Alternative Enterprise Series

Teagasc

Agriculture and Food Development Authority

GRASSLAND MANAGEMENT ON DEER FARMS

Grassland Management on Deer Farms

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High performance in a deer unit depends on the efficient conversion of grass into meat in the growing/finishing of animals. The efficient management of grass in a deer unit involves:

- the growth of large amounts of high quality pasture to ensure adequate forage for the herd throughout the year
- the efficient utilisation of pasture by the herd in order to achieve optimum liveweight gains
- the maintainance of high quality vigorous swards.

Output from Grass

The achievement of a high output from grass on a deer farm is conditional on having class one land, well managed and with ryegrass dominant swards. Where these conditions are not met, output potential will need to be adjusted downwards. Heavy late soils or soils that dry out quickly in the summer, when combined with poor swards, may have only 50% the potential of the better soils.

The main systems of venison production involve:

- Finishing off grass at 15 months onwards
- Finishing indoors at approximately 12 months.

However, regardless of the system practised there is in deer farming a requirement for good grassland management.

The main components of a grassland management programme for deer are:

1. *Grazing System*
2. *Stocking rate*
3. *Provision of adequate winter feed*
4. *Fertiliser application*
5. *Overwintering*
6. *Clover based grazing system*

The objectives of the programme in spring are the retention of 45% of the forage area for grazing and 55% for first cut silage. After the silage is cut, all of the grassland area is grazed. To facilitate the operation of the grassland plan there needs to be a minimum of 4 paddocks for grazing and a minimum of 2 for silage.

Achieving targetgrowth rates on grass is critical to overall profitability

1. GRAZING SYSTEM

The elements of the grazing system are :

- The provision of adequate winter feed.
- The availability of early grass for the finishing animals in spring.
- Control of the amount of grass allowed the females before calving.
- The provision of adequate grass for the lactating females in the June to September period.

- A reduction in the stocking rate at grass in September by weaning and housing the calves, and in the case of the animals in the grass based finishing system by selling off the finished stags at this stage.
- Concentrate supplementation at grass in the two weeks before weaning in order to train the calves for weaning. Supplementation of the finishing animals if liveweights are not up to target may also be necessary.

The key factors that need attention are:

Turn out

In the venison finishing system from grassland, turn out is approximately mid-March for the yearlings. They are turned out onto the silage ground and grazed there until the end of March, after which this area is fertilised and closed for silage. In this case, the adult breeding herd remains housed until there is adequate grass growth. This will normally be mid-April.

In the indoor finishing system the breeding herd is put out onto the silage ground until the 1st of April. The herd is then moved to the grazing ground.

Rotational Grazing

In the grass based finishing system, *a leader/follower regime* makes best use of the varying demands of the different stock throughout the grazing season. From turnout to calving in mid-May the yearlings graze ahead of the hinds around a four paddock system, with paddocks being rested for 18-21 days. If grass growth is slow, animals may need to be supplemented with concentrates. This should be done in order to maintain the rotation pattern and to ensure an adequate resting period for grass in the paddocks to recover.

In the indoor finishing system, rotate the breeding herd around the four paddocks, but keep an eye on animal condition so that animals are not allowed to get too fat before calving.

Calving

In the calving period mid-May to late June:

- *The stocking density* of the calving females is reduced by splitting the herd or by giving access to two paddocks.

- Females with calves at foot should not be kept in the same paddock for more than 14 days. They should be moved to a clean paddock. This is necessary to prevent a build up of infection in a paddock. The regrowth after the silage cut is very important in bringing clean ground into the system in the middle of the calving period.

Summer Grazing

In the grass based finishing system, once the main calving period is over, the leader follower regime commences but with the lactating females and calves now going ahead of the yearlings for the rest of the season. As the season progresses there is a need to lengthen the rest period between grazings to 21 to 24 days. (If grass regrowth is poor due to drought, supplements should be introduced and the 24 day resting period should be maintained). The leader/follower regime could lead to a build-up of parasites in the pastures, especially for the yearling animals, therefore more frequent dosing

Calves and hinds are fed concentrates in the two weeks before weaning

may be necessary. The weaning weight of the calf has an influence on the sale date of the indoor finished animals, therefore it is important that animals perform to their optimum while suckling during the summer.

Weaning/Rutting

During the breeding/rutting period (late September to late November), the stocking density should be reduced by:

- Weaning and housing the calves

(and in the grass based finishing system by):

- Selling off the male animals for venison.
- Housing female venison stock if necessary. They can be fed silage and concentrates until ready for sale.

After weaning, the breeding stock need high quality grass to achieve good conception rates. Concentrates should only be offered if necessary as the stags or bucks could hurt females brought into confined spaces for supplementary feeding.

2. STOCKING RATE

Profitability in a deer unit is strongly influenced by the volume of venison produced per hectare. It is important therefore to achieve good growth rates at high stocking rates.

In a grass finishing system the following stocking rates could apply:

Red Deer

A stocking rate for red deer on good land, taking all the required winter forage from the fenced area, is 6.75 to 7.5 breeding hinds to the hectare (2.75 to 3 per acre). Poorer quality soils or swards may only sustain 5 hinds per hectare (2 per acre).

Fallow

The equivalent stocking rate for fallow is 13.5 to 15 does per hectare (5.5 to 6 per acre).

Japanese Sika

18.5 to 20.5 per hectare (7.5 to 8 per acre).

The equivalent reduction in stocking rate for fallow and sika would need to occur if soil and sward conditions were poor.

In an indoor venison finishing system the following stocking rates could apply.

Red Deer

9 to 10 red breeding hinds per hectare (3.5 to 4 per acre).

Fallow

18 to 20 fallow breeding does per hectare (7.5 to 8 per acre).

Summary of Deer Stocking Rates per Hectare

Breed	*Grass Finishing System*	*Indoor Finishing System*
Red	**6.75 - 7.5**	**9 - 10**
Fallow	**13.5 - 15**	**18 - 20**
Japanese Sika	**18.5 - 20.5**	—

Target Weights and Growth Rates

The following are target daily liveweight gains and weights from birth to sale.

Red Deer		*Fallow Deer*	
Calf birth weight	7.5 to 11 kg	Fawn birth weight	3.5 to 5 kg
Calf daily gain (g/d)	350 to 410 grams	Fawn daily gain (g/d)	140 to 200 gram
Weaning weight	44 to 50 + kg	Weaning weight	19 to 25 kg
Turn out weight	65 to 85 kg	Turn out weight	28 to 32 kg
Daily growth rate (g/d at grass)	150 grams plus	Daily growth rate (at grass)	90 grams plus

Achieving the target growth rates is critical to the overall profitability of the system. A detailed Diary of Events should be kept, including for example, paddock grazing rota, dosing programme, weighing data, concentrate supplementation, grass growth rates and weather data. The diary can be used to identify weaknesses in the system and to pinpoint areas for corrective action to improve performance in subsequent years.

MANAGEMENT CALENDAR

17th March - 1st April

Grazing Area Closed

1st December - 17th March

- All stock off the paddocks
- Hinds fed silage only
- Calves - fed silage plus 1kg meals

15th September - 30th November

- Calves weaned and housed
- Hinds in two rutting groups
- Stags for venison sold
- Hinds for venison on grass if available
- Supplemented and housed if necessary

1st September - 15th September

Hinds and calves getting concentrates in preparation for weaning

- Prepared stags for sale
- Feed concentrates if not target liveweight

Yearlings Graze Silage Area

1st April - 15th April

Yearlings grazing the first paddock in a four paddock system

55% of land closed for silage

15th April - 15th May

Hinds follow yearlings in paddock system

55% of land closed for silage

15th May - 30th June

Hinds split into two groups for calving and moved onto fresh pasture every 14 days

- Silage cut 20th May
- Cleaned up by the yearlings
- Fertilised and closed for three weeks
- Then grazed by hinds and calves

1st July - 1st September

Hinds combined as one group and rotated around paddocks getting preference for grass

- Yearlings rotating around paddocks
- If grass growth is poor, slow down rotation and supplement with concentrates

3. THE WINTER FORAGE REQUIREMENTS

Silage requirements

Closing 55% of the area for first cut, at a yield of 22 to 24 tonnes per hectare, will ensure sufficient silage to meet stock requirements.

Grass Finishing System		
	Per Female	Per Calf
Red	1.1 tonnes	0.5 tonnes
Fallow	0.6 tonnes	0.25 tonnes
Indoor Finishing		
	Per Female	Per Calf
Red	1.0 tonnes	0.30 tonne
Fallow	0.55 tonne	0.16 tonne

4. FERTILISER PROGRAMME

Phosphorus (P) and Potassium (K)

All P and K requirements should be applied in autumn or early spring. An application of 2 to 3.75 bags/hectare (1 to 1.5 bags/acre) of 0:10:20 to the grazing area is adequate. On the silage area 10 bags/hectare (4 bags /acre) of 0:7:30 is recommended.

Nitrogen

All areas should get 2.5 bags of urea per hectare (1 bag/acre) in mid- January/early February. A further 5 bags/hectare (2 bags/acre) should be applied to the area closed for silage on the 1st April.

On the grazing area, 2.5 bags of urea per hectare (1 bag/acre) are applied immediately after each grazing. However, after 1st June it is best to use CAN instead of urea and apply at 2.5 to 3.75 bags per hectare (1-15 bags/acre).

The silage area should get 100-125 units of Nitrogen per hectare (40-50 units/acre) after cutting. There is no need to apply P and K. Nitrogen application should cease in early September.

Deer should be overwintered off the pasture

Farm Yard Manure

The farm yard manure produced can be heaped during the summer and put out on to the silage ground in the autumn.

Reduce the level of 0:7:30 to 2 bags per acre where FYM is applied.

5. OVERWINTERING

For good grassland management pastures must be rested over the winter. Animals must be taken off the paddocks from the end of November/early December and not returned until grass growth begins in spring.

If animals are allowed to remain on the land over the winter it is inevitable that severe poaching can occur. This will result in a deterioration of sward quality and in the quantity of grass. Early grass will not be available and regrowth throughout the year will be poor. If areas have been severely poached and ryegrass has disappeared, affected areas should be reseeded as soon as possible in the spring. If pasture quality is poor, low productivity areas might be reseeding in August/early September. Poached areas by fences and gateways can be improved by dressing with grass seed. This will improve the appearance of the paddocks, but as the area may be poached again the improvement in grass yield may not be major.

Severly poached areas can be reseeded in spring

6. CLOVER BASED GRAZING SYSTEM

A "good" clover sward is one in which the clover comprises 60% to 80% of ground cover during July and August

The development of environmentally aware farming and the introduction of the Rural Environmental Protection scheme (REPS), has led to an interest in grassland systems that use less artificial nitrogen, and the inclusion of more white clover in swards.

A clover/grass sward is a good source of feed for deer. A "good" clover sward is one in which the clover comprises 60% to 80% of the ground cover during July and August. It can be difficult to maintain this level over a period of years. Consequently, clover swards are less dependable than artificial nitrogen ryegrass systems, and they require different management. The following are the main areas of difference between both systems.

(1) A clover based system has 70% to 80% of the stock carrying capacity of a high nitrogen system.

(2) Generally the rest interval between grazing is lengthened to 24 to 28 days.

Nitrogen should be used for early grass in January/February and for silage, but should not be used at any other time as it will cause the clover to die out of the pasture.

In general, the clover system should not be considered if high stocking rates are practised. If participating in REPS, and operating at a less intensive stocking rate, it has potential.

MANAGEMENT CALENDAR - Example Farm

An example farm of 60 hinds and 2 stags on 20 acres on a grass based finishing system is taken. While numbers can be adjusted upwards or downwards, it is best to consider deer in rutting groups of 30 hinds plus a stag. It is assumed that the facilities on the farm include housing or yarding for all breeding stock from December to turn out. The pasture is divided into a minimum of 6 paddocks. The stocking rates and key management practices are outlined below:

17th March to 1st April

Yearlings for finishing as venison are turned out in mid-March and grazed on the silage area of 11 acres or 55% of the deer unit area. The stocking rate is 4 to 5 yearlings per acre on the silage ground until the 1st April. It is important that the silage area be closed by the 1st April as the regrowth after the silage is an important factor in the prevention of Cryptosporidium scouring in red deer calves in the second half of June and early July.

1st April to 7th April

When taken off the silage area, the yearlings are put into P1 (paddock one) i.e. the first of four 2.25 acre paddocks in the grazing system and remain there for seven days. To ensure ease of movement, it is important to have good access gates between paddocks.

7th April to 15th April

The yearlings are put into P2 for seven days while the breeding stock remain off the land in yards or houses.

15th April to 21st April

The yearlings are moved into P3 and the breeding females are turned out into P2. A leader/follower system, of hinds following the yearlings, operates from turn out of hinds until near calving. The yearlings are left in P3 for 6 days and then moved on. This is a very critical time of the year for grass and poor growing conditions can result in a shortage of grass especially at the start of the second round of paddock grazing.

21st April to 1st May

The yearlings are put into P4 and the hinds into P3. Due to better grass growth at this stage they will be left in the paddocks for 10 days.

1st May to 10th May

The yearlings are returned to P1 and the hinds are put into P4. If grass growth is slow, do not be tempted to speed up the rotation. It is better to maintain the rotation speed and supplement with concentrates.

10th May to 15th May

Yearlings to P2 and hinds to P1.

15th May to 25th May.

Yearlings are moved to P3 and the hinds are divided between P1 and P2. It is necessary to split the hinds into two groups during the first flush of calving as too many calving in the one area can lead to miss mothering or calve bashing and result in calf losses. The hinds can be set stocked for 14 days, but it is important to move them every 14 days until after the silage is cut to prevent Cryptosporidium scouring.

25th May to 15th June

The yearlings should clean up the silage aftermath. The hinds are moved to P3 and P4 and the yearlings go to P2. After the silage is cut the area should get 40 units of Nitrogen and be closed for 18 to 21 days.

15th June to 30th June

Hinds to S1 and S2, and yearlings to P1.

1st July to 1st September

Hinds to P2 as one group and yearlings to S1. Hinds can be combined together as one group in July and rotate around the paddocks. To ensure good weaning weights the hinds and calves should get the preference for the best quality grass. Part of the silage area will need to be divided up with temporary electric fencing to control grazing by the venison yearlings.

Electric fencing is not suitable for the hinds and calves. If grass is in short supply at this time then the rotation should be slowed down and supplemented with concentrates.

1st September to 15th September

Concentrates are introduced to the hinds and calves to prepare for weaning and for the rut. The yearlings may also need to get some concentrates if the stags are to achieve weights of 100 kg for sale by mid September.

15th September to 30th November

The calves should be weaned in mid-September. They should be housed and fed silage plus 1 kg of a 17/18% protein meal (starting at 400 grammes/day and gradually building up). The venison stags should be drafted for sale. The breeding hinds should be separated into two breeding groups but not grazed in adjoining paddocks. The venison hinds could be housed, fed concentrate and prepared for sale in November/December.

1st December to 17th March

The stags should be taken away from the hinds by the end of November to prevent late calves. The hinds can be housed/yarded and fed on silage alone.

The authors, Marie Kelly, Teagasc, Kildalton and Noel Culleton, Teagasc, Johnstown Castle, acknowledge the contribution of Willie Murphy, Johnstown Castle and Tony Pettit, Kildalton, in the preparation of this leaflet.