

## Sheep

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There are around 36 million sheep in the UK. Half of these are adults used for breeding and 17 million are lambs (sheep under 1 year of age). Sheep are mainly farmed for meat (lamb and mutton) they are also used to produce wool and some milk. Sheep farming produces around 300,000 tonnes of meat representing 85% of the sheep meat eaten in the UK, it is the largest sheep industry in Europe.

**Most sheep are slaughtered as lambs. Whilst the majority of sheep appear to have been less affected by intensive farming practices compared with other farm animals their rearing can still involve considerable suffering and welfare problems. Flocks used for milk production are subjected to a more intensive system than conventional flocks(1).**

### Sheep Production & Welfare

Sheep alternate between periods of grazing and rest, spending most of their time ruminating. Approximately 2/3 of sheep are concentrated on hill and upland areas which are dominated by extensive grazing land and are usually not suitable for other types of agricultural production. The remaining 1/3 are kept in lowland areas(2). There are more than 60 different breeds of sheep in Britain alone, with the Scottish Blackface breed being most common(1,3).

The average breeding life of female sheep (ewe) is up to 15 years; however the vast majority are slaughtered by the age of 6 years. Ewes become sexually mature at around 7-9 months. Some farmers may choose to breed ewes at this age, however, it is common to breed ewes when they are approximately 1-1 ½ years old. Ewes naturally come into heat in autumn or winter. The most common method of reproduction used in sheep is 'tupping', this involves the copulation of a tup (male ram) with a ewe. Artificial insemination is more uncommon in sheep although new techniques are being developed to make it more efficient. Rams (uncastrated male sheep) are usually from special breeding farms. A single ram will usually serve 20-30 ewes. The Texel breed of sheep has become very prominent in the industry, being the most numerous ram breed in Britain and the largest lowland purebred ewe breed(1).

A ewe's gestation period is about 5 months. Lambs are generally born in spring/summer when the weather is warmer and grass is growing, with annual lambing (every 12 months) being the most common. Once lambs reach 3-4 weeks their milk diet is supplemented with grass/feed concentrates. Half of the lambs produced are from lowland flocks, these are sold before weaning from the ewe. Strong single lambs from early lambing flocks are weaned from 2 months, fed supplementary feed, and sold at market between 10-12 weeks(3).

Selective breeding has altered the sheep's natural breeding patterns meaning some are able to lamb twice a year. Selective breeding has also encouraged ewes to have twins or triplets rather than a



single lamb. If a ewe has only a single lamb the unborn may grow too large to pass through the narrow birth canal, sheep having been bred to be smaller. Embryotomy, the dissection and removal of a foetus which cannot be delivered naturally, should only be carried out on dead lambs. The DEFRA Code of Recommendations for the Welfare of Livestock states that this should never be used to remove a live lamb(1).

Approximately 15% of lambs which are born annually die. The major causes for this being abortion, stillbirth, exposure, starvation, infectious diseases, congenital defects and predators(1). Sometimes there may be too many lambs in the flock (due to multiple births or the death of ewes). These orphan lambs may be auctioned at markets at only a few days old. The law forbids the transport and sale at market of lambs with an unhealed navel (i.e. a very young lamb). However, in practice this has not stopped lambs as young as 2-3 days old from being sent to market as in some cases the navel can heal at a very early age. These lambs are especially prone to disease and mortality is high. The law also states that wherever possible, young lambs, other than with their mothers, should not be sold at market.

Male lambs may be castrated before they reach 3 months of age if they are to be retained after sexual maturity. The vast majority of lambs are generally not castrated in the UK as they are slaughtered before sexual maturity. The most common method of castration is the application of a tight rubber ring which cuts off the blood supply. This method is prohibited without anaesthetic provided the ring is applied within the first week of life. Once a lamb is over 3 months of age castration may only be performed by a veterinary surgeon using a suitable anaesthetic. Tail docking of lambs may also occur without anaesthetic. Under the Veterinary Surgeons Act 1966, only a veterinary surgeon may dehorn or disbud a sheep. These routine husbandry procedures are known to induce pain and distress in lambs(4,5). Studies attempting to quantify a lamb's pain experience rely on behavioural and physiological indicators of pain, as they cannot provide verbal self reports.

Between 15-25% of ewes are culled each year because of lameness, poor health or failing to lamb. These are replaced in the flock. Flock stocking densities are steadily increasing, causing environmental problems in upland areas as overgrazing by sheep leads to loss of vegetation and soil erosion. Some sheep are housed indoors during the winter in enclosed sheds or barns. These may be poorly lit with concrete or slatted floors.

### **Mulesing**

Mulesing is the practise of removing wool-bearing skin from the tail and breech area of sheep. It involves slicing away the folds of skin from beneath the sheep's tail which forms a wool-free scar. This is intended to control fly-strike (blowflies lay their eggs in the damp wool and the larvae eating into the flesh of the living sheep). The position of Mulesing in the UK, according to DEFRA, is as follows; "Mulesing is classed as an act of veterinary surgery in this country under the Veterinary Surgeons Act 1966. Therefore it would be illegal for a non-veterinarian to perform mulesing. Draft Mutilations (Permitted Procedures) (England) Regulations currently before Parliament and which will be debated shortly, will prevent all mutilations from being undertaken unless an exemption exists in the law for good welfare reasons. Mulesing will not be among those mutilations to which exemptions apply. It is anticipated that the new Regulations will come into force in April this year.

Mulesing occurs commonly in Australia, they are the world's leading sheep producer and exporter with a national flock of an estimated 135 million sheep. Mulesing is done at a recommended age between 2 -12 weeks old. The New South Wales Department of Primary Industries states in the Standard Operating Procedures that, "While the operation causes some pain, no pre or post operative pain relief measures are used". Antiseptics are often applied, but anaesthesia and painkillers are not required during or after the procedure. The wool industry has proposed that surgical mulesing will be phased out by 2010(6). Around 100 million sheep suffer from mulesing each year. Australia's export industry of wool amounts to approximately \$3.5 billion each year(7).

### **Tooth-Grinding/Trimming**

Tooth-grinding is prohibited in the UK. Much of the lamb consumed and wool used in Britain is imported from these countries. Tooth-grinding of older sheep is routine and supposed to reduce the number of ewes prematurely culled due to broken teeth. It involves a rotary stone cutting machine to slice off the ewe's front teeth through the pulp almost down to the gum. In the UK, tooth-grinding was



carried out by a less severe method involving shortening the front teeth with less likelihood of cutting through sensitive tissue.

## Disease

In common with other farm animals, sheep suffer from a wide range of diseases such as lameness, mastitis, Sheep Scab, Watery Mouth and Toxoplasmosis. Many sheep suffer from pneumonia and hypothermia during the winter when exposed to harsh weather conditions. This is a particular problem for sheep in upland areas. More intensive farming means lambs are weaned earlier, fed on milk substitute/feed concentrates and housed indoors. Indoor housing has led to increasing disease problems. Infectious diseases account for around 60% of lamb losses. Many of these losses could be reduced by better flock security, an effective disease control programme, and good husbandry(8). Vaccination and dipping may be used to prevent some diseases. Sheep dipping was made compulsory twice a year in 1985 but made non-compulsory again in 1992. Sheep dips contain toxic organophosphates (OP's) which are believed to be responsible for a high incidence of severe illness in farmers. Sheep dip products safeguard sheep from pests like scab, blowfly, ticks and lice. Sheep dipping is a particular priority for Groundwater Protection Code since misuse of sheep dip has caused serious environmental damage in the past. The active ingredients of dip are generally highly toxic to aquatic life. The Regulations require that before disposing, or tipping for the purpose of disposal, a listed dangerous substance to land, authorisation should be obtained from the Environment Agency to prevent substances from entering groundwater(1).

### Lameness

This is one of the most widespread welfare problems in the UK sheep flock. It is a significant cause of discomfort and pain and is a major source of economic loss to the sheep industry<sup>1</sup>. Foot rot is one of the main causes of lameness, being a common, highly contagious disease of sheep, caused by a dual infection with the bacteria *Dichelobacter nodosus* and *Fusobacterium necrophorum* (the same bacterium that causes scald). Infection is encouraged by a high stocking density in housing and pens.

### Mastitis

Mastitis is a painful infection of the mammary gland (udder) caused mainly by bacteria such as streptococci, coliforms and staphylococci. Severe infections cause swelling of the udder, fever and sometimes death. Most cases of this occur after lambing and during the first month of lactation. This affects 1-15% of sheep(9).

### Watery Mouth

This is caused by the ingestion of *E. coli* at or around birth. The lack of colostrum (the first milk a ewe produces for its young) is a major factor as it helps combat bacterial infections. Good hygiene is an essential and effective means of prevention.

### Skin & Internal Parasites

These include Sheep Scab, Lice, Blow fly, Ticks, Head Fly, and Worms. Sheep scab is spread mainly by sheep to sheep contact and is caused by mites. Sheep scab and myiasis (blowfly strike) are distressing and potentially fatal contagious diseases in sheep. These are prevented by sheep dipping.

### Toxoplasma Abortion

Toxoplasmosis is picked up from pasture, hay, concentrate feeds, etc. which have been contaminated by cat faeces. The disease is caused by the organism *Toxoplasma gondii* and is an important cause of death in unborn lambs. Toxoplasma infects all warm-blooded animals but an essential stage of its life cycle occurs only in cats. Sheep can be vaccinated against this infection.

### Copper Poisoning/toxicity

Sheep are 10 times more susceptible to copper toxicity than cattle. When copper is consumed over a long period of time, the excess is stored in the liver. No damage occurs until a toxic level is reached at which time there is a haemolytic crisis with destruction of red blood cells. Most outbreaks of copper poisoning in sheep can be traced to feeding supplements containing copper levels that have been formulated for cattle or pigs. Affected animals suddenly go off their feed and become weak(10).

**Scrapie**

Scrapie is a fatal brain disease of sheep (and occasionally goats). The infection is thought to be caused by a protein called a prion. The way in which the disease is contracted and spread is not fully understood. The disease occurs in the UK and many other countries, with Australia and New Zealand being free of scrapie. The clinical signs include skin irritation, excitability, hind limb weakness and loss of condition which develops gradually months or years after the animal has become infected(1).

**Foot and Mouth**

This is an infectious disease caused by a virus (of which there are 7 types). The virus affects cloven-hoofed animals such as cattle, sheep, pigs, goats and deer. The disease is not normally fatal to adult animals but it does cause debilitation and loss of productivity for farmers (such as lameness). The virus causes a fever and the development of blisters, mostly in the mouth and on the feet. Animals contract the disease by either direct contact with an infected animal or contact with foodstuffs, etc. which have become contaminated by an infected animal. The UK last experienced the disease in 2001, with 2,030 confirmed cases of foot and mouth spread across the country. Almost 5 million Sheep were culled as a result of this outbreak(1).

**Transport**

Sheep may be transported considerable distances to slaughter, with some journeys lasting 24 hours or more. DEFRA figures up to the end of June 2006 indicate that almost 7,000 British sheep were transported to France and Germany in the first half of the year alone. As of the 5th January 2007, new regulations have come into place whereby vehicles used to transport animals for 8 hours or more must be licensed to ensure that they are equipped with drinking systems and temperature monitors. The guidance notes for the welfare of animals during transport can be viewed at [http://www.defra.gov.uk/animalh/welfare/farmed/transport/pdf/vehicle\\_spec\\_livestock.pdf](http://www.defra.gov.uk/animalh/welfare/farmed/transport/pdf/vehicle_spec_livestock.pdf). Live transport can be extremely distressing for the animals. Millions of sheep are exported each year from Australia to the Middle East. These animals have to endure overseas journeys sometimes lasting weeks at a time. Those intended for religious (ritual) slaughter are killed without pre-stunning when they reach their final destination.

**Slaughter**

Over 16.5 million sheep (16,744,600) were slaughtered in the UK in 2008 (15,803,800 were killed in 2007); the vast majority of these were lambs(1). Sheep are stunned first, unless they are destined for religious (ritual) slaughter. They are then killed by having the blood vessels in their throat slit (sticking). The animal dies by being bled to death. Sheep are usually stunned electrically whereby an electric current is applied by means of two electrodes in the form of tongs. These are placed on either side of the brain. The current should induce a state of immediate epilepsy (electroplectic shock) in the brain, during which time the animal is unconscious. Stunning may often be ineffective and sheep may regain consciousness during bleeding-out or even before throat-slitting.

**Wool**

Wool accounts for 5-10% of the total value of a ewe. Most British wool is used for coarse fabrics such as carpets, with over 65% of the clip being used in carpet manufacture. Native breeds, such as Scottish Blackface, Herdwick and Cheviot, grow wool which is naturally designed to withstand harsh winds, driving rain and snow. The UK produces 1% of the world's raw wool, approximately 50,000 tonnes per year(1). The majority are sheared at around 14 months old and then once a year. Lambs of some breeds may be clipped to provide lambs wool. The entire fleece is sheared in one piece. Sheep have been selectively bred to produce a thick fleece and are sheared early summer to prevent heatstroke. Wild sheep do not need to be sheared. Nearly 1/3 of British wool is from slaughtered sheep, this is referred to as skin wool. Other by-products derived from sheep include leather and lanolin. Lanolin (wool fat) acts as a waterproofing wax and is used widely in cosmetics.



### References & Useful Links

1. Department for Environment Food and Rural Affairs. [www.defra.gov.uk/](http://www.defra.gov.uk/)
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10. UK Veterinary Sentinel Practice Network <http://www.nadis.org.uk/>

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