

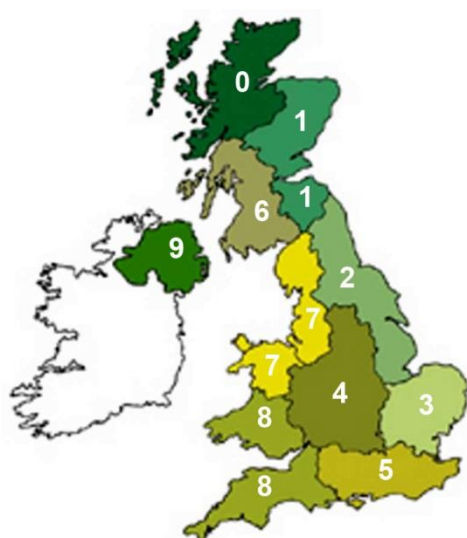
As part of AMTRA's online CPD Programme for livestock SQPs, each month AMTRA will send you the Parasite Forecast which will highlight the parasitic challenge facing livestock in your area for that month. At the end of the Parasite Forecast you will find a series of multiple choice questions (quiz button) 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 – August 2019

Use of meteorological data to predict the prevalence of parasitic diseases

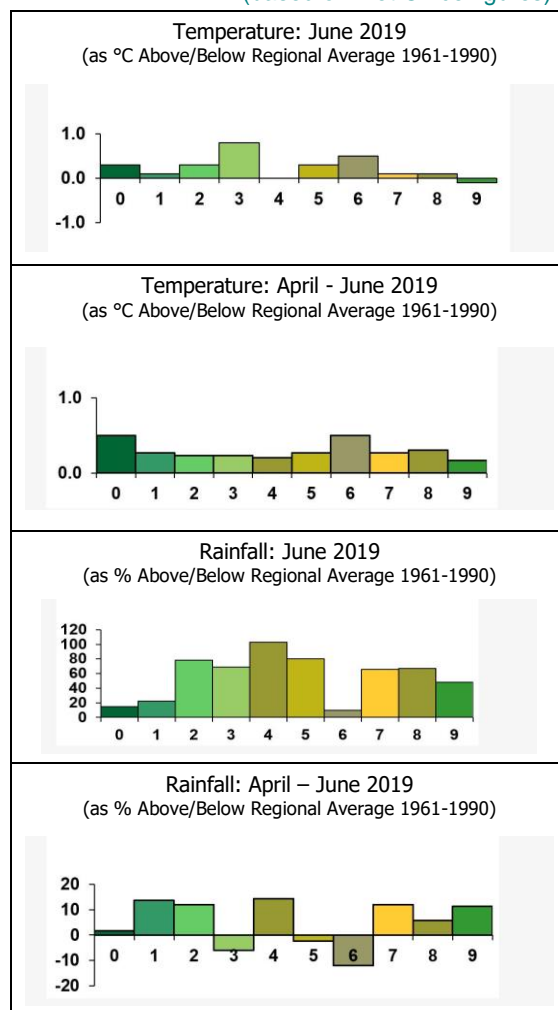
### Regional Weather

(based on Met Office figures)



#### REGIONS

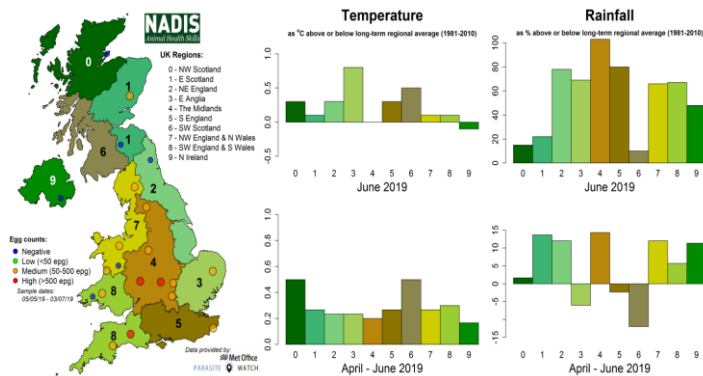
- |                |                         |
|----------------|-------------------------|
| 0 N W Scotland | 6 S W Scotland          |
| 1 E Scotland   | 7 N W England & N Wales |
| 2 N E England  | 8 S W England & S Wales |
| 3 E Anglia     | 9 N Ireland             |
| 4 The Midlands |          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



## August Parasite Forecast/Update

The most recent version of this monthly parasite forecast may be accessed at [www.nadis.org.uk](http://www.nadis.org.uk)

## Weather report



**Figure 1: Egg count data shows the most recent counts for roundworms in sheep at each location between the sample dates stated.**

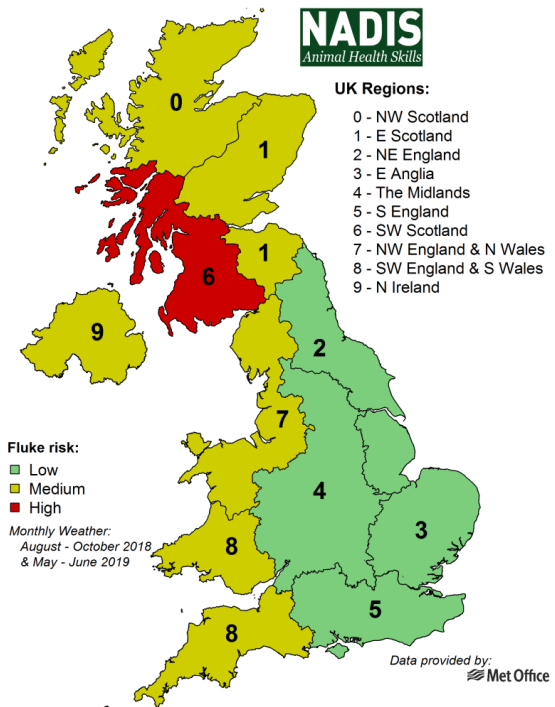
June in the UK started off warm and dry in the south and east with more cloud and rainfall further north. This was replaced quickly by cooler spells of rainfall interspersed with brighter showery weather progressing to warm, humid and thundery conditions towards the end of the month.

The overall UK mean temperature for June was 13.2°C, 0.2°C above the 1981-2010 long-term average. Regionally, this equated to above average or expected temperatures for the month. Above average temperatures were observed across all regions of the UK for the previous 3 months (April – June) Average UK rainfall in June was 152%. This pattern was seen across all UK regions, particularly England and Wales, although for the previous 3 months regions rainfall was generally within 10% of the long-term average.

## Summer fluke forecast

The summer fluke forecast is based on rainfall and temperature for the months of August-October 2018, and May-June 2019. This forecast is designed to indicate risk from the emergence of infective stages of liver fluke onto pastures early in the grazing season that have survived over the winter in infected snails. Usually this risk period is considered less significant than that expected in the autumn. It should be noted, however, that the relatively mild winter could lead to higher pasture contamination and disease risk this season than usual.

The summer fluke forecast for 2019 is predicting high risk in western Scotland and moderate risk across the rest of Scotland, the whole of Wales and Northern Ireland and the west of England (Figure 2). Farmers in these areas should be vigilant for signs of disease, particularly if you have a known history of fluke infection, and/or if you have animals grazing “flukey” pastures.



**Figure 2: Summer fluke forecast 2019 by UK region.**

Both sheep and cattle are susceptible to infection with liver fluke. Acute disease outbreaks may occur at any time from late summer onwards. This type of infection is more common in sheep, and results from the consumption of large numbers of infective cysts (metacercariae) as they emerge onto contaminated pastures (Figure 3). Signs include:

- Sudden death in heavy infections
- General dullness, anaemia and shortness of breath
- Rapid weight loss, fluid accumulation (ascites) and bottle jaw
- Large numbers of animals may be affected



**Figure 3: Infective stages of liver fluke (metacercariae) start to accumulate on “flukey” pastures from late summer/early autumn onwards as they are shed with increasing frequency from their snail intermediate hosts.**

Advised actions include:

- Monitoring for signs of disease.
- Routine diagnostic testing to give a greater insight into the current infection:
  - Post-mortem in acute outbreaks allows for a definitive diagnosis.
  - Worm egg counts can be used to diagnose infection in individuals, or groups of animals when using a composite sample.
    - Egg counts cannot detect pre-patent infection and should not be relied upon for the diagnosis of acute disease.
- Where acute disease occurs, treatment with triclabendazole is recommended as this is the only product effective against both adult and immature stages of the parasite.
  - Due to growing concerns over drug resistance it is also advised such treatments are accompanied by resistance testing at 21 days post-treatment to monitor efficacy.
  - Where drug failure is present and resistance suspected, please seek veterinary advice.
- Risk of infection can be reduced by identifying high risk “flukey” pastures and avoiding grazing them during peak risk periods.
  - 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.
  - Pastures previously grazed by fluke infected sheep should be considered a risk to cattle and vice versa.

## Sheep

### Parasitic Gastroenteritis (PGE)

PGE is caused by roundworms present within the digestive tract. Heavy worm burdens can cause severe disease in lambs, with signs including loss of appetite, diarrhoea, dehydration, weight loss and death in heavy infections. Lower levels of infection may have no obvious signs, but can still impact performance, particularly weight gain.

Pasture contamination usually peaks over the summer months, falling off into the late summer and autumn. Climate plays an important role in development and survival of eggs and infective larvae on pasture. The relatively warm and wet conditions experienced over previous months may have increased rate of development on pastures and survival of the infective stage larvae. Wet periods of weather may also help to liberate infective larvae onto pasture from faeces in relatively large numbers. Consequently, you should stay alert for signs of PGE, particularly in groups of lambs grazing “dirty” pastures, namely those grazed by ewes earlier in the season, or lambs over the previous

season. Weaning can provide an opportunity to reduce risk of disease in these animals through a combination of anthelmintics and grazing strategies.

Egg count data from [Parasite Watch](#) show medium and high egg counts observed in groups of sheep across Great Britain between May and June (Figure 1).

Advised actions include:

- Monitoring for signs of disease.
- Implement targeted selective treatments (TSTs) by monitoring performance using indicators such as weight gain and worm egg counts for evidence of infection.
  - Performance indicators should be assessed regularly, ideally every 3-4 weeks.
    - Generally only 40-60% of lambs should require treatment based on performance monitoring. You should aim to leave **at least** 10% of the flock untreated to reduce selection for anthelmintic resistance.
  - Egg counts can be performed on a pooled faecal samples taken from 10-12 individual animals to monitor infection in the group as a whole.
    - Treatment based on worm egg counts may be indicated where average worm egg counts are greater than 500-700 epg.
  - For performance monitoring to be effective, accurate record keeping is essential.
- For lambs currently grazing dirty pasture, consider dose and move at weaning to safe pastures (e.g. silage aftermath) where available.
  - To reduce selection for anthelmintic resistance:
    - Leave animals on dirty pasture for 2-3 days post-treatment prior to moving.
    - Avoid dosing with long-acting group 3-ML products
    - Leave at least 10% of the flock untreated
- Where anthelmintic treatments are administered, it is strongly advised to check efficacy:
  - Re-check worm egg counts at 7-14 days post treatment depending upon the product used.
- Where resistance to one or more products is suspected, strategic use of group 4-AD or 5-SI wormers may be indicated.
  - Such strategies should always be planned under veterinary guidance. For more information see the [SCOPS guidelines](#), and veterinary advice.
- After weaning ewes should not require further anthelmintic treatment for roundworms until the following year.



- Rams are more susceptible to roundworm infections than ewes. It is generally advisable to check burdens in these animals through a composite worm egg count at this time of year (Figure 4).



**Figure 4: Whilst lambs are the main risk group for PGE, rams may also be susceptible. If in doubt, check for infection using worm egg counts.**

## Haemonchosis

*Haemonchus contortus* or the barber's pole worm is another type of PGE-causing roundworm. Whilst it is less common than other roundworms in the UK it is an important consideration during the grazing season. Mature female worms can produce huge numbers of eggs (up to 10,000 per worm per day) meaning pasture build-up can be very rapid. Unlike other PGE-causing roundworms, *Haemonchus* feeds on blood with a single worm may consume up to 0.05ml of blood per day. As a consequence, build-up of heavy infections can result in sudden and severe disease without any warning. Also, unlike other PGE-causing roundworms, haemonchosis can affect both lambs and ewes.

Advised actions include:

- Monitoring for signs of disease:
  - Generally acute onset with anaemia and general fatigue.
  - Oedema or fluid accumulation (including bottle jaw).
  - Sudden death in heavy infections.
  - Haemonchosis does **not** usually present with diarrhoea.
  - Chronic infections may also occur, characterised by progressive weight loss, anaemia and loss of appetite.
- Given the presenting signs described, haemonchosis can appear similar to fasciolosis. Diagnosis to further distinguish can be achieved through:
  - Post-mortem in cases of sudden death associated with severe outbreaks (Figure 5).
  - Worm egg counts. These are generally very high and can be differentiated from other species of intestinal roundworm through specialist techniques. For more information please speak to your vet.



**Figure 5. The classic "barber's pole" appearance of female *Haemonchus contortus* makes identification straightforward at post-mortem.**

Haemonchosis can be treated with most anthelmintic products, although some evidence of resistance to white drenches (1-BZ) has been reported previously in the UK. Some flukicidal products, such as nitroxynil and closantel are also effective against *Haemonchus contortus* and should be considered in certain cases.

## Moniezia tapeworms

Tapeworm segments may be seen in the faeces of lambs during summer months (Figure 4). These are acquired through consumption of infected intermediate hosts (oribatid mites) living on the pasture that became infected the previous year and survived overwinter.

*Moniezia* species tape worms are generally not considered as a cause of disease in livestock. Treatment with a white drench (1-BZ) used for roundworm control will have the added benefit of clearing these tapeworm infections.



**Figure 6: Tapeworm segments (*Moniezia*) are commonly seen in faeces passed by lambs during the summer months. Photo credit: Kit Bradley, Suffolk, July 2019 (@shepherdesskit).**

## Blowfly strike

Failure to treat fly strike promptly is a welfare issue and can lead to disrupted grazing, loss of condition, secondary infections and death.

Disease severity depends upon a variety of factors including weather, with warmer, humid conditions favourable. The [NADIS blowfly alert](#) is based on daily temperature and rainfall data and is updated every 2 weeks over the course of the grazing season. This was predicting high risk for most of England and Wales, and medium risk in Scotland, Northern Ireland and NE England at the beginning of July.

Advised actions include:

- Inspect stock daily for evidence of strike, particularly during high-risk periods.
  - Consult the [NADIS blowfly alert](#) for up-to-date disease risk in your area.
- On-farm disease risk can be reduced significantly by:
  - Management of fly populations from early in the season
  - Prevention of diarrhoea through good parasite control
  - Dagging, crutching, shearing and treating lame sheep promptly
- A number of [chemical formulations](#) can be used to aid in the prevention of blowfly strike.
  - These should be used in conjunction with the management points listed above.
  - Many of these products can also be used to treat blowfly strike where it occurs.
- For more information and advice, please speak to your vet or SQP.

## Cattle PGE

Larval pasture burdens for most cattle roundworms tend to peak in early to mid-July, although importantly levels of *Ostertagia ostertagi* larvae can remain high until the end of the grazing season. The wetter than usual conditions in June may also have prolonged survival of infective larvae on pastures to some extent. Consequently young stock in their first grazing season may therefore still be at risk of type-1 ostertagiosis, particularly autumn and winter-born weaned calves entering their first grazing season and spring-born beef suckler calves entering their second grazing season (Figure 7). Set stocking on permanent pasture also increases risk. Animals should continue to be monitored for signs of disease and/or poor performance.



**Figure 7: PGE in cattle causes diarrhoea and up to a 30% reduction in the growth rates of youngstock. Commonly affected animals include growing dairy heifers in their first grazing season (left) and weaned autumn-born suckler calves in their second grazing season (right).**

Advised actions include:

- Monitoring for signs of PGE in at-risk groups:
  - Loss of appetite
  - Loss of weight and body condition
  - Profuse diarrhoea
- If practising set stocking with strategic dosing animals should have relatively low larval burdens.
  - Worm egg counts to monitor infection and effectiveness of control is advised.
    - Perform counts on faecal samples (10g) taken from 10-15 calves selected for treatment.
    - Repeat sampling of animals with a previously high egg count (e.g. more than 200 eggs per gram) at 14-17 days post treatment (7-10 days for 2-LV group products) to assess the reduction in egg count post-treatment.
  - Leave animals set stocked until they can be moved to “safe” pastures (hay or silage aftermaths) when they become available.
- Where strategic dosing is not implemented, risk of disease will peak during the summer months.
  - It is therefore very important to monitor for signs of disease in such animals at this time of year.
  - Monitoring liveweight gain and/or worm egg counts will help to identify infections before clinical signs occur and reduce production losses.
- Where dosing with anthelmintics is indicated:
  - In the event of an outbreak of clinical disease treat all animals in the affected group.
  - Considering the [COWS group's “5 Rs”](#) to ensure your worming strategy is both effective and sustainable. These include:
    - Considering the type of wormer used – ongoing repeated use of the same active/ wormer group or use of certain wormers at inappropriate times may increase selection for resistance.
    - Dosing appropriately by weight of each animal and ensure correct calibration of dosing guns/syringes/applicators
  - Consider worm egg counts to check for effective anthelmintic dosing. Discuss this with your vet or SQP, or see the [COWS group guidelines](#).

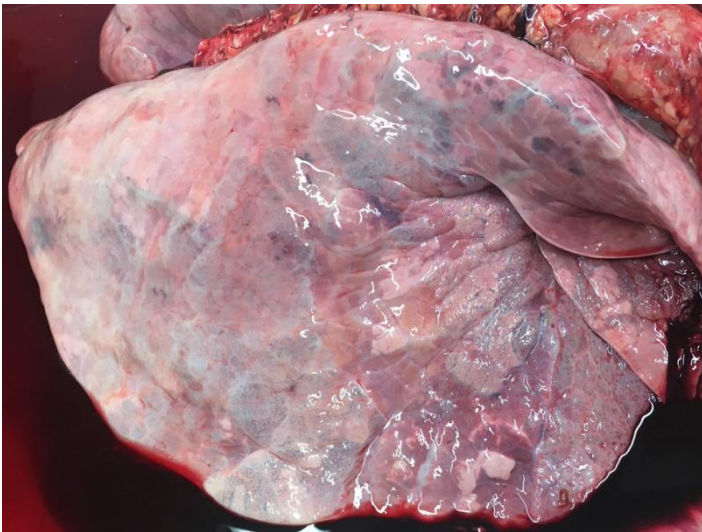
## Lungworm

Lungworm infection (or “husk”) can occur in animals at pasture over the summer months (Figure 8). Outbreaks are difficult to predict, but may be associated with wetter summers and following periods of wet weather, such as those currently being experienced.



On farms with a history of lungworm, unvaccinated calves that have not been part of strategic dosing programmes should be considered at risk of disease, as should older bought-in cattle from farms without a history of lungworm.

Calves that have been vaccinated ahead of turnout will be protected against clinical disease, although it should be noted these animals require some natural infection to develop a fully protective immunity. This can be important in animals vaccinated in previous grazing seasons: If these individuals did not receive sufficient natural challenge at the time they may still be at risk of disease. Reasons for a lack of natural challenge in previous years may include turn-out to uninfected pastures, or clearance of lungworm infections due to anthelmintic treatments to control gut roundworms.



**Figure 8: Lungworm infection can affect grazing cattle in the summer months. Whilst youngstock are generally at highest risk, in some circumstances adult cattle such as this suckler cow may also be at risk. Diagnosis can be reached based on finding adult worms in the lungs at post mortem (circled). (Photo credit: Ben Strugnell, Farm Post Mortems, July 2019)**

On farms where there is no history of lungworm, it should be noted the disease can be introduced onto pastures through bought-in cattle harbouring infections.

To reduce risk of introducing lungworm onto your farm, see the [COWS group guidelines](#) on integrated parasite control and quarantine measures, and stay vigilant for signs of disease in your animals if you have bought-in animals from farms with unknown disease status.

Advised actions include:

- Monitor for infection. Early signs include:
  - Widespread coughing in the group, initially after exercise then at rest.
  - Increased respiratory rate and difficulty breathing.
  - Rapid loss of weight and body condition
  - Milk drop in lactating cattle
  - Death in heavy infections
- Where infection is suspected:
  - Treat all animals within the affected group
    - Most roundworm products are effective.
    - Severely affected animals may require additional treatments (eg. anti-inflammatories and antibiotics)
    - Consider withdrawal periods in lactating animals.
  - Affected cattle should be removed from contaminated to “safe” pasture (e.g. aftermath) or housed in a well-ventilated building.
  - Infection can be confirmed by:
    - Post-mortem of dead animals
    - Observation of larvae in saliva or faecal samples in patent infections
    - Serum and milk sample antibody ELISAs are also available.
- For more information, please speak to your vet or SQP, see [“COWS” group guidelines](#) and see our recent [NADIS lungworm webinar](#).

[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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