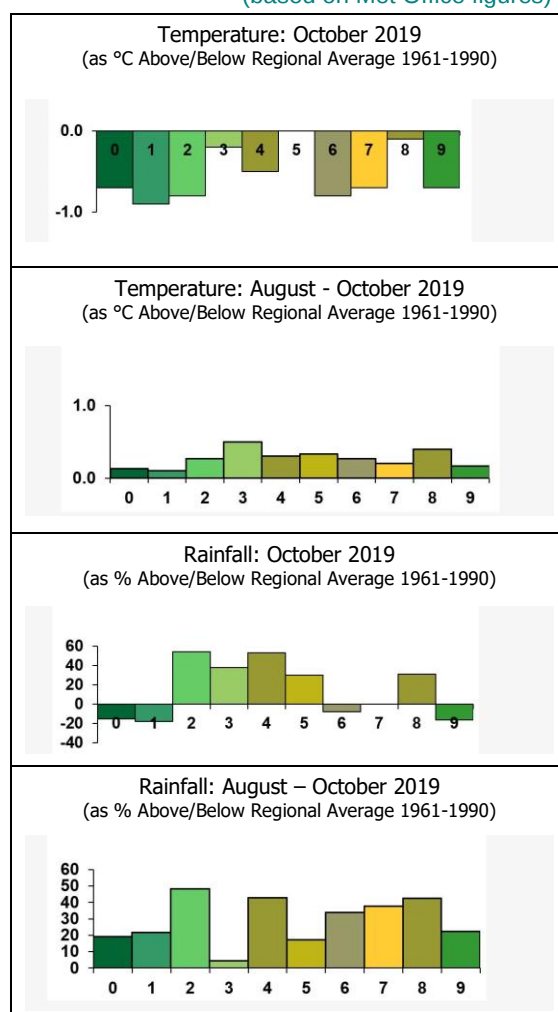
Regional Weather

(based on Met Office figures)



REGIONS

- | | |
|----------------|----------------|
| 0 N W Scotland | 6 S W Scotland |
| 1 E Scotland | 7 N W England |
| 2 N E England | & N Wales |
| 3 E Anglia | 8 S W England |
| 4 The Midlands | & S Wales |
| 5 S England | 9 N Ireland |



December Parasite Forecast/Update

The most recent version of this monthly parasite forecast may be accessed at www.nadis.org.uk

Weather Report

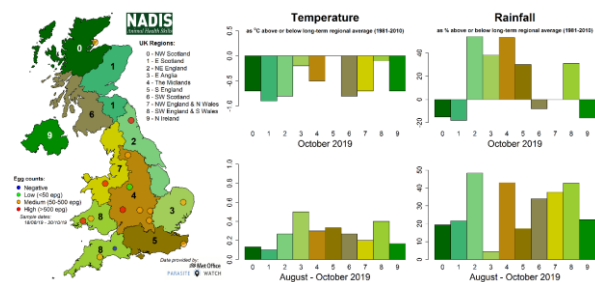


Figure 1: Temperature and rainfall by region for previous months. Egg count data shows the most recent counts for roundworms in sheep at each location between the sample dates stated.

October began warm and showery in the south with colder air quickly spreading in from the north. The weather was unsettled for most of the month with frequent rain belts crossing the country abbreviated by dry spells, with the south and east of England more notably affected. The weather turned cold, dry and sunny for most of the country towards the end of the month, although the south-west remained very wet at times.

The provisional UK mean temperature in October was 9.0 °C, 0.5 °C below the 1981-2010 long-term average. Regionally, temperatures were at or below the long-term average in all areas, although the temperatures were still above average in all regions for the preceding 3 months (August – October). UK rainfall was 109% of the long-term average. Regionally this varied considerably, with rainfall well above average rainfall over most of England and Wales with some parts of eastern England, notably in Yorkshire and the south-west having more than twice their normal rainfall. Conversely, Scotland, Northern Ireland and Cumbria were drier than average. Rainfall for the preceding 3 months was at or above average across all regions of the UK.

Liver fluke: final autumn forecast

The final liver fluke forecast for autumn 2019 is based on temperature and rainfall from May – October. Development of the external stages of liver fluke and its intermediate snail host requires temperatures above 10°C. The drop in temperatures experienced across the UK in October and into November mean it is unlikely significant development will be occurring at this time. However, in some regions the very high levels of rainfall and above average temperatures observed in previous months mean development and emergence over the period is likely to have been substantial. Consequently this year's forecast is predicting high risk in Scotland, northwest England & north Wales, moderate risk in Northern Ireland and low risk everywhere else (Figure 2).

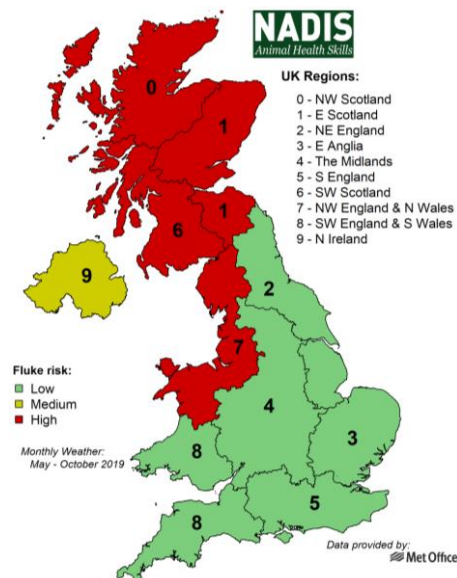


Figure 2: Final 2019 UK autumn fluke risk forecast by region.

It is therefore strongly advised that farmers with livestock grazing in high and medium risk regions are vigilant for signs of disease. Whilst the autumn fluke forecast is predicting low risk in some parts of the UK, it should be noted that where rainfall and temperature has been above the regional average fluke risk is likely to be higher than usual, even if this risk is not considered “high” compared to other parts of the UK. Furthermore, local conditions are also very important when determining on-farm fluke risk. Any farms with permanently wet pastures and/or permanent water bodies where mud snails may reside are likely to be at increased risk from liver fluke (Figure 3). This particularly applies to farms with a previous history of fluke infection. If in doubt, please seek veterinary advice.



Figure 3: Areas of permanently wet pasture can provide optimal conditions for mud snails, and by extension liver fluke. Such areas can be found on some farms year-round even with low levels of rainfall. Photo courtesy of Dr Philip Skuce, Moredun Research Institute.

Sheep are more susceptible to acute fluke infection than cattle, but both species may harbour chronic infections for months or even years if left untreated. Chronically infected animals may show no obvious signs, yet such infections can adversely affect productivity by reducing fertility, growth and milk yields. It is also important to consider the risk of Black disease at this time of year; this clostridial infection may take root in liver tissue damaged as a result of fluke infection (Figure 4). Unvaccinated animals are especially at-risk potentially leading to cases of sudden death.

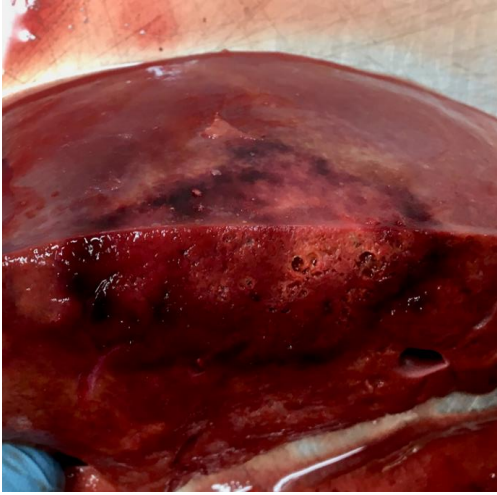


Figure 4: Risk in cattle (and sheep) of Black disease increases significantly in animals infected with Liver fluke. Photo courtesy of Ben Strugnell, Farm Post Mortems.

Advised actions include:

- Monitoring for signs of disease. Both sheep and cattle are susceptible to infection with liver fluke, although acute outbreaks are more common in sheep:
 - Sudden death in heavy infections
 - General dullness, anaemia and shortness of breath
 - Rapid weight loss, fluid accumulation (e.g. bottle jaw)
- Routine diagnostic testing to give a greater insight into current infection status:
 - Post-mortem of lost stock in acute outbreak allows for a definitive diagnosis, whilst abattoir feedback can provide useful information on overall infection rates (Figure 5).
 - Antibody ELISAs are useful in detecting acute infections in lambs through blood sampling, and to monitor herd-level infection status in dairy cattle through testing of bulk milk tank samples.
 - As infections progress, faecal antigen testing and fluke egg counts can also be used. These are particularly useful for evaluating infection status in untreated animals in winter/ spring ahead of turn out, and can be used with pooled samples to test group-level infections.
- Identify and avoiding grazing high risk “flukey” pastures at this time.
 - Mud snails are generally found in damp, muddy areas such as the borders of permanent water bodies, wet flushes (often identifiable through presence of rushes and other water loving plant species), ditches, boggy areas etc. (Figure 3).
 - Pastures previously grazed by fluke-infected sheep should be considered a risk to cattle and vice versa. Cattle farmers grazing sheep on their pastures overwinter should bear this in mind when selecting which pastures to graze them on.
- Routine clostridial vaccination will help prevent Black disease and should be considered if not already in place.



Figure 5: In sheep, acute fluke infection (left) is caused by juvenile flukes migrating through the liver. Chronic fluke infection (right) is caused by adult flukes living in the bile ducts may also be detected at slaughter.

- Where acute disease occurs, treatment with triclabendazole is recommended as this is the only product effective against both adult and early immature stages of the parasite. **However**, due to growing concerns over drug resistance:
 - Ensure such treatments are carried out correctly by following the manufacturer’s recommendations, checking calibration of dosing equipment prior to use and dosing by weight of the animal.
 - Where drug failure is present or resistance suspected, it is strongly advised that treatments are accompanied by resistance testing through faecal egg counts. For more information please seek veterinary advice.
- Use of alternative products to triclabendazole can be used in infected but otherwise healthy animals after housing for the winter. If taking this approach it is necessary to either repeat or delay treatment so that all flukes are of a sufficient age to be killed by the chosen treatment:
 - If treating cattle with an adulticide product like closantel, the COWS group recommend repeated or delayed

treatment at 6-7 weeks post-housing (www.cattleparasites.org). Some alternative products, such as albendazole, oxiclozanide also have the added benefit of being licenced for use in lactating animals, provided milk withhold periods are observed.

- The SCOPS groups suggest using closantel or nitroxynil at 3 weeks post housing in sheep, with a further treatment to kill any residual adult parasites the following spring (www.scops.org).
- In the absence of any obvious signs, chronic infection should still be considered where animals have been grazing at risk pastures. In such instances, the decision to treat can be informed by diagnostic testing such as fluke egg counts, evidence of poor body condition score and/or sub-optimal productivity.
- When planning flukicide treatments, it is important to check labelling of individual products for range of activity, withhold times etc. For more information, please speak to your vet or SQP.

Joint COWS and SCOPS group statement

Please click the following link to see a joint statement issued by the COWS and SCOPS groups concerning the importation and use of flukicide products containing rafoxanide in the UK:

[Veterinary Record: Rafoxanide is not an appropriate alternative to closantel](#)

SHEEP

Parasitic gastroenteritis (PGE)

As with liver fluke, the recent drop in temperature means further development of roundworm larvae on pasture is likely to have reduced to insignificant levels. However, infective stage larvae already present on pastures will continue to survive over the winter months. The relatively warm and wet weather up to October will have allowed considerable development of infective-stage larvae on pasture to this point, meaning infectious risk may still be high currently. Egg count data from the [Parasite Watch](#) from August to October shows a notable increase in medium and high egg counts on farms across the UK compared to those reported in last month's forecast (Figure 1).

In particular, *Trichostrongylus* species can continue to be a risk in store and replacement lambs and, sometimes, yearlings at pasture over the winter (Figure 6). It is therefore important to maintain vigilance for signs of disease in at risk animals grazing potentially contaminated pastures.

As conditions become colder it is also important to consider encystment and the arrested development of roundworm infections like *Haemonchus* and *Teladorsagia*. Encysted larvae will resume their development in the spring, with yearling lambs carrying high levels of such infections potentially at risk of scours similar to type-2 ostertagiosis in cattle. Encysted larval

populations can also be an important source of early pasture contamination in the next grazing season. The decision to treat such infections is not necessarily straightforward, since worm egg counts can be negative. It is therefore important to consider at-risk animals, previous grazing history, treatments and levels of infection observed earlier in the year. If treatment is indicated, a number of products in different worming groups carry a licence of efficacy against arrested larval stages. For more information on anthelmintic selection and treatment options please speak to your vet or SQP.



Figure 6: *Trichostrongylosis* is a common problem in store and replacement lambs in the autumn and winter months

Advised actions include:

- Monitoring for signs of disease:
 - Loss of appetite
 - Diarrhoea (black scour)
 - Dehydration
 - Rapid weight loss
- For active ongoing infections, such as *Trichostrongylosis*, consider worm egg counts and weight gain in at-risk animals to determine infection status and need for treatment. Where treatments are required:
 - Leave animals on the dirty pasture for 2-3 days after dosing, then move to a safe pasture if available.
 - Aim to leave at least 10% of the flock untreated
 - Check efficacy through worm egg counts; Re-test 10-12 individuals at 7-14 days post treatment depending upon the product used.
- When assessing the potential risk of encysted larval stage infections:
 - Egg counts are not a reliable indicator.
 - Consider groups of at-risk animals, their previous grazing and treatment history
 - Use an anthelmintic licenced for use against larval encysted stages
 - If you are unsure, please seek veterinary advice

Scab and Lice

Scab (mite) and louse infestations can become a significant problem in sheep flocks over the autumn and winter months, typically from September-April. Whilst the signs of scab and louse infestations (pediculosis) are similar, treatment options may differ considerably, making diagnosis an important first step towards treatment.

Sheep scab is caused by psoroptic mites (*Psoroptes ovis*; Figure 7). Infestations cause loss of condition, secondary skin infections and potentially death if not treated. Signs include severe itching, wool loss, restlessness, biting and scratching of affected areas and weight loss or reduced weight gain. When examined, the fleece may be wet, sticky and yellow due to serum discharge and the skin may become thickened and corrugated (Figure 8). Studies show scab mites can remain infective in the environment for up to 17 days. Consequently, fields, sheds and pens where infected sheep have been kept and handled should be considered a potential source of infection to other sheep during this period.



Figure 7: Psoroptic mites (left) can be identified from skin scrapings, whilst louse infestations can be confirmed in affected fleece (right). Photos courtesy of Dr Joseph Angell.

Louse infestations in the UK are mainly caused by chewing lice (e.g. *Bovicola ovis*; Figure 7) and may present in a similar way to scab. Thin sheep tend to be most greatly affected, with widespread louse infestations often indicative of another underlying problem within the flock.

To reach a diagnosis:

- For scab, diagnosis can be made through microscopic examination of skin scrapings from Figure 7), or by detection of antibodies in blood samples with an [ELISA test](#).
- Chewing lice reside in the fleece and can be identified from wool samples taken from affected areas. Lice can sometimes be seen with the naked eye and confirmed by microscopy (Figure 7).
- For more information concerning diagnosis, please speak to your vet.
- **It is important to remember sheep scab is notifiable in Scotland.**



Figure 8: A severe case of sheep scab characterised by wool loss, serous exudate and thickening of the skin.

Where treatment is required:

- First, ensure the correct diagnosis has been reached.
- Injectable macrocyclic lactone (3-ML) products are effective against sheep scab with [varying periods of protection](#). For more information concerning treatment with 3-MLs please speak to your vet or SQP.
 - It is important to remember that 3-MLs are also an important class of anthelmintics and, if used, should be considered as a roundworm treatment also.
 - There is evidence suggesting emergence of resistance in scab mite populations to treatment with 3-MLs in the UK. It is therefore vitally important to ensure correct diagnosis and treatment protocols are adhered to, and that veterinary advice sought if treatment failure is suspected.
- Louse infestations can be controlled with [topical products containing synthetic pyrethroids](#). These products are most effective on shorn sheep.
- Plunge dipping with diazinon is effective against both scab and louse infestations.

Cattle: Treatment at housing

Spring-born suckler calves, dairy calves and other growing cattle housed after their first or second season may require treatment at housing with a product effective against encysted larval stages of roundworms such as *Ostertagia*. This is because roundworm infections acquired in the latter stages of the grazing season may encyst and lie dormant over the winter rather than continue their development. If untreated, heavy burdens of encysted larvae can cause type-2 ostertagiosis in late winter or the following year due to a triggered mass emergence (Figure 9). As is the case with sheep roundworm infections, these encysted larval burdens cannot be assessed by worm egg count. Several products containing either a group 3-ML or 1-BZ anthelmintic carry a licence against encysted roundworm infections in cattle. For more information please speak to your vet or SQP. Some group 3-ML preparations also have the added advantage they are also effective against both sucking and chewing lice (see below).

Due to the short time spent at pasture and the small quantities of grass they will have consumed, autumn-born suckler calves are unlikely to require anthelmintic treatment at this time.



Figure 9: Type-2 ostertagiosis is a potentially serious disease that occurs in housed young stock in the late winter/early spring. It is caused by triggered mass emergence of encysted larval infections acquired at the end of the previous grazing season. It is important to consider at-risk animals at this time and treat appropriately to avoid clinical disease.

Whilst housing prevents further infection with pasture-associated parasites like roundworms and fluke, risk of louse and mite infestations increase at this time (Figure 10). These parasites can spread directly from animal to animal very easily once they are penned in close proximity to one another in what are relatively dry, warm conditions.

In many instances infestations are well tolerated, producing only mild and localised signs. Occasionally, however, infestation with some ectoparasites, particularly mange mites, can be more severe with noticeable irritation, discomfort, hair loss and thickening of the skin (Figure 9). A number of products containing either synthetic pyrethroids (SP) or group 3-MLs are available for treatment of ectoparasites in pour-on and spot-on formulations, as well as injectable group 3-ML products. In instances where treatment is required, it is important to first identify the causative agent to determine the most appropriate treatment. For the treatment and control of ectoparasites the [COWS group](#) currently advise:

- **Lice:** Pour-on SP or 3-ML preparations for chewing lice, and injectable group 3-ML preparations for sucking lice. Most treatments are not effective against louse eggs, meaning animals can potentially become re-infested when using products with little or no residual activity.

- **Mites:** Permethrin-based SP products or pour-on group 3-MLs for chorioptic mange, and injectable group 3-ML preparations for psoroptic mange. Where treatment is indicated, it is necessary to treat all animals on the affected premises to avoid re-infection, and ideally to remove affected animals to an area where mange infestations have not occurred, since the mites can live in the environment for up to 3 weeks.
- Always check the label of products to determine their efficacy and appropriateness. For more information, speak to your vet or SQP, see the [COWS group guidelines](#) and the [NADIS information page](#) for more details.



Figure 10: Ectoparasites (louse and mite infestations) in housed cattle usually produce only mild, self-resolving signs (top). However, some parasites and circumstances, such as psoroptic mange (bottom) can lead to more severe disease and the need for appropriate treatment informed by diagnosis.

[Don't forget to try the interactive quiz](#)

Local farm conditions may vary so consult your veterinary surgeon. Parasite control should be part of your veterinary health plan.

To watch a webinar (video) based on this article and take an electronic quiz worth 3 CPD points, click

[WEBINAR](#)

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