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UNDERSTANDING THE USE OF BITS, BIT SELECTION & BRIDLE FITTING

Selecting the correct horse bit, size and shape significantly impacts its effectiveness, comfort and performance. Bits are divided into many categories but this article will focus on three main groups associated with Saddle Horses; snaffle bits, pelham bits and curb bits.

THE SNAFFLE BIT

A snaffle bit is the most common type of bit used. It consists of a mouthpiece and two rings. The mouthpieces may be solid, jointed, curved or straight. A snaffle applies direct pressure on the horse's mouth and has no leveraging shank. A bridle utilising only a snaffle bit is often called a snaffle bridle or a single bridle.

The snaffle bit works on several parts of the horse's mouth; the mouthpiece of the bit acts on the tongue and bars, the lips of the horse also feel pressure from both the mouthpiece and the rings. The rings also serve to act on the side of the mouth and, depending on the design, the sides of the jawbone.

A snaffle bit is a non-leverage bit, it does not amplify the pressure applied by the reins. With a snaffle, one ounce of pressure applied by the reins to a snaffle mouthpiece will apply one ounce of pressure on the horse's mouth.

Generally direct pressure without leverage is milder than pressure with leverage. Certain types of snaffle bits can be extremely harsh when manufactured with wire, twisted metal or other rough surfaced elements.

THE PELHAM BIT

The pelham bit has elements of both a curb bit and a snaffle bit, often referred to as a combination bit in Saddle Seat disciplines. A pelham bit functions similarly to the two bit pieces of a double bridle, presenting with two reins, a set of curb reins and a set of snaffle reins, a curb chain, a purchase and with both upper & lower lever arms.

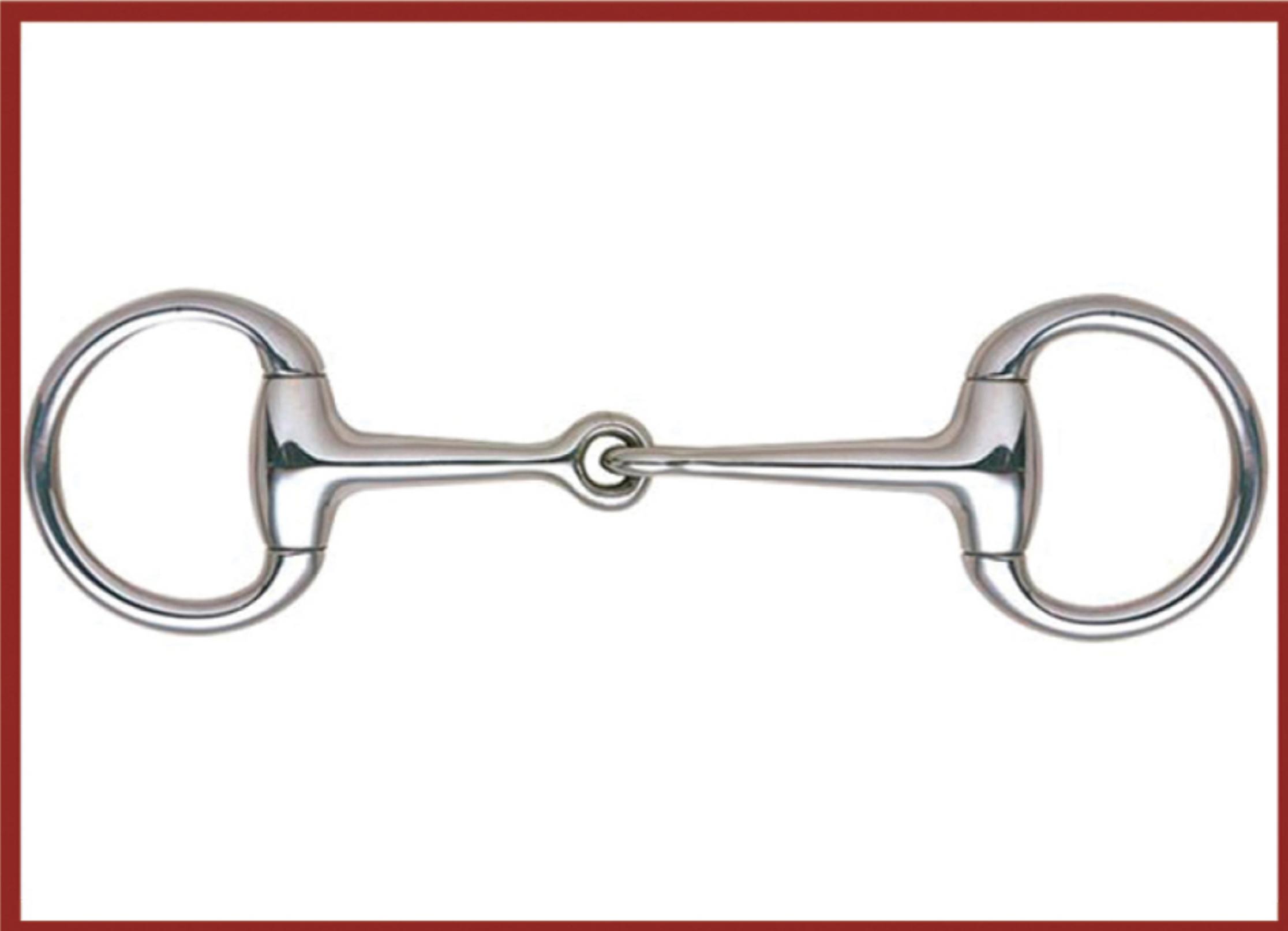
The pelham is considered a curb bit as it has a bit shank which exerts curb style pressure. The pelham's mouth piece may be solid, fixed, loose or jointed. The pelham's mouthpiece acts when either the snaffle or curb rein pressure is applied by pressing on the bars, tongue, and lips of the horse.

The curb chain and design of the mouthpiece can alter the degree of pressure placed on the horse's mouth. The roof of the mouth is affected if the mouthpiece has a high port. Poll pressure applies when the curb rein is engaged, the pressure applied is directly related to the length of the upper shank (purchase upper lever arm) in relation to the lower shank (purchase lower lever arm). The curb chain applies pressure to the chin groove. The curb chain's position activates the timing mechanism of the shank's leverage when rein pressure is applied.

THE CURB BIT

A curb bit is used in a double bridle along with a bradoon. A curb bit is generally more severe than a basic snaffle.

The curb bit consists of a mouthpiece, a shank and a curb



chain. It has one fixed ring on each side of the upper lever purchase arm of the shank, and one loose ring on the bottom of the purchase lever arm of the shank.

A curb bit works on several parts of a horse's head and mouth. The mouthpiece acts on the bars, tongue and roof of the mouth. The shanks apply leverage and place pressure on the poll via the crownpiece of the bridle and to the chin groove via the curb chain.

There are several factors involved in determining a bit's severity

BIT ACCESSORIES

•**MOUTHPIECE** - mouthpieces may be solid or jointed. If the mouthpiece is solid, it may range from a nearly straight Mullen mouthpiece to a medium or high port. The curb mouthpiece controls the pressure on the tongue, roof of the mouth, and bars. A mullen mouth places even pressure on the bars and tongue. A port places more pressure on the bars providing room for the tongue. A high port may act on the roof of the mouth as it touches and amplifies the pressure on the bars of the mouth. Jointed mouthpieces increase the pressure on the bars. Unlike a jointed mouthpiece on a snaffle bit, a jointed mouthpiece on a curb bit can be severe in its effect, particularly if the pressure from the shanks causes the joint of the bit to roll forward and press into the tongue. The curb bit mouthpiece is placed lower down in a horse's mouth than the snaffle bit, usually just touching the corners of the mouth without creating a wrinkle. The lower the bit is placed, the more severe it is as the bars of the mouth get thinner towards the incisors and the pressure from the shank leverage increases the contact pressure.

•**SHANKS** - The relation of the purchase upper arm (the length from the mouthpiece to the cheekpiece rings) and the shank's lever lower arm (the length from the mouthpiece to the lowest rein ring), determines the severity of the bit. A long lower shank in relation to the upper shank increases the leverage by applying pressure on the curb groove and the bars of the mouth. A long upper shank in relation to the lower shank increases the pressure on the poll, but does not apply as much pressure on the bars of the mouth. Longer shanked bits rotate back further before applying pressure on the

horse's mouth than shorter shanked bits giving the horse more warning in a long shanked bit. This allows the horse to respond before any significant pressure is applied to its mouth, the opposite applies in a shorter shanked bit. A longer shank often allows better communication between horse and rider without the severity. All curb bit severity is dependent on the curb chain tightness.

•**CURB CHAIN** - The curb chain applies pressure to the groove under a horse's chin. It amplifies the pressure on the bars of the horse's mouth through the mouthpiece, when it tightens it acts as a fulcrum. The curb chain is activated only when rein pressure rotates the shanks. It then applies pressure to the curb groove under a horse's chin. Adjusted correctly, the chain links lie flat and hang loose and slightly below the chin groove. The point at which the curb chain engages varies with the individual needs of the horse. Contact at 45 degrees of shank rotation is generally used as a default setting. When the shank of the bit rotates back (due to rein pressure), the cheek of the bit rotates forward causing the cannons of the bit mouthpiece to push down onto the horse's bars, thus amplifying the bit's pressure on the bars of the horse's mouth. A tight curb chain setting is harsher than a loose setting.

•**LIP STRAP** - a thin strap or light chain that helps keep the curb chain in place and also prevents the horse from grabbing the bit shanks with its mouth.

•**REIN CONNECTORS** - rein connectors are a pair of rolled rein connector straps that allow the use of only one rein when using a pelham or gag bit. Rein connectors are used on two-ringed bits to connect the rings of the bit to a single rein.

DOUBLE BRIDLE

A double bridle, also called a full bridle or Weymouth bridle, is a bridle that has two bits or a Pelham and four reins/double reins. One bit is the bradoon and the second a Weymouth.

The double bridle differs from the usual snaffle bridle in that it has four reins attached to two separate bits: the bradoon-style snaffle and a curb bit.

The curb bit hangs down from the main headstall, and the bradoon has a separate, simpler headstall made from a narrow piece of leather known as a bradoon hanger. The bradoon headstall lies under the curb headstall. The brow-band of the bridle holds both pieces and the cavesson (nose band) all together.

The width of the curb bit is also important: a curb that is too narrow will cause the shanks to pinch the lips, one that is too wide will cause the lips to be pinched between the curb and the curb chain and may also cause it to lie unevenly in the horse's mouth. The upper shank should bend slightly outward to prevent it from pinching when the reins are pulled. The severity of the curb is determined by several factors: longer shanks are considered more severe as are tighter or thinner curb chains and higher mouthpiece ports.



The bradoon always lies higher in the horse's mouth than the curb bit. It is common to place the bradoon higher in the mouth than a snaffle that is used alone on a single bridle. The higher placement prevents it from getting caught in the curb's mouthpiece. It is suggested that the two bits not lie too far apart within the mouth to prevent the tongue from getting caught between the two.

In general select a bit combination for your horse that allows room for your horses tongue.

The bradoon's rein should be wider or laced than the thinner, smooth rein used on the curb bit. This makes it easy for the rider to distinguish between the two by feel. The extra grip provided by the laced snaffle rein also helps prevent the horse from pulling it through the rider's hands.

When using a double bridle, a cavesan (nose band) is always used. The general setting for the nose band is two fingers below the horse's cheek bone. It should not be placed too low as it may cause the skin and lip to pinch between it and the bradoon. When setting the nose band's tension, always fit at least one finger between the band and the horse's nose.

When setting the curb placement on the headstall, always ensure that the punched hole number selection chosen is identical on both the left & right sides of the headstall. This to ensures mouthpiece straightness and even pressure when the curb is activated. Once you have set your bridle, stand in front of the horse and check the straightness of the brow-band, nose band, bradoon and curb.

Tips for bridle assembly:

- The curb headstall has a buckle on each cheek piece.

When placing the caveson/nose band & bradoon holders under the headstall, place the bradoon holder's buckle on the right side of the bridle and the nose band buckle on the left side of the bridle to prevent over crowding the buckles all on the left side of the bridle.

- Place the caveson/noseband in front/ahead of the snaffle piece under the headstall
- Select a browband shape and colour that compliments the horse's head shape and colour
- Wrap some matching coloured insulation tape just under the keepers to ensure they stay securely placed
- If your rein has a buckle, the buckle needs to be attached facing outward, if not, attach rein ends facing inwards

SHANK PRESSURE CALCULATION

According to research and re quoted: "If the bit has a 1.5" cheek and a 4.5" lower shank, thus producing a 1:3 ratio of cheek to lower shank, while the ratio of the cheek to (upper + lower) shank is 1:4, and producing 4 pounds force of pressure on the horse's mouth for every 1 pound-force (4 newtons per newton) placed on the reins. If the bit had 2" cheeks and 8" shank (ratio of 1:4), the bit will produce 5 lbf (22 N) of tension for every one applied by the reins (5 N/N). Regardless of the ratio, the longer the shank, the less force is needed on the reins to provide a given amount of pressure on the mouth. So, if one were to apply 1 lbf (4.4 N) of pressure on the horse's mouth, a 2" shank would need much more rein pressure than an 8" shank to provide the same effect."

BIT FITTING

Before selecting a bit measure your horse's jaw width, bar width and tongue reaction. If you are able to, get a professional to take an impression of your horse's bottom jaw with human jaw moulding compound, this takes out ALL the guessing work. From the mould one can see the exact shape, curvature and camber of the bars. It also becomes visible when bars are uneven or lumpy and any other factors that may cause the horse discomfort.

• Tips for fitting a bit:

- * Ensure there are a few wrinkles or none at all at the corners of the mouth when the bit is in place.
- * The bit should sit balanced on both sides of the horse's mouth.
- * If the horse seems uncomfortable or is trying to avoid the bit, try to adjust the position or type of bit selected
- * If you are unsure about bit fitting, seek guidance from a qualified equine professional.
- * The mouthpiece should rest on the bars (the toothless area between the incisors and molars) and tongue.
- * There should be a small amount of space between the end of the mouthpiece and the corners of the horse's mouth.
- * For snaffle bits, aim for none to 1 lip wrinkle at the corners of the mouth.
- * For jointed bits, aim for a bit that is high enough to

form gentle wrinkles, but not so high that it interferes with the upper teeth.

* A properly fitted bit avoids pressure on the sensitive teeth and allows the horse to move its mouth comfortably.

* The bit should be positioned to allow for clear and comfortable communication between the rider and the horse.

* An improperly fitted bit can cause the horse to tense its lips and mouth against the bit, or even grab the bit, interrupting communication between horse & rider

•Factors to consider:

* Not all horse mouths are the same, the ideal bit position can vary from horse to horse.

* The type of bit (snaffle/curb) will influence the ideal position.

* The amount of rein pressure used will also affect the ideal bit position.

* Young or inexperienced horses may need a bit to be positioned slightly higher in the horse's mouth.

HOW TO MEASURE A BIT

1. Mouthpiece Length: The measurement is taken by placing the bit on a flat surface and pulling the rings apart, so the bit is at its maximum length. The measurement is taken along the full length of the mouthpiece from the inside edge of the loose ring to the inside edge of the opposite loose ring and can be measured in inches or centimetres.

2. Mouthpiece Thickness: This measurement is taken next to the cheek just before the hole that the ring slides through. Put the bit on a flat surface, slide a tape measure at right angles below this point and, if you look from above, you can see the measurement of the diameter. The most accurate way to measure the diameter is using a set of callipers.

3. Loose Ring Diameter: This measurement is taken from the inner edge of the loose ring and is generally measured in millimetres; 70 mm being the average for a standard loose ring; and 55 mm the typical bridoon size.

4. Weymouth: When sourcing a weymouth, there are a couple of additional measurements to consider. Shank Length (lower): This measurement is taken from below the mouthpiece to the bottom of the shank (not to the bottom of the loose ring) and is generally done in centimetres. The Shank upper length (the purchase), measured from the mouthpiece to the start of the upper ring.

WHY HORSES NEED REGULAR DENTAL EXAMINATIONS FOR WEARING BRIDLES

- To create a bit seat
- to rid sharp points that cause cheek ulceration
- to treat minor issues before they turn into serious dental issues such as periodontal disease, fractured teeth, malocclusions, tooth root abscesses and sinus issues

Dentistry is not just about teeth, dentistry is about total mouth care. Gum and periodontal disease is painful and is one of the most common conditions affecting horses.



Tumours, infections, feed impactions and foreign bodies are found regularly during proper dental examinations. The aim of equine dentistry is to maximise comfort when eating or being ridden and to recognise issues before they become a serious problem.

Common signs to look for in your horse to identify dental issues while riding or lunging:

- Head shaking/tossing
- Head tilting
- Poor response to pressure on the reins
- Leaning to one side
- Working behind the bit
- Rearing
- Flipping over when tightening the nose band
- Refusal to maintain frame
- Poor or hard collection
- Refusal to take one canter lead or being slow in transitions
- Resistance to turning in one direction
- Tugging against your hands
- Refusing to accept bridling
- Getting the tongue over the bit or sticking the tongue out the side of their mouth
- Slightly opening mouth
- Grinding the bit

Common signs to look for in your horse to identify dental issues while eating :

- Spilling feed
- Excessive salivation
- Quidding
- Slow eating
- Frequent washing of mouth in water
- Aggression or anxiety during eating
- Eating hay but leaving grain
- Faeces with large numbers of long fibres or undigested grains
- Weight loss