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Prevalence of Primary Calf Diseases in Algeria

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Abstract: During 2005 to 2008 rates of births, mortalities as well as main disorders have been assessed in calves, using a systematic recording in a dairy bovine breeding. The average of mortality rate was 11.65%; the main cause was diarrhea especially during the first week of life, diarrhea remaining dominant during all year with peak reaching 60% in spring. Omphalitis were observed in 21% of the animals more than 46 days old while respiratory disorders oscillated between 5% during June, August and October and 13.48% in November and December with a 14.1% peak in February. During the few days following birth, arthritis reached 2% especially affecting individuals more than 31 days old (30%). The cutaneous disorder affected 9% of the animals of 7 to 15 days old and 2% of those between 31 and 70 days old. A better management of the breeding would reduce these troubles incidence.

Keys words: Calf · Mortality · Death · Omphalitis · Respiratory · Arthritis · Cutaneous · Diarrheas

INTRODUCTION

The dairy productions are confronted to multiple constraints that handicap exploitations profit. These are mainly pathologies affecting considerably the adult production level but also leading to growth losses influencing the future zootechnic performances of the progenitor.

Indeed, during neonatal period, the young ruminant is very sensible to several infectious especially due to its immunizing status.

In calves, the mortality rate varies between 15 to 30% [1, 2] with increasing rate during first week of life, consequently to neonatal gastroenteritis, pneumonias and septicemia.

The economic incidence is directly related to the possible animal losses and treatment expenses [3].

In Algeria, the neonatal diarrhea is the main causes of mortalities at the young calves [4, 5].

This study has been conducted to determinate the major health problems in calves which can be exploited in prophylactic program.

MATERIALS AND METHODES

The study carried 369 calves Pie-black race. These animals were followed during one year (2008) while available documents were consulted for the previous periods (2005-2006-2007).

The commemorative were collected with a pre established questionnaire postponing birth date, sex, nature and apparition date of disorders, administered treatments and probable cause of the mortality.

The identification of the affections was based mainly on symptomatic statements [6, 7]:

- Digestive disorders: diarrhea, indigestion, distension.
- Omphalitis: navel inflammation with or without pus.
- Respiratory disorders: cough, dyspnoea, nasal flow and lung affections.
- Locomotive disorders: lameness.
- Cutaneous disorders: alopecia

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RESULTATS AND DISCUSSION

The births were in gradual growth; the male births were slightly dominant representing 57.45% of the total (Table 1).

The follow-up revealed that the births occurred along the year long with an increase in spring and summer (46.61% and 26.55% respectively) (Table 2).

The births raised in spring and summer with 46,61 and 26,55% respectively of total births (Table 2), representing favorable seasons especially at the end of winter and beginning of spring favorable to births and to optimal calves growth [8, 9].

Moreover, mortalities rate reached 11.92% in autumn than increases to reach 16% in summer. Evolution of births and mortalities showed a mortality rate situated between 8.94 and 16.9 with an average of 11.65% (Table 1) probably directly linked with neonatal diarrheas (personal report).

A similar born rate and a mortality of 24,15% was reported by Bouzebda *et al* [5] in the same area, while in Ethiopia mortality reached 18.6% in calves less than 6-month old [10]. A high level in mortality rate (16,32%) was observed during summer, especially during July and august; in contrast what was observed in Great Britain where mortality was more accused from February till May, while in France the mortality was raised in November, December and January [11].

Table 1: Annual evolution of birth and mortalities

		2005	2006	2007	2008	Total
Birth	Males	42	49	55	66	212
	Female	29	35	36	57	157
	Total	71	84	91	123	369
Mortality		12	11	9	11	43
(%)		16.9	13.09	9.89	8.94	11.65

The mortality rates progressively decrease with a global average of 11.65%.

Table 2: Seasonal distribution in birth and mortality

	Automn	Winter	Spring	Summer	Total
Birth	44	55	172	98	369
%	11.92	14.90	46.61	26.55	100
Mortality	7	8	12	16	43
%	15.9	14.54	6.97	16.32	11.65

Table 3: Mortality age

Age (D)	0-6	07-15	16-30	31-45	46-70	Total
Mortality	13	6	7	6	11	43
%	30.23	13.95	16.27	13.95	25.58	100

This high relative mortality would be caused by a temperature rise as reported in Quebec [12] moreover it is superior to the 12.40% and 10% recorded by Ksouri and Bounab in the same region and in Morocco respectively [13, 14]. Such differences can be explained by hygiene standards and the sanitary follow-up.

The mortalities distribution by age bracket revealed high incidence in class lower than 6 days (30.23%), followed by those between 46 to 70 days (25.58%). Between 16 to 30 days mortality reached 16.30% (Table 3).

Concerning mortality by age interval (Table 3), we notice that mortality rate reaches 30.23% during first weeks of life in accordance with others studies [5, 15] while in Tunisia a considerably elevated rate was reported by Zrelli *et al*. [3]. This increased mortality during first days of life could be explained by the high incidence of mastitis decreasing considerably the produced milk amount and milk immunoglobulins concentration [16, 17].

The high mortality (25.58%) observed in calves between 46 and 70 days old would be explained by zootechnic bad conditions, but also, by the indigestions consecutive to a bad transition from milk towards grown-up regime or by complications of suppurated omphalitis insufficiently treated.

The neonatal diarrheas was the main recorded pathology as reported by Alemu and Zegeye [18] persisting during all year with peaks reaching 53 cases in November and March (Figure 1). The incidences over other months always remained high except in September and October.

Second position was occupied by omphalitis with a peak in summer period (36 cases). The locomotives disorders (arthritis) and respiratory, present all year long, were relatively less frequent (approximately 10 cases a month) while cutaneous troubles were rare or absent. The distribution of the pathologies according to the age (Figure 2) revealed that diarrhea was always dominant, but with gradual decreasing frequency from 68% the first week to 28% at 46-70 days.

The respiratory disorders (30%) occupied the third place after diarrheas except for those of included in 7 -15 days old (13%). However omphalitis and locomotive disorders, infrequent the first birthdays, progressed regularly to reach 21% and 30% respectively 46 days of the birth (Figure 2).

The cutaneous disorders reached their maximum (9%) during the second week.

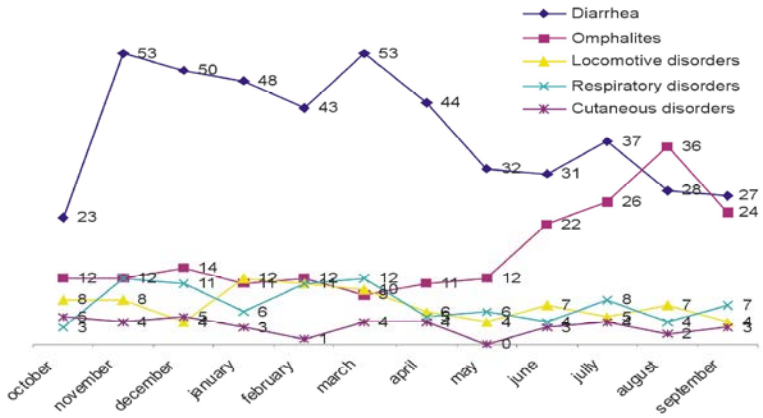

Fig. 1: Monthly diseases relative evolution

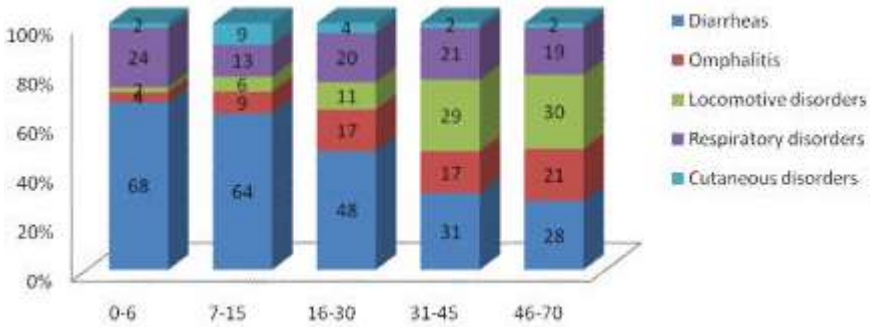

Fig. 2: Veal disorders according age (%)

The environment and breeding management are conclusive in the clinical expression of these disorders [11, 12]. The high temperature is involved in the release of the parasitic cycles and the bacterial multiplication [14], explaining partially the obstinacy of the diarrhea within the breeding. However, if the etiology diagnosis of neonatal diarrheas cases seems less important in order of individual treatment, it helps to determine the adapted actions in the herd [19].

The costs associated to the calf neonatal diarrheas include the time devolved to the treatment, the possible impact on the performances of growth and mortality. The calf neonatal diarrheas result of combination of unfavorable environmental factors, a low host immunity and infectious agents.

The omphalitis affecting especially calves between 30 and 70 days old are caused by the bad quality of the umbilical cordon disinfection, indeed we reveled the use of very irritating disinfecting products such as bleach or cresol which cause or maintain an important inflammation of the navel and delay its healing than increasing the possibilities of contamination [20].

It is important to indicate that omphalitis were frequently noticed concomitant with arthritis and umbilical hernias. This can explain the importance of omphalitis in the appearance of arthritis because the navel is a way of pathogenic agent's penetration [16]. The hernia is the final phase of omphalitis evolution due to umbilical wound embrittlement.

The duration and difficulty of calving favor appearance of umbilical diseases and cause cerebral anoxia in the newborn calf, who will put more time to get up, increasing contact time between umbilical cord and ground, which is particularly soiled during calving and also delays colostrum taking [21].

The most favorable periods in appearance of respiratory affections are spring and autumn as reported by Teysset [14], the temperature variation representing a favoring factor.

The cutaneous disorders, mainly alopecias are favored by cow diet revealed below zootechnic standards, further to absence of green feed (in touch with the drought) and ensilage [22]. The intolerance to maternal milk, observed sometimes, is an additional factor in appearance of alopecia [23].

CONCLUSION

It seems quite difficult to definitively conclude on veal morbidity and mortality in Algeria; some evaluation parameters result rather of clinical observations than objective evaluation using adequate material.

However, mortalities result from lack in medical care at veal birth, caw bad feeding during drying up, climate influence, quality of umbilical cordon disinfection but also an insufficient taking of colostrum.

A reduction of mortality and morbidity rates is possible only with improvement of cow feeding and calf housing conditions.

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