The Effects of Calf Births on Working Times of Farm Staff

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Abstract: In this study, it was aimed to determine the effects of calf births on working times of farm staff. The calf born time groups are planned according to the shift hours of the staff working in the farm, and this sorting of the shift hours were as follows: 16:01 - 24:00 for evening, 24: 01-08: 00 for night, and 08:01 - 16:00 for daytime. In this study using 262 heads calves, the effect on the calf birth times of the breed (Brown Swiss, Holstein Friesian), the sex (male, female), the season (spring, summer, autumn, winter), the dam age (2-4, 5-6, 7+ years), the birth weight (21-35 kg, 36-45 kg, 46-57 kg) and the birth year (2008-2009-2010-2011 years) were examined. When the effect of these factors on staff shift hours is examined; only a statistically significant effect of the breed was found ($P < 0.05$). The proportions of calf births were 30.2% in the evening shift, 42.4% in the night shift and 27.5% in the day shift. In terms of both breeds, calf birth is mostly at night. In terms of other shift hours, it was observed that Brown Swiss calves were born during daytime (32.9%) and Holstein Friesian calves were born in evening (35.6%). As a result, farms should arrange experienced staff to intervene, especially at night hours. Besides, for farms, it is recommended that the staff is more carrefully selected in the daytime times is for Brown Swiss calves and in the evening time for Holstein Friesian calves.

Keywords: Calf, Birth, Staff, Time, Farm

Introduction

A lot of well-planned herd management programs; optimizing calf losses and increasing the living power of the calf. In terms of farms, herd management program and barn design should be prepared according to the facilities and requirements of the farm. A successful herd management can be realized with well-designed barns, a very good record and follow-up system (Ağaoğlu and Ağaoğlu, 2012).

Malfunctions in dairy farming enterprises, herd management and control of fertility are causing great financial damage to enterprises (Kaygisiz, et al., 2008). In scientific researches; it has been shown that errors in herd management programs in calf losses play a role as well as diseases (Doornbos et al., 1984; Bellows et al., 1988).

In order to successfully implement the preferred herd management program in an enterprise, it is necessary to set up the farm in accordance with this (Ağaoğlu and Ağaoğlu, 2012). Considering the global dimension as well as all over the world in Turkey is widespread medium or large-sized businesses (Öcal, et al., 2015). Due to this change in the manner of breeding, the practices and practices of calf care and feeding also vary.

In an operation, the most critical period in calf care is the postpartum first 24 hours (Gundelach, et al., 2009). A birth where everything goes well does not really need any help. Observation of the birth, hygienic and preventive measures taken quickly is sufficient. However, if it is day or night, it is a process that must be followed (Lorenz et. al., 2011; Aslan and Gümen, 2012)

In this study, it was aimed to determine the effect of calf birth on the working times of the farm personnel. In accordance with this purpose, season, breed, gender, dam age, body weight and years effects on calf birth time were investigated.

Materials and Methods

Calf birth time groups are planned according to shift hours of personnel working in the farm and accordingly, It is grouped in the evening from 16:01-24: 00, at night from 24:01-08: 00 and during daytime calf birth at 08:01-16: 00.

In this research using 262 calf (female:118, male: 144) data in Atatürk University Veterinary Faculty Livestock Research and Implementation Unit,
-Season of calf birth(Spring, Summer, Autumn, Winter),
-The breed of calf (Brown-Swiss, Holstein),
-Gender of calf (Male, Female),
-Dam age of calf (2-4 years, 5-6 years, 7+ years)
-Birth body weight of calf (21-35 kg, 36-45 kg, 46-57 kg)
-The effect of the birth years of calf (2008-2009-2010-2011) was examined.

Data related to the effect of treatments were analysed by Crosstabs using the Descriptive Statistics procedure of SPSS Statistics 20. The chi-square test is used to assess whether the distribution of intermittent variables differs from one another (Kılıç, 2016). For this reason, the Pearson Chi-square test was used to determine the difference between the variables in this study.

Results and Discussion

When the results of this study are examined, the proportions of calf births were found that 30.2% in the evening shift, 42.4% in the night shift and 27.5% in the day shift. When the factors affecting calf birth time or staff shift times are investigated; The effects of season, breed, gender, dam age, birth body weight and years are shown in Tables 1, 2, 3, 4, 5 and 6, respectively.

Table 1. The effect of season on calf birth

Birth Time		Season				Total
		Spring	Summer	Autumn	Winter	
16:01 24:00	n	19	14	20	26	79
	% within birth time	24.1	17.7	25.3	32.9	100
	% within season	29.2	21.2	37.0	33.8	30.2
	% of Total	7.3	5.3	7.6	9.9	30.2
24:01 08:00	n	29	33	19	30	111
	% within birth time	26.1	29.7	17.1	27.0	100
	% within season	44.6	50.0	35.2	39.0	42.4
	% of Total	11.1	12.6	7.3	11.5	42.4
08:01 16:00	n	17	19	15	21	72
	% within birth time	23.6	26.4	20.8	29.2	100
	% within season	26.2	28.8	27.8	27.3	27.5
	% of Total	6.5	7.3	5.7	8.0	27.5
Total	n	65	66	54	77	262
	% within birth time	24.8	25.2	20.6	29.4	100
	% within season	100.0	100.0	100.0	100.0	100
	% of Total	24.8	25.2	20.6	29.4	100

The effect of the seasons on calf birth times is examined in Table 1; it was observed that calf births were in the morning, winter and summer months at night shifts, and autumn months at evening shifts. However, statistically, the seasons have no effect on calf birth times or staff shift times (P>0.05). In livestock farming where extensively animal raising in general, births take place in spring (Akçapınar and Özbeyaz, 1999). In this research, calf birth was observed in every season as it was carried out in an intensive animal raising.

Table 2. The effect of breed on calf birth

Birth Time		Breed		
		Brown-Swiss	Holstein	Total
16:01 24:00	n	43	36	79
	% within birth time	54.4	45.6	100
	% within breed	26.7	35.6	30.2
	% of Total	16.4	13.7	30.2
24:01 08:00	n	65	46	111
	% within birth time	58.6	41.4	100
	% within breed	**40.4**	**45.5**	42.4
	% of Total	24.8	17.6	42.4
08:01 16:00	n	53	19	72
	% within birth time	73.6	26.4	100
	% within breed	32.9	18.8	27.5
	% of Total	20.2	7.3	27.5
Total	n	161	101	262
	% within birth time	61.5	38.5	100
	% within breed	100.0	100.0	100
	% of Total	61.5	38.5	100

The effect of animal breeds on calf birth times is examined in Table 2; both breeds (Brown-Swiss and Holstein) were more likely to have been born during night shifts. Statistically, there was also a significant effect on calf birth times or staff shift times of animal breed (P<0.05).

Table 3. The effect of gender on calf birth

Birth Time		Gender		
		Female	Male	Total
16:01 24:00	n	39	40	79
	% within birth time	49.4	50.6	100
	% within gender	33.1	27.8	30.2
	% of Total	14.9	15.3	30.2
24:01 08:00	n	50	61	111
	% within birth time	45.0	55.0	100
	% within gender	42.4	42.4	42.4
	% of Total	19.1	23.3	42.4
08:01 16:00	n	29	43	72
	% within birth time	40.3	59.7	100
	% within gender	24.6	29.9	27.5
	% of Total	11.1	16.4	27.5
Total	n	118	144	262
	% within birth time	45.0	55.0	100
	% within gender	100.0	100.0	100
	% of Total	45.0	55.0	100

The effect of calf genders on birth time is examined in Table 3; both genders (Female and Male) were more likely to be born during night shift hours. However, statistically, calf gender had no effect on calf birth times or staff shift times.

Table 4. The effect of dam age on calf birth

Birth Time		Dam age			
		2-4 years	5-6 years	7+ years	Total
16:01 24:00	n	38	27	14	79
	% within birth time	48.1	34.2	17.7	100
	% within dam age	30.9	37.5	20.9	30.2
	% of Total	14.5	10.3	5.3	30.2
24:01 08:00	n	50	30	31	111
	% within birth time	45.0	27.0	27.9	100
	% within dam age	40.7	41.7	46.3	42.4
	% of Total	19.1	11.5	11.8	42.4
08:01 16:00	n	35	15	22	72
	% within birth time	48.6	20.8	30.6	100
	% within dam age	28.5	20.8	32.8	27.5
	% of Total	13.4	5.7	8.4	27.5
Total	n	123	72	67	262
	% within birth time	46.9	27.5	25.6	100
	% within dam age	100.0	100.0	100.0	100
	% of Total	46.9	27.5	25.6	100

When the effect of dam age on birth time is examined in Table 4; It was observed that calves were born during all of dam ages at night shifts. However, statistically, there was no effect on dam age of calf birth times or staff shift times.

Table 5. The effect of birth body weight on calf birth

Birth Time		Birth body weight			
		21-35 kg	36-45 kg	46-57 kg	Total
16:01 24:00	n	19	46	14	79
	% within birth time	24.1	58.2	17.7	100
	% within birth body weight	34.5	30.7	24.6	30.2
	% of Total	7.3	17.6	5.3	30.2
24:01 08:00	n	22	64	25	111
	% within birth time	19.8	57.7	22.5	100
	% within birth body weight	40.0	42.7	43.9	42.4
	% of Total	8.4	24.4	9.5	42.4
08:01 16:00	n	14	40	18	72
	% within birth time	19.4	55.6	25.0	100
	% within birth body weight	25.5	26.7	31.6	27.5
	% of Total	5.3	15.3	6.9	27.5
Total	n	55	150	57	262
	% within birth time	21.0	57.3	21.8	100
	% within birth body weight	100.0	100.0	100.0	100
	% of Total	21.0	57.3	21.8	100

When the effect of birth weight on the time of birth of the calves is examined in Table 5; At all calf birth weights, it was observed that calf births were mostly at night shift times. However, statistically there was no effect on birth weight of calf birth times or staff shift times.

Table 6. The effect of years on calf birth

Birth Time		Years				
		2008	2009	2010	2011	Total
16:01 24:00	n	20	17	18	24	79
	% within birth time	25.3	21.5	22.8	30.4	100
	% within years	39.2	21.2	30.5	33.3	30.2
	% of Total	7.6	6.5	6.9	9.2	30.2
24:01 08:00	n	18	38	26	29	111
	% within birth time	16.2	34.2	23.4	26.1	100
	% within years	35.3	47.5	44.1	40.3	42.4
	% of Total	6.9	14.5	9.9	11.1	42.4
08:01 16:00	n	13	25	15	19	72
	% within birth time	18.1	34.7	20.8	26.4	100
	% within years	25.5	31.2	25.4	26.4	27.5
	% of Total	5.0	9.5	5.7	7.3	27.5
Total	n	51	80	59	72	262
	% within birth time	19.5	30.5	22.5	27.5	100
	% within years	100.0	100.0	100.0	100.0	100
	% of Total	19.5	30.5	22.5	27.5	100

When the effect of the year on calf birth times is examined in Table 6; It was observed that calf births in 2009, 2010 and 2011 were mostly at night shifts, and in 2008 it was evening shifts. However, statistically, there was no effect on years of calf birth times or staff shift times.

There have not encounter to a detailed literature including the birth times of calves. Therefore, there was not enough discussion about the research. For this reason, it is thought that this research will be a study to contribute literature.

Conclusion

The proportions of calf births were 30.2% in the evening shift, 42.4% in the night shift and 27.5% in the day shift. When these factors affecting the calf birth times are examined on the staff shift times, only a statistically significant effect of the breed was found (P <0.05). In terms of both breeds, calf birth is mostly at night. In terms of other shift times, the calf birth was observed that the Brown-Swiss calves were more common during daytime and the Holsteins calves were more frequent in the evening.

Recommendations

In the farms, the night hours are especially important in the arrangement of the working hours of the personnel to intervene in the birth of the calf. However, for farms, it is recommended that the staff be chosen more carefully during the daytime at the birth of Brown-Swiss's calves, and at evening during the birth of Holstein's calves.

Acknowledgements or Notes

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