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EVOLUTIONARY BASES OF MATERNAL-BRANCH BEHAVIOR IN CUTTING CATTLE

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Abstract: Failures or delays in ingestion of colostrum by calves shortly after birth elevates their risks of death. Success in breastful rapidly after birth is dependent on intrinsic factors to the calf, the behavior of your mother, and environmental causes. In this article, a review of literature is presented for the establishment of behavioral patterns in maternal-affiliated relationships that have an impact on calf survival, under evolutionary focus.
Keywords: Behavioral patterns, behavioral genetics, calves, environment.

LITERATURE REVIEW

The behavioral patterns of cows and calves during the perinatal period are important elements for the adaptation of the neonate to the new environment to which it is exposed. For this, it is necessary for the calf to get up and start to nurse as soon as possible. The mother's care at this time are of great value, standing out acts like licking the calf (which, among other benefits, can encourage him to get up) and remain stopped when the calf tries to nurse.

From an evolutionary point of view, we know that in mammals, maternal care interferes for the individual's own reproductive success determined by the number of direct descendants that survive (Wilson, 1975). However, it is not yet known what factors determine the limits of maternal investment in relation to the calf. In bovine commercial creations, we always seek to minimize mortality, negative impact on activity profitability (among other factors). Data found in the literature reported pre-wager mortality values ranging from 3.3 and 26.8% (Reynolds et al., 1980; Olson et al., 1985; Gregory et al., 1991; Bunter et al., 2013; Hyde et al., 2020; Pires et al., 2020). However, even if it was not established what could be considered as an acceptable rate of mortality from the economic point of view it is assumed that the ideal value of this rate is zero (Cromberg & Paranhos da Costa, 1997).

In most species, the biggest percentage of deaths occurs in the early stages of life, being possibly an evolutionary strategy to avoid overpopulations of species and, consequently, imbalance. However, the rejection of the puppy by the mother, as well as the inability of the puppy in mammary, are intriguing behaviors, as they represent a biological denial of one of the high points of the evolutionary mechanism, which would be the perpetuation of the parents' genes, and Therefore, the population. In this context, failure in the process of breastfeeding in the early hours of life assumes importance in the production of bovine animals, since the occurrence of this event is associated with low serum concentration of immunoglobulins derived from the maternal colostrum (Edwards & Broom, 1982; et al., 1998), and consequently, to reductions in the survival rate.

There are a number of works related to maternal ability in bovine animals, often analyzing their genetic components. There are estimates of herbility of maternal ability, with values swinging between 0.11 and 0.36 (Brown & Galvez, 1969; Koch, 1972; Trus & Wilton, 1988; Cantet et al., 1988; ELER et al., 1994; Meyer, 1997; Dodenhoff et al., 1998; Dodenhoff et al., 1999). However, these measurements were generally performed indirectly, that is, the maternal merit is evaluated through the calf weight gain, not providing these works reports on specific characteristics of maternal and calf behavior resulting in higher survival rates.

On this theme (maternal-affiliate behavior that result in higher survival rates), in general, many scientific articles are found and, in addition, reports on breastfeeding failures found in the literature present considerable variation with each other. For example: Selman et al. (1970a) reported that 23% of the

calves failed in the first six hours of life; While Edwards (1983) registered 32%; Houwing et al. (1990) 6%; Ilmann & Spinka (1993) 13%; Lidfors (1994) 31.8% and Paranhos da Costa et al. (1997) found variation from 7 to 43% depending on the race considered. These results were obtained in different conditions of creation and with diverse races, and the variability found to be due to genetic, environmental effects and interactions between them.

The present study aimed to present a literature review related to the establishment of patterns of behavior in maternal-affiliates that have an impact on calf survival, under evolutionary focus.

In the following topics, several aspects of peri-natal behavior of cows and calves will be addressed, in order to highlight the existence of a pre-defined behavioral pattern, which usually leads (or is associated) to the highest chances of survival for the calf As well as highlighting the existence of variability in this pattern, associating the behavioral variability and the likelihood of survival for hereditary and environmental aspects, highlighted in the literature.

EVOLUTIONARY BASES OF MATERNAL-BRANCH BEHAVIOR

Parental care can be understood as attitudes assumed after birth by parents in relation to their children, in order to raise the chances of the survival of the latter and thus favoring the perpetuation of the species, being at least part of these genetically controlled behaviors (Grandinson, 2005). In general, parental care is given in order to maximize the reproductive success of parents, while puppies tend to require care to maximize their own reproductive success (Tokumaru, 1998). However, the author stated that parental care is extremely variable and may exist; be given by the male, by the female, or by both; They may vary between litters and between individuals from the same litter. Featuring, therefore, as one of the evolutionary strategies involved with the perpetuation of species.

The affirmative that parental care lead to the greater aptitude of the puppy, is based on the existence of positive correlations between the occurrence of such behaviors and the increase in the cub's survival rate as well as the reproductive rate of the parents. Thus, the recognition of the creature is fundamental so that it receives greater investment, there is a greater likelihood of the mother to attend to the calls of a puppy if she identifies it as her (Tokumaru, 1998).

Maternal behavior may be related to the reproductive value of a particular female, for example: very young females would have more to lose in terms of future reproductive potential, by committing their own health and well-being for the benefit of their puppies, while older females would be less likely to terminate maternal investments prior to time, as it might not be possible to produce another puppy (Fairbanks, 1997).

It is understood, therefore, that maternal-branch behavior can lead to differences in adaptive value of the puppy; There is no doubt that this behavior has been targeted by selective pressure, thus constituting an instinctive behavioral system (Bussab, 1998).

According to Falconer (1987), the way in which the natural selection operates on characteristics depends on the connection of these with the adaptive value, that is, the way measurable characteristics cause differences in adaptive value. This was defined by the author as a "functional relationship" between the characteristic and adaptive value. There are characteristics that are as important for survival, which do not allow the existence of variability. The behavior of the puppy in breastfeeding, for example, is part of the "make up" genetic of mammals, not admitting

any segregation, because the individual who deviate phenotypic and genetically, comes to death, since he can not feed himself (Fries & Albuquerque, 1998). There are a trend of low herds estimates for more connected features to the adaptive value (Falconer, 1987). This probably means that these characteristics are contained in the general average, which covers the effects of genes that are not segregating, because they are already fixed in the race, not causing phenotypic differences between the observed individuals (Fries & Albuquerque, 1998).

The study of maternal behavior, as well as behavior in general, has been strongly influenced by the theory of evolution, which is based on the existence of variability in certain characteristics and in selection pressures (natural selection) acting on individuals, giving rise to differences Adaptive value. However, while the death of individuals is an essential part for the occurrence of evolution, why are greater probabilities of death in very new and old ages (Klopper, 1968)? Possibly, the great mortality observed during the early days of life for most species, have the function of a "filter", with the aim of eliminating "unworkable" mutations before this generation to play, avoiding these characteristics are passed on. In addition, considering that the puppy is not able to survive, the faster the death occurs, the lower the parental investment and more promptly there may be new gestation. On the other hand, the life duration of individuals in a population may also be related to the "evolutionary phase" in which it is. Under this approach, in more stabilized populations, the greater longevity trend may indicate that the system is suitable for current conditions, not necessary (perhaps neither desirable) major changes, unlike non-adapted populations, wherein a lower range of generations It would be very beneficial, also favoring the emergence of genotypes in greater numbers and variability, increasing the probability of adaptation to existing conditions.

Another type of selection occurs when there are variation between populations of the same species that occupy different parts of the same habitat (Partridge, 1983). This possibly relates to the individual behavioral variations observed. For example: in a herd under extensive conditions, the existence of more attentive individuals (sentinels) can elevate the chances of survival of the herd as a whole. On the other hand, this type of behavior probably does not lead to better reproductive and productive performance, leading less number of these individuals in the population (depending on the environment), leading to equilibrium. Perhaps the adaptation value of a population depends on some degree of variability between adaptive values, even if some patterns are not as efficient for survival and perpetuation.

According to Fraser & Broom (1994C), the classification of a mother on a group dominance scale can influence her maternal abilities, especially where there is restriction of food resources. Schider & Distl (1994) observed differences between bovine races regarding the social hierarchy, on extensive system. For one of the races (highland) there was a need for larger area per animal, in order to allow access to food and water for those of low social hierarchy; While the other race (Galloway) could be accommodated in a more restricted area. It must be noted that none of the pastures had low forage quality or was subject to worse climatic conditions.

The selection pressure acts especially intense in periods of extreme stress, stimulating the regulatory system of the organism. Under these conditions, the genome can act as a reactive system, capable of producing variability (Badyaev, 2005; Belayev & Borodin, 1982 Apud Trut, 1998). This mechanism may be activated at birth, as

a result of the great stress of this phase.

In any case, in productive systems, we always seek to minimize the effects of natural selection, as mortality has strong negative impact from the economic point of view. Thus, with domestication, man started to interfere with the adaptive value of some species. However, artificial selection practiced by creators can only add their demands to previously existing natural selection, as it can not be completely removed. This is a fact that may deserve attention, because in the development of the theory of quantitative genetics, it is assumed that the natural selection is absent (BEELARTZ & NITTER, 1988). However, survival rates of different races and crosses can be measured, providing a gross but absolute measure of adaptation (SIMM et al., 1996).

INDIVIDUAL DIFFERENCES IN MATERNAL BEHAVIOR AND POSSIBLE CONSEQUENCES FROM A REPRODUCTIVE AND PRODUCTIVE POINT OF VIEW

Individuals are classified as belonging to the same species, when they have common characteristics and when the "middle individual" of a group (the species) differs significantly from the "average individual" from other groups. However, this "average individual" is, in reality, a man-created art, being fundamental for understanding the behavior of a species the variations that occur in the behavior of individuals (or a random sample of individuals) contained in a given population (Tryon, 1934). Thus, there would be four aspects to be focused on the study of individual differences: a) In what extent individuals are consistently different from each other, and how constant are these differences throughout their lives; (b) in which extent this variation is related to physiological and morphological differences; c) In that extent this variation is caused by differences in the genetic constitution rather than experience and d) in which extent the individual differences in a type of behavior correlates with individual differences in other types of behavior.

Apparently, the actual causes of behavioral differences are extremely numerous, complex, and fundamentally related to differences in the relations between the nervous system and the sensory and motor structures (Tryon, 1934).

Individual variations in maternal behavior may be consistent over time, and it is possible to identify the existence of maternal styles in the care of the calves and can also differ between the same mother's nurses and is often altered with the age and experience of this, and the behavioral variability be related to expression of differences in temperament between adult females, as well as related to a mechanism for transmission of individual differences through generations (Fairbanks, 1997; Stěhulová et al., 2013).

Mothers who are in marginal breeding conditions (the very young, very old and / or very thin) may have a greater rejection of the puppies than the average mothers (or wean them earlier), with greater likelihood of death for their Puppies (Fairbanks, 1997). Mammalian data suggest that when the food resource is severely restricted, making lactating females unable to maintain their live weight, mothers are more likely to reject and abandon their puppies (Clutton-Brock, 1991, Lee et al., 1991 Apud Fairbanks, 1997). In turn, mothers in the best conditions can also wean them before (puppies in the most early independence condition), but with the risks of death of very small puppies, and the advantage of their motherly style lead to higher fertility rates and minors Intervales between births, thus evidence that the mother's style influences the mother's future fertility and can also lead to individual differences in its progeny in

relation to temperament and responses to new situations, as well as the maternal behavior of adult daughters (Fairbanks, 1997).

Several studies have indicated that very protective or anxious and restrictive mothers produce relatively fearful and careful children when confronted with new and different situations (Fairbanks, 1997). However, in environments with potentially lethal predators or physical characteristics, a certain degree of care would be advantageous. Already a puppy that has more initiative in exploring the environment around him, would have greater chances of survival in the case of his mother's death (Fairbanks, 1997). Church & Hudson (1995), studying behavior to red deer (Cervus Elaphus), observed that the children of mothers who had greater escape distances, presented lower latencies to stand than the children of less reactive mothers.

The most serious consequence of the variability in the maternal style for the progenie is mortality (Fairbanks, 1997).

ONTOGENESIS: AIMING FOR GREATER CHANCES OF SURVIVAL

Development is a continuous process, where every stage the individual needs to behave in a proper way if he wants to survive. For the young animal, this often means behaving very distinctly from the adult (Slater, 1983).

The muscular system of a newborn calf is the mechanism by which it converts its limited energy reserves into the necessary mobility to seek the resources it needs to survive, where the relative weights of the individual muscles were determined in the course of the evolutionary process, to provide basic needs to the newborn animal. Needs these different from those of an adult animal, therefore occurring a transition to the relative weight of the muscles as the animal grows, determined by the ontogenesis environment, so that during the perinatal phase, it is important that the calf has well developed muscles of the legs, as well as the muscles of the head, especially those of the jaws, in order to ensure their survival (Luchiari Filho, 2000).

ESTABLISHMENT OF MATERNAL-SUBSIDIARIES

In bovine animals, as well as in other mammals, the relationship between mother and child begins very early, usually in the early days after conception. The embryos, in the uterus of the female, promote direct maternal-fetal communication, through hormones, nutrients and physical movements of the last (Brown, 1998). The presence of nerve transmitters and their receptors or equivalents were detected not only during the first cell divisions but also in the gametes, having these embryonic neurotransmitters distinct functions in the different stages of development (Trut, 1998).

According to Kolb (1984), the influence exercised by the embryos on the mother occurs shortly after the passage of them to the womb, when the endocrine glands of the fetus assume its function, highlighting the stimulus of estrogen synthesis by the embryo, which is a to inform the endometrium of your presence, which is important for maintaining gestation.

Variations in the general structure between maternal-branch hormone relations established during the prenatal period can lead to changes in gene transcript, modification in cellular metabolic rates and inhibitory, stimulatory or synergistic interactions with other hormones (Dufty et al., 2002).

Both the luteum body, such as the placenta and the fetal adrenal gland contribute to the production of progesterone in the Cow PRESTE (PETERS & BALL, 1995). According to Violin & Bouissou (2001), since progesterone is a hormone known to mediate emotional reactivity, behavioral changes can

be expected in the parturient as a result of fetal hormonal production.

With birth, there is a major change between the existing maternal-affiliate relationship until then and to which it begins at this time. The maternal attitude towards the puppy indicates to be a recognition of this as an extension of its own (Fraser & Broom, 1994C). As the authors, the puppy facilitates the contact with the mother to demand assistance and care and in trying to breastfeed, being these actions rewarding to the mother.

The parturient cow has its behavior altered by the action of hormones, which induce maternal motivation. In addition to the action of these hormones, the stimuli produced by the puppy also facilitate maternal behavior (Brown, 1998). The cleaning behavior (licking the puppy) seems to be influenced by the action of prolactin, mediator of much of maternal behavior, being this, together with other hormones of same phylogenetic origin, such as growth hormone (GH) and placental lactogenes, important for the expression of maternal behavior (Felicio, 1998).

Differences observed in maternal behavior, such as readiness to initiate the care and intensity of any rejections, can be attributed to individual differences in mother temperament and also of reproductive experience, so that females of mammals in general are better mothers after Second grain. Thus, there are apparent specific physiological bases for this behavioral adjustment (Fairbanks, 1997, Felicio, 1998). Sensitivity to inhibitory substances of maternal behavior varies with reproductive experience, making themselves the experienced mothers much less sensitive to these (Felicio, 1998). According to Brennan & Keverne (1997), the first maternal experience has long-term consequences, so that the sensitive period for the recognition of the puppy is much lower in subsequent births.

Vagino-cervical stimulation at the time of childbirth releases oxytocin, which produces action on the olfactory bulbs (Brown, 1998). According to Brennan & Keverne (1997), olfactory stimuli produced by the puppy on the mother seem to be one of the most potent for the facilitation of mature behavior in mammals. These authors also stated that the development of the olfactory system is dependent on synaptic plasticity, thus occurring very rapidly in the postnatal period - characterized by high neural plasticity, with indications that this period lasts around two to four hours post- delivery. This phenomenon would facilitate the recognition and formation of maternal-branch bonds.

Olfatory routes, according to Brown (1998), present estrogen receptors that are involved in the control of maternal behavior. Thus, estrogen, acting in the amide, can reduce the neophobic response to the puppies (by the mother), inhibiting the behavior of avoidance and facilitating approaches to approach and contact them, favoring maternal behavior. The author also emphasized that the activation of amynamics not only increases fear and aversive behavior, but also inhibits maternal behavior.

Aversive and escape responses can occur in function of new or aversive odors, with retraction and fear reactions in response to the odors associated with puppies in mouse virgin females, and this fact can also be observed, with a certain frequency, in bovine mothers inexperienced. However, as odors become more familiar, the activity of ammídala decreases, and a lower aversion is presented (Brown, 1998).

Hormones related to fear and pain seem to be involved in acceptance by the mother's approach to the inguinal region (potentially unprotected against predators) and breastfeeding actions, hypothesis that was partly supported by the finding that

noradrenaline is involved in release of prolactin and oxytocin (Brown, 1998).

Some patterns of instinctive behavior can be modified by experience. However, other innate behaviors are very rigid, and experience has little effect on them. Mamar behavior is one of these not vary (Grandin & Deeping, 1998). That is, those who do not present it, do not survive. However, strategies and ability to locate ceilings and nursing, they seem to present some degree of variability.

THE PRE-LABOR PERIOD

The behavior of the animal in training (fetus) is dependent on major neural programs for postpartum survival (Cowman, 1979, Apud Fraser & Broom, 1994a). Early Neonates, such as calves, are exposed to sensory stimulation before birth, being likely to stimuli positions, gravity, tact, smell and taste occur intra-uterinately (Fraser & Broom, 1994a).

During gestation, autonomous fetal movement is an important element for the development of this, being related to the establishment of muscle tone, occurring more intensely in the areas of the body that play a fundamental role during childbirth and soon after birth, which are the neck, front and rear paws and the jaw. Thus, in pathological conditions of the fetus - associated with reduced fetal energy, muscle underdevelopment is a frequent finding (Fraser & Broom, 1994a).

With the approximation of birth, the fetus increasingly performs a pattern of movement that will lead to its correct positioning in childbirth, consisting of rotation in 180s, targeting the head to the maternal pelvis; passage from the dorsal decubitus to the ventral; extension of previous legs; and elevation of the neck and head. If this training is not performed properly (intrauterinally), fetal positioning to childbirth can be abnormal, thus leading to the distoccy, which does not depend only on maternal compressive forces. The evil positioning of calf to childbirth is more common in weak, dead or extremely large calves, and the standard of prenatal activities have an evolutionary and adaptive meaning, making only those fetuses capable of performing the movements adequately survive Birth and post-natal changes (Fraser & Broom, 1994a; Drast, 1994).

With the approach of childbirth, several changes are occurring in the endocrine functions and hormonal concentrations, both in the cow and in the calf, highlighting the importance of maturation of the fetus adrenal glands (Kolb, 1984).

The natural elevation at the concentration of fetal cortisol, which occurs at the end of gestation, is involved in the slowdown in the growth of the fetal at this stage, which is associated with the process of adapting fetal tissues, necessary for neonatal survival (Kolb, 1984; FOWDEN ET al., 1996 apud robinson et al., 1999).

Deviations in fetal hormonal standards, during the final stage of bovine gestation may indicate altered fetal well-being, since in situations such as abortions, decks and distoccies there are record of deviations regarding the standard hormonal profile, and it can be assumed that the vitality of the calf an important role in Natimorto's syndrome (Kindahl et al., 2002).

THE DELIVERY PERIOD

Commonly, maternal behavior begins a few hours before childbirth, when cows have changes in their activities, proving uneases, often interrupting routine activities (such as food intake), often moving away from the herd or moving to the periphery Of the same, you can look for shelter sites like woods, shrubs and higher grass. There are indications that these behaviors bring advantages, given the risk of interference from other cows and

the best opportunity for the development of the bond with the neonate, as well as hiding the calf of potential predators. This behavior can vary greatly between individuals, possibly due to differences between races, experience and breeding systems (intensive x extensive), in addition to the architecture of the labor site - pasture or picket (Worthington & La Plain, 1983; Fraser & Broom, 1994b; Incarnation et al., 1995; Paranhos da Costa et al., 1996). In a study, comparing responses of fear between pregnant and non-pregnant sheep, Violin & Bouissou (2001) observed a reduction in fear response presented by the first to be isolated from the herd (remembering that herbivores, because they are potential prey, usually feel fear when they become isolated flock). This could be related to the condition of the parturient isolate at the time of childbirth.

Immediately before childbirth, increasing impatience, culminating, mostly, in erratic behavior, walking and / or trotting, arching his back, laying down and rising, walking in circles, with behavioral evidence of pain during the last Pre-delivery phase, possibly serving to signal to the cow the events that will succeed, ensuring complete attention and full participation in this in the birth process (Worthington & La Plain, 1983; Fraser & Broom, 1994b).

It is believed that signs of discomfort and restlessness usually do not appear while the cervix has not been dilated, being common for the presentation of a mild dorsal ventilation at this time, although the definitive contractions (abdominal pressure) do not begin while the CorioLantoDeana has not Approximate vulva (Drast, 1994). The author also highlighted that the hydrostatic pressure of the fluids contained in the intact scholarship assists in the complete dilation of the cervix, with a temporary pause in contractions shortly after the rupture of the scholarship, which resumed when the amniotic bag is approaching the vulva, providing the fluid of this, when broken, lubrication for the expulsion of the fetus. Usually, the preparatory stage of childbirth, during which pelvic ligaments loosen and cervix dilates, lasts between 4 and 24 hours, presenting a tendency to decrease in subsequent delivery, with the average interval between the rupture of the two purses around One hour (Kolb, 1984; Drast, 1994; Peters & Ball, 1995). Normally, the cow does not move away from the place where amniotic fluids fell (Worthington & La Plain, 1983).

Changes in the fetal development pattern can be critical at this stage. About a month before birth, cortisol secretion by the fetus induces maternal placental enzymes to synthesize progesterone in estrogen, accentuating the reduction in progesterone concentration in the two or three days preceding childbirth. Thus, the secretion of fetal corticosteroids, through the stimulus exercised on the secretion of placenta estrogens, stimulates the synthesis and release of PGF-2 by the maternal endometrium, thus stimulating the luteolysis, which releases the pre-formed relaxin in the luteum body, related to the relaxation of cervix and also to control the activity of myometrium before and during childbirth (Kolb, 1984). In the bovine species, the complete elimination of the progesterone occurs 12 to 24 hours before delivery and although it is essential to childbirth, it is interesting to emphasize that the elimination of progesterone itself does not trigger, being the release of PGF-2 to Luteolysis and coordination of myometrium contractions (muscular layer of the uterus), sensitizing it to the action of Ocitocin, which stimulates contractions during childbirth (Kolb, 1984; Cunningham, 1993; Peters & Ball, 1995; Kindahl et al., 2002).

The cow's body condition may interfere with the childbirth process, since fat pregnant females are predisposed to submit weak

contractions (Kolb, 1984), while very thin cows may not have the energy required to perform the task accordingly.

Cow's posture while pairing can vary considerably. Frequently, during the first stage of parition, the cow alternates repeatedly between lie and lift, remaining initially for most of the time; usually positioning a lateral decubitus for the exposure of the head and previous legs and, for the final expulsion efforts, they often raise members who are not supported in the soil, frequently completing the expulsion in sternal decubitus, and may occasionally remain in Standing or walking during this phase, generally finalizing childbirth (umbilical cord breakup) when standing up, having been reported that most cows that stop easily remain lying down until the calf body has been exposed (Fraser & Broom, 1994b). Comparing the positioning to the childbirth of 175 cutting cows to the mortality of its calves until the four months of life, Schmidek et al. (Not published) observed 4.2% mortality between births with lying cows (82% of total), and 16.1% among cows that stopped standing (18% of total).

The complete expulsion of the fetus through the cervical channel under normal conditions between half and four hours, usually occurring decreased from this period with the increase in the number of births (Kolb, 1984; Peters & Ball, 1995; Fraser & Broom, 1994b). Edwards (1982) observed that the duration of childbirth presented an average of 75 minutes for heifers and 36 minutes for cows, with also positive correlation ($p < 0.01$) between the duration of childbirth and the latency for the calf to rise after the birth.

The last stage of childbirth comprises the expulsion of the fetal membranes and initial involution of the uterus, occurring the expulsion of the placenta normally between 4 and 5 hours after childbirth and must not exceed 24 hours, and is then indicative of placenta retention (Kolb, 1984; Cunnignham, 1993).

THE POSTPARTUM PERIOD

During this period, both the cow and the calf carries out a series of standardized behaviors, which must occur so that the calf obtains food and immunity, raising their chances of survival.

The cow has neonate-oriented behaviors, which are important for the calf adjustment to the new environment, highlighting transformations occurring in the respiratory, thermoregulatory and muscular systems (mainly members, neck and jaw) of the latter. Maternal behaviors focus on smelling it and licking it, being the readiness to initiate them and their intensity dependent on stimuli emanating by the neonate, as well as interactions between genetic, physiological and previous experiences in puppies (Slater, 1983; Fraser & Broom, 1994b; Fraser & Broom, 1994c; Lawrence & Fowler, 1997; Paranhos da Costa et al., 1998).

Maternal-branch relationships favor the development of exclusivity bonds between cow and calf, which are established predominantly in the first three hours after childbirth, observing that, after this period, if no contact of the cow has not occurred with the Calf, there is a decline in the maternal interest by the neonate, with an increase in aggressive acts if it approaches (Edwards & Broom, 1982; Brennan & Keverne, 1997).

There is a certain pattern in the calf movement after childbirth. Soon after birth, as a rule, he is in lateral decubitus. Quickly, he raised his head and neck, performing movements of shaking and shakes his head sideways, flexes the front and rear paws, to lean sternally and on a thigh (Fraser & Broom, 1994b; Fraser & Broom, 1994d). Studies have shown that neonatal motility seems to stimulate maternal interest, which,

on the other hand, stimulates the neonate to direct their attention to the mother (Fraser & Broom, 1994b; Cromberg et al., 1997).

After the collection of the paws, the calf begins the elevation phase, where he tries to stand through a series of typical movements. The first time he rises, the calf has difficulty being balanced, invariably falling and rising again, with progressive increase in balance, remaining initially standing and static for some time, to then start the ambulatory phase, which consists of Slowly and still unbalanced displacement, step by step (Fraser & Broom, 1994d).

The latency for the calf to rise depends on the vigor of the calf, maternal care and ambient temperature, and may be high as a result of little calf force, very low temperatures, and associated with abnormal or maternal behavior, markedly in heifers (Edwards, 1982; Cromberg et al., 1997; Toledo, 2001; Bueno, 2002). There are reports of negative correlation (favorable) between latency to stand and the intensity and amount of contact between the cow and the calf during the first hour of life (Edwards, 1982; Lidfors, 1994; Cromberg et al., 1997). Similar relationship pattern was observed by Schmidek et al. (2001), but in relation to the latency to suck, finding significant differences as to the time when the cow took care of the calf between the group of those who suckled and those who did not suckle after 6 hours of life, indicating the benefits of maternal activity Success of the feed.

At this stage, when the calf begins the demand for the ceilings, it could be hypothetized that the reduction in the intensity of maternal care, as well as the permanence of the cow standing and practically static, would have beneficial effect for the calf, contributing to minimize the tumbles of this, serving the static maternal body as support for the calf (still unbalanced) to keep standing.

The ambulation carried out by the calf, usually takes place to locate the ceilings, which usually occurs through the tact and at smaller intensity by the smell (Costa et al., 1997; Fraser & Broom, 1994d). Observing dairy bovine animals, Ventrop & Michanek (1992) reported that only three calves, between 42, found the ceilings without looking for any other part of the cow's body, evidencing the use of another resource other than the tact in the location of the ceilings.

While the calf is active, the cow must not remain lying down, because it virtually impossible the access of the ceilings to the calf. Schmidek et al. (2001) observed significant differences ($p < 0.05$) in relation to the time in which the cows remained lying after childbirth, between the group of calves that maimed and those who did not maim after six hours of life. The time the cow remains lying down tends to increase over time after childbirth, which can take calves (Edwards & Broom, 1982). They may further evidence any problem in the vigor of the calf and / or in the delivery process (Barrier et al., 2012), which in turn can be interdependent.

The search for the ceilings appears to be partly supported by hunger, being clearly reduced after the intake of milk, voluntary or through stomach probe (Alexander & Williams, 1966). However, nursing attempts, apparently are not only answers in front of a need for food, and can reflect demand for comfort, since when lambs are alarmed, for example, they will quickly suckle their mothers (Fraser & Broom, 1994C).

The inductions of udder and ceilings have a strong influence on the location of these by the calf, highlighting the relationship between the height of the calf and the distance between the cow udder and the soil. Thus, in situations of cows with very pendulous udders, as well as very small calves associated with high esberes, there may be difficulty in the location and

seizure of the ceilings (ventrop & michanek, 1992).

When the ceilings are located by the calf, this usually attempts to sneer them. However, if the encounter and seizure of these is hampered, as in cases of very pendulous udders and very long and / or thick ceilings, attempts to meet them are decreasing and ceases after a few hours postpartum (Alexander & Williams, 1966A; Edwards, 1982; Fraser & Broom, 1994d).

The time required for the calf to be able to apprehend the ceilings may be longer in case of heifers as they have more frequently present aversive / aggressive behaviors targeted at their own puppy, making movements that make access to the udder, being possibly resulting from stress and fear caused by childbirth or novelty of the puppy. However, this usually occurs temporarily, ceasing to the extent that they become accustomed to the calf (Edwards, 1982, Slater 1983; Toledo et al., 2002). Schmidek (2004) highlights that primiparous that have presented bad or missing maternal care, often become great mothers of the second childbirth onwards, thus being questionable this reasons for disposal.

After apprehension of ceilings by the calf, this usually begins the suction and ingests the colostrum, with a mutual stimulation, with the cow licking the perianal region and the calf hip, while this breast and holds movements with the head against the mother's udder, massaging and stimulating the flow of milk (incarnation et al., 1995).

The ejection of milk may be hampered by factors such as adrenaline release, and this phenomenon is possibly more accentuated in primiparous cows, and cow adrenaline levels may also be associated with differences observed between more reactive cows, with respect to milk production and Weight gain from your calves (Fraser & Broom, 1994C).

The presence of the mother has a reassuring effect on the puppy, which is reflected in the most different levels (Bussab, 1998), and can be hypothetized that this effect, possibly associated with licks and vocalizations carried out by it, contribute to the reduction of cortisol level of the calf (usually high soon after birth) at appropriate levels, which would favor the immunization process, since high levels of peripheral corticosteroids can suppress the permeability of the small intestine, making it unable to absorb macromolecules, including immunoglobulins (stott et Al., 1976).

Despite being a necessary behavior for survival, not all sweetened calves. Edwards (1982), working with dairy cows, reported that 32% of the observed calves failed to suck on the first six hours of life. Similarly, Schmidek et al. (2001) reported 19.7% of breastfeeding, for guzerá breed calves. According to these surveys, the failures in the first feed varied according to: year of birth, childbirth age, birth weight, calf vigor, udder conformation, in addition to the behavior of seeking ceilings presented by the calf, the behavior of the cow in relation to the calf and other animals present at the time of childbirth.

After nursing, the location of the ceilings is reinforced, favoring the learning, since the feed is self-stimulating and, if not interrupted, it continues until the meal has been completed (Fraser & Broom, 1994C). After satiated, it is common for the calf to carry out exploratory activities of the environment around you, walking, running and jumping. After this phase of great activity and changes, the calf lies down and falls asleep. Sometimes if the calf is not vigorous enough, or if access to ceilings is very difficult, this phase occurs before the ingestion of colostrum. The cow, which had usually interrupted habitual activities (graze, mainly), returns to do so, usually in the vicinity of the calf. Other times she lies down beside the calf and seems to fall asleep.

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