

FROM BIRTH TO WEANING

(Level 3)

Topic	Training & information Content
6.1	Selection of bulls, use of sexed semen, feeding management of dry cows
6.1.1	The calving process
6.1.2	Use of equipment around calving
6.1.3	Care of cow and calf after calving
6.1.4	Colostrum management
6.2	Milk (replacer) feeding schedule
6.3	From birth to weaning
6.4	Disease and health management
6.5	Handling of calves after difficult birth
6.6	Young stock rearing info and Key Performance Indicators



1. You will learn about (learning objectives):

- ❑ How to guide the calf throughout the first period of its life.
- ❑ Management decisions required to optimize calf growth till weaning.
- ❑ Setting and monitoring goals;
 - Length of the milk period
 - Bodyweight at the end of the milk period
 - Weaning protocol.
- ❑ Understanding calves as the future herd



2. Background

- In several other topics we already emphasized on Colostrum management, Calf care after calving and Calf milk replacers (CMR)/Milk schedules.
- Before you start with this topic (From Birth to Weaning) it is recommended to look at these topics first.
- From Birth to weaning is the period in a calf's life that actionally nothing should go wrong. Anything that goes wrong during this period has a negative impact on the milk production when she becomes a milking cow. i.e.;
 - Poor colostrum management.
 - Poor growth rate.
 - Inefficient growth rate.
 - Poor stomach development.



2.1 Background Cont'd...

- Monitoring the calf throughout this period pays back i.e.;
 - Dehydration check.
 - Manure score.
 - Regular weighing.
 - General health checks.



Note: *A farmer, cannot avoid everything, but a farmer has a huge responsibility in guiding a calf throughout the most important period of her life. The period from birth to weaning determines whether the calf grows into a productive dairy cow or not.*



3. Setting weaning goals

Examples of goals/objectives;

- Weaning will take place at day 90.
- Weaning calves always takes place in pairs (or more).
- Till two weeks, calves will be (milk) fed three times a day.
- From two weeks till day 80 , calves will be (milk) fed two times a day.
- From day 80 till day 90 , calves will be (milk) fed once a day.
- Calves will have access to water all times (24/7) from day 1.



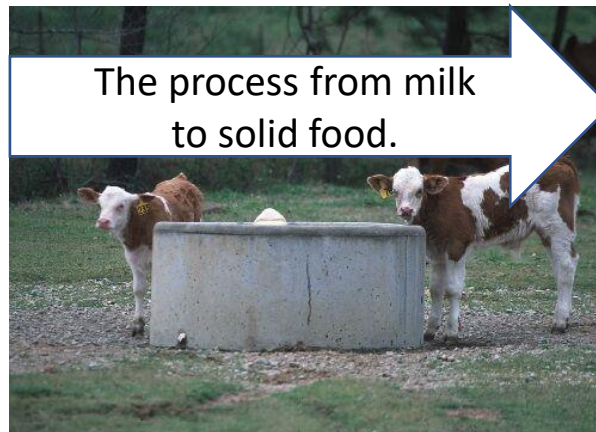
3.1 Examples of goals/objectives to set

- Throughout the period, roughage and concentrates must be available for the calf 24/7.
- In case of suckling, the suckling hours will be reduced as day 90 approaches.
- Every Monday morning body weight will be measured and administrated/recorded.
- Body weight on day 90 must be 65 kilogrammes.
- First three weeks after weaning calves will stay in the same environment.
- In case of suckling method, calves and mother will be separated 'out of sight.'



3.2 Examples of goals/objectives to set

- Simply put, weaning is the process of caring for the calf from milk to solid feed



3.3 Examples of goals/objectives to set

- Weaning process takes about 90 days



January 2021.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1

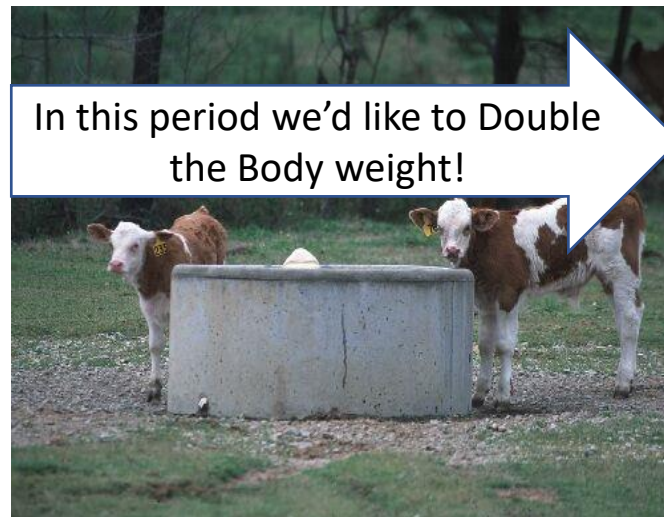


April 2021.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

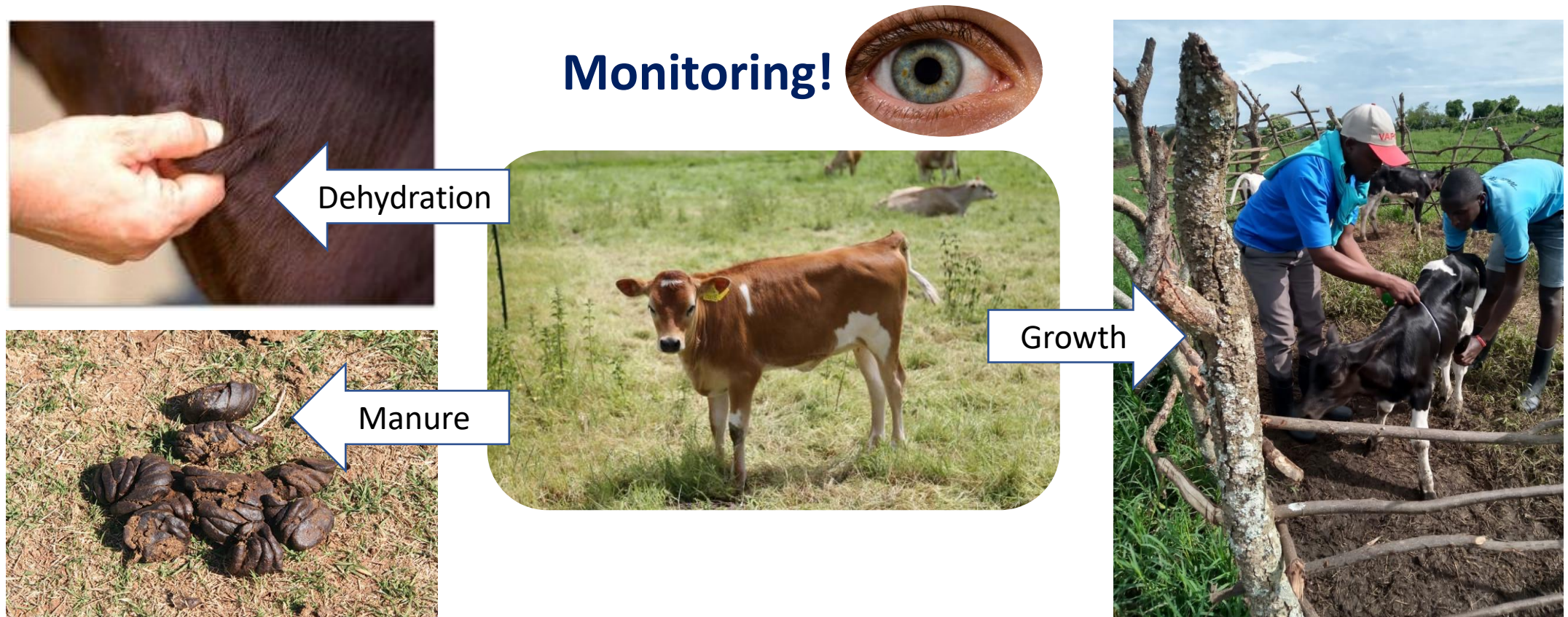
3.4 Examples of goals/objectives to set

- The aim is to double the body weight.



4. Monitoring weaning goals

- Monitoring the calf throughout this period pays back i.e.; Dehydration check, manure score, regular weighing (weight) and general health checks.



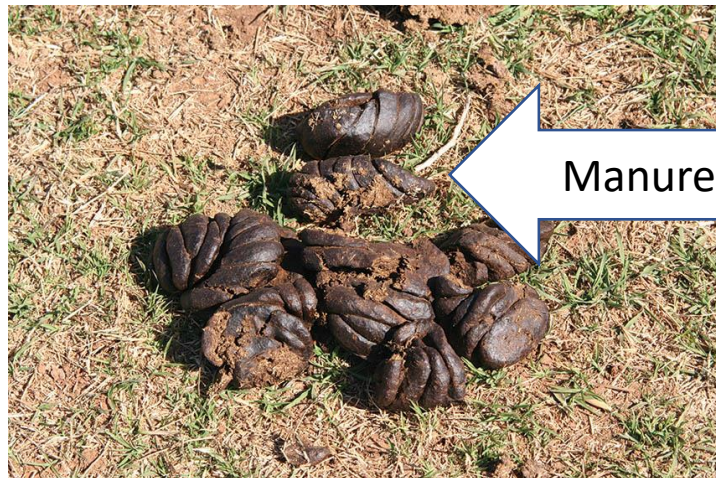
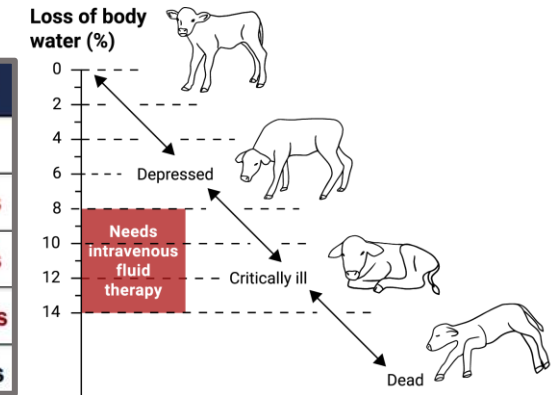
4.1 Monitoring weaning goals



Dehydration

Regular skin check is advised to recognize the level of dehydration in time.

% dehydration	Demeanor	Sunken eye	Skin tent
<6%	Normal	None	None
6-8%	Depressed	2-4 mm	1-3 seconds
8-10%	Depressed	4-6 mm	2-5 seconds
10-12%	Comatose	6-8 mm	5-10 seconds
>12%	Dead	8-12 mm	>10 seconds

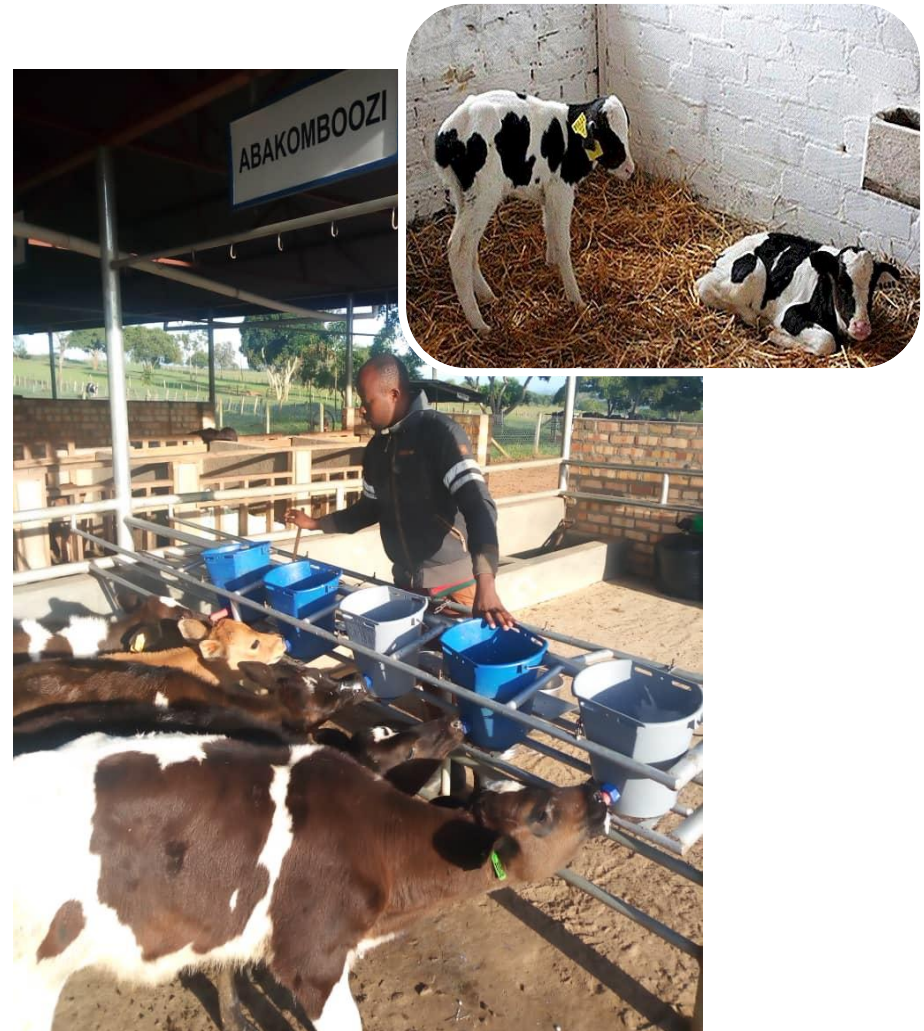


Manure

- This manure score is not expectable in young calves during the period from birth to weaning!
 - It indicates lack of moisture (water quantity and or quality) and protein
 - In case of suckling calves, check the milk production of the mother cow.



5. Safe weaning

- For every calf, weaning period is stressful. Stress has a huge impact on calf's health status.
- Whatever the rearing regime/scheme is, every calf is going to be weaned some moment.
- It is farmers' responsibility to protect the calf from stress.
- Weaning is a process (of weeks), hence prepare the calf slowly by slowly on what's going to happen during the process.



5.1 Example of a Safe weaning procedure






January 2021

SUN	MON	TUE	WED	THU	FRI	SAT
					1 	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31 						



Suckling time (hours/day)

-  24 hours - 51 days
-  16 hours - 18 days
-  12 hours - 15 days
-  8 hours - 6 days
-  0 hours (No milk)


March 2021

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2	3	4	5	6
7	8	9	10 	11 	12	13
14	15	16	17	18	19	20
21	22	23	24	25 	26 	27
28	29	30	31 			

February 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
31	1 	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20 
21 	22	23	24	25	26	27
28	1	2	3	4	5	6

April 2021.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	



5.2 Weaning Protocol/Standard Operating Procedure (SOP)

-  24 hours. 51 days
-  16 hours. 18 days.
-  12 hours. 15 days
-  8 hours. 6 days.
-  0 hours.



Increase roughage to
to improve rumen
capacity



Reduce the amount of
milk to be fed daily



Always allow
access to clean
fresh water



Provide
concentrate feed

Some points of attention which you should always consider;

- Slowly build up and reduce the amount of milk to be fed daily.
- (if available) Provide concentrate feed to calves as soon as possible, to improve the rumen functionality.
- Always allow access to clean fresh water, to optimize intake and digestion of roughages and concentrates.
- Roughage must be available, to improve rumen capacity.

6. Rumen functionality

MORE RUMEN PAPILLAE ~ BETTER NUTRIENT ABSORPTION



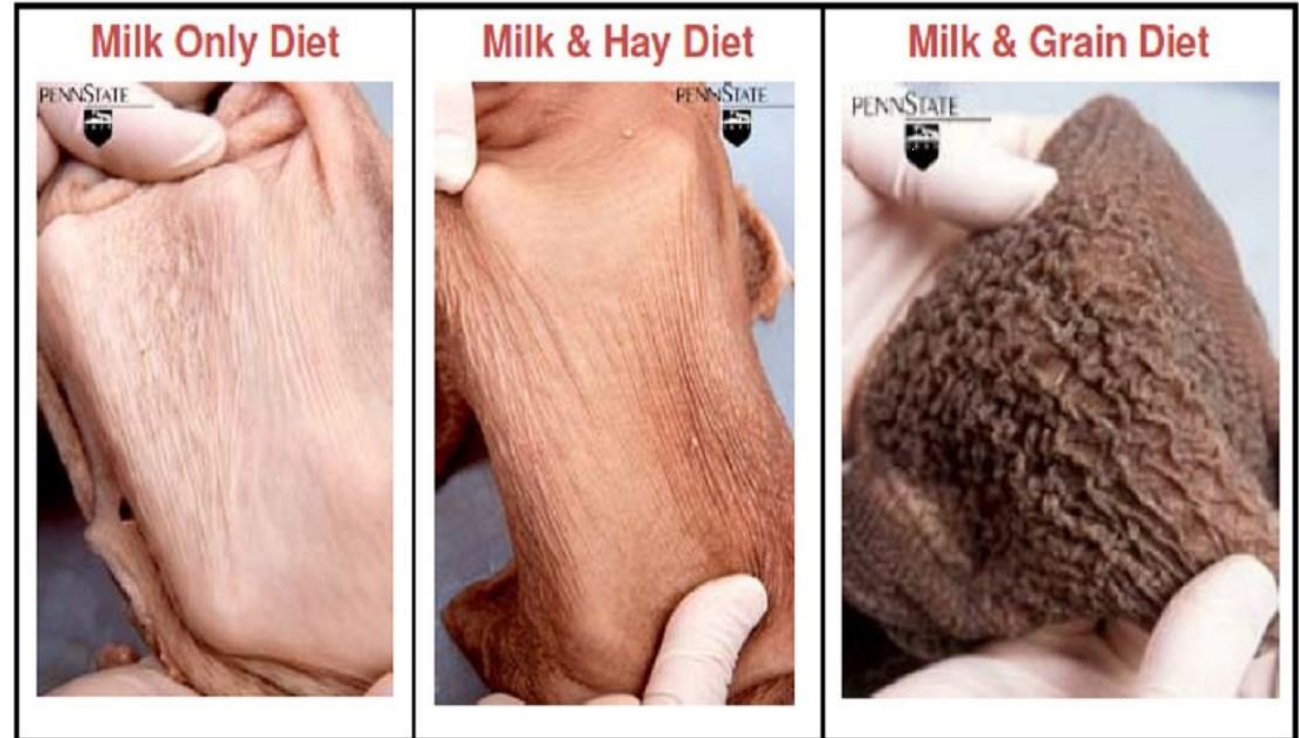
A well-developed papillae is like a piece of thick carpeting with the ability to absorb and retain nutrients.

← **ABSORPTION AREA**



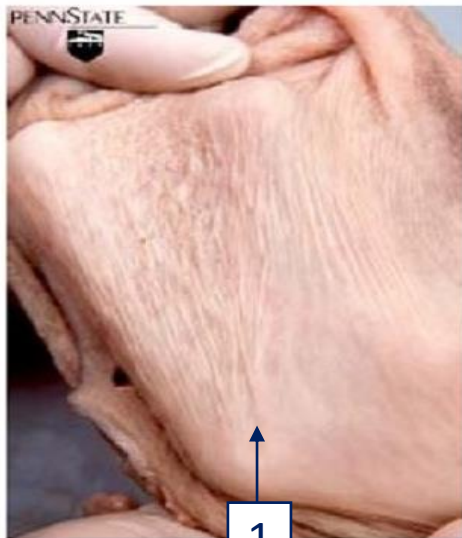
An undeveloped rumen has a smooth flat surface like wood flooring with less ability to retain nutrients.

← **ABSORPTION AREA**



A properly functioning stomach is vital!

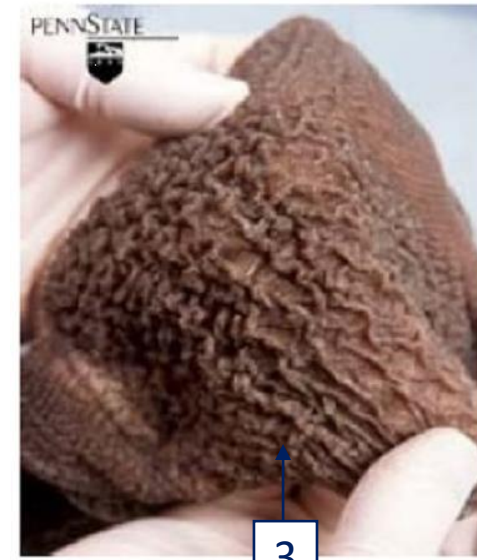
6.1 Rumen functionality Cont'd...



Stomach wall , calf was raised with milk only.
Undeveloped rumen papillae.
Insufficient digestion capacity --> **Low feed efficiency**
Okay for fattening calves.



Stomach wall , calf was raised with milk only and roughages
Poor developed rumen papillae.
Not optimum digestion capacity --> **Medium feed efficiency.**
Suckling calves.



Stomach wall , calf was raised with milk and pellet feeds
Strongly developed rumen papillae.
High digestion capacity --> **High feed efficiency.**
Necessary for milk cow.

7. Growth rate

- From the very first day in the calf's life, she should start growing. The growth process from calf to cow usually stops at the age of 3-4 years (when she is in second/third lactation).
- Monitoring/measuring will help;
 - estimate whether her growth rate is on track.
 - the farmer intervene when necessary to avoid further losses.
 - improve the key performance indicators (KPIs) for growth and performance.



7.1 Growth rate Cont'd...

Measuring = Assuring



Heart girth measurements cm's into kilo's

Cm's	Kg's	Cm's	Kg's	Cm's	Kg's	Cm's	Kg's
75	41	108	114	142	236	176	435
76	42	109	117	143	240	177	440
77	44	110	120	144	245	178	445
78	46	111	123	145	250	179	452
79	48	112	126	146	255	180	460
80	49	113	129	147	260	181	467
81	51	114	132	148	268	182	474
82	53	115	135	149	276	183	480
83	54	116	139	150	283	184	487
84	56	117	142	151	290	185	493
85	58	118	145	152	295	186	500
86	60	119	148	153	300	187	508
87	62	120	151	154	305	188	516
88	64	121	154	155	310	189	523
89	66	122	158	156	315	190	530
90	68	123	162	157	320	191	538
91	70	124	166	158	325	192	546
92	72	125	170	159	330	193	554
93	74	126	173	160	335	194	562
94	77	127	176	161	340	195	570
95	79	128	179	162	345	196	578
96	81	129	183	163	350	197	586
97	84	130	187	164	357	198	594
98	86	131	191	165	364	199	600
99	88	132	195	166	370	200	608
100	91	133	198	167	377	201	616
101	93	134	202	168	384	202	624
102	96	135	208	169	390	203	632
103	99	136	212	170	397	204	640
		137	216	171	404	205	645
104	102	138	220	172	410	206	650
105	104	139	224	173	417	208	654
106	107	140	228	174	424	209	657
107	110	141	232	175	430	210	660

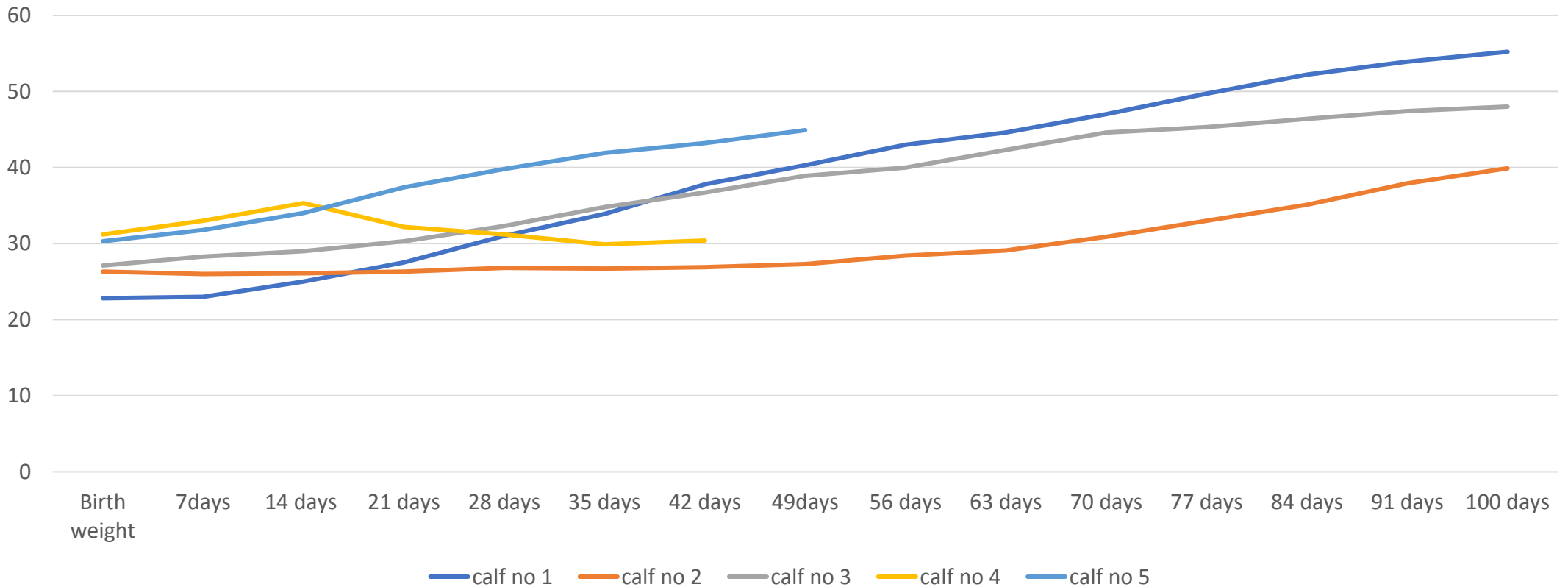
7.2 Growth rate Cont'd: Growth line from calf to cow

To be used for Every breed in every environment.

Birth 6%	Weaning 12-15%	Halfway 50%	First insemination 65%	First calving 85 %	Adult 100%	Breed.
18-20 kg	40-45 kg	150 kg	195 kg	255 kg	300 Kg	Local
25 kg	50-60 kg	200 kg	260 Kg	340 kg	400 kg	Jersey (low)
27 kg	55 -65 kg	225 kg	290 kg	380 Kg	450 kg	Jersey (med)
30 kg	60 -70 kg	250 kg	325 Kg	425 kg	500 kg	Jersey (high)
?	?	?	?	?	?	Your farm
33 kg	70 -80 kg	275 kg	358 kg	465 kg	550 kg	Cross.
36 kg	75 -85 kg	300 kg	390 kg	510 kg	600 kg	Holstein
39 kg	80 -90 kg	325 kg	422 kg	550 kg	650 kg	Holstein
41 kg	82 -95 kg	340 kg	442 kg	575 kg	680 kg	Holstein Holland

7.3 Growth rate Cont'd: Example of Growth curves in a farm

Example;
"2021" Growth rate in kilogrammes from Birth to Weaning;
Farm name;.....



7.4 Growth rate Cont'd: Explaining the Growth curves

	calf no 1	calf no 2	calf no 3	calf no 4	calf no 5
Birth weigh	22,8	26,3	27,1	31,2	30,3
7days	23	26	28,3	33	31,8
14 days	25	26,1	29	35,3	34
21 days	27,5	26,3	30,3	32,2	37,4
28 days	31	26,8	32,3	31,2	39,8
35 days	33,9	26,7	34,8	29,9	41,9
42 days	37,8	26,9	36,7	30,4	43,2
49days	40,3	27,3	38,9		44,9
56 days	43	28,4	40		
63 days	44,6	29,1	42,3		
70 days	47	30,9	44,6		
77 days	49,7	33	45,3		
84 days	52,2	35,1	46,4		
91 days	53,9	37,9	47,4		
100 days	55,2	39,9	48		

Calf no 1: Grows quite well, doubled its birthweight.

Calf no 2: Slow growth, because of low milk production from the mother ?? Extend suckling period!

Calf no 3: Has a good start, 2nd part of growth is decreasing.

Calf no 4: Had a great start, must be sick, or the mother is sick. Take action!

Calf no 5: Looks very promising, fast growing.

General Checkpoint at 42 days;

No 1; 357 gr/day.

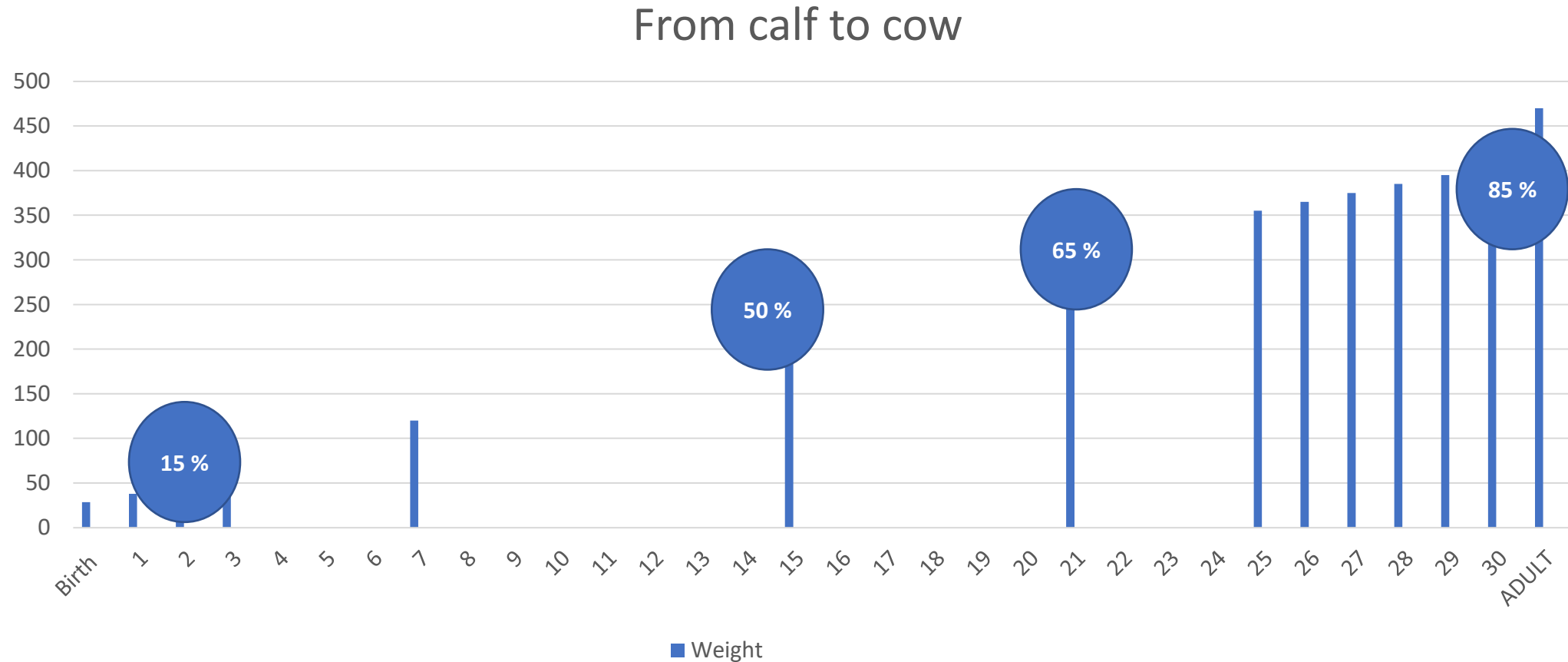
No 2; 14 gr/day.

No 3; 228 gr/day

No 4; negative growth.

No 5; 307 gr/day.

7.5 Growth rate Cont'd: From calf to cow



Example: This adult cow on this farm is weighing 470 Kg's.
Actual calving age is 30 months.

8. Important considerations in weaning

All the criteria that a calf must meet before we finally wean;

1. Healthy; if there are any doubts about the calf's health status, weaning needs to be postponed (lengthened).
2. Be fully convinced that the calf is eating enough high-quality roughage and preferably concentrates (replacement of the feeding values out of milk).
3. Minimum age for weaning is six weeks.
4. Body weight of the calf is at least 15% of the adult weight.
5. Make sure you have eliminated all possible stress situations.



9. Summary take home messages

- The period from birth to weaning is the most important period of a calf's life.
- Every mistake will have impact the calf's health status.
- Every day observation is necessary to pick up problems in advance.
- Beware of the impact in case of adjustments/changes.
- Registration of body weights throughout the period is important. Reliable registration system will be a helpful tool.
- Several (farm related) standard operating procedures (SOPs) s are advised to develop.

