Herd notebook

Better Returns Programme

Why collect data

Do you know how your animals are performing and your costs of production? Collecting records and then analysing them is the best way to understand how your business is performing.

With this information, it is easier to set goals. When setting goals, involve others who work in the business, this means that everyone feels part of the decision-making process, understands what's going on and is committed to the cause of achieving improvements.

Key performance indicators

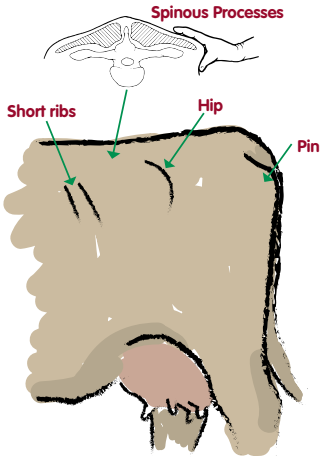
The following five points have been identified as the key performance indicators (KPIs) for assessing herd efficiency.

Record	Definition	Example	Target
Calves born alive per 100 cows and heifers put to the bull/served by AI	The number of live calves born for every 100 cows and heifers served	Out of 100 cows served; 3 did not conceive, 1 aborted 1 had dead calf = 95 born alive	>95
Calves weaned per 100 cows and heifers put to the bull/served by AI	The number of calves weaned for every 100 cows or heifers served	Out of 100 cows served and 95 calves born alive; 2 died before weaning = 93 calves weaned	>94
Calving period – first to last calf (weeks) or calculate start of calving as date of bull in + length of gestation period, including all those born prior to this date as born in week 1 of calving period	The number of weeks over which the herd calves	1st calf born on 4th March Last calf born on 6th May = 9 week calving period	<12
Percentage of cows and heifers calving in first three weeks (%) (calculate start of calving period as above)	The number of cows or heifers calving during the first three weeks of the calving period as a percentage of the herd	From a 100-cow herd, 65 calved in the first three weeks of the calving period = 65%	>65%
Average 200-day calf weight (kg)	The average weight of calves at 200 days of age	Average weaning weight is 345kg at 230 days = 305kg at 200 days assuming 40kg birth weight. If mature weight is 640kg then 200-day wean weight is 48%	>50% of mature weight of breeding cow

Body condition scoring

Body condition scoring (BCS) is a technique used for assessing the energy reserves of livestock at regular intervals. It uses a scale from 1, very thin, to 5, very fat.

Condition scoring provides a guide to the nutritional status of the animal and should be used to adapt feeding strategies to ensure that cows are in the correct condition for each stage of their production cycle.



Target body condition score

BCS targets for suckler cows		
	Spring calving	Autumn calving
Calving	2.5–3.0	3.0
Service	2.5	2.5
Housing	3.0–3.5	2.5–3.0

Body condition scoring

Score	Description
1	Tail head – deep cavity with no fatty tissue under skin. Skin fairly supple, coat condition often rough Loin – spine prominent and horizontal processes sharp Ribs – sharp with no fat cover.
2	Tail head – shallow cavity but pin bones prominent; some fat under skin. Skin supple Loin – horizontal processes can be identified individually with ends rounded Ribs – can be identified individually but feel rounded rather than sharp.
3	Tail head – fat cover over whole area and skin smooth but pelvis can be felt, only with firm pressure Loin – end of horizontal process can be felt only with pressure; only slight depression in loin Ribs – individual ribs can be felt only with firm pressure.
4	Tail head – completely filled, and folds and patches of fat evident Loin – cannot feel processes and will have completely rounded appearance Ribs – folds of fat developing over ribs.
5	Tail head – almost buried in fatty tissue Loin – pelvis impalpable even with firm pressure Ribs – covered with thick layer of fat.

Body condition scoring

Ear tag	BCS at calving	BCS at service	BCS at housing	

It is advisable to record a date when body condition scoring in order to track changes.

Body condition scoring

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Bulls used

Breed	Name	Ear tag	Notes (AI code/sexed/conventional)

Natural services and PDs

Use this table to record the cows/heifers that have been served naturally by the bull.

Ear tag	Date calved	Bull	Bull in date	Bull out date	PD+	Due date	Notes

Natural services and PDs

Ear tag	Date calved	Bull	Bull in date	Bull out date	PD+	Due date	Notes

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Natural services and PDs

Ear tag	Date calved	Bull	Bull in date	Bull out date	PD+	Due date	Notes

Artificial Insemination

Use this table to record all cows/heifers that have been artificially inseminated.

Ear tag	Service date	Sire	Service date	Sire	Service date	Sire	PD+	Due date	Notes (cull, aborted, sexed semen, etc)

Artificial Insemination

Ear tag	Service date	Sire	Service date	Sire	Service date	Sire	PD+	Due date	Notes (cull, aborted, sexed semen, etc)

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Artificial Insemination

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Calving records

Recording details of calving will help to keep a track on which of your bulls and cows are easier calving and allow you to look at areas to improve in terms of calf mortality.

Calving codes

Code		Ease	
L	Live calf	1	No assistance
D	Dead calf	2	Slight assistance – no equipment used
		3	Mechanical assistance – jack, ropes, etc
		4	Veterinary assistance required – no surgery
		5	Surgery required – caesarean, cutting of vulva/calf

Calving records

Recording calving information is essential in order to properly manage groups of cows, heifers and calves. Remember to record BCS at calving.

Dam ear tag	Date calved	Calving code	Calf ear tag	Calf sex	Calf weight (kg)	Dehorned	Castrated

Calving records

Dam ear tag	Date calved	Calving code	Calf ear tag	Calf sex	Calf weight (kg)	Dehorned	Castrated

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Calf deaths

Date of death	Calf ear tag	Age at death	Reason	BCMS informed

Cow and bull deaths/culls/sales

Date	Ear tag	Died/cull/sold	Reason	Price (£)

Cow and bull deaths/culls/sales

Date	Ear tag	Died/cull/sold	Reason	Price (£)

Cow and bull deaths/culls/sales

Date	Ear tag	Died/cull/sold	Reason	Price (£)

Weaning records

Recording calf weaning dates and weights allows you to keep a track on daily liveweight gain pre and post-weaning and also which animals achieve optimum carcase grade.

Ear tag	Date weaned	Weight (kg)	Wormed/ vaccinated	Date sold	Store/ finished	Sale LW (kg)	Carcase grade

Weaning records

Ear tag	Date weaned	Weight (kg)	Wormed/ vaccinated	Date sold	Store/ finished	Sale LW (kg)	Carcase grade

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Animals retained for breeding

Keeping details of animals that are to be retained for breeding allows mating decisions to be made and ensures the correct weight at first service is achieved.

Ear tag	DOB	Weight at weaning (kg)	Notes (sire/dam etc)

Animals retained for breeding

Ear tag	DOB	Weight at weaning (kg)	Notes (sire/dam etc)

Calf purchases

Date	Ear tag	DOB	Breed	Weight (kg)	Sex	Foster cow ear tag	Notes

Calf purchases

Date	Ear tag	DOB	Breed	Weight (kg)	Sex	Foster cow ear tag	Notes

Breeding cattle purchases

Recording the management of bought-in animals ensures they are given the correct treatments and vaccinations to maintain the overall health of your herd.

Date	Ear tag	Breed	Weight (kg)	Notes (source, etc)

Breeding cattle purchases

Date	Ear tag	Breed	Weight (kg)	Notes (source, etc)

Weight records

Ear tag	Sire/breed	Date	Date	Date	Date	Date

Weight records

Ear tag	Sire/breed	Date	Date	Date	Date	Date

Weight records

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Weight records

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Weight records

Ear tag	Sire/breed	Date	Date	Date	Date	Date

Weight records

Ear tag	Sire/breed	Date	Date	Date	Date	Date

Weight records

Ear tag	Sire/breed	Date	Date	Date	Date	Date

Purchased feeds, creep, forage and straw

Date	Product	Quantity (t)	Price/t (£)

Purchased feeds, creep, forage and straw

Date	Product	Quantity (t)	Price/t (£)

Home-grown feeds (not forages)

Field	Area	Crop	Fertiliser application		Total fresh weight (t)
			Date	Product	

Home-grown grazed forage

Field	Area	Date in	Date out	No. of cattle	kg/DM at grazing start	kg/DM at grazing end	Notes

Home-grown grazed forage

Field	Area	Date in	Date out	No. of cattle	kg/DM at grazing start	kg/DM at grazing end	Notes

Home-grown forage – cut

Field	Area	Date cut	No. bales/trailer loads	Contractor cost (£)	Wrap/string cost (£)

Sundry records and purchases (ear tags, foot trimming, etc)

Date	Purchase	Purchased from	Quantity	Cost (£)

Movements/transport costs

Date	No. of animals	From	To	Cost (£)

Medicine and vet records

Date	Ear tag	Reason for vet visit/product	Dosage	Batch No.	Expiry date	Withdrawal

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Store cattle purchases

Recording the management of bought-in animals ensures they are given the correct treatments and vaccinations to maintain the overall health of your herd.

Date	Ear tag	Weight (kg)	Breed	Sex	Vendor	Wormed	Vaccinated

Store cattle purchases

Date	Ear tag	Weight (kg)	Breed	Sex	Vendor	Wormed	Vaccinated

Store cattle purchases

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Store cattle purchases

Date	Ear tag	Weight (kg)	Breed	Sex	Vendor	Wormed	Vaccinated

Finishing cattle

Keeping track of finishing cattle will help to identify cattle that finish to the correct weight and carcase class in the shortest amount of time, making for a more profitable business.

Ear tag	Date bought	Date sold	LW at purchase (kg)	LW at sale (kg)	Carcase classification	Notes (KO%, p/kg)

LW = Liveweight

Finishing cattle

Ear tag	Date bought	Date sold	LW at purchase (kg)	LW at sale (kg)	Carcase classification	Notes (KO%, p/kg)

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Feeding and conservation

Silage density

DM%	Grass silage	Maize silage	Wholecrop silage
	kg fresh weight/m^3		
20	725		
25	660	650	
30	615	620	
35	600	600	605
40	590		
45			585
55			565

NB: Density will also depend on chop length, consolidation and depth of silage.

Feeding and conservation

Lifetime growth rates required to finish a 600kg steer

Age at slaughter (months)	12	15	18	21	24	27	30
Daily LW gain (kg/day)	1.53	1.23	1.02	0.92	0.77	0.68	0.61

- Feed costs/kg LWG tend to reduce as growth rates increase
- Feed costs/kg LWG tend to increase as cattle get heavier and closer to slaughter.

Energy required for 1kg weight gain at different liveweight

LW (kg)	350	400	450	500	550	600	650
ME required/kg LW gain	80	88	95	102	110	115	123

Grazing management

Aim to stock fields more heavily during the spring, then reduce stocking rate in autumn to keep a tight control of sward height and grass quality. Electric fences can be used to shut off areas not required immediately, which can be grazed later or cut for silage or hay.

Recommended grazing heights for a range of cattle either rotationally grazed or set stocked in shown in the table below.

Type of stock	Period	Rotational pre-grazing height (cm)	Rotational pre-grazing height (cm)	Set-stocked (cm)
Lactating suckler cows	Turnout–May June–July August–November	10–14 12–15 12–15	5–6 7–8 8–9	5–6 7–8 7–9
Dry cows				4
Growing/finishing cattle	Turnout–May June–July August–November	10–12 10–14 10–15	5–6 6–7 7–8	5–6 6–7 7–8

- Aim for liveweight gains of +0.8–1.0kg/day at grass
- The key to maintaining high-quality grazing swards is to keep grass tightly grazed (down to 5cm or 2 inches).

Understanding forage analysis

D-value – a measure of feed digestibility

The higher the D-value the less concentrates are required for ewes pre-lambing.

Crude protein (CP%) – a measure of the protein content

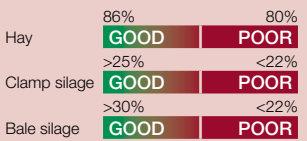
It is important to provide enough protein in supplementary feeds to make up any protein deficit in the forage.

pH – a measure of acidity in silage

Target pH will vary depending on DM% of silage. Generally less than 3 or higher than 5 suggests poor fermentation and lower palatability.

Dry Matter (DM%) – a measure of what is 'not' water

If silage is too wet (less than 25% DM), it is difficult for pregnant ewes to eat enough to meet their needs. If this is the case the amount of concentrate required will be higher.



Metabolisable Energy (ME MJ/kg DM)

A measure of the usable energy available to the animal. When buying a supplement make sure the ME is higher than that of the forage.

Ash (%) – a measure of mineral and trace element content

Forage has a natural level of ash, but levels over 10% in silage indicate soil contamination and poor fermentation and should not be fed to sheep.

Total Fermentation Acids – a measure of total acid content

High levels of acids limit intake. Aim for levels <100g/kg DM.

Ammonia N – a measure of protein breakdown during the ensiling process

Levels greater than 10% indicate protein breakdown and a poor fermentation.

Feed values

Forages	Dry matter (%)	Crude protein (DM%)	Metabolisable energy (MJ/kg DM)
Average grass silage	20–30	10–15	10.2
Good grass silage	23–33	10–18	10.7
Straw (barley)	87	4.0	6.5
Maize silage	25–35	9.0	10.8
White clover (grazed)	20	19.0	11.2
Fodder beet	12–19	6–8	12–12.5
Kale	15–17	14–17	10–11
Grazed grass	17–18	15–17	10.5–11.5
Cereals/legumes	**Dry matter (%)**	**Crude protein (DM%)**	**Metabolisable energy (MJ/kg DM)**
Barley	86.0	12.1	13.2
Wheat	86.0	12.8	13.8
Oats	86.0	11.0	12.0
Field beans	86.0	29.0	13.8
Field peas	86.0	24.0	12.8
Lupins	86.0	38.0	14.3

Straights/others	Dry matter (%)	Crude protein (DM%)	Metabolisable energy (MJ/kg DM)
Molassed sugar beet feed	89.0	10.0	12.5
Rapeseed meal	88.0	38.5	12.1
Soyabean meal (hipro)	88.0	52.0	13.8
Soyabean meal (lopro)	88.0	47.0	12.9
Maize gluten feed	89.0	21.7	12.5
Wheat feed	89.0	17.3	11.5
Wheat distillers dark grains*	89.0	32.0	13.5
Distillers barley*	89.0	26.0	12.7
Brewers' grains*	23.0	24.0	11.7
Citrus pulp feed	89.0	7.0	12.5
Potatoes	20.5	11.0	13.5
Molasses (beet) pulp	89.0	10.0	12.5
Molasses (cane)	75.0	6.0	12.6

**Check copper values*

Killing out %

	Liveweight (kg)									
	500	520	540	560	580	600	620	640	660	680
Killing out (%)	**Deadweight (kg)**									
45	225	234	243	252	261	270	279	288	297	306
46	230	239	248	258	267	276	285	294	304	313
47	235	244	254	263	273	282	291	301	310	320
48	240	250	259	269	278	288	298	307	317	326
49	245	255	265	274	284	294	304	314	323	333
50	250	260	270	280	290	300	310	320	330	340
51	255	265	275	286	296	306	316	326	337	347
52	260	270	281	291	302	312	322	333	343	354
53	265	276	286	297	307	318	329	339	350	360
54	270	281	292	302	313	324	335	346	356	367
55	275	286	297	308	319	330	341	352	363	374
56	280	291	302	314	325	336	347	358	370	381
57	285	296	308	319	331	342	353	365	376	388
58	290	302	313	325	336	348	360	371	383	394
59	295	307	319	330	342	354	366	378	389	401
60	300	312	324	336	348	360	372	384	396	408

Killing out %

$$\text{Killing out \%} = \frac{\text{cold carcase weight}}{\text{liveweight}} \times 100$$

Higher killing out percentages result from:

- Heavily muscled cattle
- Higher degree of finish
- Empty liveweight – cattle weighed a long time after feeding
- Cattle fed high energy diets, eg high levels of cereals
- Less severe carcase dressing specifications.

Lower killing out percentages result from:

- Lightly muscled cattle, eg Holsteins
- Leaner cattle
- Weighed full – weighed immediately after feeding
- Cattle fed high forage diets
- More severe carcase dressing specifications.

Notes

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Better Returns Programme

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