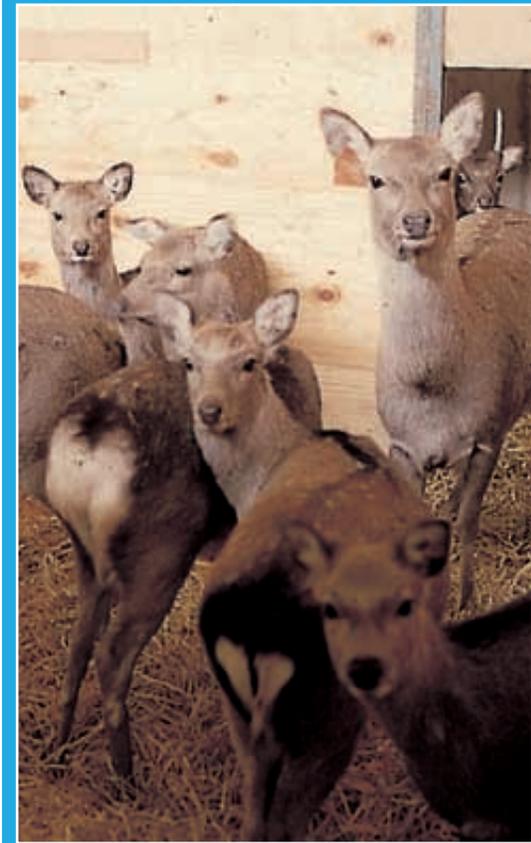


# DEER PRODUCTION AT KILDALTON



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## BACKGROUND

**D**eer farming commenced at Kildalton College in 1986 with the purchase of a herd of 20 cervus sika nipon and sika red crossbreeds. At the time 2.74 ha of grassland were fenced with 1.9m chain link wire netting and the area was divided into four paddocks using five strands of electric fencing.

In this initial phase- 1986 to 1990- it was established that:

- Cervus sika nipon were not the most suitable species for widespread use on Irish farms.
- Electric fencing was not stockproof in all conditions.
- Handling and winter housing facilities were needed on Irish deer farms.

The decision was then taken to purchase seven red deer and 24 fallow deer and an extra 4.21 ha of grassland was fenced with deer wire netting. In the 1991-94 period, a further sixty fallow females were purchased and a wintering house (4.88m x 5 bay leanto) for calves, a handling unit equipped with holding pens and a fallow crush with weighing scales were built.

## DEER HERD MANAGEMENT

**The deer herd at Kildalton is comprised of two distinct breeds; red deer (*Cervus elaphus*) and fallow deer (*Dama dama*). The unit operates a breeding to finishing system with progeny sold for venison, breeding or as weaned calves, depending on the market situation.**

The annual management cycle on deer herds starts with the weaning of the calves in September/October. Following weaning, the breeding females are put out with the breeding stags. It is suggested that for the first week after weaning that the pasture be not too bare or too good so as to give the does a chance to dry up and start coming back into condition.

### Mating Period

The peak mating period is from 25 September to 30 October. It is critically important that the deer are grazing on pastures with adequate grass covers during this period, as supplementary feeding is not feasible due to the aggressiveness of the stags.

The size of the mating groups is important. At Kildalton we favour single sire mating with 20-35 does grouped with a mature stag. The advantages are more compact calving (we have had up to 10 calves born in a 48 hour period from the one sire), better overall fertility and easier supervision at calving and weaning.

With regard to replacement females for the breeding herd, it is not a good idea to introduce a few new females every year as deer have a very strong group instinct. As a result there can be a lot of bullying of young females brought into an existing group and it can result in poor overall performance. We recommend that a new group of yearlings be set up every 4 or 5 years. While it is usually understood that yearlings are later coming on heat, and consequently, later calving than the mature herd, we have observed that if they are of good size and weight and if the stags are let out early, they can start calving around the same time as the mature herd. The first yearling red hinds calved on the 16th May, 1999 at Kildalton.

## Weaning

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Weaning is a difficult task as the young calves are very flighty and can hurt themselves very easily. At Kildalton we have found that it is best to have everything prepared and to keep distractions to a minimum, especially when getting the herd out of the paddocks. Weaning is best done on an overcast calm day using experienced personnel with whom the deer are familiar. The mothers and calves are housed together and are left in the house overnight with the freedom to circulate between a number of pens; they are then separated the next day. It is a good idea to put a quiet hind/doe into the pen in which the calves are to be put to help the calves to settle.

The calves should be allowed to circulate between two pens rather than confined in the one space, this makes bedding and feeding less stressful. During the first and second day after housing, Fenbendazole pellets are included in the feed to cover any problems with lungworms. This is often followed with an Ivermectin pour-on two to three weeks later when the calves have settled and can be put through the handling system.

The calves are fed whole barley/oats supplemented with soya bean meal and minerals/vitamins. Start by feeding 400 grams per day per red calf and 200 grams per day per fallow calf, gradually building up over 3-4 weeks. Hay is always used as a roughage when building up meal levels to prevent a carbohydrate overflow to the small intestine which can trigger *clostridium perfringes* to multiply rapidly and produce toxins with resulting deaths.

The calves are bedded two to three times a week with straw (generally they will eat quite a lot of it) and the houses are cleaned out once or twice per year.

Calves are sold from 11 months of age upwards in May, June and July (the reds were retained longer in 1998 due to marketing difficulties). Occasionally calves were sold at four to six months in response to demand. The annual management cycle for a deer herd is as follows.

# ANNUAL MANAGEMENT CYCLE— DEER HERD.

## September/October

Red deer are weaned in mid September and fallow deer in the first week of October. The calves are housed at weaning, After weaning the hinds/does are formed into rutting groups and the stags/bucks are let out.

## October/December

The breeding herds are kept out in the paddocks until the end of the rut in late November/early December. During this period, it is desirable to give the animals plenty of space in order to allow the stags to round up the herd naturally while giving the females space to avoid being injured by the stags. Venison animals finished from grass will be drafted for sale during this period.

## December-March

The breeding females are taken away from the stags/bucks and housed. The stags/ bucks should be penned individually and fed to regain weight lost during the rut.

## March/April

The breeding females are initially turned out to grass on the silage ground, when this is closed in late March they move onto the grazing paddocks. If the calves are being finished at grass (September to December) they should also be turned out to grass early and given priority access to grass until after calving.

## May/June

The breeding females are kept on tight grass prior to calving which starts in mid May in the reds and mid June in the fallow. Where the yearlings are sold from the house they should be ready for sale around this time, depending on the level of meal feeding.

## July-September

The growth rate of the young calves is highest during this period when they are suckling their mothers. The breeding stags and replacement females also require a high plane of nutrition during this period to prepare them for the breeding season. Antlers are removed from the stags/bucks in August.

## RESULTS

The performance of the red deer herd at Kildalton for the period 1996-1998 is summarised in Table 1. Performance improved significantly, especially in the area of calf mortality. For a number of years we experienced a problem with cryptosporidiosis which resulted in the death of calves at between seven and 30 days of age. While a number of treatments were tried, the disease was generally too far advanced by the time we were able to catch the calf.

Table 1: HERD PERFORMANCE -RED DEER-1996-1998

Performance	1996	1997	1998
Fertility rate (%)	90	100	90
Weaning rate (%)	57.5	87.5	85
Finishing rate (%)	57.5	87.5	—
Born dead (%)	5.0	7.5	2.5
Mortality rate (%) - calves	27.5	5.0	2.5

The increase in the number of calves born dead amongst the reds in 1997 was due to an attempt to increase the birth weight of the calves; consequently hinds were not restricted before calving. As a result there were three difficult births and three dead calves. One hind died giving birth and another died five days after a difficult birth.

Continued improvement in herd fertility will be achieved by a combination of smaller rutting groups and more vigorous culling of hinds on age, performance and on overall condition.

Table 2: HERD PERFORMANCE - FALLOW DEER-1996-1998

Performance	1996	1997	1998
Fertility rate (%)	92	95	92
Weaning rate (%)	88	85	75
Finishing rate (%)	84	85	—
Born dead (%)	2	10	13
Mortality rate (%) -(fawns)	6	0	4

The main factor effecting the overall performance of the fallow herd was the problem of difficult births; almost all arose from a three-quarter bred Mesopotamian buck. There were no problems with his son (3/8 Mesopotamian) in 1998 or with another three -quarter bred in 1999. (Table 2). It appears that there can be individual sires, in deer as in other livestock, that produce easy or difficult calvings.

## Control of cryptosporidiosis

Various approaches to the control of cryptosporidiosis were experimented with at Kildalton in 1997. One group of 20 hinds were injected with 10cc of Sulphamethoxypyridazine (Medicel) and another group not injected.

The calves from both groups were each injected with 1.0cc medicel at birth. There was no difference in the treated hind group versus the untreated hind group in 1997. In 1998, the calves were injected at birth and there were no losses from cryptosporidiosis. At Kildalton we tag and weigh all calves at birth, therefore giving them an injection results in very little extra work. Farmers not tagging and weighing the calves may consider injecting the hinds only as there is less work involved.

## Mesopotamian Blood Lines.

A three-quarter bred Mesopotamian fallow buck was purchased in 1996 and bred to 25 European fallow does in 1996, 1997, 1998 and 1999. A European fallow buck was bred to the other half of the herd in 1996 and 1997. In 1998 he was replaced by a 3/8 Mesopotamian and by another three-quarter Mesopotamian in 1999. The results are outlined in Tables 3, 4 and 5.

Table 3: BIRTH WEIGHT -FALLOW CALVES (KG)

Type	1996	1997	1998
Mesopotamian (kg)	5.13	5.8	5.2
European (kg)	4.86	5.1	5.0

**Table 4: WEANING WEIGHT (KG) - FALLOW DEER**

Type	1996	1997	1998
Mesopotamian (kg)	27.15	26.0	25.3
European (kg)	24.6	23.2	24.0

**Table 5: DAILY LIVEWEIGHT GAIN (G) - BIRTH TO WEANING, FALLOW DEER CALVES**

Type	1996	1997	1998
Mesopotamian (kg)	208	182	183
European (kg)	188	164	170

**Table 6: FINISHING WEIGHTS (KG) FALLOW DEER**

Type	1997	1998
Mesopotamian (kg)	52.9	64.75
European (kg)	47.3	50.30

**Table 7: DAILY LIVEWEIGHT GAIN (G)WEANING TO FINISH**

Type	1997	1998
Mesopotamian (kg)	119.5	150.0
European (kg)	96.3	99.0

The findings show that from birth to weaning, the European fallow fawns had a growth rate of 90% of the Mesopotamian fallow fawns in both 1996 and 1997. In 1998 the performance of the progeny of the 3/8 buck was 93% that of the 3/4 buck.

In the weaning to finishing period in 1997 when the calves were sold in May at 11 months of age, the growth rate of the European fawns was 80.5% of the Mesopotamian. In 1998 when the calves were taken to heavier weights and sold in July the European growth rate was only 66% of the Mesopotamian (Table 7)

# GRASSLAND MANAGEMENT

**The deer unit in Kildalton was sub divided into nine paddocks in 1996, in order that comparisons could be carried out between the different breeding groups. The paddocks were measured and mapped out in 1997 (Appendix 1) to facilitate grass measurement and budgeting.**

In 1998 the rising plate meter was used to calculate grass covers which were recorded every two weeks throughout the season (Appendix 2). The cut and weigh method was used to improve accuracy in 1999. A microwave oven was used to determine dry matter percentage.

- Peak grass demand on a deer unit is in the period mid June to mid September. Some 45-50 per cent of the area should be closed for an early (20th - 25th May) cut of silage.
- The grass cover recording system established a stocking rate (breeding stock only) in Kildalton in 1998 of
  - **10 Red Hinds/ha**
  - **22 Fallow Does/ha**
- Average grass cover on the grazing area throughout the year was 970 kg/DM/ha.
- The average total cover on the grazing area was 6,294 kg DM.
- The average number of grazing days was 29, due to the need to have 4 groups on 9 paddocks not much can be done about reducing the number of grazing days. This means that paddocks need to be topped at least once and sometimes twice during the grazing season, alternatively baled silage may be taken where possible.
- Meals were not fed at grass with the exception of one group fed meals for two weeks in May 1998.
- Phosphorous and potassium application are based on standard recommendations, P and K was applied only to the silage area in 1997 and none at all in 1998. Nitrogen was applied at 177 units per acre to the grazing area.
- Turnout dates for the hinds over the past three years were 28 March in 1997, 18 March in 1998 and 8 March in 1999.

## WINTER HOUSING

In 1996 housing suitable for the wintering of both red and fallow adults was put in place (Appendix 3).

A hydraulic crush for the safe handling of red deer was also built. An easy feed silage system using a swinging trough at a height suitable for mechanical feeding was developed and put in place (Appendix 4).

The house, crush and feeding system have worked very satisfactorily.

Floor pen space has been established at 2.5-3.0m<sup>2</sup> for red adults and 0.5 to 1.0m<sup>2</sup> for fallow adults.

Trough space for meal feeding has been established at 37.5 cm per calf.

## WINTER NUTRITION

### Breeding Females—

The breeding females are housed from the first week of December to the middle of March. They are fed silage only with minerals shaken on top. The costs amount to £14.10 per red hind and £7.75 per fallow, per winter.

### Finishing Animals—

These are fed a home mixed ration comprised of:

800 kg whole oats  
180 kg soya bean meal  
20 kg minerals.

Hay and silage are fed ad-libitum. The average cost of feeding the reds to finish was £59.50, and of feeding the fallow to finish was £35.30.

The idea of using home mixed whole rations has been widely adopted on deer farms over the last two years.

## CONCLUSIONS

- The factors contributing to fertility rate, breeding management and grassland management for a deer herd have been identified.
- The main causes of difficult births have been identified.
- A cryptosporidiosis control programme in red deer has been developed and put in place.
- Mesopotamian fallow breeding lines have been shown to improve growth rates by between 20 and 30 per cent. The 3/8 Mesopotamian fallow females calved two to three weeks earlier than the European fallow.
- The grassland monitoring work has established that on a deer unit peak grass demand is in the mid June to mid September period. It has also shown that by grazing silage before closing at the end of March it is possible to improve turnout from the end of March to early March. This work has also led to better allocation of grass during the growing season.
- The housing, handling and feeding systems developed have worked well, especially in relation to animal welfare, easy feeding and wastage of feed and labour requirements. The unit is viewed as a model blueprint for the wintering of deer.
- The adult breeding herd can be wintered indoors on silage only.
- The low cost home mix wholegrain ration fed to the venison animals has helped to reduce production costs.
- Information accrued on the Kildalton unit has been disseminated to deer farmers, both nationally and internationally, through publications, seminars, courses, farm visits, discussion groups and open days.

## DISSEMINATION

The information accrued from project work in the Kildalton deer unit is disseminated directly to producers via Teagasc advisers and specialists, mostly by the discussion group method. In the course of this project, discussion groups have been established in Cork, Galway, Louth, Kilkenny, Mayo, Waterford, Wexford and Wicklow. These have contributed to improving the performance of members' herds in relation to: Feed costs, turnout date, weaning rates and weights: breed improvement and herd health and welfare.

The information generated is also presented at technical seminars or Deer Farmer Association Conferences. In addition information from different aspects of the project was published in the farming press and in international deer farming publications.

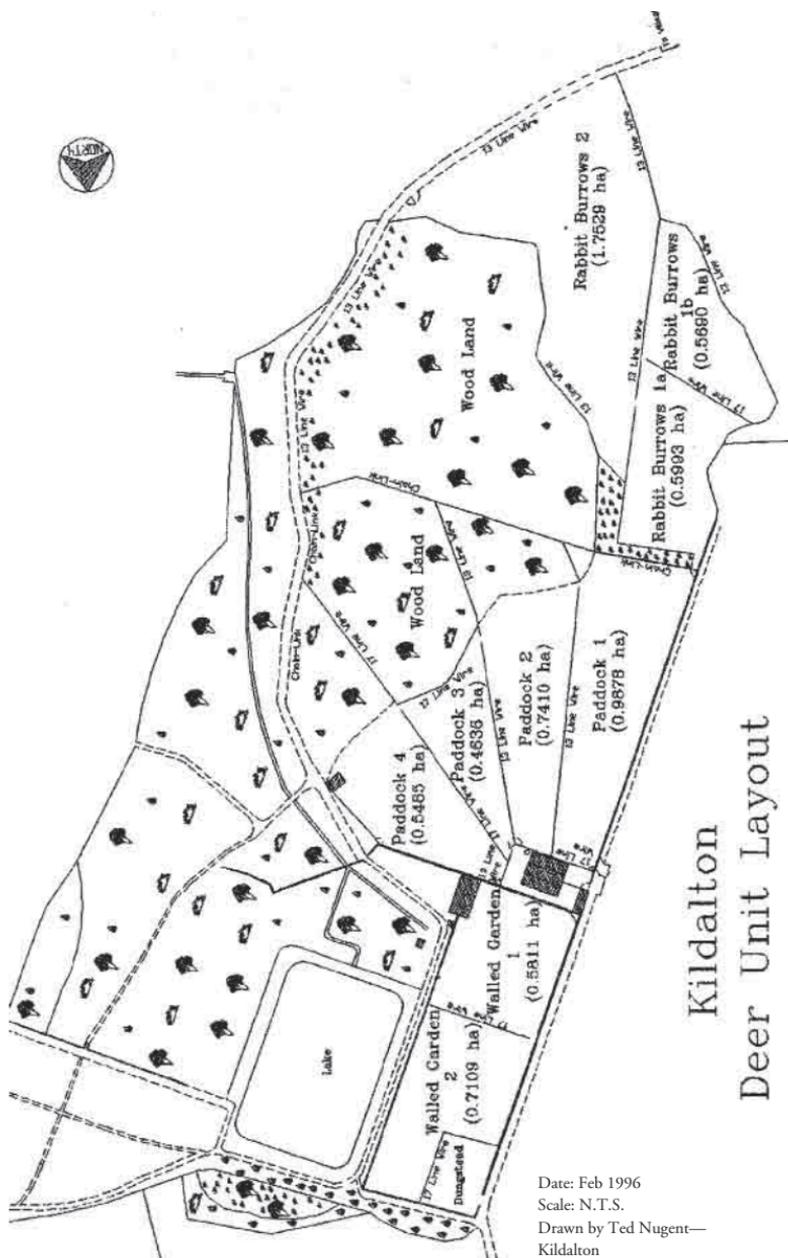
The Kildalton deer unit is also an important resource in relation to updating the skills of existing deer producers and in the training of new entrants to deer farming.

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# APPENDIX 1



# APPENDIX 2

## GRASS COVER RECORDING SHEET

DATE / / Dry Matter % \_\_\_\_\_

Paddock Name /No.	Size Hectares	FRESH Wght g/0.25m <sup>2</sup>	F.wt. x%DM x40 kg. DM/ha	Kg Dm/paddock 2 x 4
Paddock 1	0.99			
Paddock 2	0.74			
Paddock 3	0.46			
Paddock 4	0.55			
Rabbit Bo.1a	0.6			
Rabbit Bo.1b	0.57			
Rabbit Bo. 2	1.75			
Wall Garden 1	0.58			
Wall Garden 2	0.71			
<b>Total Area</b>	<b>6.95</b>		<b>Total cover</b>	
Average cover kg DM/ha (col.5/2)				

Total Demand \_\_\_\_\_ Kg/DM/day

Number of Grazing Days =  $\frac{\text{Total cover}}{\text{Total Demand}}$  = \_\_\_\_\_ days

Growth / kg DM/Day

: Predicted \_\_\_\_\_

: Actual \_\_\_\_\_  $\frac{(\text{Difference in cover of non grazed})}{(\text{Number of days between readings})}$



## APPENDIX 4

