



By Appointment to Her Majesty the Queen,
Horse Feed Manufacturers,
Dengie Crops Ltd, Essex.

Dengie

LAMINITIS GUIDE



www.dengie.com

WHAT IS LAMINITIS?



Once thought of as a disease in its own right, laminitis is now often considered to be a symptom of another underlying health problem, particularly the endocrine issues EMS (Equine Metabolic Syndrome) and PPID (Pituitary Pars Intermedia Dysfunction formerly known as Cushing's Disease) which are associated with insulin dysregulation. High levels of insulin circulating in the blood have been shown to cause laminitis in research conditions even without an overload of starch or sugar which are often considered to be the final trigger for laminitis.

It is also known that overweight horses have a less healthy digestive system which makes it more permeable - the term "leaky gut" has been used to describe this phenomenon. This allows the contents of the gut to enter the bloodstream and trigger problems elsewhere in the body such as the horse's feet.

In severe laminitis cases the laminae fail, allowing the pedal bone to rotate downward and even push through the sole of the foot. Laminitis is more commonly seen in the front feet – horses often adopt a classic stance of shifting their weight back on to the hind legs to relieve pressure from the front feet. Other symptoms include a pounding digital pulse, heat in the feet and a reluctance to move.

Divergent hoof rings and a stretched or separated White Line are indicators of chronic laminitis



Images courtesy of The Laminitis Site

WHAT IS EMS?



Equine Metabolic Syndrome (EMS) is a metabolic problem characterised by insulin dysregulation, difficulty in achieving weight loss, abnormal adipose distribution, (although not all horses with EMS are overweight), and altered levels of adipokines – fat hormones. The risk of laminitis is increased as a result of changes in the horse's metabolism which is escalated further by environmental factors such as diet.

Symptoms include:

Fat pads and/or a cresty neck

Repeated incidents of laminitis

Insulin dysregulation

In the domestic environment food is always available and this, combined with over-rugging and less exercise, means that some individuals become overweight or obese as they never lose weight. Fat produces adipokine hormones and cytokines which are inflammatory mediators that decrease sensitivity to insulin and result in constant, low grade inflammation.



If you have any concerns about your horse or pony's health, that they may be showing signs of laminitis, EMS or PPID consult your vet as soon as possible.





The horse in this image is obese and at risk of laminitis.

WHAT IS PPID?



Pituitary Pars Intermedia Dysfunction (PPID) formerly known as Cushing's Disease, is a degenerative endocrine disorder that disrupts the control of hormones produced in the pituitary gland. It is common in older horses and ponies but younger individuals can be affected too.

PPID is caused by neurons in the hypothalamus gradually degenerating over time. These neurons are responsible for releasing dopamine to inhibit the production and release of hormones from the pars intermedia, which is one of the three lobes of the pituitary gland. In the absence of a signal to stop, the pars intermedia continues to produce hormones, leading to high levels circulating in the body.

Although not proven yet, there is some suggestion that horses and ponies diagnosed with Equine Metabolic Syndrome (EMS) are more likely to develop PPID/Cushing's Disease later in life.

If you are worried that your horse or pony is showing signs of PPID/Cushing's Disease then you should consult your vet who may carry out a blood test. Veterinary medication prescribed by your vet can help to manage the symptoms and help regulate your horse's hormone levels.

Symptoms include:

Longer, thicker, curly coat that fails to shed in the spring

A pot-bellied appearance

Excessive urination & drinking

Lethargy

Loss of muscle tone

An increased susceptibility to laminitis

MANAGEMENT TIPS



KEEPING WEIGHT UNDER CONTROL



Whilst not all overweight horses and ponies will go on to develop laminitis, there is a link between obesity, insulin dysregulation and the incidence of laminitis. Additionally, obesity also poses health problems in its own right and so is an urgent problem that should be managed.



Regularly body condition score and weigh tape your horse or pony to monitor their weight over time. Take monthly pictures from the side and from behind and compare them through the year to help you identify any weight changes.

Try not to under estimate how much horses can consume at grass. To help restrict calorie intake limit grass access by the use of a grazing muzzle or by the amount of grass made available.

It's important to consider why you are feeding. When additional energy isn't required, the aim should be to provide nutrients that are otherwise lacking in UK pasture and forage such as the trace minerals copper, selenium and zinc.

Exercise can help to increase energy expenditure and so contribute to weight loss. There is some evidence in other species that exercise also helps to improve insulin sensitivity.

MANAGING SUGAR & STARCH INTAKE



Non-structural carbohydrate (NSC) is an analytical term and is the sum of water soluble carbohydrates starch added together. The greatest source of NSC intake for most horses and ponies is grazing and forage. Bucket feed typically makes a smaller contribution simply because it is fed in much smaller amounts, but it is still important to choose feeds that are low in sugar and starch such as Dengie's range of alfalfa-based chopped fibres.

**LOOK FOR FORAGES
THAT HAVE A COMBINED
SUGAR & STARCH (NSC)
LEVEL OF LESS
THAN 10-12%**

PASTURE



Pasture type, environmental conditions and time of day all influence the NSC content of pasture making it difficult to predict levels. NSC content tends to be lower late at night and into the early hours of the morning. Try to avoid frosty, sunny days as sugar production is high but it is too cold for the grass to grow and so sugar is stored.

Any flush of grass is a potential risk and whilst this tends to occur in the spring and autumn, be aware it can occur at any time. Reduce access to pasture at this time to control intake.



For some individuals no grass access may be safest

HAY



Generally a later cut hay that feels coarse and stalky is less digestible and so lower calorie for those that are weight watching.

When it comes to NSC content, testing is the only way to know how much the hay contains. Ideally purchase hay that supplies less than 10-12% NSC on a dry matter basis.

When restricting hay intake the daily ration should be fed in lots of small meals to reduce the time the gut is empty and to increase the total eating time.

Soaking can help to reduce the NSC in hay but only removes a proportion of the total NSC. When soaking hay there is a balance to be struck between reducing NSC content but ensuring the hay

is still edible and safe to feed. For this reason our advice is to soak overnight in cool conditions but in warmer or hot conditions just soak for a couple of hours.



BUCKET FEED



UK pasture and forage typically lack the trace minerals copper, selenium and zinc as well as vitamin E. Even horses and ponies that are overweight need some form of supplementation with these essential nutrients to keep them healthy. Balancers such as Dengie Leisure Balancer or supplements such as Dengie Leisure Vits & Mins

are both very low in NSC but help to provide a balanced diet.

Look for feeds that are very low in sugar and starch – typically those that are whole cereal grain free and contain low levels of or are molasses free are the most suitable.





8.5MJ/kg Digestible Energy – 2.5% sugar – 1.5% starch

HEALTHY HOOVES MOLASSES FREE

A nutritionally-balanced, high-fibre feed containing essential nutrients for healthy hooves

Low-calorie, 8.5MJ/kg of Digestible Energy

No added sugar – contains just 2.5% sugar which is found naturally within the ingredients

Packed with B vitamins, including Biotin to improve hoof quality – provides 15mg of biotin for a 500kg horse when fed at the recommended rate

Includes oil for slow release energy & coat shine, pellets & garlic for interest & taste

Free from molasses & preservatives

When fed at the recommended level no supplement or balancer is required

ANALYTICAL CONSTITUENTS

Digestible Energy	8.5 MJ/kg
Protein	9%
Oil	5%
Fibre	27%
Naturally Occurring Sugars	2.5%
Starch	1.5%
Stubbs scoop weight = 500g approx	

FEEDING RATE

= 500g per 100kgs bodyweight

COMPOSITION:

Alfalfa pellets, oat straw, alfalfa, rapeseed oil, garlic, vitamin & mineral premix



8.5MJ/kg Digestible Energy – 2.5% sugar – 1.5% starch

HI-FI MOLASSES FREE

The ideal high fibre feed for leisure horses & ponies requiring a low sugar, starch & calorie diet

No added sugar – contains just 2.5% sugar which is found naturally within the ingredients

Naturally low in starch at just 1.5%

Low calorie at 8.5MJ/kg of Digestible Energy

Includes real mint, fenugreek & alfalfa pellets for interest & taste

Can be used as a low calorie partial hay replacer

Free from molasses & preservatives

A flexible way to feed – use as much or as little as your horse needs but feed with a balancer or supplement to ensure the diet is balanced

ANALYTICAL CONSTITUENTS

Digestible Energy	8.5 MJ/kg
Protein	10%
Oil	6.5%
Fibre	35%
Naturally Occurring Sugars	2.5%
Starch	1.5%

Stubbs scoop weight = 500g approx

FEEDING RATE

= up to 1kg, per 100kgs bodyweight

COMPOSITION

Cereal straw, alfalfa, alfalfa pellets, rapeseed oil, mint & fenugreek



7.5MJ/kg Digestible Energy – 7% sugar - 1.5% starch

HI-FI LITE

The perfect low-calorie, high-fibre feed for good-doers or overweight horses & ponies

Low-calorie 7.5MJ/kg of Digestible Energy

High in fibre for optimal digestive health

Lower in sugar & starch than hay

Contains a light molasses coating to tempt fussy feeders or those receiving medication

Can be used as a low-calorie total or partial hay replacer

ANALYTICAL CONSTITUENTS

Digestible Energy	7.5 MJ/kg
Protein	10%
Oil	1.5%
Fibre	35%
Sugars	7%
Starch	1.5%
Stubbs scoop weight = 300g approx	

FEEDING RATE

= up to 500g per 100kg bodyweight
Hay replacer up to ad-lib

COMPOSITION

Cereal straw, alfalfa, molasses,
mould inhibitor



11.5MJ/kg Digestible Energy – 4.5% sugar – 2% starch

ALFA-A MOLASSES FREE

Ideal for laminitis prone horses & ponies that need to gain condition or that are working.

Provides 11.5MJ/kg of Digestible Energy from fibre & oil

No added sugar – contains just 4.5% which is found naturally within the ingredients

Low in starch at just 2%

Includes real mint, fenugreek & alfalfa pellets to tempt fussy feeders

High in fibre for optimal digestive health

Free from straw, molasses & preservatives

ANALYTICAL CONSTITUENTS

Digestible Energy	11.5 MJ/kg
Protein	14%
Oil	8.5%
Fibre	27%
Naturally Occurring Sugars	4.5%
Starch	2%
Stubbs scoop weight = 500g approx.	

FEEDING RATE

= up to 500g per
100kgs bodyweight.

COMPOSITION

Alfalfa, alfalfa pellets, rapeseed oil,
mint & fenugreek



ALFALFA PELLETS

10MJ/kg Digestible Energy –
5% sugar – 3% starch

Pure alfalfa providing fibre in a concentrated form

Can be fed soaked, making it ideal for those with poor dentition or PPID, who need low sugar alternatives

Naturally low in sugar & starch

Free from molasses, straw & preservatives

ALFA-BEET

10.5MJ/kg Digestible Energy –
5% sugar – 2% starch

Combination of alfalfa & unmolassed sugar beet

High in fibre providing slow release energy

Aids hydration, naturally low in sugar & starch,
free from molasses, straw & preservatives

Aids hydration, naturally low in starch,
free from molasses & preservatives

ANALYTICAL CONSTITUENTS

Digestible Energy	10 MJ/kg
Protein	16%
Oil	2.5%
Fibre	27%
Naturally Occurring Sugars	5%
Starch	3%
Stubbs scoop weight = 1.6kgs	

FEEDING RATE

= up to 500g per 100kg bodyweight can be fed dry or soaked. See website for details

COMPOSITION Alfalfa

ANALYTICAL CONSTITUENTS

Digestible Energy	10.5 MJ/kg
Protein	14%
Oil	3%
Fibre	32%
Naturally Occurring Sugars	5%
Starch	2%
Stubbs scoop weight = soaked 500g, unsoaked 1.6kgs	

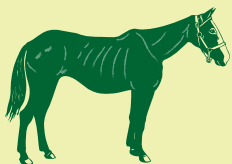
FEEDING RATE

= up to 500g per 100kg bodyweight or up to 1kg per 100kgs bodyweight as a partial hay replacer. For soaking, we recommend three parts water to one part Alfa-Beet.

COMPOSITION Alfalfa, unmolassed sugar beet

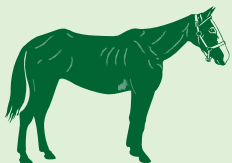
FAT SCORE CHART

Use the following guide to help you ascertain if your horse or pony is overweight. If you're not sure why not take a photo from the side and the rear then send them to our nutrition team who will be happy to help you? Make sure you score your horse or pony regularly to ensure you spot changes early.



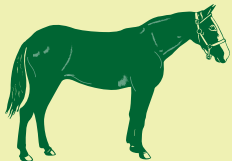
0 - EMACIATED

- No fatty tissue can be felt
- Skin tight over bones
- Shape of individual bones visible
- Marked ewe-neck
- Very prominent backbone and pelvis
- Very sunken rump
- Deep cavity under tail
- Large gap between thighs



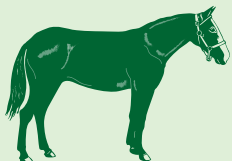
1 - THIN

- Barely any fatty tissue
- Skin more supple
- Shape of bones visible
- Narrow ewe-neck
- Ribs easily visible
- Prominent backbone, croup and tailhead
- Sunken rump; cavity under tail
- Gap between thighs



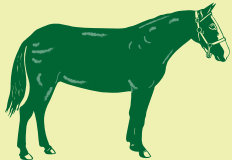
2 - LEAN

- A thin layer of fat under the skin
- Narrow neck; muscles sharply defined
- Backbone covered with a very thin layer of fat but still protruding
- Withers, shoulders and neck accentuated
- Ribs just visible
- Hip bones easily visible but rounded
- Rump usually sloping flat from backbone to point of hips, may be rounded if very fit
- May be small gap between thighs



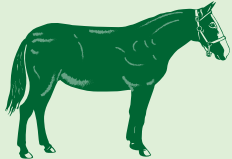
3 - MODERATE

- A thin layer of fat under the skin
- Top line developing and becoming more rounded
- Withers rounded over tips of bones
- Shoulders and neck blend smoothly into body
- Back is flat or forms only slight ridge
- Ribs not visible but easily felt
- Thin layer of fat building around tailhead
- Rump beginning to appear rounded
- Hip bones just visible



4 - FAT

- Muscles hard to determine beneath fat layer
- Spongy fat developing on crest
- Fat deposits along withers, behind shoulders and along neck
- Ribs covered by spongy fat
- Rump well rounded
- Spongy fat around tailhead
- Gutter along back
- From behind rump looks apple shaped



5 - OBESE

- Horse takes on a blocky, bloated look
- Muscles not visible as covered by layer of fat
- Pronounced crest with hard fat
- Pads of fat along withers and behind shoulders
- Extremely obvious gutter along back and rump
- Flank filled in flush
- Lumps of fat around tailhead
- Very bulging apple shaped rump
- Inner thighs pressing together



For further information or friendly feeding advice for your horse or pony
please contact the Dengie Feedline on:

01621 841188

Republic of Ireland customers please call 1800 991 809*

www.dengie.com



Dengie complies with quality assurance schemes such as UFAS and FEMAS that were set up to ensure feed safety. Dengie are approved under the BETA NOPS scheme which means we are recognised as having taken action to reduce the risk of contamination with substances that contravene the rules of racing and FEI disciplines.

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We constantly strive to improve our feeds so slight changes may occur after the printing of this leaflet
Scoops weights and numbers of scoops per bag may vary due to natural variance in raw materials.

*Call charges apply