

MANUAL

BARNS FOR REPLACEMENT

FROM BIRTH TO FIRST CALVING




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PREFACE

After many years of work in the field of livestock design, mainly spent looking for the best possible solutions to guarantee for the cows in production ideal conditions of comfort, aimed at enhancing their performance, we felt the need to briefly tell some concepts and solutions projects for the different categories of replacement animals, the result of the continuous exchange of experiences with Italian and foreign breeders, with operators in the field and research institutes, convinced that young calves from their birth until the first calving are the essential basis for the future success of each farm.



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BARNs FOR REPLACEMENT FROM BIRTH TO FIRST CALVING

Often one is led to think that, after years and years performing a specific activity, practical experience has sufficiently compensated for the training deficiencies. Nevertheless, by analysing the management and the structures for animals' growth, in barns for milking cows, some very important elements rise which must be the result of careful evaluations in the planning phase of future development strategies and company organization. Consider, for example, that on average, more than 30% of the cost of medicines in the entire barn is attributable to 0-3-months-phase calves, or the fact that raising heifers for replacement represents up to 20% of the total annual farm expenditure. If we also consider that it is scientifically and experimentally proven that the productivity at the first lactation and for the entire productive career of a cow is proportional to the state of health, to the growth in its first 6 months of life and to an early entry into production, **it becomes absolutely evident how important it is for every farmer to have healthy heifers, which clearly show the heat, become pregnant without difficulty and have few problems with calving.**



But the achievement of this ambitious goal is the consequence of a work that develops over a period of about 24 months, during which different physiological phases of the animal follow one another, to which as many managerial phases of the barn shall correspond.

It is a job that cannot be improvised, but must be the result of correct programming carried out with constancy and precision, starting from an impeccable design and construction of adequate breeding facilities, able to guarantee ideal levels of comfort for the farmed animals and absolute ease of management and operational safety for the barn staff.



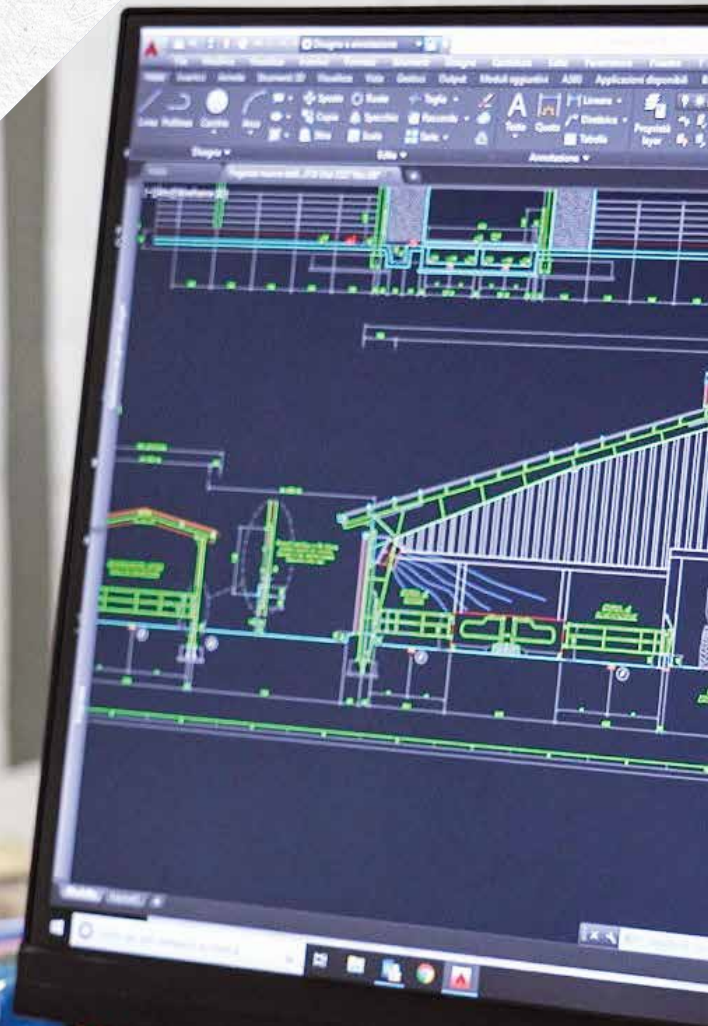
Design Phase

When visiting a livestock centre, the first parameter that makes us understand the level of the breeder is the attention to detail paid in the management of the pre-calving, calving, calves and replacement animals. Sectors and aspects that significantly affect the profitability of the entire livestock activity.

In most dairy farming the best genetics are often found in the calf pen and it is in fact known, as mentioned, that the performance of tomorrow's cows is the result of the first months of life of today's calves.

It is therefore surprising to see how, unfortunately, such a precious heritage is not given due attention and the necessary breeding structures and technologies for these important and delicate phases are not provided in the firm.

The replacement phase, in general, has suffered for years from little consideration in the mistaken belief that it is an “unproductive” sector of the firm.



Nothing could be more wrong as the firms of the future will only be those capable of managing every single production phase in the best possible way, allocating the right importance to each sector of breeding.

The dry phase, for example, should not be considered as the end of the previous lactation, nor as an unproductive period, but as the development phase for the new lactation, creating the conditions for preventing health problems and guaranteeing subsequent high production and reproduction.



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Pens for transition period

In the delicate phase of transition, pre-calving cows must be housed, in the last 15/21 days before calving, in pen with permanent bedding with at least 12/15 m² of space available per head, with a subdivision into groups among the pluriparous and primiparous to reduce the stress induced by hierarchical phenomena.

The 'Stress-free calving line', or separation zone, is a sort of paradise in the barn, it is that area normally arranged close to the milking rooms that must guarantee absolute absence of stress during the 'transition' period between 2/3 weeks before and after calving. The social struggles between the housed subjects must be avoided, ventilation and air quality must be optimal and the animals must always be under control.

For small-medium herds, ideally less than 400 milking cows, it is accepted for the cows to give birth directly in groups, while in the case of large herds the pre-calving phase can always be carried out in pens on bedding or even in cubicles adopting the "Just in time" technique.

In essence, it is a matter of moving the cow only at the last moment, when there is less than an hour before calving, focusing attention on the absence of stress, on tranquility and above all on hygiene.

Considering that childbirth represents a critical moment and that the main phases to keep under control are the restlessness of the cow, the expulsion of the calf and the cleaning from the placenta (within 12 hours normal, from 12 to 24 hours delayed and beyond 24 hours retention to the placenta), depending on how the parturient cow has been prepared, the deserved fruits will be collected or the mistakes made will be paid for.



Calving Pen

In better organized firms aiming at calf pen management in compliance with correct operating protocols, it is essential to have adequate structures specifically designed for the management of operations relating to calving.

At least one individual NURSERY BOX must be provided for every 50/100 adult cows present, depending on the size of the farm and the occupation time to be adopted.

- The size of the nursery box must be at least 12 m² and must have walls that can be opened as much as possible in order to facilitate any help with childbirth.
- They must also be equipped with a self-locking station to manage the calving-helper even with standing animals and also allow the blocking in an easy and safe way for the animal, in case the cows need to be milked after the calving.
- To enhance the comfort, the pen should be provided with an easily cleanable drinking trough with availability of heated water.
- A ceiling hook is useful to facilitate any lifting operations of the animal in case of falls
- A specific “shelter” in which to house the calf must be provided in a corner of the pen.



“FOLLOWING THIS ARRANGEMENT THERE SHALL BE SIGNIFICANT OPERATIONAL AND MANAGERIAL ADVANTAGES, IN ADDITION TO THE POSITIVE RESULTS DESIRED”.

01

- The cow can be blocked without problems for possible diagnosis, treatment and/or assistance at calving;

02

- The shelter in which the calf is housed, on a dry and clean litter, ensures an excellent level of hygiene, preventing infectious diseases;

03

- The complete drying of the calf takes place protected from harmful air currents;

ADVANTAGE OF

- The ability to lick the calf and to feed properly helps expulsion of the placenta;

07

- The possibility of licking the calf stimulates the release of oxytocin in the cow and the consequent easy release of colostrum which is the essential element for the health of the calf;

08

- The cow is positioned so that it can be milked easily and safely immediately after calving;

09

“Therefore, all the preparation and support operations for the parturient are carried out in the nursery boxes and after the birth the calf shall be provided with the first care (obviously starting from the correct administration of the colostrum)”

The need to have the nursery boxes perfectly clean and disinfected after each calving derives from the fact that under normal conditions the calf is born “sterile” from an infectious point of view, and with the first breaths and through the respiratory tract and through the umbilical cord its organism is colonized by bacteria and viruses present in the environment.

The calf, whose rectal temperature when just born is 38.5°C / 39°C, begins a real battle with its immune defence system.

The ability of those who manage the calving room must be to reduce aggression from pathogens by working in an environment that is as “clean” as possible and enhancing the immune responses of the calf through the correct administration of the colostrum which must in quality, quantity, times and methods , respect the predefined company protocols.

“THE FUTURE OF ANY FARM BEGINS WITH TODAY’S HEALTHY CALF AND THE KEY TO HAVING A HEALTHY CALF LIES IN ITS FIRST MEAL”.

04

The possibility for the calf to be housed in a protected area and to be licked by the mother promotes body thermoregulation;

05

The smell of the amniotic fluid stimulates the cow to feed;

06

The availability of food for the cow immediately after calving helps prevent a negative energy balance and ketosis problems;

NURSERY BOX

Since the calf is confined to its “shelter”, the administration of the first colostrum takes place in an easy and safe way, as well as its subsequent transfer to the weaning boxes.

10

THE FLOORING OF THE NURSERY BOXES WILL BE COVERED WITH SOFT MATERIAL (NON-SLIP RUBBER) AND WILL BE COVERED WITH A LAYER OF CLEAN AND DRY BEDDING MATERIAL. IT IS ESSENTIAL TO REMOVE THE LITTER, CLEAN AND DISINFECT THE BOX AFTER EACH CALVING AND BEFORE THE ENTRY OF A NEW SUBJECT.





Colostrum

Colostrum is nothing more than a series of mammary secretions and constituents of the blood serum, especially immunoglobulins and other serum proteins.

SOME BASIC RULES FOR THE SUCCESS OF COLOSTRATURE

1.PROMPTNESS. Colostrum should be milked, checked and administered ideally in the first 30 minutes after calving. However, it is important to administer the first meal as soon as possible, absolutely within 2 hours of calving, and then to administer a second meal within the following 8 hours in order to be able to have 2 meals in the first 12 hours of the calf's life. Calves have an immature immune system and low energy reserves. Colostrum gives them immunity and energy to adapt to the environment. The sooner after calving you can get the calves to drink and the more likely they are to drink alone.

2.QUALITY. To evaluate the quality of a good colostrum it is necessary to use a digital optical refractometer on a Brix scale. A value higher than 22% Brix and a content of over 50 g of IgG / L indicates a good colostrum, while a value between 18 and 22% Brix indicates a mediocre quality of colostrum and it is not recommended to use it as a first meal. A value lower than 18% Brix leads to consider the colostrum of poor quality and therefore its administration is not recommended.

3.MEASUREMENT. The colostrum of the primiparas is poorer than that of the pluriparas, so a colostrum bank can possibly be organized. The passive immunity conferred by colostrum lasts for about 2 months, at the end of which the calf will have already processed its antibodies and therefore its active immunity.



4. QUANTITY. The calf loses the ability to absorb immunoglobulins within 24 hours of birth, while most of the absorption occurs in the first 4 hours of life. A sufficient quantity is 3 L for 100/150 g of IgG while an optimal quantity is 4 L for 150/200 g of IgG. The ratio for administration must coincide with 10% of the weight of the calf as the first meal (with a weight of the calf of 40 kg = 4 L). In particular, if a probe is used, the administration must be at least 3l: with this administration, the colostrum passes directly into the rumen and not into the abomasum, as happens when using the bottle. The rumen has a capacity of 2l and therefore the excess quantity passes into the abomasum and this allows the access of antibodies into the blood.

5. SECURITY. Do not administer colostrum from Para-Tbc, Mycoplasma or other disease positive cows. In the case of setting up a colostrum bank, make sure the container is identified with donor number, Brix grade and date. Para-Tbc mycobacterium can be transmitted with colostrum. If a cow was negative in a previous test but turned positive after freezing the colostrum, with the correct identification it will be possible to eliminate the contaminated colostrum. In any case, it is always advisable to pasteurize the colostrum, while the use of mastitis milk for calves is not recommended, even after pasteurization. If it comes from cows with mastitis or from cows with mycoplasma, salmonella or mycobacterium of Para-Tbc, the milk of cows treated with antibiotic induces the calves to antibiotic resistance.



Colostrum

THE ADMINISTRATION OF COLOSTRUM JUST AFTER MILKING.

6. HYGIENE AND STORAGE. It is advisable to concentrate the colostrum in the refrigerator in a covered container if you intend to use it later in the day or store it in the freezer in case you want to use it later on. For defrosting, use a water bath with a maximum temperature of 51°C. The temperature of administration should be close to that of the calf's body (38°C / 39°C). The bacterial load can double every 20 minutes and with the lowering of the temperature, bacterial proliferation is limited, just as using a lid limits the contamination of colostrum in the milking parlor, in the barn and in the refrigerator.

Slowly heat the frozen colostrum using a water bath, do not speed up the heating and do not use the microwave. IgGs are easily damaged by heat and once damaged they lose immune function.

In the case of a poor quality colostrum it is necessary to ensure colostrum from another animal to ensure the calf transmission of good immunity.



Although colostrum must be administered as quickly as possible, even in the further 24/36 hours it becomes useful for local immunity and the maturation of the digestive system.

These operational attentions contribute to the protection of the calf from enteric infections during the milk feeding period. Absolutely, colostrum is not only valuable as an indispensable source of antibodies and therefore immunity, but also for the numerous bio-active components that have a positive effect on growth, on the use of nutrients and, ultimately, on the production of milk.

THE IDEAL SITUATION IS THAT THE CALF REACHES AT LEAST DOUBLE ITS BIRTH WEIGHT AT 60 DAYS OF AGE AND THREE TIMES AT 90 DAYS OF AGE.

In addition to the correct colostrum administration, another fundamental intervention for safeguarding the health of the calf is the cleaning, disinfection and scarring of the navel, which must take place promptly and in ideal hygienic and sanitary conditions.

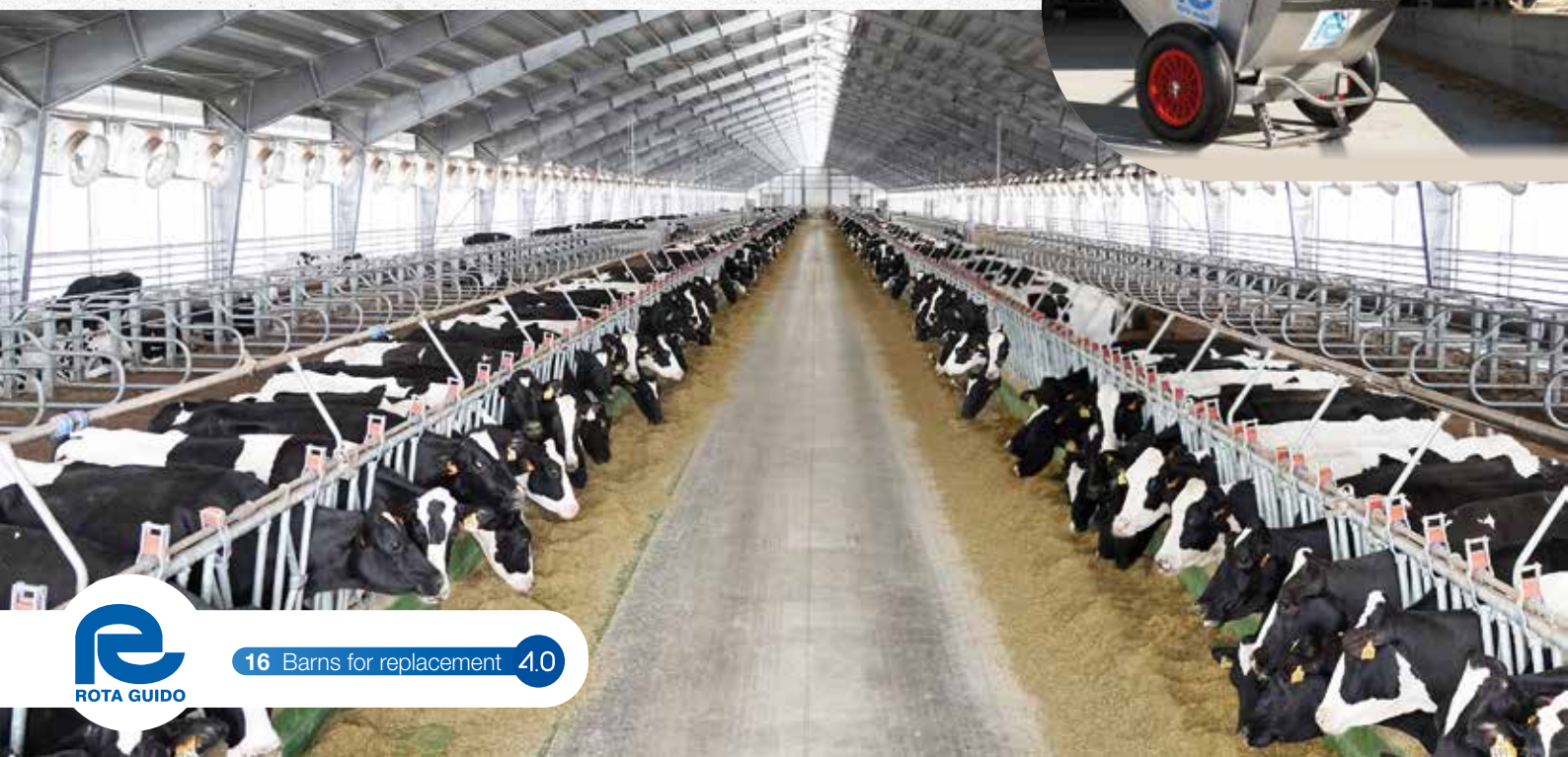




After calving period

A few hours after calving, the cow and calf are separated, although an ethological debate has developed in this regard, experience teaches that the longer the joint life span, the more traumatic the detachment.

After a few days in specific pens for transition in which the milk is separated, the cows resume their normal productive activity, while the calves begin their journey towards weaning and growth. **The movement from the calving pen to the calves' pen can be carried out with a comfortable trolley equipped with a specific anti-fall net and weigher, which allows the first weight check on calves to be carried out.**



Calf hutches for weaning

In large farms organized in a modern way, before accessing the actual calf pen it would be advisable to host the new-born calves in a specifically designed, air-conditioned area equipped with individual boxes on wheels, easily movable, complete with bottom section for the separate collection of the manure produced and of infrared lamps, in which to complete the colostrum administration to obtain the ideal passive immunity of the calf, dry it perfectly and control its first days of life by hosting it in a dry and comfortable environment with ideal microclimatic and hygienic-sanitary conditions.

Assuming that it is increasingly necessary to guarantee natural behaviour to bred animals and considering that a calf in nature feeds 8/10 times a day, while for logistical reasons in livestock farms milk is administered to calves on average 2 times a day, it follows that today every calf is given too high an amount for each single time, but overall a daily ration lower than that which it could potentially have taken

THEREFORE, IN CONNECTION WITH A NOT PERFECTLY NATURAL AND BALANCED DIET, THE RESULT IS A GROWTH LOWER THAN THE POTENTIALLY IDEAL AND OBTAINABLE ONE.



Calves pen

“IN IDEAL CONDITIONS IT SHALL BE POSSIBLE TO EASILY REACH AVERAGE WEIGHT GAINS BETWEEN 900/1000 GR / DAY, COMPARED TO THOSE OF 600/700 GR / DAY USUALLY OBTAINED TODAY”.



To obtain these important results, the calf pen shall be organized as if it were a specific “livestock shelter” suitably designed for the weaning of calves, with access allowed only after wearing specific gowns and footwear to ensure compliance with biosecurity, this to avoid any type contamination by personnel or from other adult animals.





Individual Calf Hutches

Proper dimensioning

The calves pen shall be organized with a series of individual calf hutches which, in order to comply with the minimum size of 1.8 m² per head, imposed by the legislation on animal welfare, must guarantee each calf a living space equal to 1x2 meters in which 1 m² is used as a laying spot for rest.

Since the calves spend a lot of time lying down, it is essential to guarantee them a comfortable and dry resting area, therefore the weaning hutches should preferably be elevated from the floor and with a draining grilled bottom to be covered with a modest amount of straw.

In fact, the quality of the housing is identified as a fundamental element to ensure the success of weaning also from an economic point of view. In fact, poor well-being conditions such as excessive humidity and inadequate temperature ranges must be absolutely avoided, as in such negative conditions, most of the food is converted into energy to counteract discomfort, compromising weight gain and the general health for calves.





Individual Calf Hutches

Structural details

The partition walls shall be made of closed cell material that is perfectly washable and sanitizable in order to ensure easy cleanability and correct sanitary vacuum operations.

The front parts of the partition walls shall have a grilled area to ensure the visual and tactile contact required by the law on animal welfare, but above all to ensure fraternity for homogeneous groups of calves which will then form the various groups in the after-weaning period.

The back wall shall be openable to facilitate all operations for managing and cleaning the hutches. The front access gate shall be equipped with supports for milk dispensing equipment, for the water bucket and for the troughs for the concentrate products.

To facilitate the weaning operations of the calves and all the consequent management operations of the calves' pen, it is necessary to calculate the number of calf hutches for weaning necessary for the company and divide them into homogeneous groups according to the calculation of the weekly deliveries. Leaving a free space between the rows of weekly hutches shall facilitate cleaning, disinfection and sanitary vacuum operations.

This also allows to always have homogeneous groups of hutches with calves of the same age it and facilitates the various planned weaning operations and transfer of calves to the ground.

Another fundamental aspect for the health and correct growth of calves is the hygienic-sanitary level of the calves' pen, which affects the efficiency of the immune system making the calves more resistant to respiratory and intestinal infections and able to overcome any pathologies in better condition.





Cleaning And Microclimate Fundamental elements

To facilitate cleaning operations, it is advisable to mount the hutches on special concrete channels with an inclined surface and cleaning by flushing one or more times a day, with a consequent reduction in odours and the formation of ammonia and harmful gases.

The correct microclimate is the other vital condition for having healthy calves and necessary weight gains. It is essential that the hutches that form the calves pen have their own roof to ensure good protection for the calves as well as a ridge cap to protect the central feeding hallway for the operators in charge of management and control.

Specific head doors for the feeding hallway, as well as side louvre windows managed by temperature probes and anemometers for wind speed detection, guarantee the calves ideal temperatures and the absence of air currents that are absolutely harmful for the newly born subjects.



With very low temperatures, it may happen to witness an increase in mortality in apparently not sick calves, which, however, appear undernourished at the autopsy and therefore died simply of hypothermia and undernutrition.

The ideal temperature for a calf fluctuates between 10°C and 15°C while lower temperatures, especially if associated with cold winds and / or drafts, lead to stress that can burn storage fats and lose weight, with onset of depression, weakness, loss of appetite, cold extremities and eventually death. But too hot, as well as the presence of insects, is a problem for the healthy growth of calves.

THEREFORE, IT IS ADVISABLE TO EQUIP THE CALVES PEN WITH SUITABLE VENTILATING DEVICES TO BE INSTALLED IN THE HALLWAY OF THE OPERATOR THUS ENSURING FORCED AND CONTROLLED AIR EXCHANGE WITH THE EXPULSION OF HARMFUL GASES.

A good air speed helps with the removal of annoying insects, it guarantees greater food intake, greater rest and consequent greater vigour of the calves. Lastly, for an ideal operational management of the calf farm, it is advisable to organize a special service room at

the head or at the center of the individual calf hutches rows, in which to store and prepare the milk, wash the buckets, as well as house the pressure washers, fixed or mobile, and all the equipment for correct management, cleaning and disinfection operations.





Individual Calf Hutches

Automated feeding

At this point, after the setting of an impeccable calves pen from the point of view of animal welfare and ease of management, the problem of ensuring the calf is fed as close to its nature as possible remains to be solved.

The implementation of a specific system for the programmed distribution of food automatically guarantees more meals a day with the possibility of modulating the quantity for each calf according to a predetermined feeding curve. With this automatic food distribution system in individual hutches, it is possible, simply by setting the date of birth of the calf hosted, to guarantee each subject the desired amount of food up to 8 times a day.



Disinfection of the nipple between one calf and another guarantees the best hygienic and sanitary conditions, as well as consistency in the dosage, temperature and characteristics of the food distributed.

The intake of starter feed, available ad-libitum as early as the third day, ensures an appreciable amount of nutrients. Weaning should take place with calves that eat at least 1% of their live weight, ie between 0.8 and 1.2 kg / day. Calves must drink 4 litres of water for every kilo of feed ingested, as the availability of drinking water promotes the development of the rumen and helps fermentation at the rumen level, helping the ingestion of weaning feeds and increasing weight gain.



“THE CALF IS A DELICATE ANIMAL AND IT IS IT IS BEST TO AVOID GIVING THE ANIMAL TIME TO GET SICK, NOR TO GET WORSE. CONTROL AND EARLY THERAPY ARE ESSENTIAL”.

The use of a specific trolley equipped with a weighing machine for the transport of weaned calves from the individual calf hut to the after-weaning period area shall allow verifying the real positive results obtained.





After Weaning Period

Collective pen

AFTER WEANING, NORMALLY OBTAINED WITHIN 8 WEEKS OF BIRTH, THE CALVES ARE MOVED FROM INDIVIDUAL HUTCHES TO COLLECTIVE PENS TO BEGIN THE DELICATE POST-WEANING PHASE.



It is a phase of great stress for animals because they find themselves having to manage a very important change of life, both from a food and environmental point of view, having to, in addition to giving up milk, to start a period of life in competition. Calves that have had significant weight gain in the weaning phase should be reared in optimal welfare conditions to maintain this advantage also in the later phases.



**CALVES THAT START EARLY
CONSUMING MORE
THAN 900 G / DAY OF
DRY MATTER DURING
WEANING SHALL HAVE
A LONGER PRODUCTIVE
LIFE AND PROVIDE BETTER
QUALITY MILK.**

A low daily weight gain has indirect negative effects that affect health costs because insufficient growth is related to immune system failure, respiratory and gastrointestinal diseases, increased veterinary expenses, delays in entry into production, increases in mortality and in the percentage or replacement.



To reduce these harmful phenomena, in the transition from weaning to after-weaning phases that often lead to stress and weight reduction, it is advisable to organize the after-weaning sectors by forming small groups of calves, as homogeneous as possible, both in terms of age and size / weight, with calves having a maximum age difference of one week. Another very important aspect is to avoid the DYNAMIC calf management technique in the after-calving pens, that is to insert the newly weaned ones by continuously moving the more robust subjects to the next pen with consequent continuous struggle for the formation of new hierarchies.



THE STATIC TECHNIQUE IS ABSOLUTELY PREFERRED UP TO 6 MONTHS OF LIFE, I.E. THE FORMATION OF HOMOGENEOUS GROUPS THAT HAVE JOINED TOGETHER IN THE INDIVIDUAL CALF HUTCHES AND THAT REMAIN TOGETHER WITHOUT MOVING FROM THE 3RD TO THE 6TH MONTH.





Collective Pens

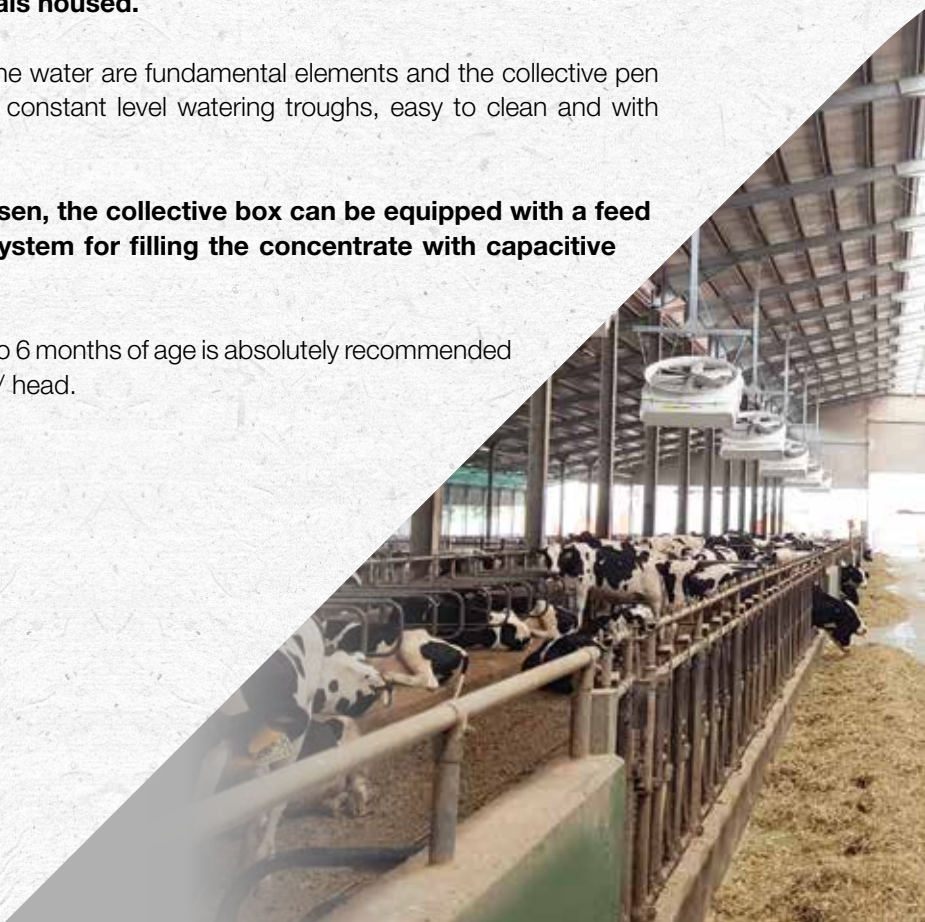
Structure and main features

Each after-weaning pen must include a feeding lane, equipped with a specific rack with inclined tubes and / or fixed arches (to accustom animals to raise their heads) having a number equal at least to the animals housed.

Quantity, quality and temperature of the water are fundamental elements and the collective pen must be equipped with one or more constant level watering troughs, easy to clean and with heated water.

Depending on the food ration chosen, the collective box can be equipped with a feed trough at will and an automatic system for filling the concentrate with capacitive probes.

The resting area for this first phase up to 6 months of age is absolutely recommended on permanent litter with at least 4 m² / head.





Collective Pens

Management of the microclimate

Control of air quality and microclimatic conditions is also very important for these categories of animals. The barn that houses the after-weaning collective pens must be covered with an insulated roof covering, be equipped with an upper ventilation ridge cap and preferably covered on all sides with filtering nets with windproof and shading function and with automatic two-way opening up to down and vice versa to favour the natural exchange of air and manage the level of exposure of the animals to the sun's rays in the different seasons.



A VENTILATION SYSTEM WITH
DESTRATIFIERS WILL ENSURE
THE CORRECT LEVEL OF
COMFORT BOTH IN SUMMER
AND IN WINTER, REDUCING
THE RELATIVE HUMIDITY AND
FAVOURING THE DRYING OF
THE LITTER IN THE REST
AREA.



Collective Pens

Automatic feeder

To mitigate the stress due to the transition from individual hutch to collective pen after full weaning, it is possible to anticipate the transition by adopting the technique of group weaning with automatic feeders.

The result of this solution is not only linked to the goodness or otherwise of the machine (automatic feeding machine), but above all to its contextualization. It is essential, in fact, to provide a specific structure where the collective pens are organized with the STATIC technique and with blind dividers such as to make it possible to create completely full-empty and guarantee ideal hygienic-sanitary conditions for the calves reared. With this ideal solution, the calves shall be reared for their first 10/15 days of life in the individual hutches, which must have all the characteristics above mentioned, and then they shall be transferred to collective pens with the same logic of subdivision into groups and with the same construction types described for post-weaning pens

The further advantage that is obtained by forming collective groups at 10/15 days, that is with subjects easier to bring together, is given by the lack of accumulation of stress due to the change of diet, which shall allow for even more important weight gains, as well as 1000 g / day.





Automatic Feeder Management

The solution of weaning pen with automatic feeding machine allows to extend the milk intake time from 8 weeks up to 11 weeks.

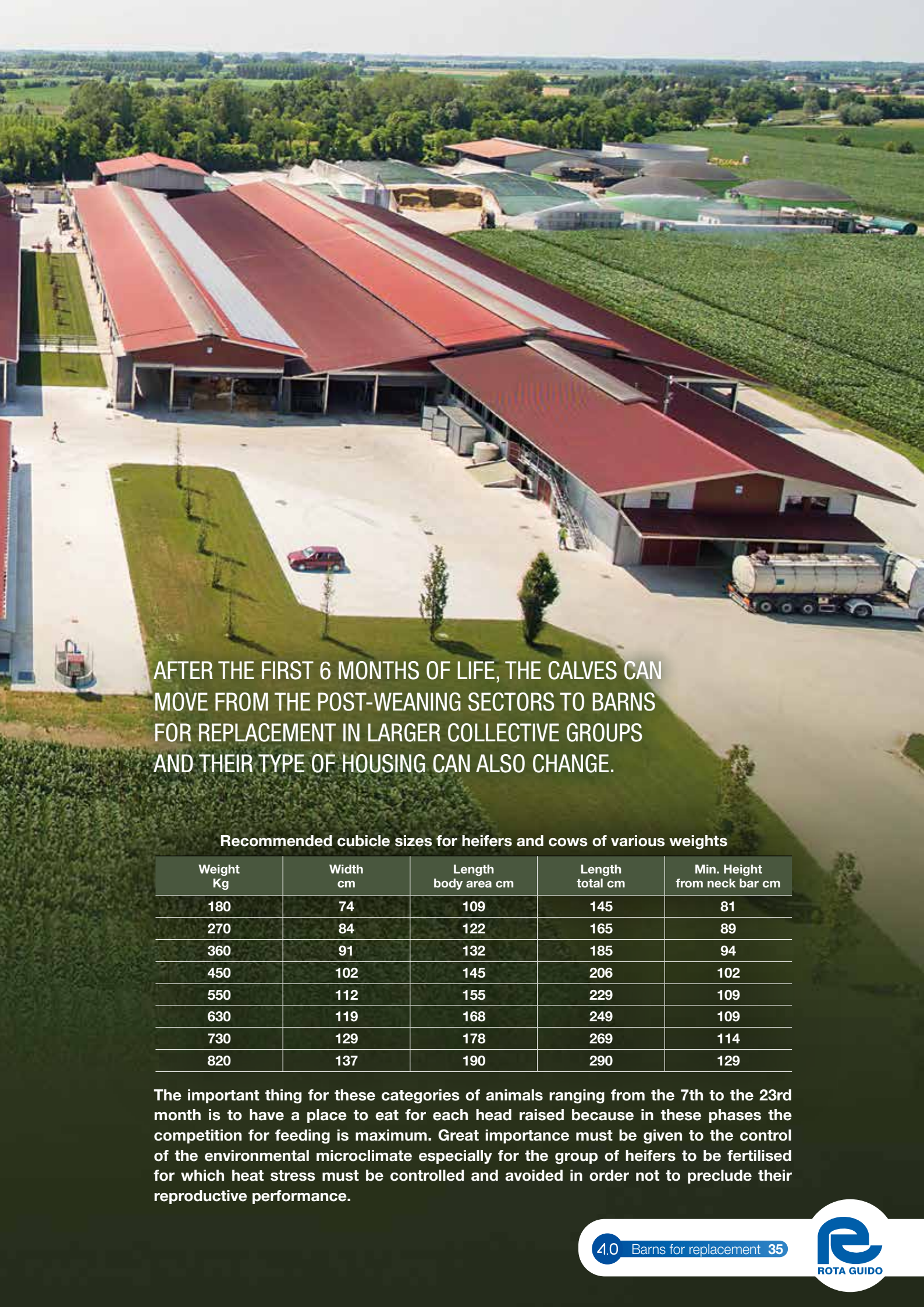
The number and capacity of collective pens must be studied by calculating that the correct technique for stress reduction is to move the animals at least 2 weeks after weaning is completed, i.e. at about 90 days of life.



Barns for Replacement Solutions and dimensioning

The resting area, in particular, can change from bedding to cubicle. If choosing to keep the resting area on bedding, the surfaces must progressively increase from 4 m² / head up to at least 8 m² / head. The housing solutions with cubicle include tail-to-tail or head-to-head cubicles, with mattresses or bedding depending on the farm organization and the availability or not of straw or separate composted and sanitized solid fraction. The latter are absolutely preferred for heifers after their first insemination. The cubicles for heifers after 6 months also function as a training moment and reduce the stress of moving from the gestation group to the lactation group.





AFTER THE FIRST 6 MONTHS OF LIFE, THE CALVES CAN MOVE FROM THE POST-WEANING SECTORS TO BARNs FOR REPLACEMENT IN LARGER COLLECTIVE GROUPS AND THEIR TYPE OF HOUSING CAN ALSO CHANGE.

Recommended cubicle sizes for heifers and cows of various weights

Weight Kg	Width cm	Length body area cm	Length total cm	Min. Height from neck bar cm
180	74	109	145	81
270	84	122	165	89
360	91	132	185	94
450	102	145	206	102
550	112	155	229	109
630	119	168	249	109
730	129	178	269	114
820	137	190	290	129

The important thing for these categories of animals ranging from the 7th to the 23rd month is to have a place to eat for each head raised because in these phases the competition for feeding is maximum. Great importance must be given to the control of the environmental microclimate especially for the group of heifers to be fertilised for which heat stress must be controlled and avoided in order not to preclude their reproductive performance.

Pregnant Heifers

The main goal is to have a replacement of no more than 30% and a health and reproductive status such that within 24 months all the heifers have given birth.

Calf diseases are gastrointestinal within the first 15 days, then respiratory diseases develop from the second to the fifth month. Ideally, the heifers shall give birth at the age of 23/24 months with a pre-calving weight of 600/650 kg and a body condition score of at least 3.5 and that has recorded a daily weight gain of at least 900/1000 g. At the time of the first insemination, the heifer must weigh at least 2/3 of its calving weight, that is 370/420 kg, and must be at least 125/130 cm high at the withers.

EACH STAGE IN THE LIFE OF THE HEIFERS IS CRUCIAL TO THE SUCCESS OF THE FUTURE DAIRY COW.

The difference between good and bad management of the heifers determines a difference in production of up to 700/800 kg of milk in first lactation, in favour of the heifers who gave birth before 24 months of age.

Replacement rate and number of heifers on the farm in connection to the age at first calving:								
Needs of heifers on the farm every 100 cows								
Average age at birth for the primiparous								
Replacement rate	Average age at birth for the primiparous							
	23 months	24 months	25 months	26 months	27 months	28 months	29 months	30 months
20%	38	42	48	52	56	61	63	67
22%	42	46	54	58	63	67	69	73
24%	46	50	58	63	67	71	75	81
26%	48	54	63	69	73	77	81	87
28%	52	58	69	73	79	83	87	94
30%	56	63	73	79	83	89	94	100
32%	61	67	77	83	89	96	100	106
34%	63	69	83	87	94	100	106	112
36%	67	73	87	94	100	106	112	121
38%	71	77	92	98	106	112	118	127
40%	75	81	96	104	110	118	125	133



Conclusions

“Weighing the heifers, constantly checking their state of health and how their weight gain is proceeding is no longer an option but rather a necessity with significant economic repercussions.

It is absolutely essential that the calves and heifers for replacement are managed at best from their very first hours of life, both in terms of nutrition and comfort, as for the future success of the farm production, reproduction and health are no longer an option but more an absolute necessity”.



ROTA GUIDO systems and technologies, thanks to the management techniques applied both individually and as a whole, are among the assets that can take advantage of the facilities provided by the 2021 Stability Law (Article 1 in paragraphs 1056 and 1058 of Law 178/2020) for Industry 4.0 managing to further facilitate the adoption of innovative solutions by the farmer.



Our Know-How At Your Service

"DEAR BREEDERS, THANKING YOU FOR YOUR ATTENTION, WE INVITE YOU TO CONTACT US FOR ANY OF YOUR NEEDS.

WE ARE HAPPY TO FIND WITH YOU THE BEST SOLUTIONS FOR THE FUTURE OF YOUR FARM".





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