

ANIMAL WELFARE AND BIOSECURITY ASSESSMENT IN RUMINANT FARMS

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Veterinary capacity building in the context of the "One Health"
INTERNATIONAL VETERINARY LEGISLATION

5th July 2022





HELLO!

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2021...

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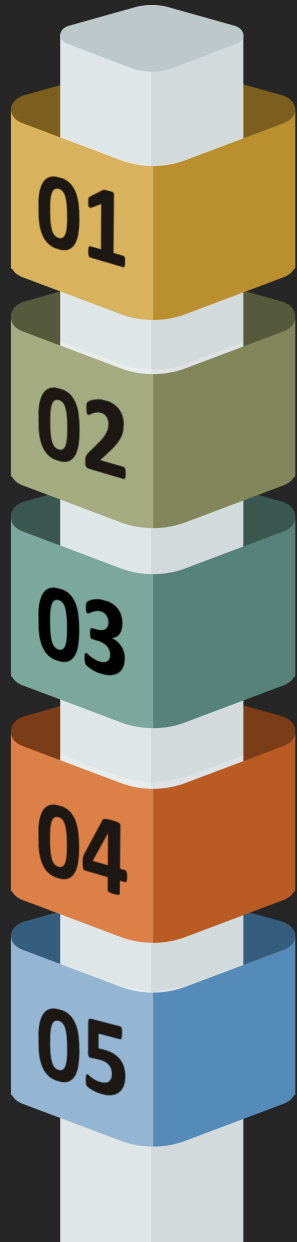
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ROADMAP



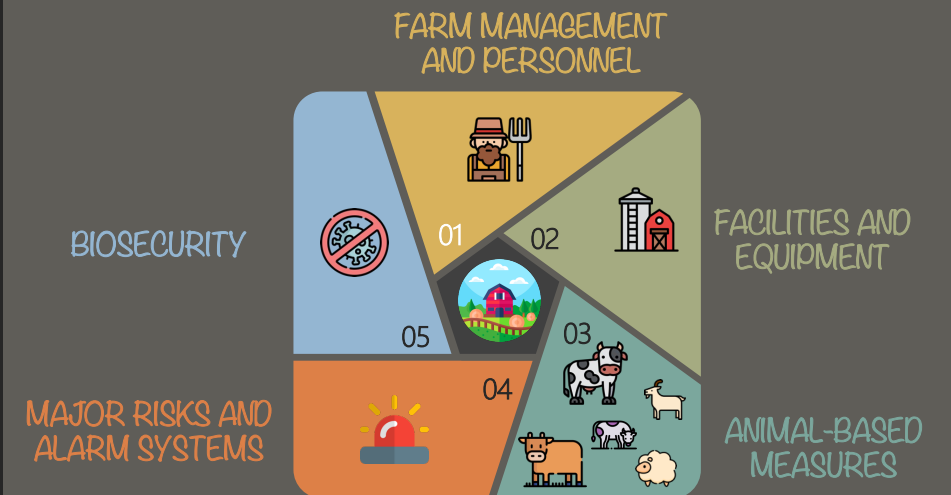
Farm management and personnel

Facilities and equipment

Animal-based measures

Major risks and alarm systems

Biosecurity

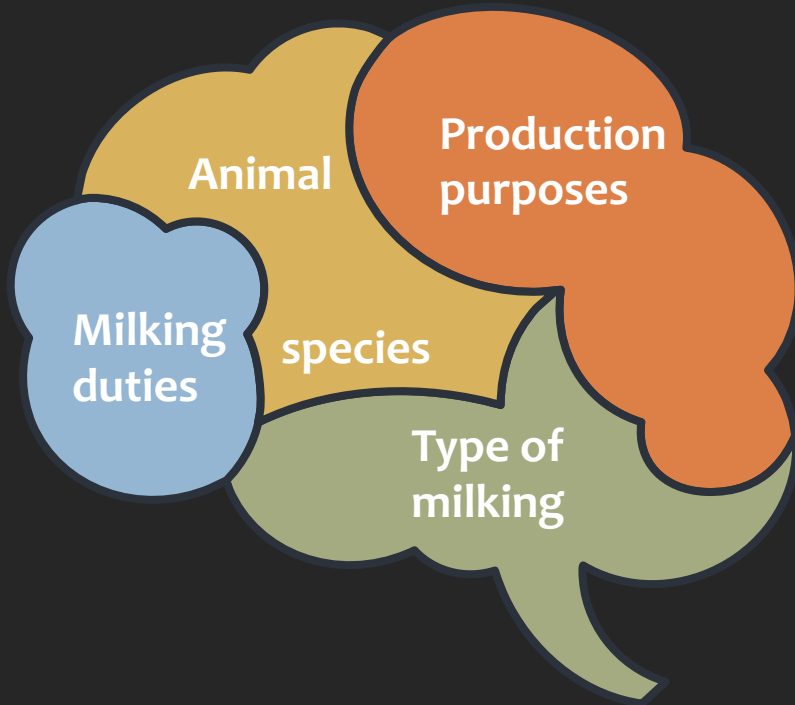




FARM MANAGEMENT AND PERSONNEL

STAFF

Number of stockpersons



Staff training



Experience in the mansion

7 or 10 years

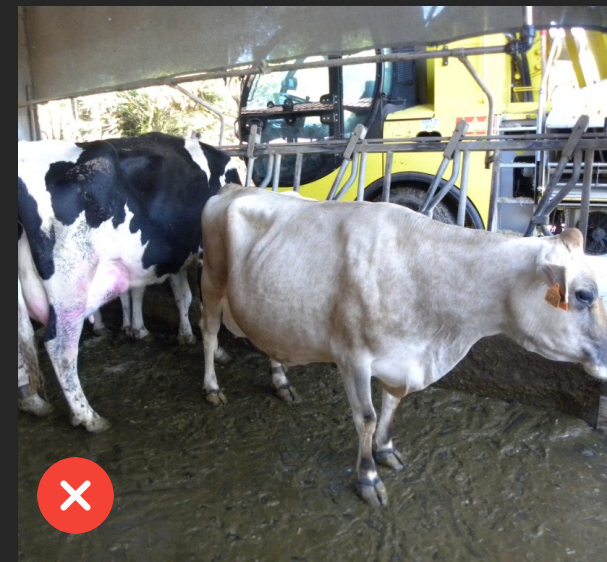
Relevant degree

Attendance of courses on AW

GROUP MANAGEMENT

In order to meet the physiological needs of the animals, subjects at similar age or production period should be grouped together.

Dairy farming should be broken down, as a minimum, into the following main groups: weaned animals, replacements, dry animals and milking animals.



INSPECTIONS, MANAGEMENT OF ILL/INJURED ANIMALS

Adult animals shall be inspected **at least daily**, preferably more frequently.

Housed **calves** shall be inspected **at least twice a day**.

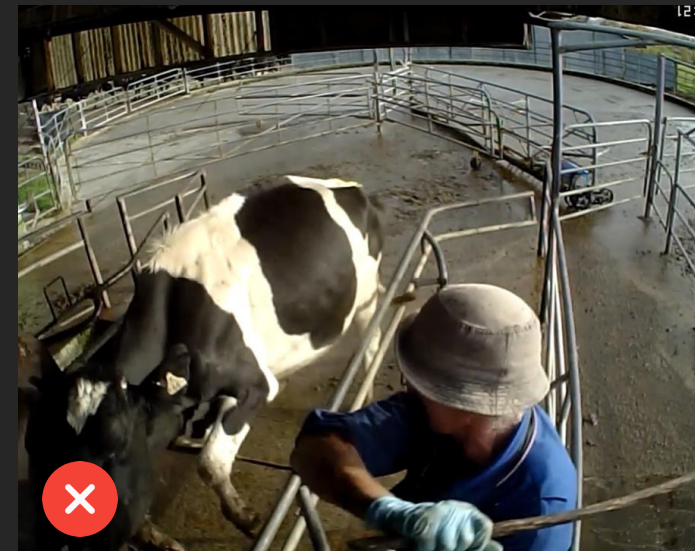
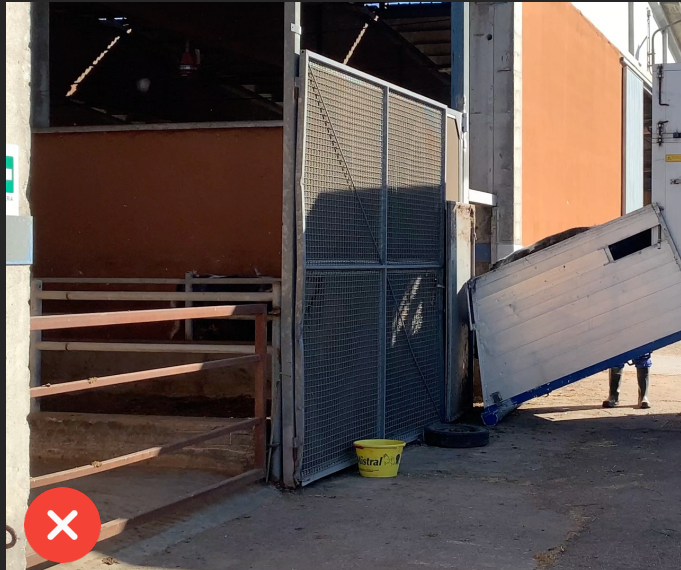
Daily inspections are understood as additional to milking and feeding activities.

Ill or injured animals, animals that do not behave normally shall be inspected more frequently than once a day.

Ill or injured animals shall be treated immediately and, if not responding to treatment, a veterinarian shall be consulted.



ANIMAL HANDLING



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DIET

COMPOSITION



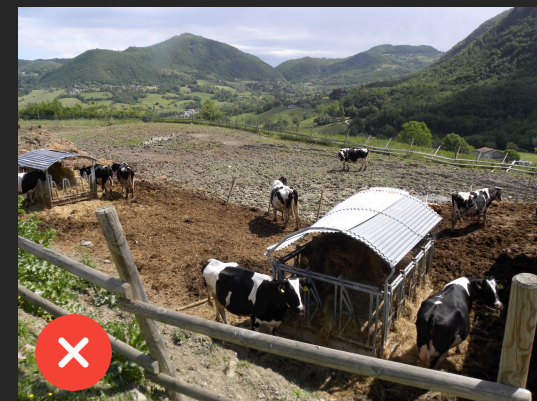
FEED STORAGE



FEED AVAILABILITY



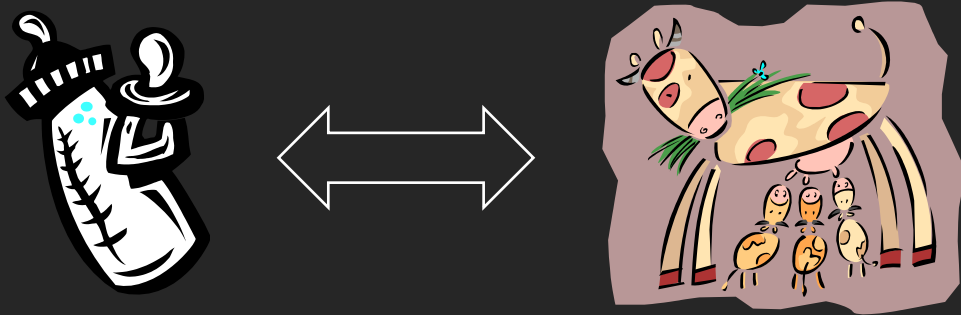
PASTURE



FEEDING OF CALVES

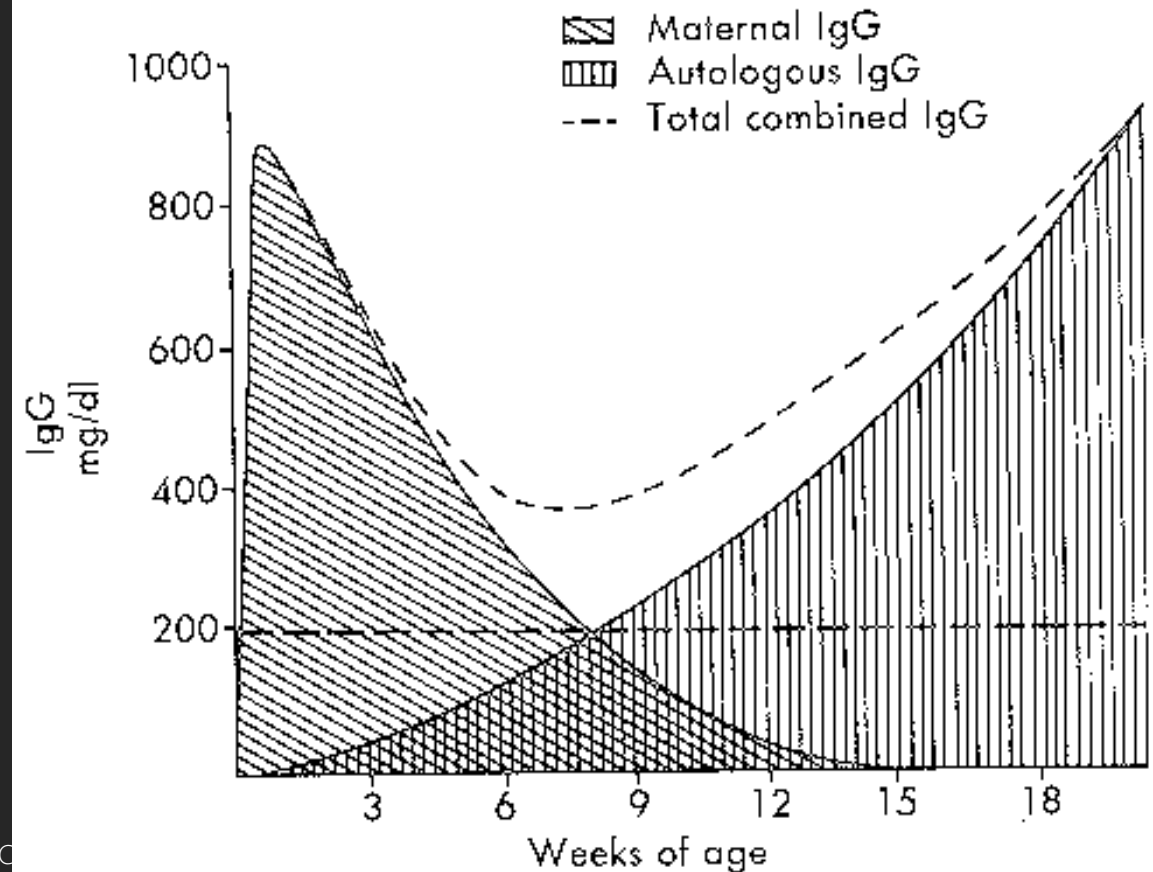
PASSIVE IMMUNITY TRANSFER

The calf should receive at least 2-3 lt of colostrum within the first 6 hours and 4 more litres within the first 12 hours divided in minimum 2 administrations.



After 12 hours the gut's absorption capacity is halved.

Serum gamma-immunoglobulins should be > 1 g/dl



DRINKING WATER

AVAILABILITY AND ACCESSIBILITY



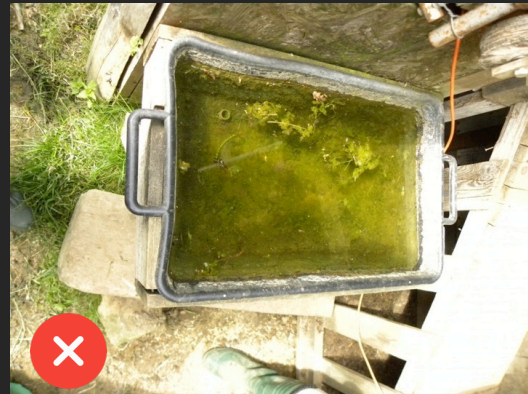
DRINKER CLEANLINESS



DRINKER NO. AND SIZE



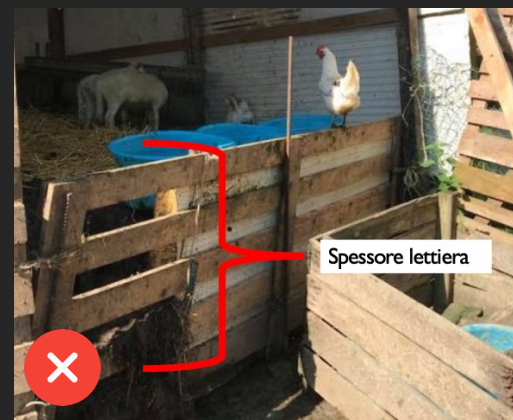
WATER SOURCE



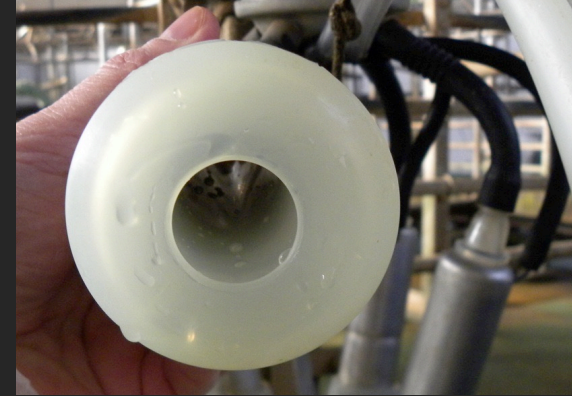
CLEANLINESS OF FLOORS



LITTER HYGIENE



HYGIENE IN THE MILKING PARLOUR



MANAGEMENT OF THE MILKING OPERATIONS AND UDDER HYGIENE



PREVENTION OF FOOT DISORDERS



A photograph of a dairy farm interior. In the foreground, a cow is lying down on a metal grate floor. In the background, several cows are standing in stalls, and a person is visible milking a cow. The ceiling is made of wooden beams, and the walls are made of stone or concrete. The overall atmosphere is rustic and functional.

FACILITIES AND EQUIPMENT

HOUSING FACILITIES

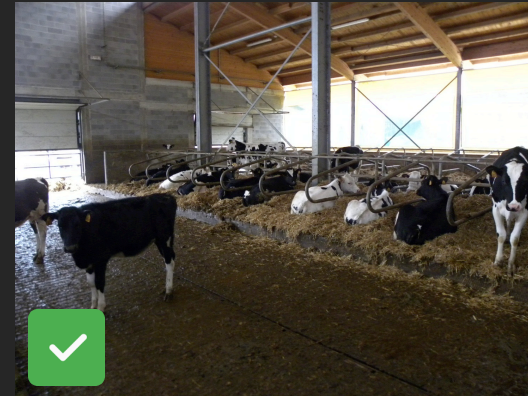
MATERIALS



TYPE OF HOUSING



SPACE AVAILABILITY

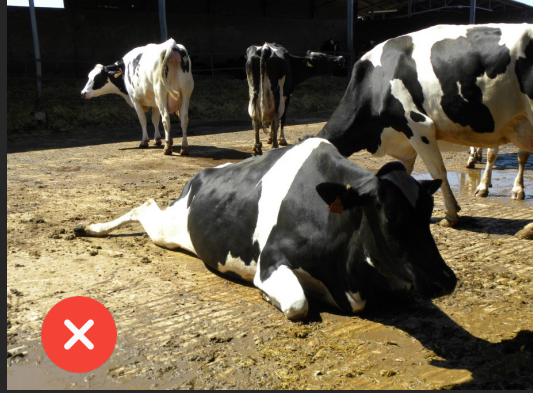
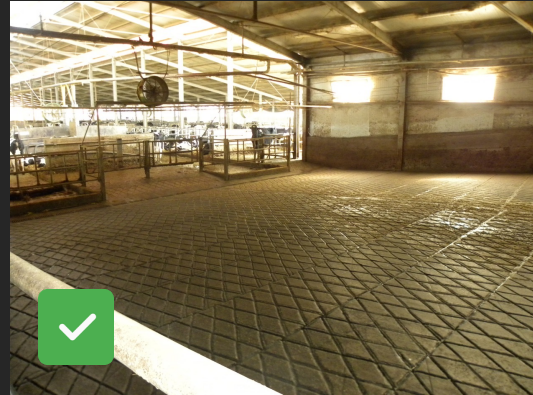


RESTING AREA, FLOORING

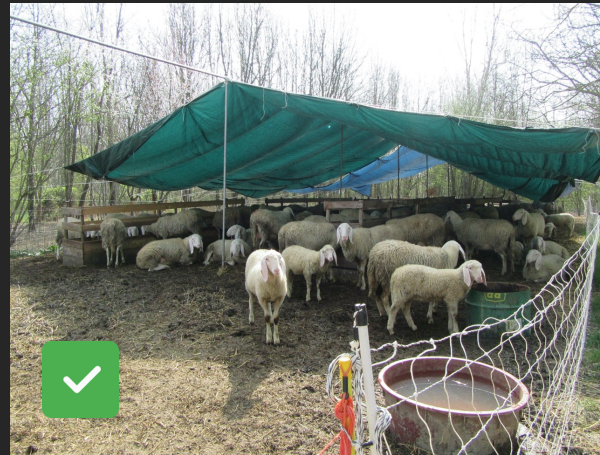
SUITABILITY OF THE RESTING AREA

LITTER MATERIAL

FLOORING



SHELTERS



MICROCLIMATIC CONDITIONS



COMFORT ZONE FOR DAIRY COWS

$$-0,5^{\circ}\text{C} < T < 20-25^{\circ}\text{C}$$

$$65\% < \text{UR} < 80\%$$

THI= temperature-humidity index

$$THI = \left(1.8T - \left(1 - \frac{RH}{100} \right) (T - 14.3) \right) + 32$$

Ideal range for dairy cows:

$$64 < THI < 72$$

DEG	RELATIVE HUMIDITY																							
F	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100			
75														72	72	73	73	74	74	75	75			
80	NO STRESS						72	72	73	73	74	74	75	76	76	77	78	78	79	79	80			
85					72	72	73	74	75	75	76	77	78	79	80	81	81	82	83	84	84	85		
90	72	73	74	75	76	77	78	79	79	80	81	82	83	84	85	86	86	87	88	89	90			
95	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95			
100	77	78	79	80	82	83	84	85	86	87	88	90	91	92	93	94	95	97	98	99				
105	79	80	82	83	84	86	87	88	89	91	92	93	95	96	97									
110	81	83	84	86	87	89	90	91	93	94	96	97												
115	84	85	87	88	90	91	93	95	96	87														
120	86	88	89	91	93	94	96	98																

¹THI = (Dry-Bulb Temp. °C) + (0.36 dew point Temp., °C) + 41.2)

If more than two cows out of 10 have respiratory rates exceeding 100 breaths per minute, then immediate action should be taken to reduce heat stress.

THI between 72 and 78



mild stress

THI between 79 and 88



moderate stress

THI between 89 and 98



severe stress

THI above 98



DEAD COWS!



VS



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LIGHTING



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MOVING COWS AT MILKING



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WAITING AND MILKING PARLOUR

Assessment of the waiting area concerns how easy it is to access the milking parlour, the surface area/animal and maximum waiting time for the largest cattle group.



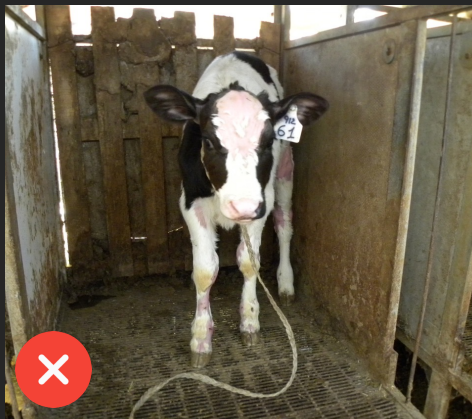
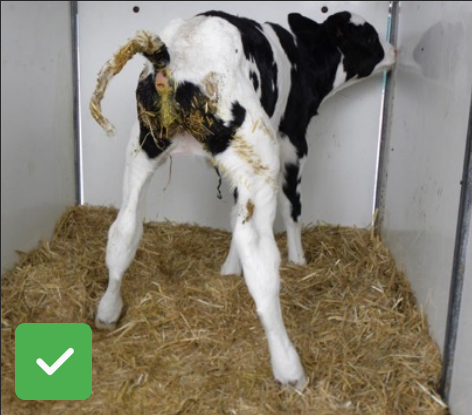
HOSPITAL PEN

«Sick or injured animals shall be isolated in suitable accommodation with easily available fresh drinking water and feed, appropriate climate and dry comfortable bedding, unless otherwise required by veterinary advice».

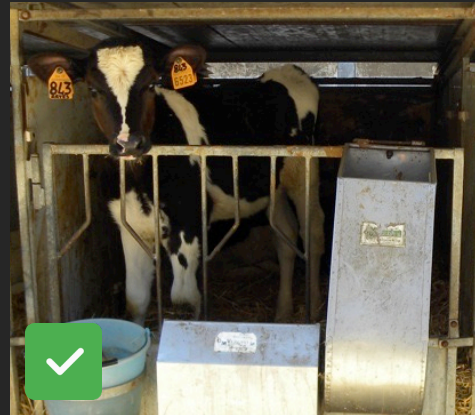


HOUSING OF CALVES

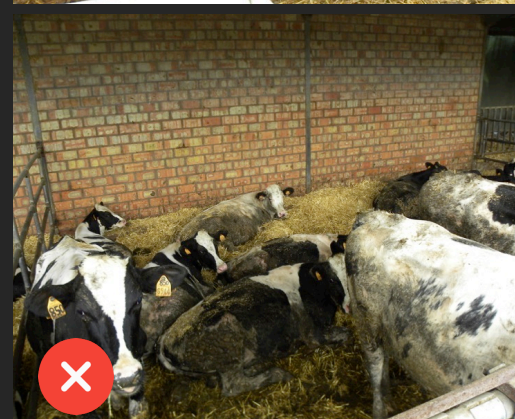
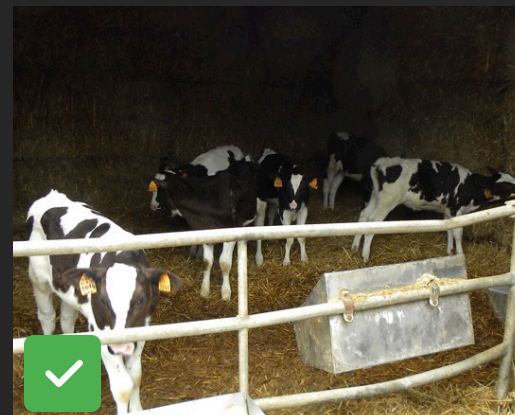
LITTER



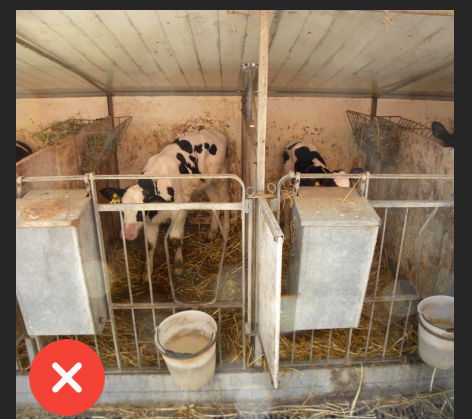
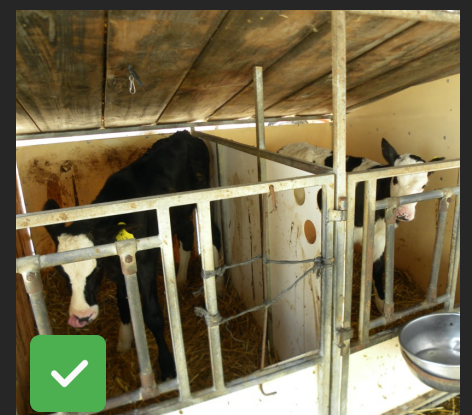
SURFACE AREA
(INDIVIDUAL PENS)



SURFACE AREA
(GROUP PENS)



POSSIBILITY OF
CONTACT



TETHERING OF CALVES



A large herd of brown and white goats is gathered in a field. In the foreground, several goats are looking towards the camera. One goat in the center-right is particularly prominent, looking directly at the viewer. The background is filled with many more goats, creating a sense of a large flock. The lighting is bright, suggesting a sunny day.

ANIMAL-BASED MEASURES

HUMAN-ANIMAL RELATIONSHIP



ABILITY TO EXPRESS NORMAL BEHAVIOUR



STATE OF NUTRITION (BCS)

Figure 1

Body condition scores

Body Condition Score	Vertebrae at the middle of the back	Rear view (cross-section) of the hook bones	Side view of the line between the hook and pinbones	Cavity between tailhead and pinbone	
				Rear view	Angled view
1 Severe underconditioning					
2 Frame obvious					
3 Frame end covering well balanced					
4 Frame not as visible as covering					
5 Severe overconditioning					

(Adapted from A.J. Edmondson, I.J. Lean, C.O. Weaver, T. Farver and G. Webster. 1989. A body condition scoring chart for Holstein dairy cows. J. Dairy Sci. 72:68-78.)

Acceptable BCS limits:



2 – 4.25



> 2



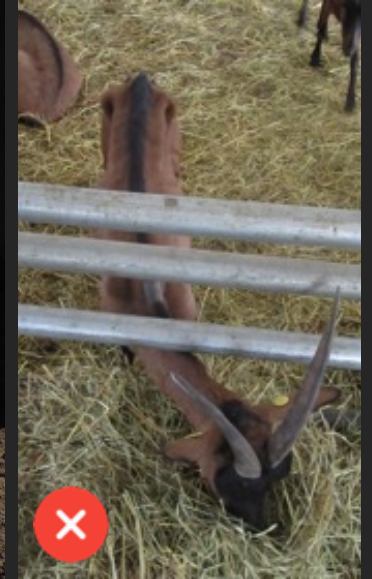
2 – 4



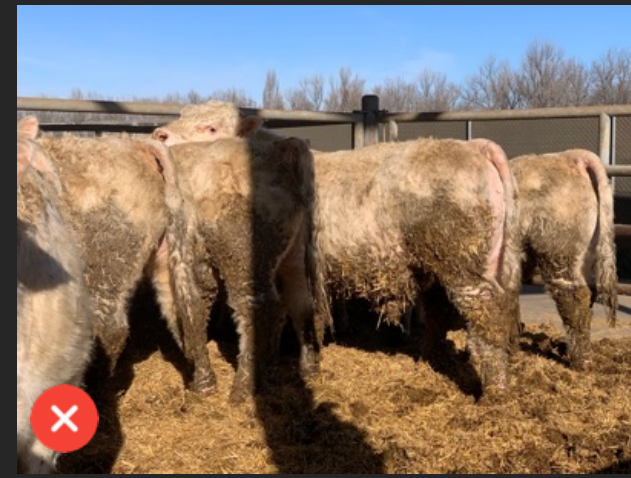
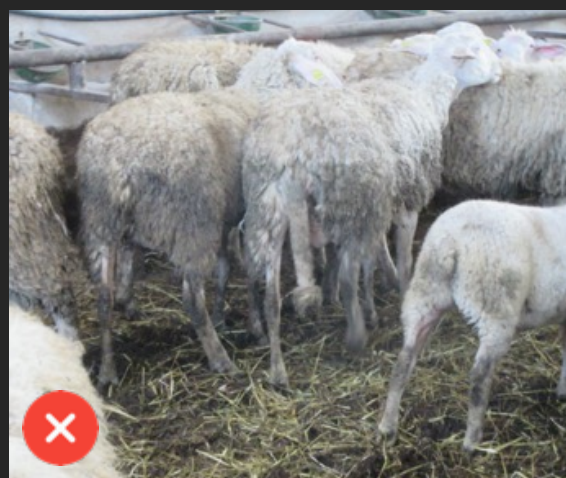
1.5 – 4



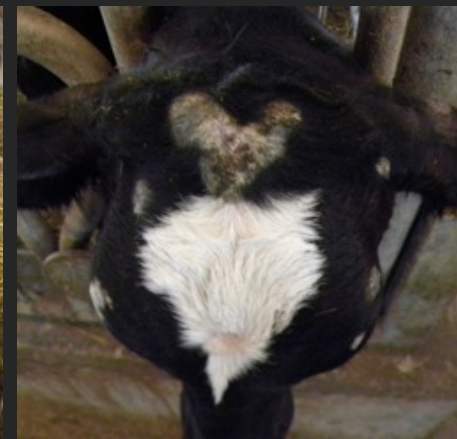
STATE OF NUTRITION (BCS)



CLEANLINESS OF ANIMALS



SKIN LESIONS



SKIN LESIONS



LAMENESS



DISCHARGE, BREATHING DIFFICULTIES



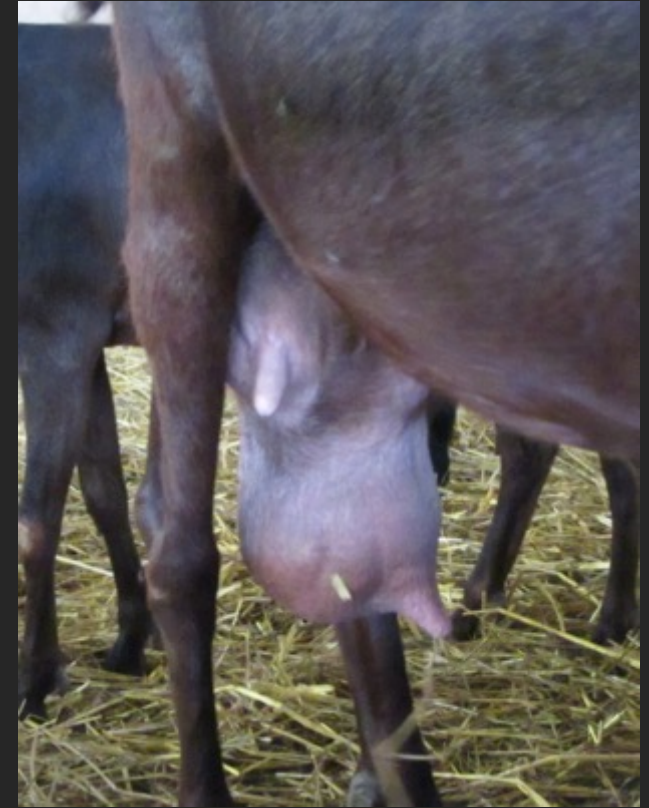
UDDER HEALTH



SCC, No. of mastitis treatments/year



SCC



Udder asymmetry

MORTALITY

Acceptable mortality rates:

Adult animals	2% – 5%
Calves, lambs	4% – 10%
Goat kids	4% – 8%



MUTILATIONS / PROCEDURES



A photograph of a herd of zebu cows in a tropical environment. Several cows are standing in a shallow, muddy waterhole, drinking. The cows have characteristic humped backs and some have speckled coats. In the background, there are palm trees and other tropical vegetation under a clear blue sky. A semi-transparent yellow rectangular box is overlaid on the left side of the image, containing the title text.

MAJOR RISKS AND ALARM SYSTEMS



**DRINKING WATER
SOURCES**



**LIGHTING FOR
INSPECTIONS**



NOISE EXPOSURE*



FIRE ALARM



**AUTOMATIC AND
MECHANICAL
EQUIPMENT**



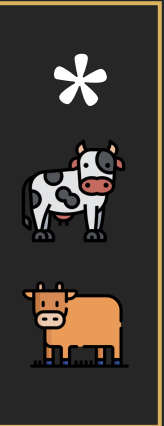
**VENTILATION SYSTEM
ALARM***



RECORD KEEPING



ILLEGAL SUBSTANCES





BIOSECURITY

BIOSECURITY MEASURES

Contact with other animal species



Animal purchase and quarantine



Health monitoring

- main infectious diseases
- udder infections
- endo- and ecto-parasitosis



Pest control



Management of visitors



Vehicles entering the farm



Analysis of water sources





THANK YOU

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