Pregnancy

Terms

Gestation – period in between mating and parturition

Primagravida – the first pregnancy

Multigravida – subsequent pregnancies

The desired age for the first pregnancy is not less than 2 years and no more than 7 years.

Mating

In planned pregnancies a stud dog will be used. Often the bitch will be taken to the stud at the optimum time of 10-12 days after the onset of Proestrus and mating's will be repeated after 24 – 48 hours.

Studs need to be at least 12-18months before being worked and cannot be worked more than every 2-3 weeks.

Both bitch and stud need to be healthy, with up to date vaccinations and parasite controls, they must each be a good example of the breed with a good temperament and free from and screened for any disease.

Diagnosis

- Abdominal Swelling - unreliable – could be other reasons
- Mammary Gland Enlargement & Milk Production - unreliable - non pregnant bitches may have swollen mammary glands and produce milk (pseudopregnancy)
- Abdominal Palpation - not before 3 weeks or after 5 weeks. inaccurate for assessing litter size.
- Ultrasound - useful, safe. it is possible to detect pregnancy as early as 16 days but usual to examine after day 28.
- Radiography - not before day 45 - foetal skeletons have not calcified. could cause damage during early stages.
- Foetal Heartbeat - in late pregnancy - foetal heartbeat may be detected.
- Acute Phase Proteins (APP's) - implantation occurs about day 20. the uterus signals this as an attack and stimulates the liver to produce app's. the level of app's rise about day 26 but return to normal levels at day 40, therefore detectable in serum samples between weeks 4 and 5. APP's can rise in pyometra.

Care of the Pregnant Bitch

Feeding

Normal rations of a good balanced complete diet, increase amount (approx. By 10% each week) after 6th week (last 1/3) of pregnancy and into lactation. Divide the daily amount into several smaller meals.

Do Not add calcium or other vitamin/mineral supplements. Feed a good commercial, well balanced diet.

Exercise

Gentle but normal exercise throughout pregnancy. Avoid excessive boisterous play!

Worming

Worm twice during pregnancy - the last treatment being in the last two weeks of pregnancy.

Vaccination

Before mating to ensure adequate levels of maternal antibodies and subsequent colostrum levels.

Pregnancy Complications

Abortion – Premature expulsion of the products of conception from the uterus. (Including reabsorption of foetuses). Resorption usually occurs around 28 – 35 days of pregnancy. Various causes include; hormonal, nutritional, traumatic, or infectious.

Parturition

Preparation

Provide a suitable area that is warm, quiet, draught-free, Longhair bitches should have their coat clipped or tied back around the perineum area.

The onset of parturition is indicated by a drop in rectal temperature to approx. 37oC and the dam seeks out a nesting area. Colostrum is present in the mammary glands.

Sheep

In most cases sheep will only needs handling a couple of times per year. Each summer they will get sheared, then on some farms the sheep will receive AI, and will then be handled for ultrasound and finally lambing. On some farms they may only handle for shearing and lambing.

Pigs

Pigs can get particularly stressed during handling as they possess a gene for stress. They are often moved using pig or forcing boards droving them in a particular direction.

Camelids

Camelids are much more comfortable being handled outside or under a shelter. Firstly, they need to be caught into a spacious pen, where you can then restrain them using long lead rein.

Horses

For horse handling please refer to the 'Horse Husbandry' lectures found in the contents page.

Equipment and Handling Facilities

Handling of livestock begins by penning up the group of animals and running them through a race to get them into single file. You can either use a funnel race, stepped race or a crowding pen to get the animals in this arrangement.

When handling animals, it is important to be aware of any environmental obstructions such as chains or foreign objects lying across the floor that may spook the animals causing them to not want to progress into the race or crush.

Individual restraint of an animal is normally in the form of a halter, combined with a crush or immobiliser.

Crushes are designed to be able to give you access to all parts of the animal whilst keeping both of you in a safe position. May crushes will have side openings or removable bars to give you side access to the animal.

Preventing Injury

To yourself, when working alone, and other staff. Large animals don't bite but can kick and crush to cause injury.

Mega Farms

Welfare on mega farms is often of a very high standard. Despite this they do have many environmental impacts such as the slurry getting into waterways and high demands on crop production.

Normal Husbandry

Animal husbandry is the agricultural practice of breeding and raising livestock; a husbandman in mediaeval times was a free tenant farmer or small landowner (below yeoman).

Normal breeding procedures and the normal procedures during the life of the pig are classed as husbandry.

Welfare Codes

Contain all the legislation and guidelines on pig keeping and husbandry. 93% of pig units in the UK are red tractor assured.

Raising

Farrowing

Sows give birth to up to 14 piglets

Viable Pig >1.25KG

Often piglets born under 1.25kg are euthanised, often by blunt force trauma, or by swinging it and hitting the head on the floor. Both of these cause the skull to be broken and almost immediate death of the animal.

First 24 Hours

Adequate colostrum is needed for the animal to become viable as there are no maternal trans-placental antibodies in the young.

Teeth, Tail, Ear notching/tattooing/ear tagging, Fostering

Iron Injection

Injected in the first 24 hours as piglets have very low levels at birth

Pig Teeth

Trimming teeth can help with mastitis and needs to be done under veterinary guidance. If not trimmed there may be incidences of facial necrosis too.

Facial Necrosis

A bacterial infection in the faces of piglets which can become fatal if it gets past the point od treatment.

Tail Biting/Docking

The undocked tail is rather insensitive so other pigs will often chew each other's tails which can be prevented by docking. Abscesses may form and can cause the paralysis of the pig if on the spinal cord. Docking causes sensitive tissue to form on the end of the tail so that pig's don't allow another to bite their tail.

What to Look for at Iron, Teeth and Tails

Try to minimise stress to piglets

handling

placing back in creep

think about non-viable pigs

Clean, well maintained equipment New needles between litters

Correct handling and disposal Regular cleaning of equipment between animals/litters

Different tools for teeth and tailing

Fostering

First 24h of life to even out litter size. Ensure sufficient working teats on the foster mother. Move larger pigs into pens with equal sized pigs, the smaller pigs are less able to cope with fostering on. If disease, do not foster

Pre-Weaning

Vaccinations Castration

Vaccine – anti-GnRH can be used but not well adopted.

Castrations

Welfare consideration/assurance scheme Slower growing (eg rare breeds, organic/extensive, pets)

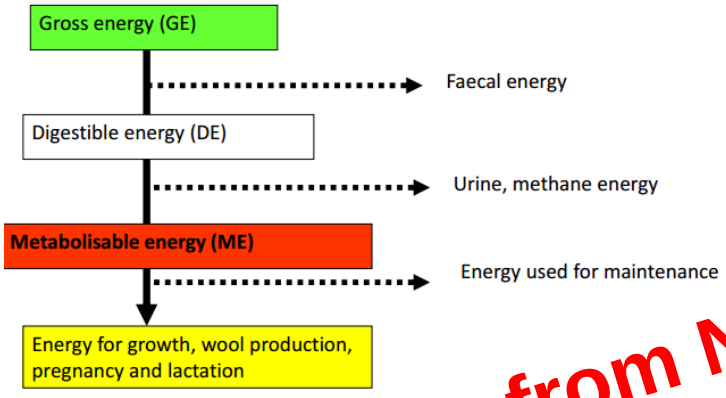
SHEEP NUTRITION

Basic Components

Sheep are ruminants, and so can be fed a range of different feedstuffs. This can vary from grazing pastures, hay, silage, forage crops, and concentrates. Farmers must take into consideration what they are feeding their sheep as it can have an impact on the performance.

Most feeds fall into the range of 8-13mJ ME/kg DM
mJ – unit of energy
ME – metabolisable energy
DM – dry matter

Energy Diagram



Feeding Lambs

Faster growing lambs produce more profit for the farmer, so they should aim for a daily weight gain of 300g, although many farmers will only achieve 100-200g/day. The longer a lamb takes to put on the weight the longer the farmer has to keep it before slaughtering.

Consequences of Poor Lamb Nutrition

- Reduced growth rate
- Poor slaughter weight
- Poor carcass conformation
- Longer time to slaughter → decreased profit margins

The longer the lamb is at the farm the more the more money the farmer is losing through them consuming more feed, increased animal health costs, higher chances of death and lambs competing with ewes for food impacting on the ewes.

Slow lamb growth rates are often due to a mixture of disease and poor nutrition.

Slow lamb growth rates can result in a slow lamb consuming an extra 100kg+ of dry matter over its lifetime, at huge costs to the farmer.

Underfed ewe lambs that are kept for breeding tend to have a reduced ovulation rate as an adult.

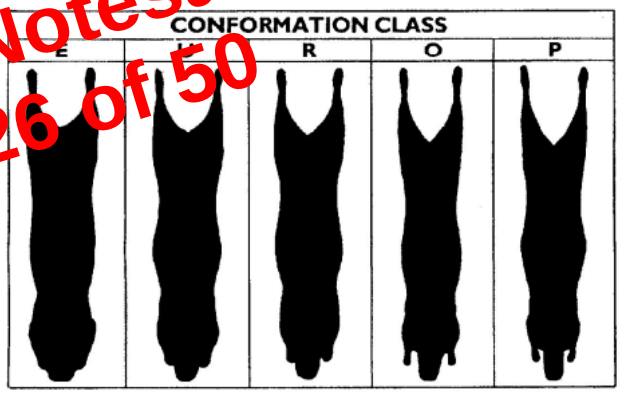
Finished Lamb Production

Returns from the lamb depend on the marketing and the carcase. Most lambs will kill out at 44-48% meaning a carcase of 16-22kg will require a live weight of 36-46kg.

Britain produces an average deadweight carcase of 16-22kg compared to 16-19kg on the European markets and 8-12kg in Spain and Italy.

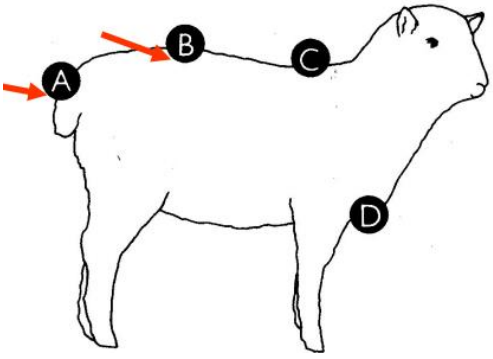
The carcase quality is judged on the conformation (shape, muscle and fatness relative to the skeleton) and fatness (the fat cover over the lumbar region and rump.

Farmers are paid depending on the weigh and conformation of the carcase.



Carcase Assessment & Valuation

There are 4 main points on a lamb to assess its fatness status, with A and B being the best indicators.



survival and targeted shepherding to prevent disease in late-pregnant ewes.

In – Wintering Housing

Housing sheep for varying periods of time, usually during winter and in some cases for lambing too. It is a debateable issue and the sheep are normally fed hay/silage and/or concentrates.

Advantages	Disadvantages
Less poaching of fields	Expensive
Protection from weather	Increased disease risk
Control of nutrition	Un-natural for sheep?
Assistance in lambing	
Control of worms	

Expenses come from the capital loss of sheds, feed ad bedding and the cost of cleaning and emptying out. Whilst the most commonly found diseases that can be spread when housed are:

- Pneumonia
- Scabby mouth
- Abortion
- Diarrhoea

Animal Health

Vaccinations

This is done to immunise sheep against certain diseases, the focus in farming is on prevention rather than treatment. The timing of vaccination varies according to which disease you are vaccinating against.

Vaccines are used strategically for maximum efficacy.

Abortion vaccines – pre-mating or early pregnancy

Vaccines against lamb diseases (Clostridial): vaccinate ewe ~4 weeks pre-lambing

Foot Rot vaccine – prior to period of disease risk

Worming

Also termed dosing or drenching on farms, young animals are the most susceptible to worms. The main risk period is late summer autumn so worming is done prior.

Dipping

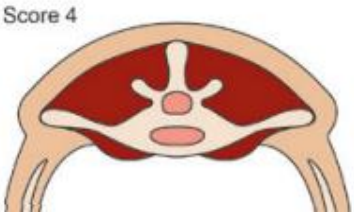
Dipping is essential for external parasite control of mites (scab), ticks, flies, lice and keds. There are welfare and financial considerations when using dips and the time varies according to the parasite.

Fly strike normally occurs in summer, whilst spring and autumn are risk period for sheep scab and ticks.

There are a variety of dipping methods, including plunge dipping (in a bath race), shower dipping, jetting (in a jetting race) and pour on dips. There are issues currently surrounding the chemical residues that may be found in wool, meat, the environment and in human health.

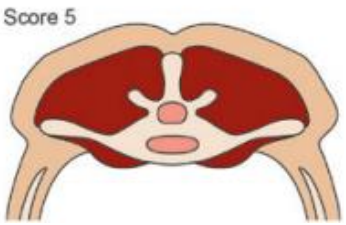
Score 4

The vertical processes are only detectable as a line. The ends of the horizontal processes cannot be felt. The loin muscles are full and rounded, and have a thick covering of fat.



Score 5

The vertical and transverse processes cannot be detected even with pressure; there is a dimple in the fat layers where the processes should be. The loin muscles are very full and covered with very thick fat.



Ram Soundness

If the rams have poor fertility or if there aren't enough rams then the conception rate decreases. Normally the ratio of rams to ewes is 1:30-1:100 but this may depend on the farm and length of mating season.

Flushing

Increasing the plane of nutrition in the few weeks leading up to and during tupping. This increases ovulation rate and the chance of conception.

Abortion

Abortion is the expulsion of the foetus before term. Zoonoses and other species specific infections such as toxoplasma and chlamydophila abortus cause the ewe to abort.

	Lamb Weight		Colostrum (ml)			
Nutrition	Lambs	Kg	1h	10h	18h	Total
Well Fed	1	4.8	600	575	630	1805
Well Fed	2	7.9	715	675	690	2080
Underfed	2	6.4	160	375	455	990

Reproductive Targets

The targets for reproduction vary greatly depeding on the breed and system. In lowland systems farmers generally aim for >150% laming.

A good guide is to aim for:

- <3% barren
- <2-3% abortion
- <5-10% lamb mortality

Calculating Reproductive Performance

Actual Lambing Percentage

$$\frac{\text{Number of lambs to weaning/sale/slaughter}}{\text{Number of ewes mated}} \times 100$$

Actual Scanning Percentage

$$\frac{\text{Number of foetuses present at scanning}}{\text{Number of ewes mated}} \times 100$$

Average Litter Size

$$\frac{\text{Number of lambs born (alive + dead)}}{\text{Number of ewes lambing}} \times 100$$

AGRIBUSINESS

What is it?

A generic term referring to various businesses involved in food and fibre, this can incorporate:

- Mass production
- Input sector
- Production sector
- Processing-manufacturing sector
- Food and fibre production

Agribusinesses deal in low-margin commodities where competitive market forces typically result in the cost of production being close to the value created (thus leaving thin profit margins)

Agri-Chains

It is important to understand agri-chains so points of competitive advantage can be identified (especially when margins are so small!). Businesses do not exist in isolation but operate within chains that reflect their relevant industry.

Agribusinesses facilitate domestic and/or international relationships to maximise competitive advantage and agri-chains can be classified as supply chains or value chains.

Supply Chains: the physical flow of goods that are required for raw materials to be transformed into finished products. There are issues in the supply chain regarding food safety, security, fluctuations in supply and consumer demand.

Value Chains: a group of companies working together, creating a value at each link in the chain to achieve sustainable competitive advantage for the businesses in the chain.

Creating and sustaining value

Core Drivers of Doing Business

- The Theory of the Firm (existence, boundaries, organisational structure, heterogeneity of firm actions)
- Maximising profitability & minimising costs
- Value propositions and customer satisfaction
- Resource allocation
- Supply chain optimisation
- Cost management
- Commercial relationships

Agribusiness in the UK*

The agri-food sector contributed £109 billion, or 7.3% to the national Gross Value Added in 2014. Total consumer expenditure on food, drink and catering in 2014 was £198 billion with an average of around 11% of all household spending on food.

The value of food and drink exports in 2015 is £18 billion with beverages the largest export category by far. Food prices fell by 1.7% in real terms in the last 12 months following a 5-year period when food prices were rising faster than general inflation. There are 3.9 million people employed in the agri-food sector in 2015 which is 14% of national employment.

*(*Data extracted from Food Statistics Pocketbook 2015)*

Hot Issues in UK Agribusiness:

1. Animal disease control and on farm animal welfare
2. Biosecurity and food security
3. Agricultural wages and labour availability
4. Optimising land use
5. BPS and Brexit
6. Waste management
7. Low input agriculture
8. Farmer work/life balance – technology
9. Trust
10. Climate change

Pigs

A pig shall be free to turn round without difficulty at all times.

The accommodation used for pigs shall be constructed in such a way as to allow each pig to –

(a) stand up, lie down and rest without difficulty;
(b) have a clean, comfortable and adequately drained place in which it can rest;
(c) see other pigs, unless the pig is isolated for veterinary reasons;
(d) maintain a comfortable temperature
(e) have enough space to allow all the animals to lie down at the same time.

The minimum unobstructed floor area for an adult boar shall be 6 m^2. When boar pens are also used for natural service the floor area must be at least 10 m^2 and must be free of any obstacles.

When concrete slatted floors are used for pigs kept in groups, the maximum width of the openings must be:

Piglets	11mm
Weaners	14mm
Rearing Pigs	18mm
Gilts after service and Sows	20mm

The minimum slat width must be 50mm for piglets and weaners and 80mm for rearing pigs, gilts after service and sows.

WEIGHT OF PIG (KG)	TROUGH SPACE (CMS)
5	10
10	13
15	15
35	20
60	23
90	28
120	30

Where pigs are kept in an artificially lit building then lighting with an intensity of at least 40 lux shall be provided for a minimum period of 8 hours per day

Category of Pig	Temp (°C)
Sows	15 - 20
Suckling pigs in creeps	25 - 30
Weaned pigs (3 – 4 weeks)	27 - 32
Later weaned pigs (5 weeks +)	22 - 27
Finishing pigs (porkers)	15 - 21
Finishing pigs (baconers)	13 - 18

Sheep

When an animal is slaughtered or killed on-farm, this must be done using a permitted method. The animal could be: - stunned using a captive bolt pistol, concussion stunner or electrical stunner after which it must be followed by bleeding – or killed without delay. If the animal is stunned and bled, the operation must be carried out by a slaughterman licensed for these operations, unless the owner is slaughtering an animal for his own consumption; or - killed by a free bullet; the animal should be killed with a single shot to the head.

They must be kept on, or have access at all times to, a lying area which either has well-maintained dry bedding or is well-drained.

Category of Sheep	Space Requirement
Lowland ewes (60-90kg)	1.2-1.4m^2 per ewe during pregnancy
Lowland ewes with lambs up to 6 weeks	2.0-2.2 m^2 per ewe and lambs
Hill ewes (45-65kg)	1.0-1.2 m^2 per ewe during pregnancy
Hill ewes with lambs up to 6 weeks	1.8-2.0 m^2 per ewe and lambs
Lambs up to 12 weeks	0.5-0.6 m^2 per lamb
Lambs and sheep 12weeks – 1 year	0.75-0.9 m^2 per sheep
Rams	1.5-2.0 m^2 per ram