



Ministry of
Agriculture

FALLOW DEER FACT SHEET

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CHARACTERISTICS OF FALLOW DEER

Fallow deer are an ancient cervid believed to be related to the extinct Irish Elk (*Megaloceros giganteus*). They were originally found in the Mediterranean region of Europe and Asia Minor. Fallow deer have since been introduced to many European countries, New Zealand, Canada and the USA.

Typical characteristics of fallow deer are: long tail, white spots and a prominent Adam's apple. Fallow deer vary in color, with up to 14 variations noted, ranging from white to butterscotch, light red, dark red, reddish brown, brown, dark brown and black. They are born with white spots; these and the color of their coat at birth are retained for life.

Female fallow deer or does appear light, smooth and fragile. They tend to be about 2 1/2 inches higher at the hips than shoulders. Height at the withers (shoulders) is between 20 and 40 inches, with the length of the body 51 to 68 inches. Males or bucks have a heavy or stocky appearance and the difference in hip/wither height is not as obvious as with females. Bucks have "pot bellies" and at maturity stand around 36 inches, weighing from 160 to 200 pounds.

At birth a fawn weighs from about 8 to 10 pounds and the tips of its hooves have a waxy looking soft cover which prevents injury to the mother during gestation and birth. Within a day or two, this substance shrivels up to expose the sharp tips of the hooves.

Fallow deer are very adaptable to most conditions except for those found in very high mountain regions. Males tend to stay in groups away from does - eating, resting and putting on fat in preparation for the rut (mating season). During the rut, they will hardly eat and lose up to 40 pounds.

Each fallow deer has a unique pattern that is found directly above the upper lip on the nose, between the nostrils. Much like human fingerprints, this pattern will never change.

Only males grow antlers, which shed and regrow annually. Old antlers are cast off in late April or early May. The new antlers begin growing in May and continue growing until the end of August. Antlers are basically bony outgrowths of skull. They are initially formed of living tissue with a blood supply that is enveloped and nourished by a finely haired skin called "velvet". To start, the antler is cartilage, which becomes mineralized, then finally converted to bone. At this stage, the blood supply dries up and the velvet dies and is rubbed off.

BREEDING AND REPRODUCTION

A clear understanding of the reproductive behavior and physiology of fallow deer is important to maximize production. Reproductive behavior is closely related to the annual live weight cycle, in particular, with the bucks. We recommend further reading as outlined at the end of this fact sheet and that you work closely with your veterinarian for a successful breeding program.

Female Reproductive Cycle

Does are "seasonally polyestrous" which means they will only cycle at a certain time of the year. They are referred to as "short-day-breeders" as breeding occurs in the fall. Breeding is triggered by environmental factors, mainly the change in the amount of daylight in a 24 hour period. As the does come into estrus, the bucks exhibit intense rutting activity. Groaning is an excellent signal of the true rut for both sexes.

Does that accept the sexual advances of the buck and are sexually attractive to the buck and willing to mate are described as being in estrus (or heat). Estrus is a hormonally induced condition that occurs from 15 minutes to 24 hours depending on copulation. The onset of estrus corresponds to the rutting period of the bucks.

First estrus is naturally synchronized to within a 12 to 14 day period within each herd. In the absence of mating or conception, does will continue to come into estrus at regular intervals. The interval between two successive estruses is referred to as the estrous cycle which is approximately 21 days

long. Ovulation is the release of an ovum (egg) from the ovaries. Ovulation normally occurs within 48 hours of estrus meaning greater chances for successful fertilization.

Estrous Cycle and Potential Breeding Season

Conception at first estrus is as high as 85%; those does do not go into estrus again. This gives the impression that the female breeding season is less than 30 days in duration and is virtually equivalent to the rut. However, in the absence of pregnancy, fallow deer does are able to exhibit continuous estrous cycles for three to six months from the onset of first estrus.

The potential breeding season is three to six months in duration. The actual breeding season is considerably shorter because pregnancy prevents subsequent ovulations. Younger does have fewer cycles than older does, therefore a shorter breeding season.

Separation of bucks and does in early December is recommended to prevent fawns being born later than July. Should does fail to conceive within a desired time frame, reproductive disorders are most likely the cause and the animal should be culled

Gestation Length

The gestation length is between 228 and 244 days. The doe's age, fawn sex, fawn birth weight, year and sire have no effect upon gestation length.

Pregnant does have no live weight increase until approximately 120 days when weight is gained daily until parturition. Pregnant does are approximately eight kilograms heavier than non-pregnant does.

Fawning

Fawning is quite synchronized, reflecting synchronized first estrous and conception.

The fetus' main development occurs in the spring and corresponds to intensive pasture growth. Fawns are born during summer months when climate and available food favor survival.

For a healthy fetus and fawn, it is important to have well-developed pastures. Lactating does also require quality pastures. Poor pastures will result in poor fetus and fawn growth rates and a severe decline in the doe's condition, which may impair future reproductive performance.

Fawn Mortality and Birth Weights

The average birth weights for farmed fallow deer are 3.9 to 4.8 kg for males and 3.5 to 4.0 kg for females.

Pre-weaning mortality may reach 19.4%. Early fawn mortalities are attributable to many causes. A major cause is interference during the doe-fawn bonding period. Bonding can last up to two weeks and necessitates a delay in tagging and weighing of newborn fawns.

Artificial or hand rearing of fawns may be necessary if one or more of the following situations arise:

- Caesarean birth, which usually occurs if doe is overweight;
- Mis-mothering, due to disturbances during doe-fawn bonding period;
- Doe becomes sick;
- Injury, which can be avoided by not yarding at an early age;
- Death of doe after fawning;
- Dry does;
- Late fawns, which should be taken to prepare does for an upcoming breeding season; or
- Over-mothering syndrome, caused by an overzealous doe's cleaning of the perineal area causing extreme rawness and bleeding. See your veterinarian for treatment.

The basic requirements for successful fawn rearing are adequate rearing facilities and the correct food. A warm, dry, ventilated draft-free pen is necessary. The most important nutrient in the first 24 hours of a fawn's life is deer colostrum. It should be given two or three times by the time the

fawn is two days old. Colostrum can be stored in plastic containers in the freezer for up to three months. Colostrum plays an important role in transferring antibodies from mother to fawn and also provides localized protection in the intestine. After the initial "inoculation", small supplies of colostrum may be necessary to protect fawns from "normal" gut organisms which may cause scours (watery diarrhea).

MATING

With respect to the buck, the events leading up to mating fall into three general phases.

Phase 1 Pre-rut Agitation

Fallow deer bucks establish their territories (stands), patrol boundaries (or fences), develop "scrapes", chase does and display to other bucks. The time spent in these activities increases while the time spent feeding decreases, accounting for dramatic weight loss.

Phase 2 Courtship

The buck is allowed to come close and will lick the vulva, face, ears and shoulders of the doe. The flehman response (lip curl) of the buck is common after vulval licking. During courtship the buck frequently bunts the doe, followed by mounting maybe 10 to 20 times before successful mating. The doe occasionally walks away, stops and grooms herself. This often leads to a "goose stepping" walk by the buck, involving stiff, exaggerated steps made with the head held high.

Phase 3 Mating

Copulation takes very little time, usually one second. The buck mounts, penetrates, and makes a pronounced rapid thrust with the hind legs leaving the ground. Two factors limit the number of does a buck is capable of servicing: the long courtship period and sexual exhaustion due to the intensity of rutting activities.

FEEDING AND NUTRITION

Knowledge of feed requirements can help in farm planning, especially with regard to supplemental feeding. Efficient feed management involves maximum utilization of the lowest-cost feed (in terms of energy content) to achieve the best possible stock performance (weight gain, velvet yield, fertility, mothering, health). One simple, effective management technique is record-keeping, which can vary from computerized records to a simple annual diary. The key to success is maintaining and using accurate records.

Fallow deer are adaptable to most circumstances and this holds true for feeding. Keep in mind that to achieve optimum production, it is necessary to provide maximum nutrition. Every attempt should be made to provide the highest quality pasture to obtain a maximum return on investment.

Fawns (birth to 15 months of age)

Fawns are usually born in early summer (June) and permitted to suckle for 100 days, with weaning in September (otherwise suckling can last for up to eight months). During the suckling period, fawns grow at their greatest rate, with males growing faster than females.

After weaning, the growth rate slows to 50% of the suckling weight gain rate. The rate of gain over the autumn/winter period after weaning (six to nine months of age) is low.

Come spring, in keeping with pasture growth and quality, there is a high weight gain. Live weights will roughly double from approximately 40-50 pounds to 90-110 pounds on average (9-15 months of age).

Start creep-feeding fawns the first of August. Fawns must learn from their mothers how to feed from a trough. Place the troughs inside the creeps within easy reach of the does, so they can stick their heads in and teach the fawns. The trough can be gradually moved further into the creep so only the fawns can reach it when they enter. It is believed by some fallow deer farmers that creep feeders have to be in place before fawning begins, or the fawns might not use them.

Puberty (14 to 16 months of age)

Males will likely maintain their fall weights through to spring, but unlike the previous year will not experience a weight gain over winter. Supplemental feeding is usually given ad libitum. The rule is quality not quantity. Alfalfa hay or silage augmented with a small amount of grain (calculated at +/- 2.3% of the total herd weight) and oilseed rapemeal provide an adequate supplemental feed. A proven mixture for pellets is below:

240 lbs chopped alfalfa	200 lbs cane molasses
200 lbs linseed-oil meal	0.5 lbs irradiated yeast
60 lbs wheatgerm meal	40 lbs brewers yeast
200 lbs wheat bran	200 lbs beet pulp
419.5 lbs crushed oats	15 lbs dicalcium phosphate
400 lbs hominy feed & cornmeal	5 lbs ground limestone
	0 lbs salt

This mixture makes a ton of feed which should be pressed into 1/2" x 1/2" pellets.

The onset of puberty may cause some males to become difficult to handle. Many fallow deer farmers take this as an opportunity to slaughter those deer not intended for breeding. Carcass weights average about 24 kg (52.8 pounds), containing as little as 7% chemical fat.

PLANNING A NEW OR EXPANDED OPERATION

Decisions relating to game farming must be made on a sound economic basis. There are many questions to consider before diversifying a livestock operation or starting a new game farm. The following factors should be considered:

- The type, size and location of the production unit;
- The managerial skills and labor available to successfully operate the farm;
- Access to investment and operating capital;
- A satisfactory feed supply plan;

- Manure handling and disposal methods that meet with environmental and health regulations;
- Reliable sources of breeding stock or weaners;
- Logical siting that enables farm facilities to be expanded or given alternate uses; and
- Financial analysis that shows that the farm addition or expansion is profitable enough to repay debt.

Financial analysis includes preparing a budget for any new or diversified operation. Long-range budgeting for income and expense calculations and cash flow projections are necessary to analyze the profitability and financial soundness of the business over the longer term. Long-range budgeting will show whether a change in operations will be profitable considering the production costs (expense) and market returns (income) over a specific period of time for the farm.

Equally important to the profitability analysis is the payback analysis, especially when using borrowed funds. Payback analysis is a method to determine the payback period for an investment, which is how long it will take to pay off an investment with the net income derived from the project for which the investment is needed. Payback analysis involves estimating, over months or years, the project costs (cash out-flow) and returns (cash in-flow) for each time period. Payback analysis is useful to determine whether a project will pay for itself (i.e. recover its investment) in an acceptable period of time.

Any type of budget or other financial analysis will be no more accurate than the records from which future projections of income and expense are made, and realistic assumptions for the future. The planning, preparation and monitoring of budgets and cash flows should be a standard feature of every game farm enterprise.

Because a game farm operation requires capital investment, it is important that the financial analysis shows that the farm, or a new expansion of the farm can pay for itself, including recovering costs of labor and management. To complete this analysis, it is recommended that fallow deer

farmers talk with as many people in the industry as possible such as associations, other game farmers and the Ministry of Agriculture.

Record Keeping

Besides providing decision-making information on a weekly or monthly basis, a well-designed record-keeping system gives short-range summary material to identify production problems and allow for timely corrective changes. For example, a few of the many costly problems that can and should be identified from the record-keeping system are: excessive still-births and high fawn mortality, and anestrus (unbreedable females). Record-keeping systems don't have to be complicated but they have to be maintained to be of any use.

Profitable Game Farming Production

The profitability of game farming depends on production and marketing efficiency. The major principles of profitable production are:

- Reproductive efficiency;
- Improved breeding and selection;
- Efficient utilization of feeds;
- Carcass quality;
- Reduced disease and parasite risk;
- Proper animal husbandry practices; and
- Quality control of "velvet" or by-product harvesting.

HEALTH MANAGEMENT

It is not possible to provide a complete summary of health management requirements in this fact sheet. Contact your veterinarian for answers to specific questions. A reference list for further reading is provided in this fact sheet.

One key component of herd management is disease control. It is the responsibility of each farmer to manage his animals in such a manner that they are healthy and in good condition because it makes the animals more resistant to infections and disease.

Prevention of disease is better than any possible cure. It is important to establish a good working relationship with a veterinarian. Together, the farmer and the veterinarian can work out a program tailored for any individual farm to control disease and to maximize the health and productivity of the animals.

Getting to know each animal is one of the best ways to spot a problem before it gets out of hand. Out-of-character behaviour or activity is a clear signal that something is wrong -- investigate and act.

Well-fed animals, with minimum stress during handling will be healthier, and more disease-resistant. The causes of diseases can be categorized as:

- Intrinsic flaws;
- Nutritive deficiencies;
- Exogenous poisons;
- Trauma;
- Tumours (reoplasms); or
- Parasitic or other living organisms (i.e. parasites, bacteria, fungi, viruses, mycoplasmas and rickettsia).

Intrinsic Flaws

Intrinsic flaws refer to hereditary or congenital disorders. These animals should be culled to eliminate future problems in the herd.

Nutritive Deficiencies

Selenium and copper deficiency and winter death syndrome are examples of nutritive disorders in fallow deer. Selenium deficiency occurs when supplementary feeds (hay, ground grains) which have had natural stores of selenium (vitamin E) destroyed by oxidation, are not supplemented with a selenium rich additive. Selenium deficiency has been shown to cause muscular dystrophy, reproductive failure and death in deer. Veterinarian advice should be sought on the amount of selenium to be added to the diet, as too much selenium can cause poisoning.

Copper deficiency causes a progressive disease known as enzootic ataxia. This disease begins with loss of coordination followed by brain and spinal cord damage. If the deficiency is not detected prior to this stage, there will be no recovery of affected tissue. Liver samples, obtained via a liver biopsy, are the best indication of copper deficiency. With veterinarian confirmation, copper deficiency can be treated by adding a copper supplement to the mineral mixture.

Winter death syndrome is simply known as starvation. Winter-death syndrome is caused by gross mismanagement -- the failure to meet the winter feed and energy requirements of the herd. Live weight monitoring in midwinter and early spring and comparison to the expected live weights will indicate a problem. As a general rule, the maintenance dietary requirement of a deer is roughly 2% of live weight in digestible dry matter.

Exogenous Poisons

Exogenous poisons can be supplied by natural or artificial sources. Environmental pollutants in the air, ground and water all can cause poisoning. Excessive use of selenium can cause death within one day. Selenium is rapidly absorbed by the gut and after showing a wide range of clinical signs (distress, rapid and weak pulse, labored respiration, bloating, colic, or frequent urination) terminates in blindness and/or behavioral changes and finally death.

Trauma

Many mortalities are attributable to basic mismanagement, including:

- Inadequate yard and gateway design;
- Lack of, or inadequate handling facilities;
- Collisions with fences, gates, races, and yards;
- Handling a group that is too large; or
- Exerting excessive pressure when "mustering".

Fractures are commonly due to deer being caught in gaps alongside and under gateways combined with pressuring during mustering. Site boards and sacking can stop fence collisions in races.

In general, gentle handling and logical, well-designed facilities can greatly reduce these types of mortality.

Additionally, feed and exposure stresses, exacerbated by the low-fat, high muscle composition of the deer body, can cause associated diseases. Gastro intestinal ulceration and stress enteritis shock syndrome have been shown to occur in recently transported deer, in deer undergoing a change in feed and those not accepting a supplemental feed.

Tumours

Tumours or reoplasms are generally uncommon and not usually infectious (epizootic).

Parasitic or Other Living Organisms

In general, parasitism in conjunction with other stress (especially nutritional) will be responsible for the majority of losses in deer not on a regular anthelmintic (deworming) program. Deer are also susceptible to attack by the array of ruminant flies and their parasitic larvae (warbles and bots), also ruminant lice, mites and ticks. Treatment and control would be the same as for the other food-producing ruminants.

Signs of internal parasitism are weight-loss, rough hair coat, diarrhea and in cases of lungworm infection, sometimes a soft cough (unlike lungworm-infected cattle who have a hacking cough). In addition to lungworms, gastrointestinal and other body system nematodes, deer can also be parasitized internally by several species of trematodes (liver flukes) and cestodes (tapeworms).

Most of the deer parasitology literature available focuses on lungworm infection, because lungworms cause the greatest number of parasitic deaths in deer. For the most part, dewormers that kill lungworms in deer are effective against other internal nematodes or roundworms.

Management techniques such as pasture rotation and off-the-ground feeding (combined with strategically-timed, sequential dewormings) should

all help to fight parasitism. For details of all the parasite life cycles, control programs and treatments, consult your veterinarian or refer to books and articles on this specific subject.

Internal parasites reported in deer	
<p>Lungworm Nematodes Dictyocaulus Elaphostrongylus Protostrongylus</p> <p>Gastroenteric Nematodes Abomasum Haemonchus Ostertagia Rinadia Skrjabinagia Spiculopteragia Trichostrongylus</p> <p>Small Intestine Bunostomum Capillaria Cooperia Nematodirus Strongyloides Trichostrongylus</p>	<p>Large Intestine/Cecum Chabertia Oesophagostomum Trichuris</p> <p>Other Nematodes Elaeophora (circulatory system-arterial worm) Parelaphostrongylus (nervous system-meningeal worm)</p> <p>Trematodes (liver flukes) Fasciola Fascioloides Paramphistomum Dicrocoelium</p> <p>Cestodes (tapeworms) Echinococcus Moniezia Taenia</p>

FALLOW DEER DISEASES

Diseases reported in deer	
<p>Bluetongue Brucellosis Clostridial infections: o blackleg, o Malignant Edeman, o Enterotoximia) Facial Eczema Louping ill Pneumonia</p>	<p>Foot Disorders: o foot scald o foot abscess o foot rot Kerato conjunctivitis Leptospirosis Ryegrass staggers Salmonellosis Tuberculosis</p>

Yersiniosis and malignant catarrhal fever **have not been recorded in fallow deer farmed in BC.** Deer develop severe clinical illness very quickly in these

serious diseases, which can rapidly progress to recumbency and death. The progress of these diseases is exacerbated by their nervous temperament, making these diseases potentially very dangerous.

PRODUCTION FACILITIES

In general terms, the farm layout is a system of variable size paddocks, each being connected to a central race which in turn leads to the other farm facilities i.e. loading ramp, drenching and vaccination yards, and weighing station.

Basic facilities that are required:

- A well-designed race entry system;
- A covered yard system with or without outside holding pens;
- A light control pen before the restraint;
- A form of mechanical restraint (bail, cradle, etc.); and
- A drafting system.

There are numerous designs, each with their own advantages and disadvantages. It is recommended that a farmer research the various designs and visit other farms for ideas.

For maximum production and optimum animal health, stresses must be kept to a minimum for both the deer and the farmer. Effective management means designing facilities and handling the deer in a manner that causes as little stress as possible (transport, yarding, mustering, etc.).

Any yarding operation will cause some stress on the animals, therefore, it is ideal to have an annual program designed to tie in as many activities as possible for every yarding. In the case of sick or injured animals, it will be necessary to yard some groups or parts of groups at unscheduled times. Reviewing your records will help you effectively schedule activities.

Once the deer are accustomed to the farm facilities and routine, yarding and mustering should not be problematic, provided the layout of the facilities is given careful consideration. Time invested planning will save dollars in terms of work efficiency, the ability to expand facilities over time,

and most importantly, being able to handle the deer effectively causing minimal stress.

The routine activities requiring yarding and restraint are:

- Drenching and vaccination;
- Ear tagging;
- Harnessing of sire bucks;
- Recording wet or dry status of does;
- Removal of velvet or spikes;
- Weighing;
- Artificial insemination; and
- Assisted fawning.

FARM, YARD AND RACEWAY DESIGN

The subdivision of the farm into smaller units (paddocks) is to provide isolated areas for mating, fawning, weaning and growing. Each paddock must be equipped with fresh water and shelter. The importance of trees and the benefits of shelter cannot be over emphasized; the animals need to be able to choose shade and shelter at will. Trees provide a food source, shade, shelter, visual barriers and hides, prevent erosion, protection for fawns, and contribute to a tranquil environment which is desirable for deer.

The primary consideration for yard design is to have enough holding capacity within the yard complex to hold the numbers of animals when the property is fully stocked. These animals can be accommodated in outside holding yards prior to being brought into the actual covered area. Once the animals are in the yards it is helpful to break the group down into suitably sized smaller groups for the light control pen prior to restraint. For this purpose a number of small pens leading to the light control pen should be provided. Small groups of animals can then be drafted out of the holding area into each of these pens.

For easy yarding of the animals, the raceway, as it leads into the yard complex, should ideally have blind bends and corners incorporated, around which the animals will flow into the yards. The last section of the raceway should be boarded to minimize the possibility of injury to the animals from

jumping into netting fences. A solid gate to close off the race at the start of the boarded section will prevent animals escaping if they balk at the yard entry.

The central race will eventually terminate in a yard by a tunnel race. This tunnel race is used for drenching, vaccinating and tagging or tattooing small numbers of deer. Circular yards are the best while square yards are less expensive. A ten foot square yard is adequate for a one man operation.

This central yard will be provided with offtakes acting as leads to a live sale yard, a weighing station, a loading ramp, a polling room, and a return race. There should be no metal or concrete projections in the yards. All doors and gates should be fitted flush with minimal gaps and equipped with springloaded catches of the flush built-in type. Internal yard walls should be constructed of 2"x4"x8" studs faced with 3/4" plywood. Viewing ports may be installed. The central yard is constructed of posts faced with a 1" gapped 1"x4" strapping. The offtake yards may be roofed, as some farmers believe a roof quiets the deer.

If a tunnel race is not used, a deer crush/cradle must be used as a connecting race to one of the internal yards. All handlers should wear protective clothing and headgear, motion should be slow and make no sharp metallic sounds.

Floor Materials

The main materials used for floors are sand, and untreated sawdust or concrete. The advantages are that sand and sawdust are soft, free draining (sawdust can absorb dampness), and cheap. Disadvantages are that in the summer they can be dusty. Both of these materials need underfloor drainage and replacement after a number of years. Sand will compact and mix with mud. Sawdust will rot down, and impair drainage.

Concrete floors are permanent, durable and free draining. However, concrete floors also are hard and unyielding, and so can result in animals injuring themselves when falling over or landing awkwardly after jumping. Any build-up of dung on concrete floors can make them very slippery.

Light Control Pen and Lead-Up Tunnel

This system involves a totally enclosed pen with a light controlled from outside, which is used to hold animals prior to entry to the restraint. A small doorway opens from the pen into a lit tunnel leading to the restraint. When confined, fallow deer run to the light, therefore when they are required to enter the tunnel, turn off the pen light and they will enter the tunnel rapidly. The farmer can then enter the pen to push out any reluctant animals.

Between successive loadings of the tunnel, the pen light is usually turned on. It may be preferable to leave the light off to minimize fighting when sire or older bucks are penned. An enclosed tunnel is required to bring the animals from the light control pen to the restraint. The tunnel may be completely enclosed, with a light immediately before the restraint or have a pipe or slatted top for most of its length to allow access to the animals to move them in the tunnel or read tags prior to the restraint.

The longer the tunnel, the better, provided it can be subdivided into sections with sliding doors to prevent animals from bunching up. A longer tunnel will be more attractive for animals to enter. The width and height of tunnel should minimize the animals' ability to turn around.

MECHANICAL RESTRAINT SYSTEMS

Mechanical restraint systems fall mainly into three types: bail, cradle or crush, each with variations.

Bail Restraint

A bail restraint is basically a structure at the end of the tunnel with a slot or hole for the animal to poke its head out of, again using the principle of the animal being attracted to the light. Variations have the head coming out of the front or side of the structure. It is best used when working on the head or neck of the deer:

- Eartagging;
- Drenching and vaccinating; and

- Removing antlers under anaesthetic, if the head hole is large enough.

The advantages are that it is reasonably cheap to manufacture, it allows for a high number of animal throughputs and it's an easy one-person operation. The disadvantages are that access to the animal is limited to the head and neck and animals can injure themselves if entering too fast.

Cradle Restraint

This is a Y-shaped structure with a drop floor and hinged side, mounted with the floor half to two-thirds a metre above the shed floor. When the animal has entered the cradle, the floor is dropped and it is held in the wedge of the Y. With the cradle off the floor, access to the legs and feet is possible. Doors in the side of the cradle allow access to the body. The animal is released by opening the hinged side which allows the animal to drop to the floor and move away.

Operations possible through this system are the same as for the bail plus artificial insemination, assisted fawning, harnessing of sire bucks, foot inspections and treatment. Advantages of the system are all around access to the animals and they are less likely to injure themselves. Disadvantages are that a cradle is more expensive to manufacture and has a slower throughput.

Crush System

This structure is similar to the cradle except the animal is held by the action of one side of the crush being forced against the animal and usually the floor is also dropped. Access to the animals is more restricted than with the cradle as the sides of the crush are physically restraining the animal and so cannot be as readily opened. Access is usually from above, over the top of the side of the crush. Operations, advantages and disadvantages for the system are the same as for the cradle. As crushes are often pneumatically or hydraulically operated, manufacturing costs are high.

OTHER RESTRAINT SYSTEMS

Manual

A deer may be picked up, most easily out of restraint, by putting both arms around the its chest with the its back held tightly against the holder's chest. The deer can be comfortably held in this position, particularly if the holder is seated with the deer's rump on his lap. The person working on the underside of the animal is advised to watch out for flailing legs or head.

Chemical Restraint

Chemical restraint will be necessary for more complicated operations such as electro-ejaculation, intrauterine AI or embryo transfer. This will normally be carried out by a vet but a mechanical restraint will be required to allow administration of the drugs. There are a number of sedative drugs available and the choice of which to use will be the responsibility of a veterinarian.

Weighing Animals

The systems available are electronic or mechanical and are suspended or platform. All of the restraints can be mounted on either system. Using the restraint as a weigh crate means the animals can be weighed each time they are in the restraint. It also means they have to enter the restraint each time they are weighed. The alternative is to put a separate weigh crate in the tunnel, most easily with platform scales, with the facility to draft the animals after the weigh scales and before the restraint. This is most easily achieved with a long tunnel.

GLOSSARY

The following is a glossary of some words associated with fallow deer farming. Some are unique to New Zealand and may be helpful when reading reference materials from there.

Abattoir - Slaughterhouse

Advancer (Avancer) - Forward tine (or tray) of fallow buck head

Back Antler (Black Antler) - Rear tine (or tray) of fallow buck head

Bare Buck - Male in his fifth year

Bragged - Pregnant doe

Braunch - Brow point of a fallow buck head

Break (Brittle) - To skin and cut-up a fallow deer

Buck (Gries) - Male

Buck of the first head - Fallow buck in its fifth year

Button - Vestiges of hard antler

Calve - Fawn

Cast - Shed (i.e. antlers)

Clean weight - Generally with lungs, stomach and intestines etc., only removed but with heart and liver

Clostridial diseases - Bacterial disease (i.e. Blackleg, Enterotoxemia, Tetanus)

Colostrum - Milk secreted for a few days after parturition and characterized by high protein and antibody count

Comely - Description of a "fair" doe

Cotying - Excrement of fallow deer

Doe - Female fallow deer

Fair - Description of a good doe

Fawn - The young of fallow deer, in first year

Fench Month - The season for does to have young

Finishing - Carrying deer from weaning to slaughter purely for venison

Gralloch - Removing the stomach, entrails etc. from a deer

Grease - A fat buck was said to be "in grease"

Great - Description for a good buck

Great Buck (Great Head) - Male fallow in his sixth year

Groan (groaneth) - Sound emitted by a fallow buck

Havier - A castrated deer

Hind - Female, doe

Joining - Putting stags and hinds together
Lodging - A fallow buck is lodged when it is in cover
Mating - The actual act of mating
Menil - A color variety of fallow deer that is spotted winter and summer
Moss - The velvet on antlers
Near Antler - The left antler
Oestrus - Heat
Off Antler - The right antler
Palm - The palmated top of the fallow buck's antler
Parturition - Birthing
Pedicle - A permanent bony outgrowth from the frontal bone
Pelage - The coat of deer
Pizzel - Penis of an animal (or) whip made of a bull's pizzle
Polling - Cauterising the primordial pedicles to permanently inhibit pedicle and antler development of fallow bucks
Pomeled - Spotted as young deer
Prick or pricks - First head of a fallow buck
Pricket - Male fallow deer in second year
Prickett's Sister - Female fallow deer in second year
Roaring - Being sexually active
Rut - Mating season
Shovel head - Head of old fallow buck
Soar - Fourth year of a male fallow buck
Sorel - Third year of male fallow buck
Spellers - The top points of a fallow buck's head
Spoon-head - Head of young fallow buck
Suet (tallow) - Fat of fallow deer
Tegg (teg) - Female fallow deer in her second year
View - Footprint of a fallow deer
Velvet - "Immature antler". The soft vascular skin that envelops and nourishes the developing antlers of deer
Weaner - Weaned calve
Yearling - One year old

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