



European Network for interactive and innovative knowledge exchange on animal health and nutrition between the **sheep** industry actors and stakeholders

E-learning material for Irish farmers' needs



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 863056.



How to address...



Nutrition

- Grassland and grazing management
- Forage production

Health

- Lameness
- Internal parasites





How to address...











Grassland and grazing management

***8 solutions
8 tips & tricks***

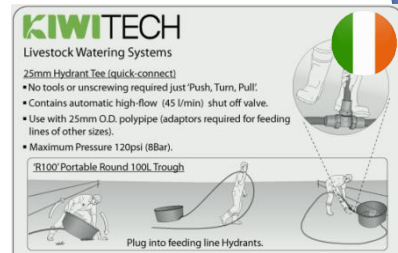


Solutions proposed by EuroSheep

Solution name	Country
Pasture measurement	
Grazing: what is achievable and how?	
Rotational grazing systems (Establishment and management)	
Guidelines for implementing rotational grazing	
Sward stick and platometer	
Herbvalo - knowing the valorisation of grass on your grassland – an assessment tool	
Online history of grazing routes to remember and improve grazing routes in the next year.	
“Wikiloc” - a free tool to record grazing activities	

Tips and tricks related to grassland management

- [Spanish T&T – Grazing plan - YouTube](#)
- [Spanish T&T – Forage supply calculation – YouTube](#)
- [Spanish T&T – Electric fence teaching – YouTube](#)
- [Irish T&T – 3 Strand electric fencing tips – YouTube](#)
- [Irish T&T – Electric fencing tips – YouTube](#)
- [Irish T&T – Creep grazing gate – YouTube](#)
- [Irish T&T – Portable water trough – YouTube](#)
- [Irish T&T – Solar powered water pump - YouTube](#)



Pasture measurement



Background

- Grazed pasture is the cheapest feed for sheep
- Important to maintain the supply of high feed value grazing swards throughout the grazing season
- Grass is usually measured in kg DM/ha
- Ideal grazing covers for are between 1200-1500 kg DM/ha



Pasture measurement



Swards can be measured using the following techniques:

1) Cutting and weighing

- Place the quadrat on representative area
- Clip herbage in quadrat to target post grazing height
- Weigh herbage
- Estimate herbage DM % and use calculation:

$$\text{Weight of grass (kg)} \times \text{grass DM\%} \times 40,000 = \text{kg DM/ha}$$

2) Rising platometer

- Measures the compressed height of a sward
- Each 'click' represents 0.5cm
- Take 30 heights across the entire paddock in a 'W' pattern
- Subtract your target post grazing height (e.g. 4cm) from the sward height
- Multiply your figure by 300kg DM/ha

3) Sward Stick

- Easy to use and low investment
- Use gauge on side to show swards are
 - grazed out
 - growing
 - should be grazed
 - too heavy to graze



Grazing: What is achievable and how?



Background

- Grazing management involves matching grass supply and feed value with animal requirements
- As grass matures
 - proportion of stem increases
 - digestibility and intake potential decreases
- To achieve high lamb performance maximise the proportion of leaf, thus digestibility and intake potential



Grazing: What is achievable and how?



How to implement:

- Sward height - easiest and most effective way to manage pasture
- Increase post-grazing sward heights as the season progresses for lambs

Table 1. Target post grazing sward heights for lambs

Grazing system		
Month	Rotational	Set stocked
March	3.5 – 4	5
April	3.5 – 4	5 – 6
May	4.5 – 5	6
June	5.5 – 6	6 – 7
July	6	7 – 8
August	6	7 – 8
September	6	8

Expected benefits:

- All lambs can be drafted for slaughter prior to the end of the grazing season without concentrate supplementation (except for triplets to weaning)

Rotational grazing systems - establishment and management



Background

- Rotational grazing systems involves
 - dividing areas into paddocks
 - managing paddocks in rotation



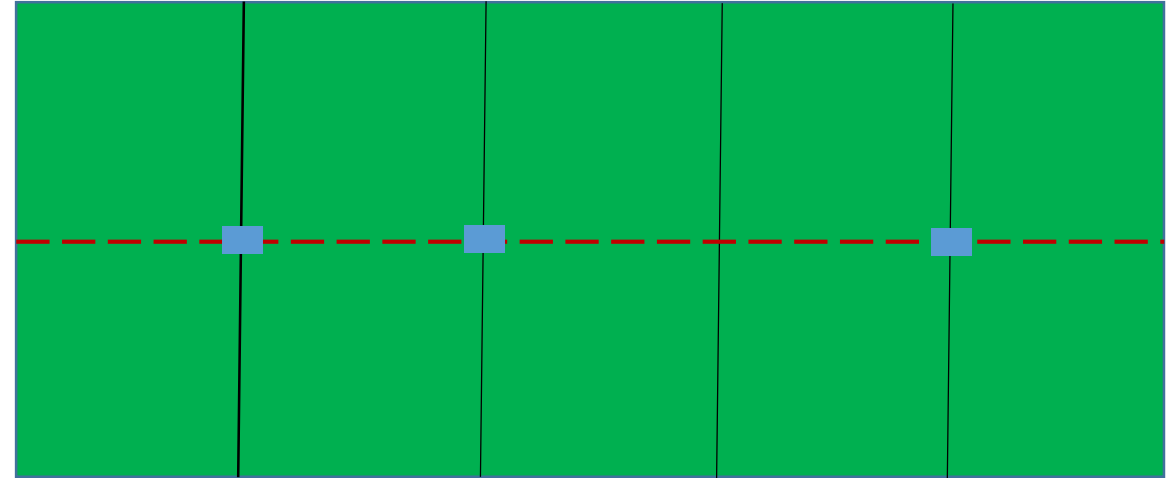
- Facilitates
 - grassland management
 - higher herbage utilization
 - high feed value silage
 - creep grazing for lambs
- Requires
 - calculate ideal paddock size (3 days grazing per group)
 - access to paddocks
 - water supply
 - fencing

Rotational grazing systems - establishment and management



How to set up:

- 5 permanent paddocks per grazing group
- Electric fencing to split paddocks
- Aim for 3 days grazing per half paddock
- Approximately 21 day rotation in mid season and 40 day rotation in spring and autumn



- Strategically locate drinking troughs between main paddocks which can be split

Expected benefits:

- Higher grass utilization
- Increased sward quality
- High feed value silage produced
- Increases animal performance
- Reduce feed costs

Implementing Rotational Grazing



Need/issue: Grassland and grazing management (ewe)

Aim : To provide a solution for helping farmers who are getting started into rotational grazing.

Description :

Four page A4 document containing a summary of the essential knowledge required for getting started in rotational grazing. The document is easily digestible help guide.

How to implement:

Guide outlines:

- Initial set up, including how many paddocks are in the rotation, stocking rate, moving stock etc.
- The essential infrastructure materials, including wire, waterpipes, electric source, etc.
- Labour requirements, including helpful ways of saving labour costs
- Other helpful tips on power and earthing



Aim:
Guide on getting started in rotational grazing

Implementing Rotational Grazing



- **Expected benefits:**
- Increase grass grown and utilisation (reduced waste) = increased output/ha and/or decreased inputs
- Better maintain pasture quality = improved livestock performance late season
- Improve allocation of late season/winter grazing = Reduce winter feeding costs
- More grass in the Spring = Less supplementation
- Greater persistency of sown species = Less reseeding
- **Prerequisites/Limits:**
- The basic concepts and knowledge of paddock rotational grazing are highlighted in the document. However, there is no mention of other rotational grazing systems such as cell grazing, techno grazing.
- The movement timings of sheep between paddocks may vary across countries as varying climates etc. may impact the rest period of pasture and thus the timings may differ from that of the UK.
- The Rotational grazing benefits might not be seen at lambing. When rotational paddock grazing is compared to set stocking system at lambing, it is seen as a better option to set stock as ewe and lamb relationships may be impacted through regular shifting at this time.



Aim:
Guide on getting started in rotational grazing

Sward Stick and Platemeter



Need/issue: Grassland and grazing management (ewe)

Aim : To help in quantifying grass in the field (how to measure grass).

Description :

- The sward stick and board:- a ruler and compression board to measure grass heights, the ruler contains a conversion table from cm to kg/dry matter per hectare.
- Platemeter:- A manual or electronic device used to calculate the density of the sward and converts it to a kg/dry matter per hectare measurement.



Aim:
Quantify grass
in the field



Sword stick and Platemeter

- **How to implement:**
- Walk the field in a W-shape taking your board and sword stick or Platemeter.
- Put the Board on the sward to compress the grass, put the sword stick against and take the reading.
- The sword stick has 5 different calibrations. Spring, late spring, summer, autumn, winter take the reading at the time of year measured. Optimum grazing zone is 8cm - 4cm for sheep with lambs at foot.
- Platemeters do the measurements for you, most electronic platemeters require 30 plonks (measurements) per field to give you the average. Depending on the model, some save the result automatically and others you have to manually record.
- Sword stick and platemeters measure grass supply in kg of dry matter and from that value we can find out how much of grass can meet the demand of stock.

Aim:
Quantify grass
in the field

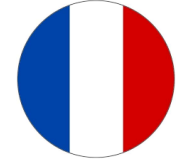


Sward stick and Platemeter

- **Expected benefits:**
 - Able to quantify grass in kg dry matter allowing correct stocking rate to be set and accurate feed budgeting to occur. Measuring grass helps improve grassland management practices.
- **Prerequisites/limits :**
 - Must be done by the same person, consistency is key. Regular grass walks every 2 weeks is advised. The grass measured must be representative of the field.
 - The Platemeter must be calibrated before use with excess grass removed from base as this may skew results.

Aim:
Quantify grass
in the field

HerbValo – knowing the valorisation of grass on your grassland



Need/expectation addressed: grassland and grazing management

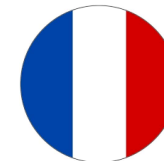
Aim: to manage the grassland's production and valorisation during the season or the campaign.

- A tool that **estimates the quantity of valorised grass** at the parcel's scale
- Enables its user to determine what practices could impact positively or negatively the valorisation of the grass
- Combines parcels and a detailed grazing plan
- Each cycle involves multiplying the number of days spent at pasture par by the flock's average intake



Proper
valorisation of
grass

HerbValo – knowing the valorisation of grass on your grassland



How to implement it: 2 types of files

- **Paper** : systematic recording of information concerning the chosen parcels
- **Excel file** : evaluating the quantity of valorised grass per parcel per month, season or year

Expected benefits: to build **confidence** in practices, to provide ideas for **better valorisation**, to **adapt** the management system

Prerequisites and/or limits: No measurement on the grassland, requires basic knowledge of Excel and farmers' practices recording.



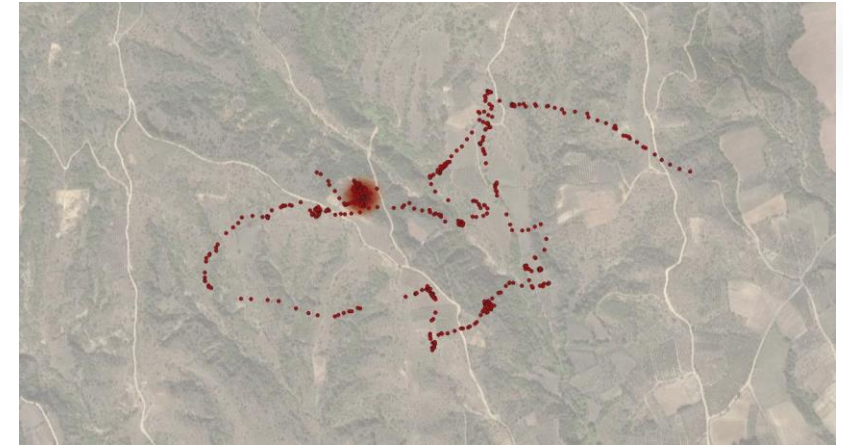
Proper
valorisation of
grass

Online history of grazing routes to remember and improve grazing routes in the next year



Need/ issue : Grassland and grazing management

Aim: Improve grazing routes
remember points of interest and best grazing grounds
cooperate with other farmers grazing in the same region.



Description :

- Documenting and logging grazing routes and spots can be an important tool to improve both the herds productivity as well as the sustainable management of the grazelands.
- Functional changes on the routes and grazing areas can be possible if there is a visualised “history” of the previous movements.
- Modern, low cost and easily accessible equipment can be used to visualize and manage grazing routes and areas

Online history of grazing routes to remember and improve grazing routes in the next year



How to implement:

- GPS technology can be utilised either through commercial animal tracking equipment on grazing animals, a smartphone on the farmer or even home-made collars using cheaper GPS tracking devices.
- After importing the routes on an online map, the different maps of the different flocks can be combined on a common one.
- Additionally, each farmer can pinpoint locations of interest on their route, such as water sources, resting areas, possible dangers, areas with good vegetation etc.

Expected benefits:

Better grazing management, improved grazing areas, multi-flock management and cooperation.

Prerequisites and /or limits:

- The farmer's basic understanding of the technology used could be a limit
- At least a smartphone with GPS technology is required





“Wikiloc”- a free tool to record grazing activities

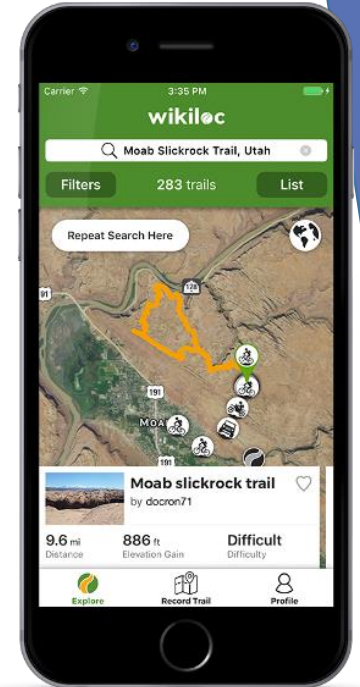


Need/issue: Grassland and grazing management (ewe)

Aim : To provide a solution for farmers to record their routes properly, to avoid overlapping with other flocks

Description :

- ✓ Wikiloc is a free application for smart phones/tablet/computers in order to track the grazing activities & routes.



Aim:
More efficient
grazing
practices



“Wikiloc”-a free tool to record grazing activities



How to implement:

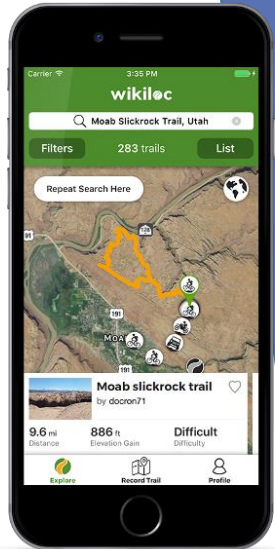
- Farmers need a simple smartphone and download the app.
- Free to register.
- Press the record button before grazing. Press the finish button when grazing finishes.
- Taking photos and adding to your route is possible. That will keep the information regarding vegetation, water resource, state of fences, grass potential. You can share with other users.

Expected benefits:

- Recording all your grazing route data,
- Better management of grazing with zero cost
- Useful communication between farmers thus less environmental degradation

Prerequisites/limits :

- a smartphone & a basic technology usage knowledge
- Needs a shepherd to accompany the flock



Aim:
improve grazing
routes & share
information



How to address...









Forage production

***6 solutions
2 tips & tricks***



Solutions proposed by EuroSheep

Solution name	Country
Producing high feed value grass silage	
Protocol for forage analysis	
How to produce high-quality grass-silage	
Use of portable NIR'S to assess forage feed value	
Practical guide for conservation methods	
Forage Nutritional Value Tool	

Tips and tricks related to forage conservation

- [Italian T&T – Hygrometer – YouTube](#)
- [Greek T&T – Portable hygrometer – YouTube](#)



Producing high feed value grass silage



Background

- Silage feed value is the combination of nutritive value and intake potential (both impacted by digestibility)
- Silage feed value - a key factor influencing:
 - ewe body weight at lambing
 - lamb birth weight
 - concentrate feed level required to achieve a given level of animal performance
- Target silage - > 75% DMD or 11.4 MJ/kg DM
- Each 5% unit increase in digestibility increases finishing lamb carcass gain by 46 g/day



Producing high feed value grass silage



How to implement:

1) Fertilizer application:

- apply 120 and 100 kg N/ha for first and second harvest
- base P and K application on soil analysis and crop requirement

2) Date of harvest:

- digestibility declines by 3.3% units for each week delay in harvest
- harvest prior
 - to seed head emergence
 - dead material accumulation at base of sward

3) Wilt:

- target DM at least 25% for clamp silage and 30% for baled silage
- rapid wilt essential
 - spreading herbage evenly on the ground
 - solar radiation

4) Reduce chop length but digestibility is key factor influencing feed value

5) Ensile, consolidate and seal rapidly

Expected benefits:
Producing high feed value grass silage

- improves animal performance
- reduces concentrate supplementation
- Increases flock profitability



Protocol for forage analysis

Need / issue: Forage feed value (ewe)

Aim: To give advice on interpretation of silage/forage analysis and methodology for collecting and submitting samples to a lab for testing.

Description:

Forage such as silage and hay form the base of most sheep rations in the UK. However, as this is such a variable product, it is vital to have an analysis to ensure the nutritional requirements are being met from the ration and how best to complement silage with appropriate concentrate if required.





Protocol for forage analysis

How to implement:

- The factsheets and videos ([Video 1](#) and [2](#)) inform on how to do regular analysis of forage.
- The guides include [how to sample, what analysis is required from laboratory, interpretation of results and visual assessment on farm.](#)

Expected benefits:

- Improved uptake of forage analysis provided by the guidance on how to sample and interpret results
- Forage analysis allows full assessment of the ration to ensure nutritional requirements are being met, therefore improving production and efficiency

Prerequisites and/or limits:

- Analysis must be acquired from laboratory
- Cost of analysis

How to produce high-quality grass-silage



Need/issue: Conserved forage production (hay, silage...)

Aim : Improvement of the quality of conserved forage and animal nutrition.

Description :

Baled silage is forage that is packed at higher moisture than hay – between 40% and 60%. It takes one-half to one-third of the drying time of hay, which allows a quicker operation than traditional harvest dry hay, limiting, in the meantime, the adverse effects of rapid change in weather conditions. The high moisture and lack of air within the sealed bale promote fermentation, which preserves forage quality.

Wrapped grass silage bales, also known as baleage, may be produced from any forage, grass or crop that would be used for conventional silage, cultivate at both autumn and spring seeding time.



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Aim:
quality of
conserved
forage

How to produce high-quality grass-silage



How to implement: The production steps are as follows:

Cutting: from bud-stage to less than 50% of blossoms (early-bloom stage) in legumes, and from elongation phase to seedhead emergence in grasses.

Wilting period: reaching biomass humidity of 40% DM (dry matter) in grasses, 40% - 50% DM in legumes.

Windrowing: Mow forage into wide thin windrows for exposure to sunlight while wilting.

Baling: the bales should be dense, without air pockets and well-shaped; utilize a silage-type baler with variable-size bale chamber and use a lactobacillus bacteria inoculant to improve fermentation.

Round-Bale Wrapping: Plastic film must have a 50 % stretch factor, be resistant to ultra violet light, have good tear strength and be able to adhere well. It is preferable to use film of 75 cm width

Storage: Gentle handling of bales before and after wrapping. Repair tears and holes to prevent spoilage and secondary fermentation. Store bales in a clean, relatively level area with no sharp stones. Stack bales to reduce sunlight exposure to save plastic and reduce sweating.



Expected benefits: Improvement of Forage quality; decrease of ruminant feeding cost;

Prerequisites/limits : Adequate machine park. Moisture meter for fodder with swath plate. Spraying barrel for ferments positioned on the packing machine

Use of portable NIR'S to assess forage feed value



Need/issue: Forage feed value

Aim : To assess in situ (on-farm), the nutritional content of the fodder used to feed ruminants in a rapid and precise way

Description :

Incorporate portable NIR technology for forage analysis as a useful tool for technical advice in ruminant rationing.

Nutritional assessment of the forages used to feed ruminants can be done at two times:

- i) at the time of harvesting using **NIR equipment incorporated in the harvesting machine,**
- ii) or once the **forage has been conserved and stored at the farm, using portable NIR equipment**

Aim:
Forage feed value *in situ*



Use of portable NIR'S to assess forage feed value

How to implement:

- From forage or silage samples at the farm: direct reading is made with the NIR, generating the corresponding spectra.
- Sampling at harvesting: spectra can be generated at the moment of harvesting when the grass/crop goes through the discharge pipe.

Expected benefits:

- analysis of a high number of forage samples at the farm gate, fast, reliably and at a reasonable cost
- Improve the efficiency of rationing and feed formulation
- Promote food self-sufficiency
- Sustainability of livestock farming

Prerequisites/limits :

- calibrate the portable NIR.
- A sampling protocol is key for the NIR technique to achieve the desired and necessary accuracy.
- The curves obtained need to be validated and, if necessary, updated.



Aim:
Forage feed value *in situ*

Practical guide for conservation methods

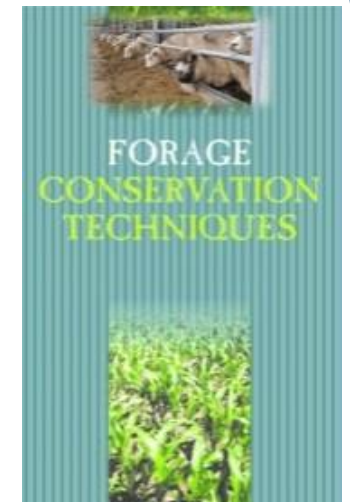


Need/issue: Conservation of forage production (ewe)

Aim : To provide practical guidelines for conserving forages in animal nutrition

Description :

- ✓ Forages can be conserved to feed livestock during periods of shortage, caused by limited pasture growth or inadequate pasture conditions. Conservation technique should consider the suitability of the forage for a given procedure, storage capability, weather conditions, and the intended use.
- ✓ The selected conservation technique should maximize nutrient conservation efficiency and minimize production costs.



Aim:
maximize nutrient
capacity of
conservation
methods



Practical guide for conservation methods



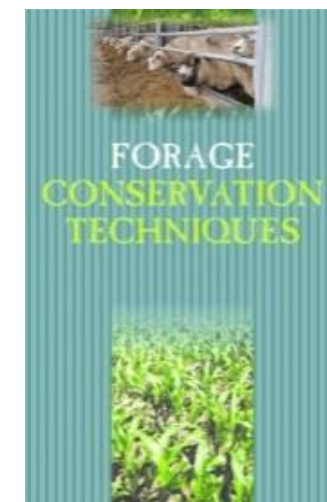
How to implement: Drying would be the most convenient method, and silage and or haylage making would be also recommended. Types of wheatgrass are more appropriate for silage, and legumes are better for haylage. Using protective additives such as organic acids or microbial inoculants would help to prevent mold growth. Storage in a good ventilated environment is necessary

Expected benefits:

- The protein in the forage will be preserved, reducing the purchasing of protein supplements.
- To reduce feed costs.

Prerequisites/limits :

- Causes an increase in labour force.
- Requirements may change according to the types of forage.



Aim:
maximize nutrient
conservation
efficiency

Forage Nutritional Value Tool



Need/issue: Knowledge of nutrition requirements

Aim : The evaluation of forage and feedstuffs composition

Aim:
evaluation of
forage and feedstuffs
composition

Description :

Excel tool. It calculates the **energy and nutritional evaluation of forages or feedstuff** in general, taking into account the common analysis values. It is based on the equations from INRA 2007. Really useful to **estimate the energy content of forage, concentrate or compound feed** in order to be more accurate in the feeding recommendations or in the diet evaluation. It is able to calculate the **protein fractions (PDIE, PDIN)** and **ration balance** as well, and to **provide some data about the digestibility, degradation ratio and other nutritional parameters** from INRA databases.

Forage Nutritional Value Tool



- **How to implement:**

Download the file in your computer (free)

- **Expected benefits:**

- Better information about the features of rations.
- More appropriate use of forages.
- Feeding based on estimated expected yields.

- **Prerequisites/limits :**

- Excel 2016
- Training

Aim: evaluation of
forage and
feedstuffs
composition

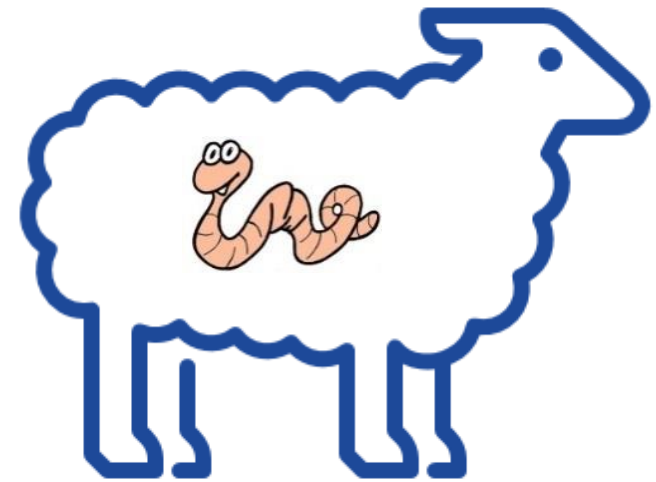


How to address...











Internal parasitism

8 solutions
2 factsheets
5 tips & tricks



Solutions proposed by EuroSheep

Solution name	Country
Reducing anthelmintic resistance	
Nematodirus control - forecast and anthelmintic use	
Flock Biosecurity	
Mixed grazing of cattle and sheep to limit parasite infestation	
Coprology control after antiparasite treatment	
The FAMACHA score assessment	
Use of Targeted Selected Treatment (TST) for ewe lambs	
SCOPS forecast for nematodirus (website)	

Tips & Tricks

- [UK Tips & tricks - aide-memoire for withdrawal dates – YouTube](#)
- [UK Tips & tricks - dosing gun holder – YouTube](#)
- [French T&T sheep skate – YouTube](#)
- [Turkish T&T Pill swallowing probe – YouTube](#)
- [Irish T&T Temporary sheep marker - YouTube](#)

Factsheet

- [Genetics of gastrointestinal nematodes resistance - EuroSheep Network](#)
- [Coccidiosis – EuroSheep Network](#)

Reducing Anthelmintic Resistance(AR)



Background

- Internal parasites major cost to industry
 - losses in productivity
 - cost of control measures
- Anthelmintic resistance - ability of stomach worms to survive a worm treatment
 - becoming a problem on many sheep farms
- Need to know - if products are effective on your farm
 - management changes required to reduce AR

How to determine AR on farms

- Faecal egg count reduction test (FECRT)
 - dung sampling prior to and post dosing
 - AR is suspected if <95% reduction in FEC



Reducing Anthelmintic Resistance



1

- Don't dose adult ewes unless demonstrated need

2

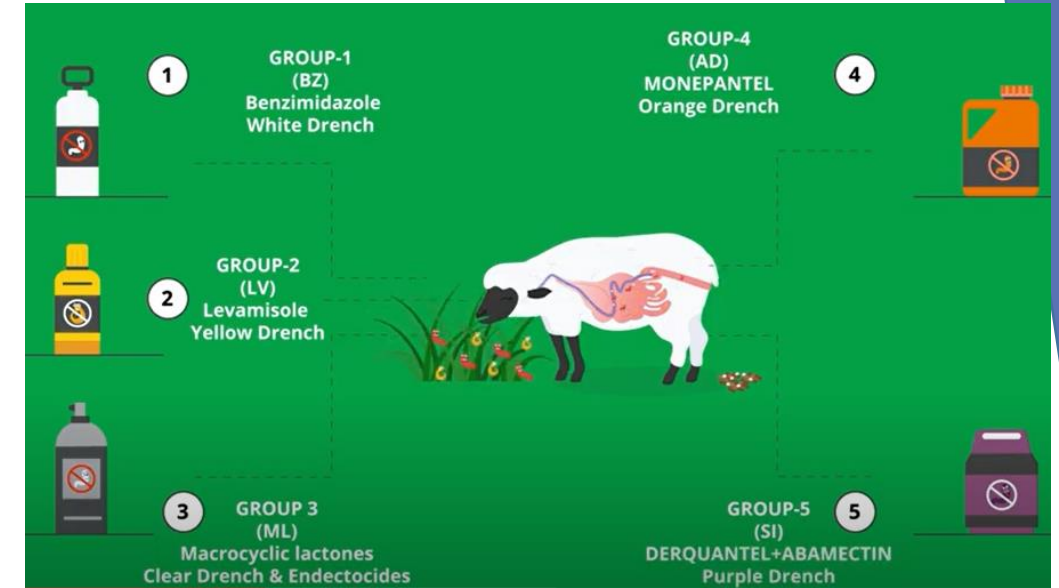
- Use group 1-Benzimidazole to treat *Nematodirus*

3

- Quarantine drench sheep on arrival to farm

4

- Drench test/faecal egg count



Expected benefits:

- Prolong the efficacy of anthelmintic products
- Increase flock performance and profitability

Nematodirus control - forecast and anthelmintic use



Background: primarily effects lambs 6 to 12 weeks of age

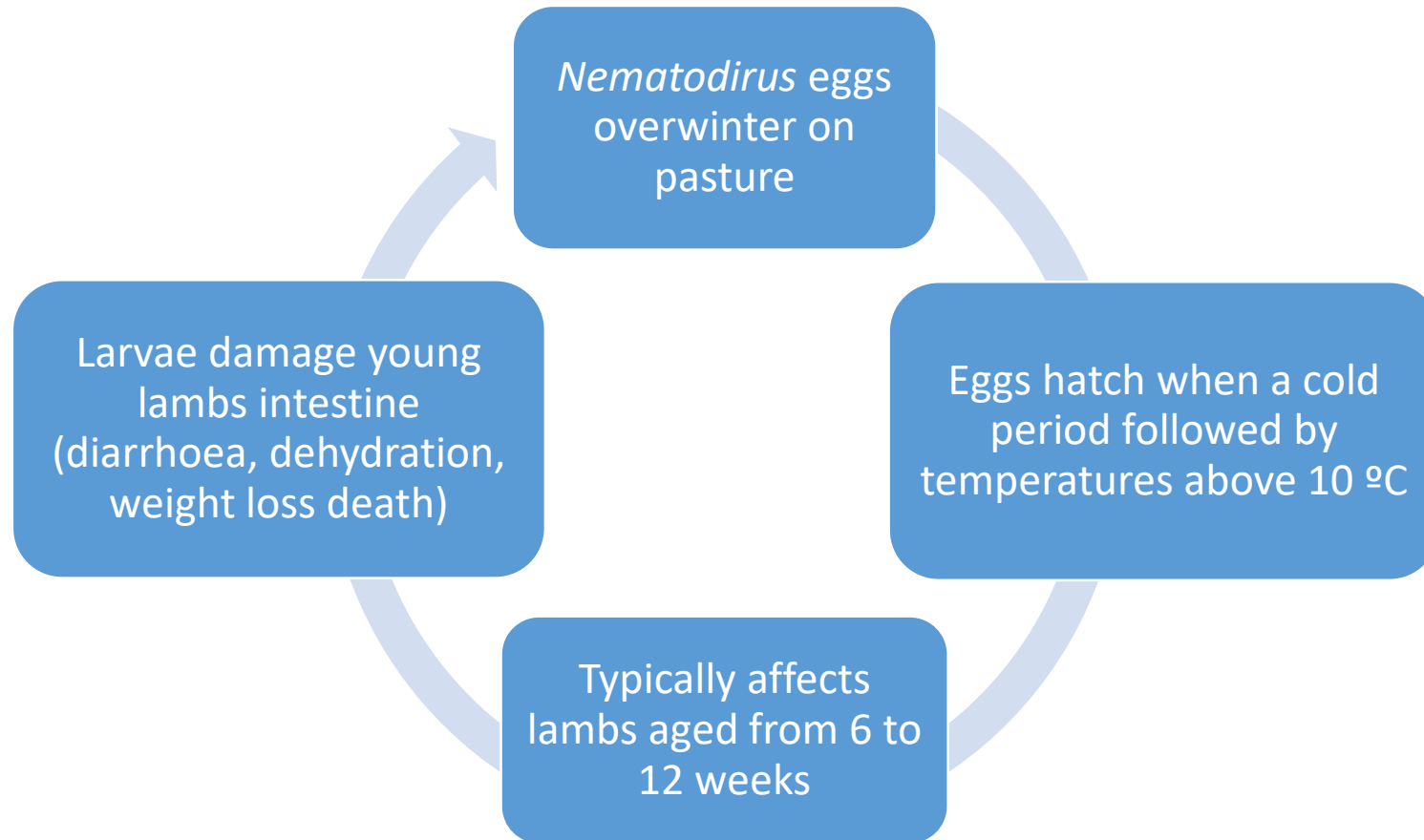


Figure 1. *Nematodirus* lifecycle

Nematodirus control - forecast and anthelmintic use



How to implement:

- Determine treatment from
 - DAFM forecast
 - clinical signs
 - farm risk
- Clinical signs include
 - diarrhoea, dehydration, wasting
 - lambs may stop eating so the diarrhoea may only consist of slimy mucus
 - dehydrated lambs may congregate around watering troughs

Treatment

- treat with a benzimidazole based product to preserve the efficacy of other drenches later in the season
- no residual activity against *Nematodirus* so a second treatment may be necessary
- if possible try not to have lambs on high risk pasture

Expected benefits:

- Correct timing of treatment will positively affect lamb performance
- Use benzimidazole products to prevent anthelmintic resistance on farms

Flock Biosecurity



Background

- Some diseases (e.g. CODD, iceberg, abortion) are
 - highly infectious
 - can spread rapidly
- Purchased sheep can introduce
 - highly infectious disease
 - parasites
 - anthelmintic resistance
- Important for the improvement in health, welfare and productivity of animals
- Will reduce the incidence of disease on farms



Flock Biosecurity



- **How to implement**



Purchasing

Buy from flocks that have a good health status and vaccination program



Lameness

Quarantine for 4 weeks and observe for issues



Worms

- Dose with Group 4-AD + either Group 2-LV /Group 3-ML
- House for 48 hours
- Graze contaminated pasture



Liver fluke

Use flukicide for immature fluke, graze sheep on low risk pasture and dose again in 6 weeks



External parasites

Plunge dip sheep on arrival with an approved dip



Vaccinations

- Vaccinate purchased ewes against enzootic abortion
- Vaccinate for clostridial diseases



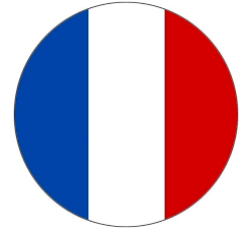
Fencing

Prevent contact with neighbouring or straying stock that may have disease

Expected Benefits:

- Reduce the spread of disease and anthelmintic resistance which negatively affects animal productivity

Mixed grazing for cattle & sheep as a solution to limit parasite infestation



Need/expectation addressed: Internal parasitism - **gastrointestinal strongylosis**

Aim:

- to propose mixed grazing of cattle and sheep to limit parasite infestation
- **To reduce** the risk of parasites and the number of **parasite treatments** required during a production cycle
- Cattle and small ruminants do not share the same type of strongylosis
- By using the same plots, bovines **proceed to “clear”** sheep from being infested by parasites, with the opposite being possible too.

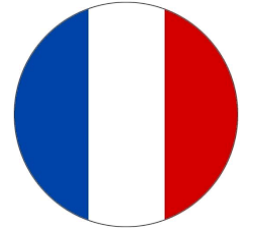


Two methods of applying mixed sheep-cattle grazing:

- Through rotation of sheep flocks and cattle herds on the same plot or through simultaneous mixed grazing of both species.
- For cleaning to be beneficial on both sides, a ratio in LU close to the parity is required. Ideal ratio = one fully grown cow for 5 to 6 ewes

**Inter-species
synergy**

Mixed grazing for cattle & sheep as a solution to limit parasite infestation



- **How to implement it:**

- Mixed or rotational grazing requires thought on **livestock management**, appropriate **fencing** for both systems...

- **Expected benefits**

- Decrease in egg excretion often exceed 50% and sometimes as high as 75%
- mostly seen on ***Haemonchus contortus***
- better growth of lambs and of replacement ewe lambs
- The positive effect of mixed grazing is not as apparent on cattle

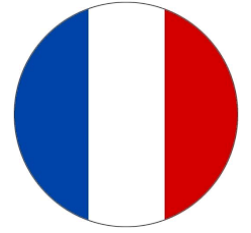
- **Prerequisites and/or limits:**

- Two productions, sheep and cattle, on the same farm.
- Fencing adapted to both productions.



Inter-species
synergy

Performing a coproscopic analysis after an antiparasite treatment

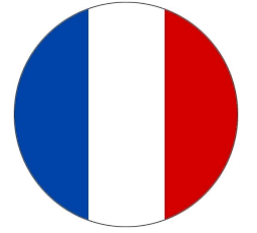


- **Need/expectation addressed:** Internal parasitism - **gastrointestinal strongylosis**
- **Aim:** To detect gastrointestinal strongyles resistance to pest control treatments on farms
- Day 0: two groups of 10 animals are identified within the same lot (ewe lambs, young ovines, ewes). The first group will act as a control group. These animals won't be given any treatment. The second group will be given a treatment
- 14 days post-treatment (day 14): both groups' faeces are collected and sent to a lab
- A pooled sampled coproscopic analysis is conducted for both groups at the lab
- Results



Know in order to
adapt

Performing a coproscopic analysis after an antiparasite treatment



- **How to implement it:**
- Equipment: single use gloves, plastic bags/jars, a drug containing the active substance to test
- **Expected benefits:**
 - Quick learning of how **efficient** a **pest control molecule will be on a farm**
 - **Adapting** the pest control strategy:
 - reasonably using a molecule proved to be efficient
 - changing the chemical family if the first one proved to be inefficient.
- **Prerequisites and/or limits:**
 - Requires the use of a laboratory or veterinarian
 - Respect deadlines: efficiency control has to be carried out on the 13th, 14th or 15th (at the latest) .
 - Cost: 12-15€/analysis (per group). The laboratory will charge 30€.



Know in order to
adapt



The FAMACHA score assessment

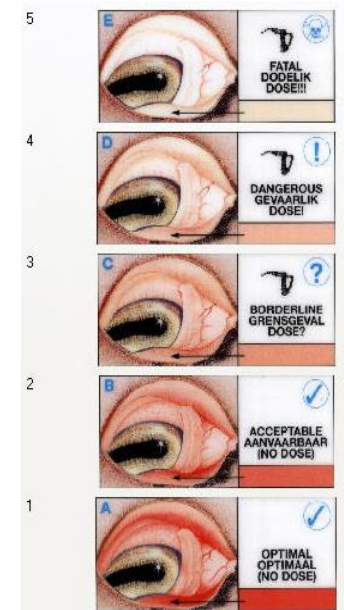


Need/issue: Internal parasitism (ewe/replacement)

- **Aim :** to treat animals towards more efficient parasite control with reduced antibiotic and anthelmintic use

Description :

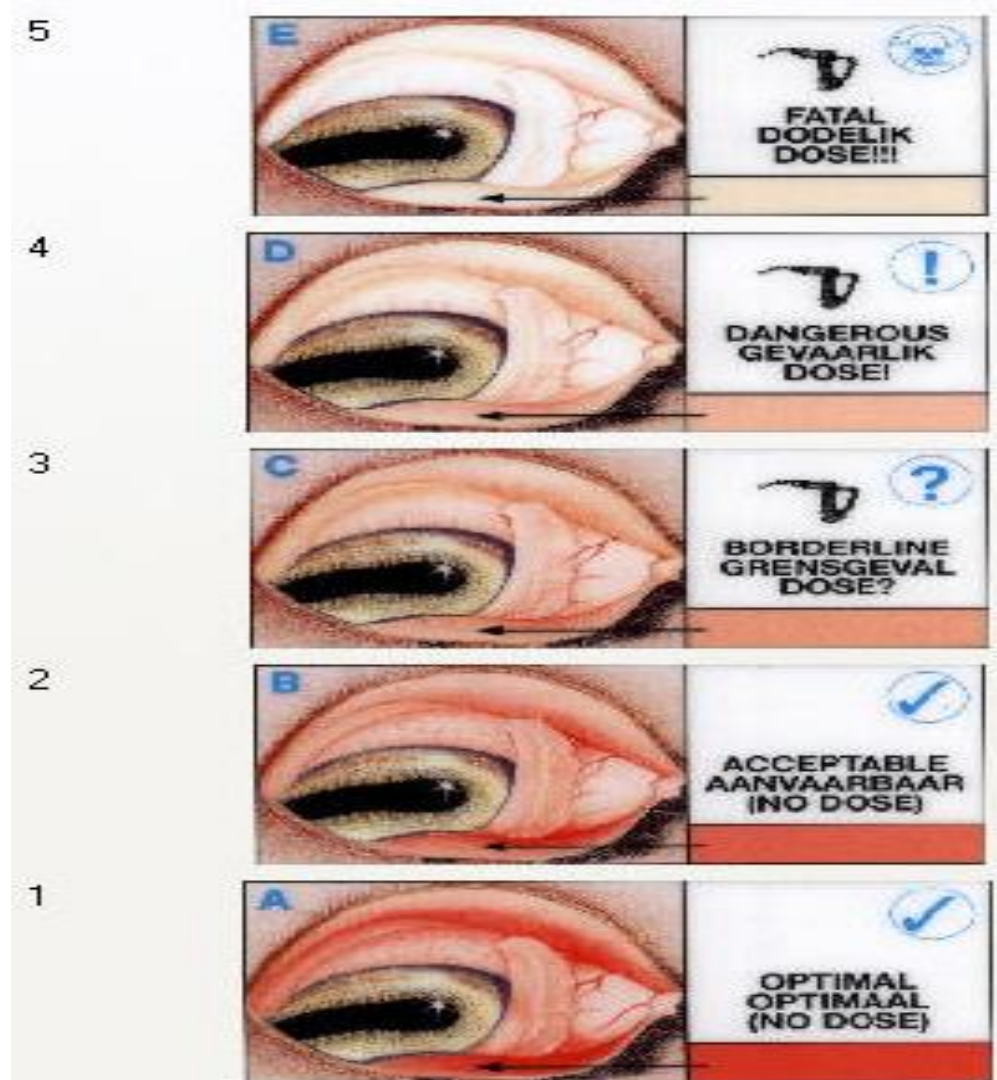
- ✓ Targeted selective treatments (TST) have been recently proposed to reduce anthelmintic usage and help to maintain populations in refugia.
- ✓ By far the best-known example of a TST indicator is the FAMACHA.
- ✓ The FAMACHA aimed to facilitate the clinical identification of sheep infected with worm for example *H. contortus* by comparing the colour of the ocular conjunctival mucosae with a colour card.
- ✓ It is a simple procedure to get an approximation of the parasite load sheep are carrying.



Aim:
simple procedure
of the parasite
load



The FAMACHA score assessment



- **How to implement:** The colour of ocular mucous membranes was classified into one of five categories according to the FAMACHA eye colour chart;

- 1 (A) = red, non-anemic;
- 2 (B) = red-pink, non-anemic;
- 3 (C) = pink, mildly anemic;
- 4 (D) = pink-white, anemic;
- 5 (E) = white, severely anemic.

Aim:
simple procedure
of the parasite
load



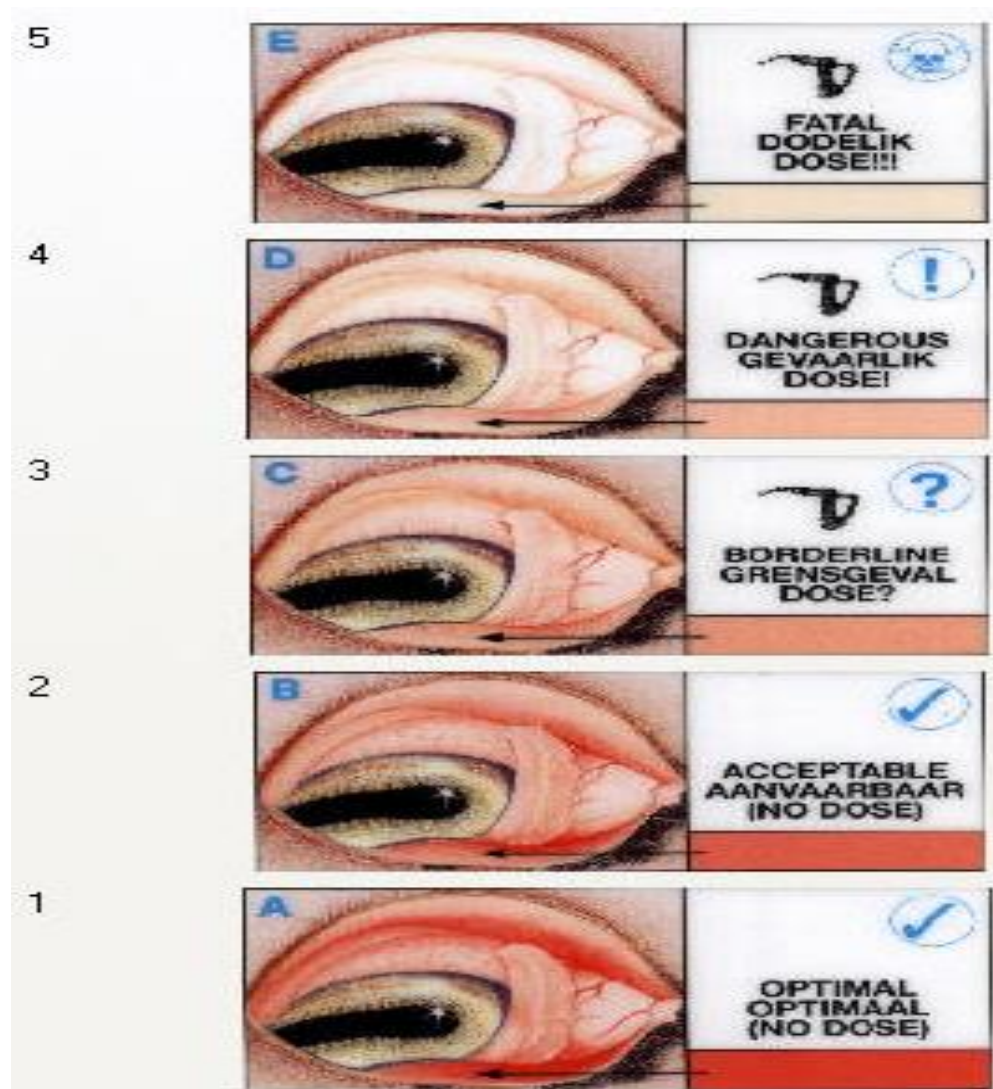
The FAMACHA score assessment



INSTRUCTIONS FOR USE

1. Examination

- Examine sheep in good, natural light
- Open the eyelid as shown in the sketch
- Push the upper eyelid down with the upper thumb, while the lower thumb gently pulls the lower lid downward
- Look especially at the colour inside the lower eyelid
- Open the eyelid for a short time only, or else the mucous membrane may become redder
- Compare the colours seen to those on the reverse side of this card
- Score the sheep A to E and proceed as explained in the pamphlet
- If in doubt, score the sheep at the lower (paler) category
- Examine weekly and no less than every 2 weeks





The FAMACHA score assessment

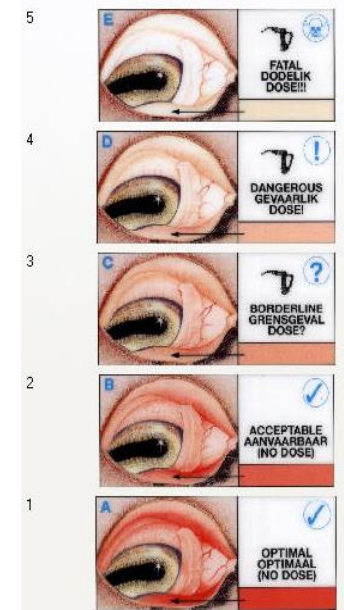


- **Expected benefits:**

- Internal parasite status in the flock can be detected by farmers in a simple, quick and inexpensive way

- **Prerequisites/limits :**

- only properly trained persons should use this card
- read the full information pamphlet carefully before using the guide
- use this guide for the only sheep
- this chart is an aid in the control of wireworm only
- paleness or reddening of eyes may have other causes,
- The FAMACHA-test, not the only tool used to decide to deworm, maintain standard worm control measurements such as the FEC would be necessary
- It may not be sufficient in detecting all sheep infected



Aim:
simple procedure
of the parasite
load

Use of Targeted Selective Treatment (TST) for ewe lambs



Need/issue: Internal parasitism (ewe & replacements)

Aim : To **reduce resistance** to anthelmintic products

Description :

- The TST approach relies on treating only the animals that need anthelmintic treatment
- An algorithm ("**Happy Factor**") calculates the **individual animal target weight** every month, based on its previous weight and the amount of grass available to eat during that period.
- The treatment of animal is based on the animal reaching its individual target weight or not:
 - If actual > target weight -> no treatment
 - If actual < target weight -> treatment



Aim:
Reducing
anthelmintic
use by 40%

Use of Targeted Selective Treatment (TST) for ewe lambs



- **How to implement:**

- Measure grass biomass 2 weeks before TST treatment
- Send lambs weights collected at previous event
- Calculate target weight for each lamb
- Upload on TruTest

- **Expected benefits:** **reduce** anthelmintic use & labour **by 40%** without compromising growth

- **Prerequisites/limits :**

- You must weigh your lambs & measure grass regularly
- Handling system with an **EID weigh crate**
- Access to the **Happy Factor algorithm**



Aim:
Reducing
anthelmintic
use by 40%

SCOPs information including the nematodirus forecast

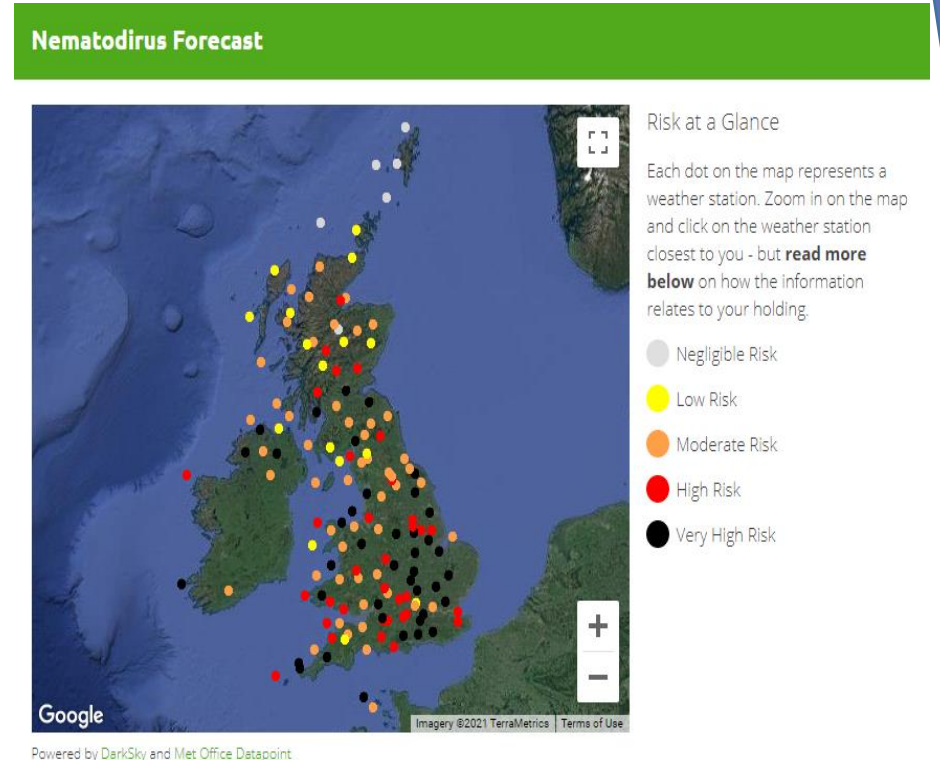


Need/issue: Other internal parasitism (lambs)

Aim : To provide solutions for **early detection and treatment** of nematodirus

Description :

- SCOPs (Sustainable Control of Parasites) **webpage** contains a range of tools and information associated with the detection, control and treatment of various internal and external parasites.
- **Tools** of particular interest
 - Nematodirus forecast (UK based)
 - “Know your anthelmintics” publication



Aim:
Early detection
of nematodirus

SCOPs information including the nematodirus forecast



- **How to implement:**

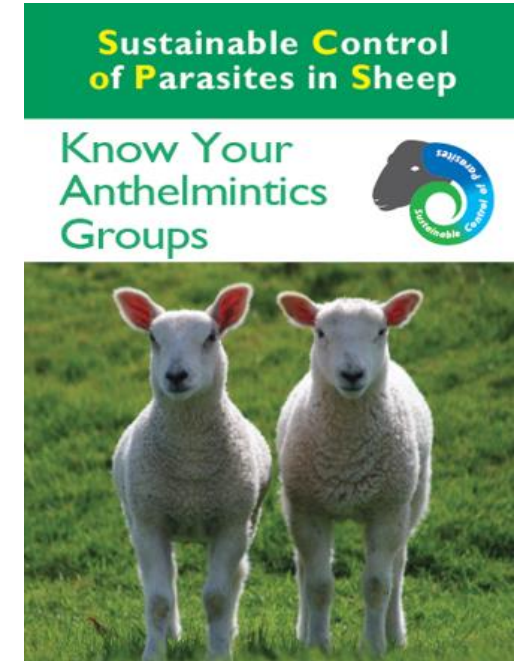
- Assess risk of nematodirus using the local weather forecast data and other information in conjunction with the grazing history of your farm.
- If treatment is required consult “Know your anthelmintics” guide and other literature available on the webpage.

- **Expected benefits:**

- Identifying when different groups of lambs are at risk
- Prediction of nematodirus hatch date -> appropriate action can be taken on farm.

- **Prerequisites/limits :**

- Only UK forecast (potential adaptation?)
- Access to local weather data.
- Knowledge of grazing history.
- Farmers should be aware of how to administer treatment effectively.
- Good handling facilities.



Aim:
Early detection
of nematodirus



How to address...








Lameness

***5 solutions
3 tips & tricks***

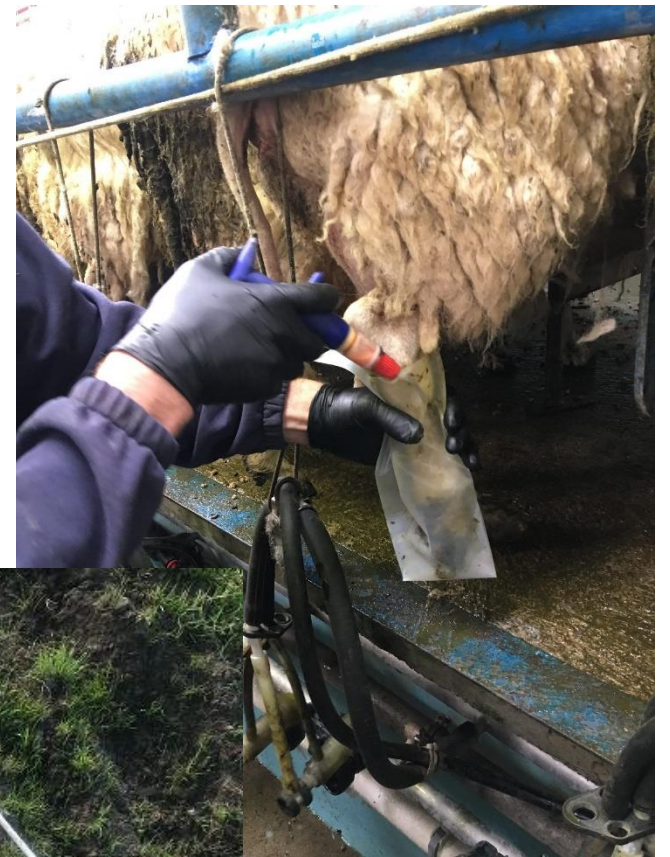


Solutions proposed by EuroSheep

Solution name	Country
Controlling lameness	
How to recognise different causes of lameness	
Guidelines to manage foot-bathing	
Design and strategy of the hoof bath	
Targeted drainage system in the grassland	

Tips & Tricks

- [Irish T&T Footbathing tips – YouTube](#)
- [Lameness tube](#)
- [UK T&T Supercrook](#)



Lameness: Causes + Solutions



Background

- Lameness
 - common cause of welfare and economic concerns
 - reduces ewe and lamb performance
 - main causes are interdigital dermatitis (scald), footrot and contagious ovine digital dermatitis (CODD)



Scald:

- Red, moist interdigital space
- May be white/grey pasty scum
- Loss of hair in interdigital space



Footrot:

- Some separation of horn from the underlying live tissue
- Foul smelling grey dead tissue



CODD:

- Loss of hair above coronary band
- Separation of horn from coronary band
- Blood with some grey scum, no strong smell
- Hoof horn can completely detach

Lameness: Causes + Solutions



Treatment

- Footbath for scald and footrot



- Lamé sheep should be kept separate from main flock until cured
- Footrot vaccine can be used if persistent flock issue
- Record and cull persistently lame ewes
- Alternatively treat scald with oxytetracycline spray and footrot with long acting antibiotic under veterinary supervision
- CODD requires prescribed antibiotic under veterinary supervision

Benefits:

- Improvement in animal welfare
- Reduction in economic losses associated with lameness

How to recognise different causes of lameness

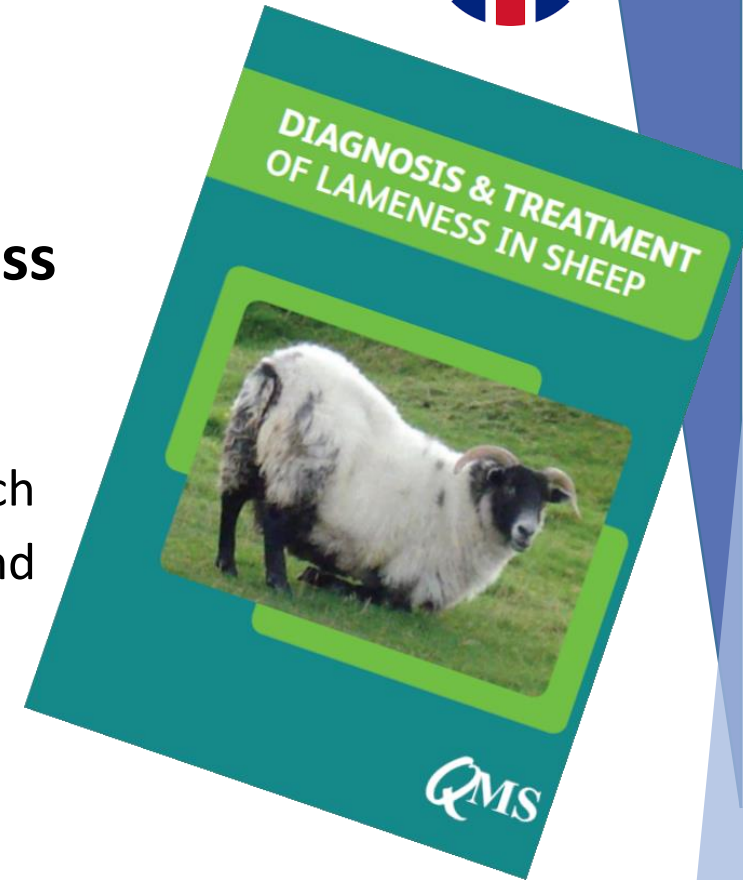


Need/issue: Lameness (ewes, lambs & replacements)

Aim : To help **recognise and treat** different causes of **lameness**

Description :

- Quality Meat Scotland (QMS) have produced a useful pocket guide which can be used while handling sheep in the pen to ensure correct diagnosis and treatment options.
- General tips on foot care
 - Identifying a normal, healthy foot
 - Guide on how to correctly diagnose and treat various causes of lameness
 - Best practise guides for foot bathing and trimming



Aim:
Correctly
identifying and
treating
lameness

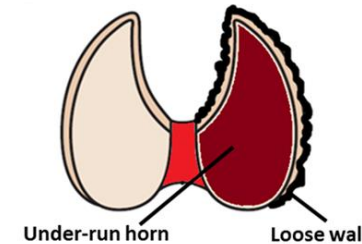
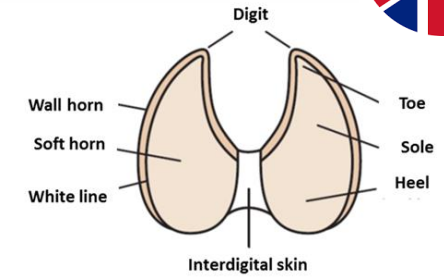
How to recognise different causes of lameness



- **How to implement:**

- Regular foot inspection

- **Expected benefits:** The correct diagnosis and treatment of lameness will **improve welfare & productivity**. Other potential benefits include **reducing** the amount of **antibiotics** used.



- **Prerequisites/limits :**

- **Awareness** of the impact **environmental conditions** can have on the level of incidence.
- **Awareness** of the **appropriate antibiotics** to use and how to administer them **effectively**.

Aim:
Correctly
identifying and
treating
lameness

Guidelines to manage foot-bathing

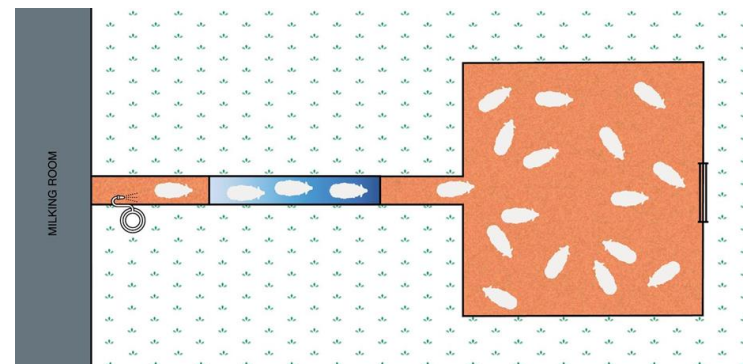
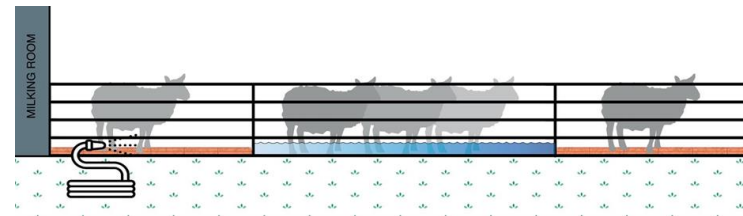


Need/issue: Lameness (e.g. footrot, CODD, scald, etc.)

Aim : Guidelines for appropriate managing of foot-bathing in order to prevent and control footrot and related lameness in ovine

Description :

Foot-bathing is regarded as a method to disinfect the foot of sheep after they are gathered in restricted areas in farm with a history of lameness. When a group of sheep stay in a confined area for a given period have higher probability to being infected each other. For this reason, farmers should pass systematically them through a foot-bath.



Aim:
Managing of
foot-bathing

Guidelines to manage foot-bathing



• How to implement:

- In farm with a history of lameness, treatments should be carried out every time the sheep are kept and gathered in a small space at least once *per* day.
- Treatment periods should be considered whenever the disease is clinically present and, as a preventive measure, one to two months before the season historically considered at risk (wet season) for disease occurrence.
- the foot bath must be localized short after the milking room or the barn where sheep spend the night.
- For treatments it is suggested a 10% zinc sulphate or a 10% copper sulphate solution on which sheep need to stand in at least for 5-10 minutes.
- A systemic antibiotics treatment on infected animals under the advises of a vet should be taken in consideration in order to mitigate possible spreading of the infection in healthy animals.
- In order to establish the corrected dilution of the chemical treatment the farmer should know the volume of the foot-bath.
- Organic material such as mud or faeces in the feet can render the chemical treatment less effective or inactive.
- Let leave sheep' feet to dry for at least 20 minutes on a hard surface before come back to graze To make the treatment effective, the foot-bath must be refilled with a frequency depending on the product, the size of foot-bath and the number of the sheep submitted to the treatment.
- Farmers should be aware of the health risks of chemicals used for the treatment. It is suggested to wear correct personal protective equipment and use the products in a ventilated space.

- **Expected benefits:** standardized approach for the control and eradication of footrot and related lameness which allow to reach optimal well-being and economical benefits, including milk production

Design and strategy of the hoof bath



Need/issue: Lameness

Aim :to control the incidence of lameness.

Description :

Design of a footbath, consisting of 3 pools of 1.5 m long, with a striped floor so that the hoof opens up and comes into contact with the product when stepping on it.

- 1st with soapy water and
- 2nd and 3rd with disinfectant solution, formalin or copper sulfate.

All pools must have a drain plug.



Aim:
Control incidence
of lameness

Design and strategy of the hoof bath



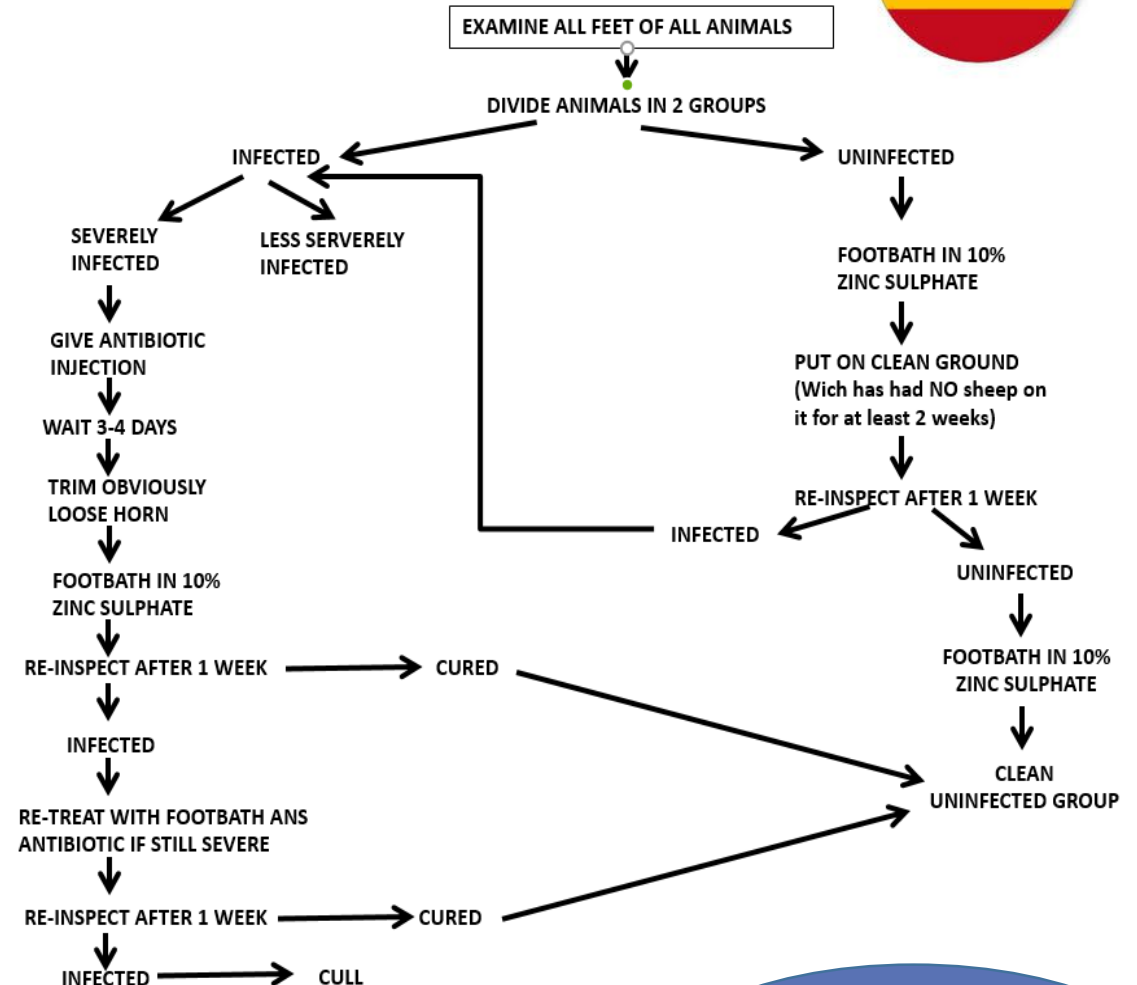
How to implement:

Expected benefits:

- Control and reduce the incidence of lameness,
- Higher fertility and production in adult ewes and average daily gain in lambs.
- Reduced costs, treatments and labor

Prerequisites/limits :

- Hoof bath
- Maintain the hoof bath product in hygienic conditions



Aim:
Control the
incidence of
lameness

Targeted drainage system in the grassland



Need/issue: Lameness (ewe/replacement)

Aim : To provide solutions for different causes of lameness on pastures

Description :

- ✓ Wet pasture can increase microbial activity in the feet and cause deterioration of the tissue between the nails, nail rot, and joint inflammation during wet season.
- ✓ Protective measures are needed to avoid lameness caused by pasture ground.
- ✓ For this aim artificial sets or steeply-sloping areas can be established in the grasslands with very low cost.



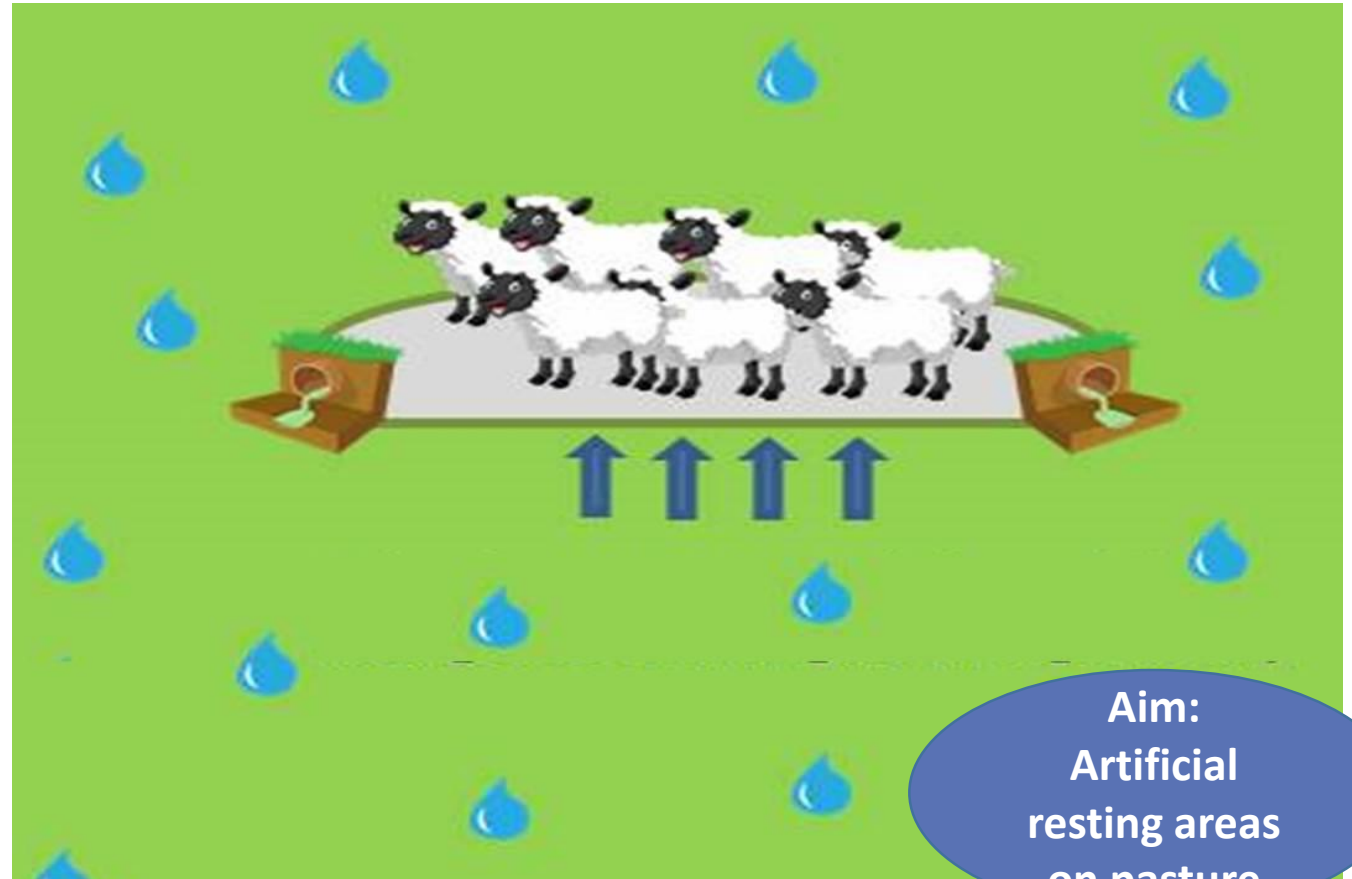
Aim:
Artificial
resting areas
on pasture

Targeted drainage system in the grassland



How to implement: Artificial mounds can be formed prevent to microbial growth and reduce lameness

- Drainage pipes can be placed inside these areas to increase drainage
- Following the sheep have finished grazing on wet pastures should be taken resting or rumination in these areas.
- During this time, the damp foot can dry, and microbial proliferation that can cause lameness can be prevented.



Aim:
Artificial
resting areas
on pasture

Targeted drainage system in the grassland



Expected benefits:

- Reducing lameness
- Improve animal welfare and productivity
- Reducing treatment costs and the amount of antibiotics used.

Prerequisites/limits :

- Low cost
- These areas should be created in a way that does not damage the pasture
- Good handling facilities



Aim:
Artificial
resting areas
on pasture

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EuroSheep
European Knowledge Exchange

HEALTH

The FAMACHA score assessment
Nov 2, 2021 | Dairy, Improve Health, Meat, Turkey

Clinical category	Color	PCV	Tx recommendation
1	Red	≥ 28	No
2	Red-pink	23-27	No
3	Pink	18-22	?
4	Pink-white	13-17	Yes
5	White	≤ 12	Yes

Good machine-milking practices for prevention of mastitis
Oct 21, 2021 | Dairy, Improve flock management, Improve Health, Italy, Practical Solution

Nematodirus Control
Oct 20, 2021 | Dairy, Improve flock management, Improve Health, Ireland, Meat, Practical Solution

SCOPs information including the nematodirus forecast
Oct 19, 2021 | Dairy, Improve Health,

NUTRITION

"Feeding the ewe" – feed planning
Dec 14, 2021 | Dairy, Manage nutrition, Meat, Practical Solution, United Kingdom

Lamb growth protocol for performance target
Nov 4, 2021 | Dairy, Improve flock management, Manage nutrition, Meat, Reduce lamb mortality, Turkey

MANAGEMENT

Lamb growth protocol for performance target
Nov 4, 2021 | Dairy, Improve flock management, Manage nutrition, Meat, Reduce lamb mortality, Turkey

Replacement management tool
Oct 26, 2021 | Dairy, Improve flock management, Manage nutrition, Practical Solution, Spain

Good machine-milking practices for prevention of mastitis
Oct 21, 2021 | Dairy, Improve flock management, Improve Health, Italy, Practical Solution

EUROSHEEP NETWORK

European Thematic Network for interactive and innovative knowledge exchange on animal health and nutrition between the sheep industry actors and stakeholders

Open to all stakeholders and sheep producers in Europe and beyond.

Map of Europe showing member countries: UK, France, Spain, Italy, Greece, Turkey, etc.

RECENT POSTS

"Feeding the ewe" – feed planning
Dec 14, 2021 | Dairy, Manage nutrition, Meat, Practical Solution, United Kingdom

Workshop between EuroSheep and Euraknos

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