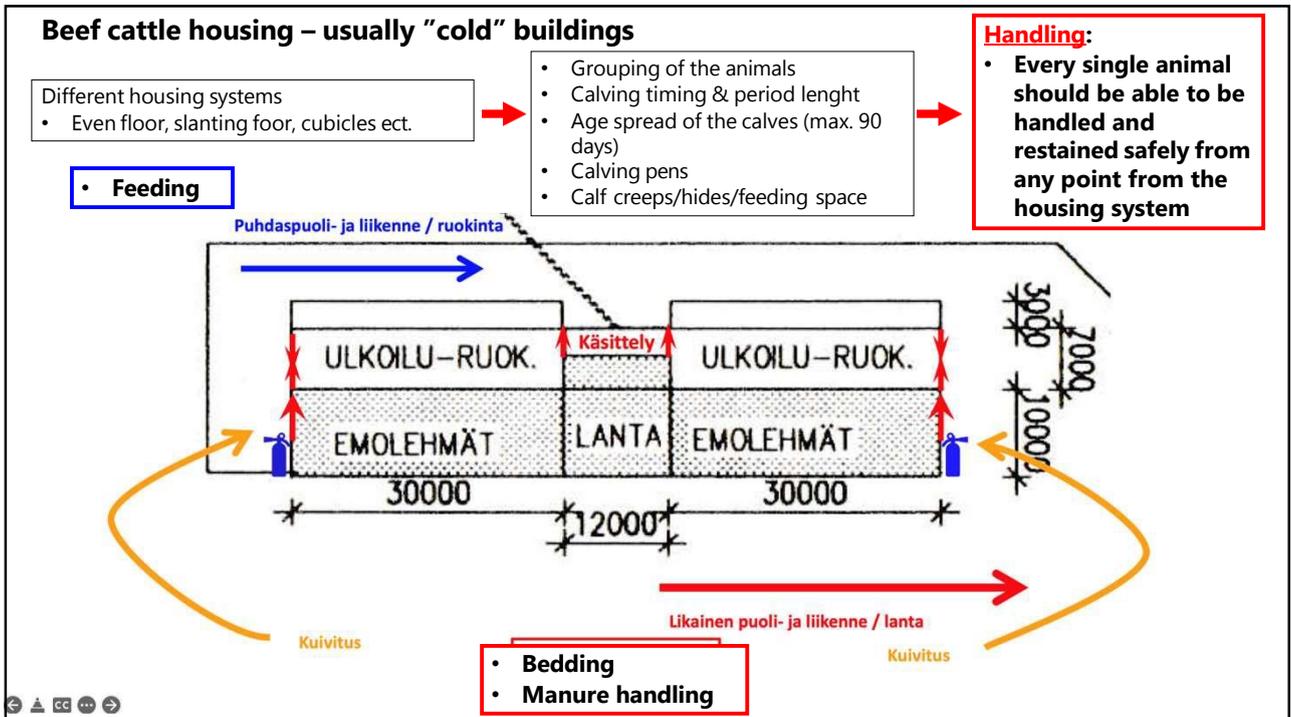
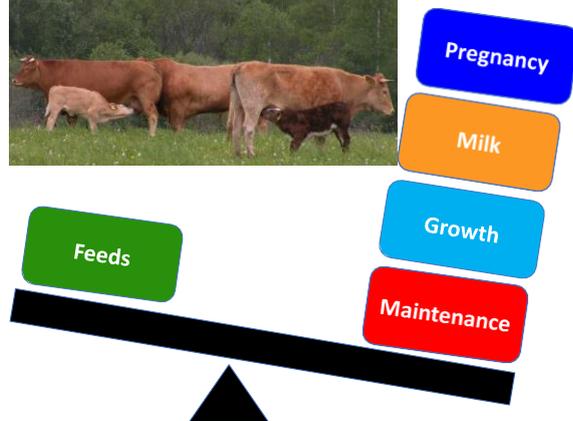


1



2

### Nutrient requirement and availability does not always match

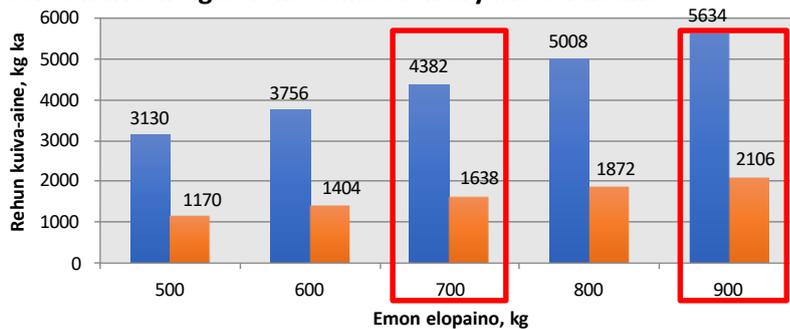


1. Liveweight
2. Body condition score
3. Feeding, grazing
4. Production phase

- **Weather conditions:** hot, cold, rain, wind
- **Grazing environment:** low producing areas, late summer pastures
- **Forage quality:** digestibility, nutrient content
- **Forage availability:** grass length/shortness, feeding table space, limit feeding
- **Animal age & production phase:** Young animals, growth, milk production ja pregnancy
- **One feeding group:** many different age groups = hierarchy
- **Genetic selection:** eg. higher milk production, higher growth

3

### Beef cow live weight is in connection dry matter intake



Live weight, kg	500	600	700	800	900
In feeding period, kg DM/d	11	13	15	18	20
Grazing, kg DM/d	13	16	18	21	23

#### 700 kg vs. 900 kg

- Difference 1252 kg DM
  - 2981 kg
  - 4 bales/year
- DM 420 g/kg DM
- Bale weight 750 kg

■ sisäruokintakausi 275 päivää  
 ■ laidunkausi 90 päivää

- In feeding period = need of harvested forage in the year cycle
  - Maintenance 155 d
  - Last month of pregnancy 30 d
  - Milk 90 d
- Grazing = beef cows are not given additional feed
  - 90 d

### Beef cow live weight is an essential production trait which affects:

1. Amount of feed and pasture the animals eat
  2. The amount of area needed both in the housing and pasture
  3. Most significant factor in environmental impact
- A beef cow should produce 50 % of her own live weight as calf to cover the annual cost of her eaten feed dry matter (Herring 2014)
  - To cover her annual feed cost a 700 kg beef cow should produce a calf weighing 350 kg (calf age 200 d)

4

### Precise feeding

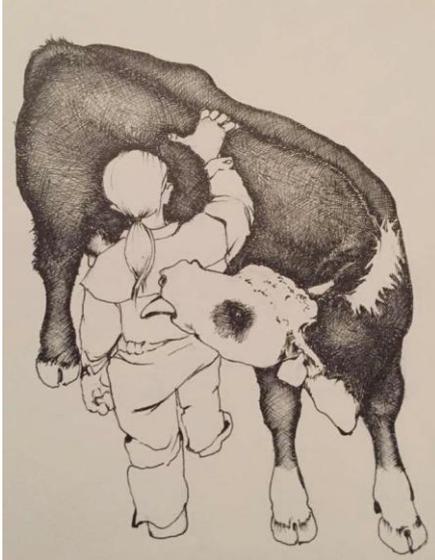


- **Cattle eat dry matter**, cherish the rumen fill
- **Cattle live weight = amount of dry matter intake**
  - Dry matter intake is affected by forage quality (digestibility), animal age, production phase
- Ruminant feeding, especially beef cow, is above all to meet the **energy need** of the animal
  - Beef cow farm needs at least two different type of forage
  - Maintenance feeding lower digestibility forage, after calving higher digestibility forage is needed
  - Young stock always need high digestibility forage to meet their feed intake and nutritional demand
    - Grain can only moderately compensate the lack of digestibility and energy content of the poor roughage eg. silage
- **Nitrogen utilization of the feed ration decreases when the crude protein content increases above 150 g/kg DM**
- Excess protein which the animal cannot utilize is excreted in the urine and feces as nitrogen (N)
- **Take advantage of the microbial protein**
  - **Save rapeseed protein to milk production beef cattle do not need it**
- Knowing the live weight and condition score of the beef cows enables accurate implementation of the feeding with out possibel over or under feeding
- **Mineral feeding should be implemented according to the production phase**
  - In particular the different mineral content of the organic forages must be taken into account
- In beef cow production planned feeding should be taken into account as a preventive and maintaining measure of animal health
- **Successful feeding is entity that produces results in the form of healthy cattle and good financial results**

5

### Use body condition score

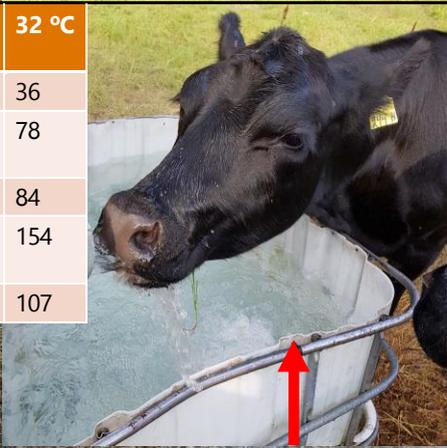
- **Keep the body condition score constant**
  - Production phase condition score should vary 2,5-3,5
  - If over 10 % of the cows are out of target CS the feeding should be adjusted
- **Under nutrition** lowers the milk production, poor fertility and long calving interval
  - Factors weakening the ptofitability and sustainability are poor growth and poor fertility of the animals
- **Over nutrition** increase the body condition score to very high level
  - If the animal is in CS 5 it carries 150 kg more fat than a animal in a CS 3
  - If the cull cow fat class is constantly over 4+ feeding resources are wasted
- **Excessive increase of body condition score is unhealthy, wasted energy and wasted resources**
  - More feed, more manure, the higher the environmental impact
- Increasing the CS should be done with **good quality forage and on optimum time frame**
  - 2100-2500 MJ is needed to increase one condition score
  - Limited time and thought feeding options ensures that the feed is efficiently used
- **Feeding groups by the body condition score improves the use of the farm's feeding resources**



Kuva: Paavo Jahkola

6

Water need, l/d	4 °C	10 °C	14 °C	21 °C	26 °C	32 °C
Calves 150-200 kg	15	16	19	22	25	36
Growing cattle, 400-500 kg	32	35	41	48	55	78
Cow, 700 kg	37	41	46	54	62	84
Cow milking, 700 kg	74	82	94	109	116	154
Breeding bull	45	49	56	66	76	107




- Water availability?
- Water quantity?
- Water quality?
- Feed dry matter
- Mineral feeding
- Temperature
- Free access to water for all animal groups

Luke ©L

7

**Beef cows need space**

- Hierarchy
- Social distance
- Lying posture
- Calving
- Cow calf bonding
- Aggressiveness against other calves



8

## Pregnancy checks – Ultrasound scan or palpation

- The condition for limited calving season (60-90 d) is that the breeding bull is taken out of the cow herd in time
- Pregnancy checks are made to ensure the breeding result
  - Share of **AI & ET** (artificially inseminated, embryo transfer) (approx. 55% first AI)
  - Share of **breeding bull** (a functional breeding bull = breeding success should be >98%)
  - **Overall pregnancy rate should be >95 %**
  - It's not worth feeding an empty beef cow during the indoor feeding period
- Pregnancy checks can be done **starting 34 days after conception**, at the latest these should be done **before the indoor feeding period**

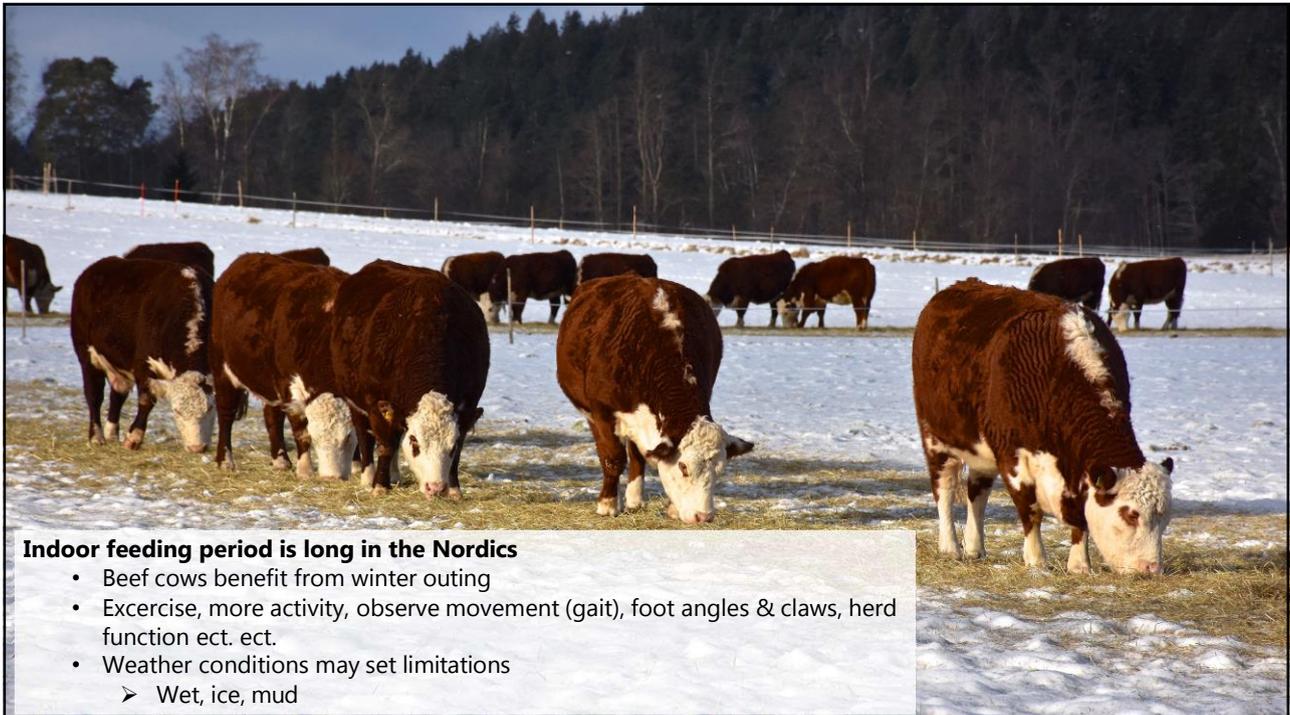


With a pregnancy check it is possible to refine the animal grouping in the maintenance period:

- Duration of the pregnancy
- Calf gender
- Sire group

Luke ©LUONNONVARAKESKUS

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### Indoor feeding period is long in the Nordics

- Beef cows benefit from winter outing
- Exercise, more activity, observe movement (gait), foot angles & claws, herd function ect. ect.
- Weather conditions may set limitations
  - Wet, ice, mud

10



- Observation
- Intervene, if needed
- Space = possibility to isolate
- Amount of bedding
- Calving pens

11



- **The calf's heat production is limited**
  - Brown fat (approx. 2% calf LW) produces heat energy, can be seen in the calf eg. as cold shivers (Alexander et al. 1975, Carstens 1994)
  - Dam's CS at calving and last months feeding affect the formation of brown fat in the calf
  - Losing heat increases energy consumption, weakens resistance, lowers immunity
  - Risk factors: low birth weight, dam's CS<2, dam's limited feed intake during last month of pregnancy (Funston et al. 2010)
- **The ears and tail are particularly at risk for frostbite**
  - Extra bedding (insulation)
  - Warmers (heat lamps)
  - Blankets, calf vests, hoods
- Ears can be protected with hoods
- Calf vests reduce the loss of thermal energy of the calf

12



13



14



- Feeding table high, can the calves eat?
- Is there room for the calves on the feeding table?
- Age of the calves?
- Mineral feeding?
- Water availability?
- Forage quality?

15

## Why docility now?

### Käyttäytymisestä johtuvat eläinten poistot ja lisätyö kalliita ja turhia

Noin 80 prosenttia eläimistä on helppoja käsiteltäviä ja opetettavia. Erityisosaamista tarvitaan sen 20 prosentin yksilöiden kanssa, jolle halutut asiat eivät sujahda niin nopeasti ja helposti. Tarvitaan kykyä ja taitoa lukea eläimen viestintää. KMMVET 1/2022

## Combating the negative effects of stress on immunity in cows



November 8, 2021 10:46 am

### Temperament and Cattle Performance

How important is it to cull those cows with excitable temperaments? Being a 'good mother' can be an important trait in a cow for protecting her calf, being too aggressive can have negative consequences.

Elaine Grings, Assistant Professor & South Dakota State University Extension | Published on: Oct 29, 2021

## Stress and its impact on meat quality

Alaena Ruth for Progressive Cattle

Published on 23 April 2021

### Longevity in the Cow Herd

Longevity can be defined many different ways by beef producers. However, I'll just use the definition how long a beef cow or bull stays in your herd.

Dr. Roy Burris, Beef Extension Professor, University of Kentucky | Published on: Dec 14, 2021

## Docility is crucial

Docility needs to be one of the main selection criteria for suckler herds not only from a health and safety point of view but also from an efficiency target. Time is scarce on farms now and stock that are hard to handle, being wild and aggressive have no place on farm. IEFarmer 07/2021

- **Sustainability** = growing replacements financially and **environmentally expensive**
- **Occupational safety** = every injury (animal and human) is pointless and **expensive**
- **Resistance (immunity)** = morbidity and treatments increase veterinary **costs**, **antibiotic** use and losses
- **Production** = is more consistent and higher = **more profitable**
- **Consumers** = are more aware and want **transparency**
- **Welfare** = brings more **productivity** and creates an opportunity for **branding**
- **Research** = has generated more **knowledge** about what should be paid attention to when animals are handled

16



- **Animal temperament has great importance of herd functionality and profitability**  
= **Docility**
- **Docility is an inherited and learned trait** ( $h^2 = 0.44$ ) (Herring 2016, Price 2012)
- **Docility or lack of it is expressed in special (handling) situations** (Price 2012)

- **Temperament assesment at weaning time**
  - Catch the head to the headgate
  - If the animal is planned to be a replacement animal, individual notes should be made (Phillips ym. 2021)

- **An aggressive, difficult, fearful animal is problematic to handle**
  - It causes dangerous situations for other animals and people
  - It breaks equipment & structures
- **The larger the herd size, the greater the importance of good, easily handled temperament makes** (Phillips ym. 2021)

- At weaning animals that are more fearful, nervous and/or aggressive than the average same age animals show hereditary temperamental differences (Kasimanickan ym. 2018, Phillips ym. 2021)

1 = Very nervous, panicky  
2 = Nervous, constant movement, rushing away  
3 = Normal, slight restlessness, may have a few running steps  
4 = calm, settles standing, walks away  
5 = Very calm, stays in the chute

17



First things first: Upgrade your cattle-handling methods before facilities

Heather Smith Thomas October 26, 2022

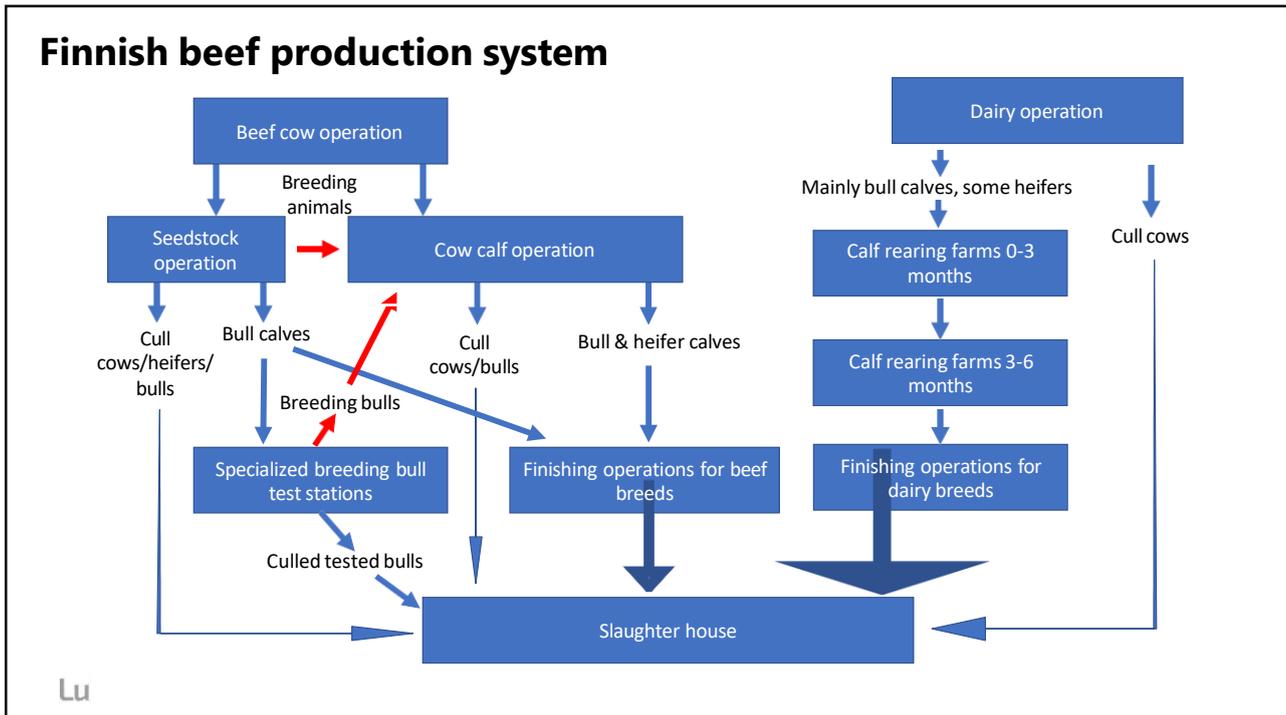
**PROGRESSIVE CATTLE**

During the past 25 years, there have been many improvements in designs of cattle-working facilities and in cattle-handling techniques, but some cattle operations still need to "tune up" their handling methods.

- **Learn the basic principles for easy cattle handling**
- **Handling in unusual situations & conditions gives the opportunity to observe easily nervous animals**
  - **Do not tolerate – culling decision**

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## Finnish beef production system

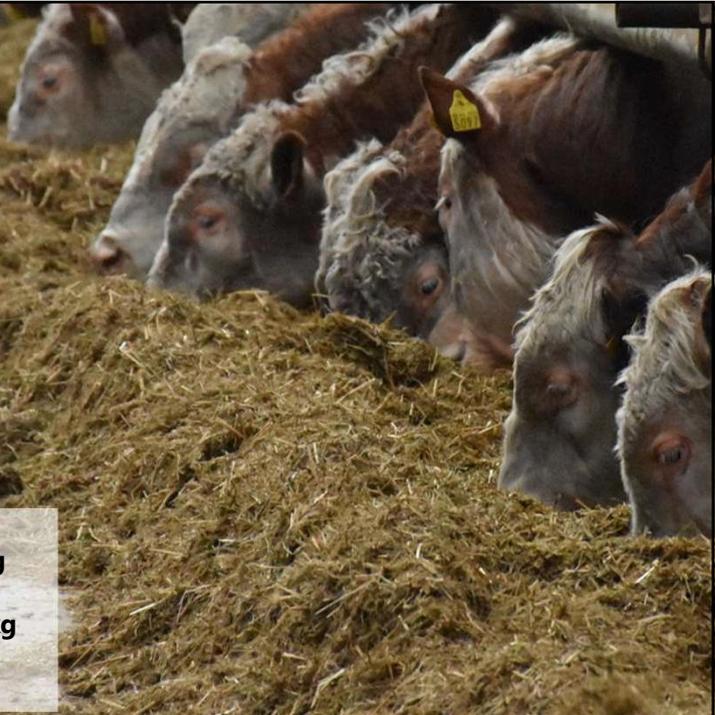


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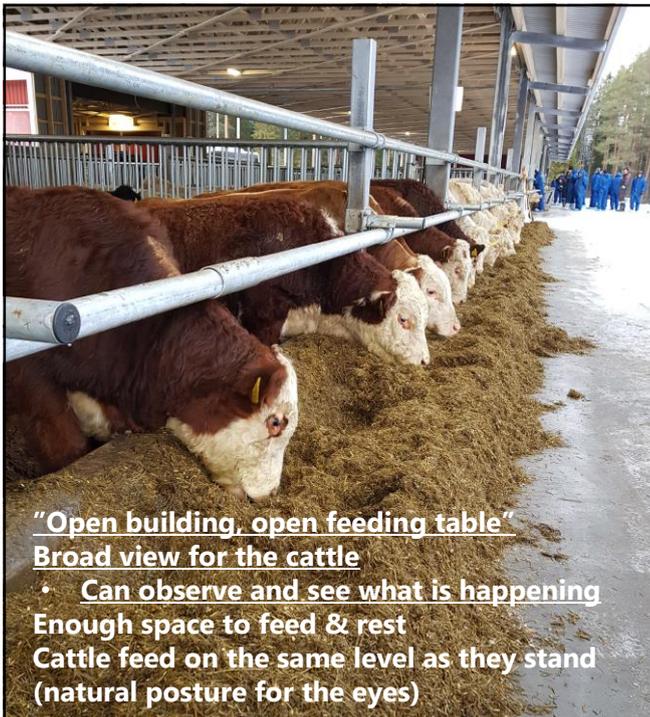
## Grass silage based beef production system which aims for high carcass weights

- Forage: Grass silage
- Concentrates: Barley, oats, rape seed meal (RSM)
- The concentrate proportion is commonly around 300–600 g/kg dry matter (DM)
- Total mixed ration (TMR) feeding is the most common way of supplying the diet to growing cattle

- **Beef bull average carcass weight 439 kg**
  - **Carcass weight deviation 370-510 kg**
    - Average slaughter age 20 months
- **Beef heifer average carcass weight 247 kg**
  - **Carcass weight deviation 210-320 kg**
    - Average slaughter age 16 months



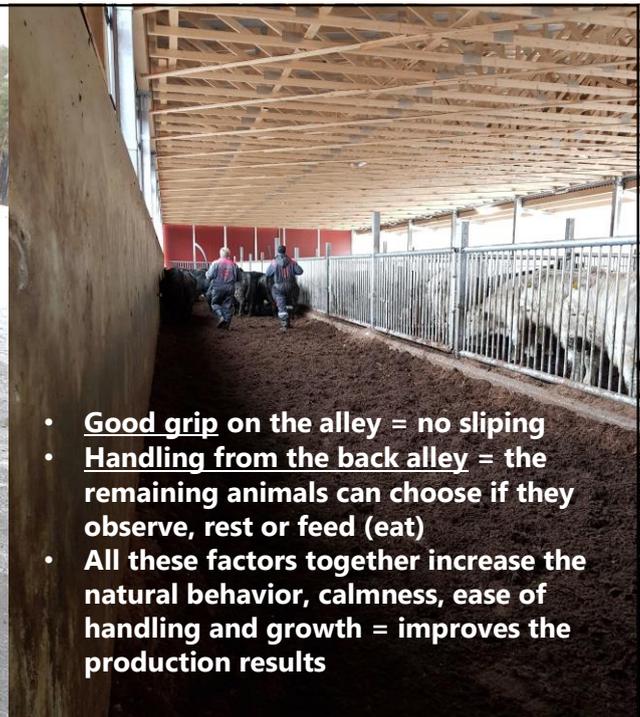
20



**“Open building, open feeding table”**

**Broad view for the cattle**

- **Can observe and see what is happening**
- **Enough space to feed & rest**
- **Cattle feed on the same level as they stand (natural posture for the eyes)**



- **Good grip on the alley = no slipping**
- **Handling from the back alley = the remaining animals can choose if they observe, rest or feed (eat)**
- **All these factors together increase the natural behavior, calmness, ease of handling and growth = improves the production results**

21



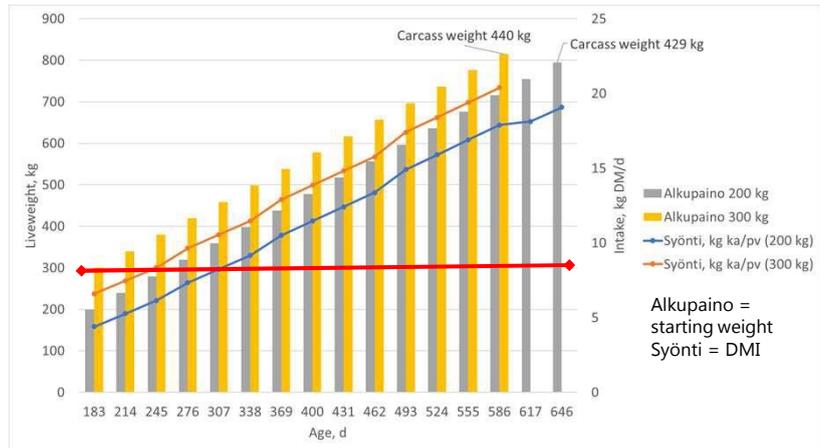
**Regular weighing is the most cost effective way to:**

- 1) **Monitor growth**
- 2) **Adjust feeding on timely manner**
- 3) **Reach target weights (replacement & slaughter cattle)**
- 4) **To optimize production**

22

## Targets young stock – 300 kg weaning weight

- **Weaning weight target should be 300 kg at 6-7 months of age**
- 300 kg calf can eat 2,5 kg DM more feed than a 200 kg calf. This makes a bigger calf more easy to rear than a smaller calf.
- Calf's individual weaning weight to calculate dam efficiency
- Herd average to calculate weaned kg/ha
- Herd average is a good annual tool to measure productivity
- If the goals are not reached the reasons should be analyzed
- If the bull calf is planned to be a breeding bull **steady growth** from birth to one year age is the most preferable
- In finishing phase over 1300 g daily gain is feasible and attainable
  - This means that 450 kg weight is reached in 120 d growing period



➢ High carcass weights can be reached efficiently in 403 day growing period

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## Choose replacement heifers carefully, calve at 24 month age

- **A replacement heifer** is only productive after first successful calving, the amount of inputs and duration of rearing affect the farm's profitability
- Replacement heifer which has to be culled after the first calving is the most expensive animal of the herd
  - Rearing costs 13 year's ago 1600-1900 e (Kässi ym. 2010), now 1,5x = average 2600 e
- The breeding cost and rearing environmental impact of the replacement heifer is distributed to all other females in the herd
  - Cost of a replacement animal is high
  - In practice the cost of cull cow carcass return should cover the cost of rearing the replacement heifer
- **In Finland heifers calve at 27,5 months of age in average** (Jämsä 2020)
  - The best 25% calve their heifers at 25,2 months of age
  - The worst 25% calve their heifers at 42,4 months of age
- **Replacement heifers should be selected so that they can be raised to target live weights with reasonable inputs**
- Weight gain should be monitored by weighing
- **Heifer calves born in the beginning of the calving season** are usually **the heaviest at the weaning time**
  - Heifer calves born in the beginning of the calving season are the **daughters of the herd's most fertile cows**
  - These animals can be grown with **good quality forage based rations**
- **Herd fertility traits can be increased by selecting heifers which have the most potential to be the next generation productive beef cows**

Beef cow mature weight 700 kg	Target procentage from mature weight, %	Target weight, kg
At weaning age 6-7 months	40	280
Vuoden iässä	55	385
Breeding, age 15 months	65	455
Calving, ikä 24 months	85	595

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## Biosecurity – guests, purchased animals – beware of health risks

Nasevassa on mukana tällä hetkellä tiloja

7133

Tilojen (pitopaikkojen) lukutukset Nasevassa tautisuojauskäytäntöjen mukaisesti

**P** 75 **N** 2516 **O** 529 **R** 4525

Eläinten terveys ETT ry  
Naseva  
PL 221, 80101 SENÄJOKI  
naseva@ett.fi

ETT  
NASEVA  
06.02.2023

Liite eläinlääkärin todistukseen pitopaikan eläinten terveydentilasta

Tila  
Pitopaikka

Päiväys

Pitopaikassa ei ole havaittavissa oireita jatkuvan oireita  
 Pitopaikassa on havaittavissa oireita jatkuvan oireita  
 Pitopaikassa on havaittavissa oireita jatkuvan oireita

Salmoneella

Jos pitopaikalla on luettu, salmoneella varusta ETT:n ohjeiden mukaisesti pvm: 12.12.2022 luku Et: neg.  
 Näytteen otettiin salmoneella ennen tai samanaikaisesti luettua, salmoneella varusta ETT:n ohjeiden mukaisesti pvm: 05.12.2022 luku Neg.  
 Lisätiedot ja eläinlääkärin arvio tautiriskistä eläinten siirtojen yhteydessä

Paratuberkuloosi (viimeiset 5 vuotta)

Pitopaikassa ei ole havaittavissa paratuberkuloosin oireita viimeisen 5 vuoden aikana  
 Pitopaikassa on havaittavissa paratuberkuloosin oireita viimeisen 5 vuoden aikana  
 Paratuberkuloosin oireita havaittavissa paratuberkuloosin oireita viimeisen 5 vuoden aikana

Eläinlääkärin on viimeksi tarkastanut eläinten tilaa pvm: 12.12.2022  
 Tarkastuksessa on havaittavissa paratuberkuloosin oireita  
 Tarkastuksessa ei havaittavissa paratuberkuloosin oireita

Meholaiset väkivälikäsitellyt on luettu.  
 Tila on varustettu ETT:n ohjeiden mukaisesti taudinestämiseksi  
 Salmoneella on arvioitu pvm: .....

Turvalliset soikkasairaudet (viimeiset 3 vuotta)

- **Any animal should not be moved from other farm with out a veterinary health check**
- **This is to protect your investment = your cattle, your business**

Eläinten terveys ETT ry  
Naseva  
PL 221, 80101 SENÄJOKI  
naseva@ett.fi

ETT  
NASEVA  
06.02.2023

Todistus myytävän eläimen terveydentilasta

Tila  
Pitopaikka

Eläimen terveystodistus

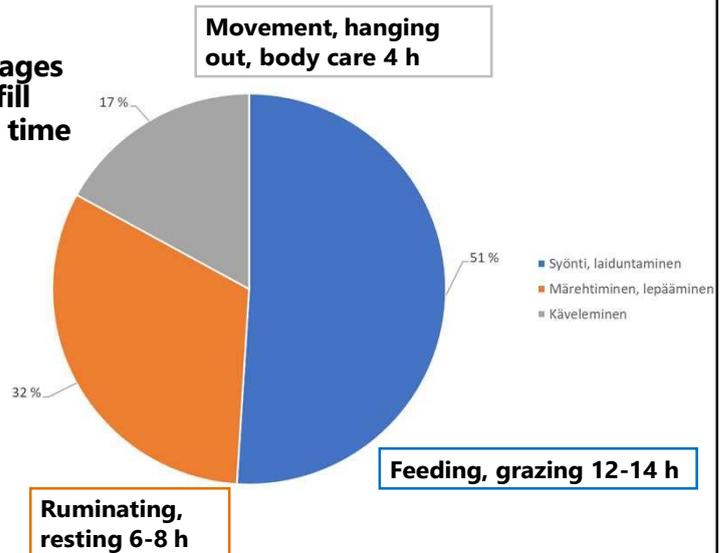
EU-tunnus	Korva	Nimi
Olen tutkinut yllämainitun eläimen / eläinten terveydentilan, pvm	12.12.2022	
<input checked="" type="checkbox"/> Tutkimuksessa ei havaittu sairauksien oireita.		
<input type="checkbox"/> Tutkimuksessa havaittiin sairauksien oireita.		
Lisätiedot jäteti eläinlääkärin arvio tautiriskistä eläinkauden tai eläinten siirtojen yhteydessä		
Salmoneellatutkimus, pvm	05.12.2022	tutkimustulos Negatiivinen
Päiväntarkastus, pvm	-	vaikote -
Loiskäsitely, pvm	28.11.2022	vaikote Eprinex Pour-On vet. 5 mg/ml liuos (132)
Lisätiedot jäteti eläinlääkärin arvio tautiriskistä eläinkauden tai eläinten siirtojen yhteydessä		

- **Use quarantine for purchased animals**
  - 2-3 weeks with small number of your animals
- **Demand protective overalls and shoecovers for all the visitors who visit your herd**

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## "RRR" – three R:s to succesful beef cow production

- ✓ **ROUGHAGE – Enough forage**
  - Analyzed, targeted, thought forages
  - Right amount, sufficient rumen fill
  - For the right group, at the right time
- ✓ **ROUTINES – Enough routines**
  - Annual rythm, daily rythm
  - Feeding
  - CS, weighing, monitoring
  - Breeding, calving, weaning
  - Notes, spreadsheets...
- ✓ **ROOM – Enough space**
  - Feeding- and resting space
  - Handling space
  - Animal handling easier
  - Bedding control easier
  - Difficulties in cow calf bonding reduces
  - Animal welfare is increased



Luke @LUONNONVARAKESKUS

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## Aim for herd with consistent characteristics & traits – herd is easier to handle



Use herd breeding goals to reach the targets

**(size, condition score, production traits)**

➤ **Less feeding groups**

➤ **More consistency and control in your production**



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## Key to profitability is sticking to a basic plan

### • Beef cow production

1. Beef cow weight
2. Condition score
3. Precise feeding
4. Calving interval 365 d
5. Heifer first calving age 24 months
6. Weaning weight 300 kg
7. Calving ease & calf vigour
8. Supporting animal health
9. High calf crop
10. Longevity, productive, functional, healthy = genetics which suit your production environment

### • Young stock, feedlot

1. High daily gain
2. Short rearing period = less days on feed & less feed in puts
3. Precise feeding
4. Highly digestible, palatable forage
5. Moderate concentrate percentage
6. Monitoring growth
7. Supporting animal health
8. Investing animal welfare
9. Minimizing mortality
10. Precise, planned goals & sticking to the plan



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