

Prevalence of Abortion and Associated Risk Factor in Dairy Cattle of Jimma Horro District in Kellem Wollega Zone, Western Ethiopia

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Abstract

Abortion is one of the most important causes of economic losses in Ethiopian cattle industry. A cross sectional study was conducted between October 2016 and October 2017 to quantify the prevalence and associated risk factors of abortion in dairy cattle of Jimma Horro district of Kellem Wollega zone in western Ethiopia. A total of 384 dairy cattle were randomly selected from selected peasant associations of the district based on composition of cattle population. The overall prevalence of abortion was 2.9% (11/384) in the study area. This prevalence indicated that efforts should be made to taken measures to control and prevention of abortion in dairy cattle in study area. Multivariable logistic regression analysis identified that method of breeding (OR=7.4) and season of calving (OR=4.4) as a risk factor of abortion. However, there were no statistically significant differences observed between herd size, age group, parity, body condition, origin and dairy cattle that had previous history of abortion ($P>0.05$). Thus, there is a need to create awareness about impact of abortion on dairy cattle and appropriate control methods of abortion should be designed and implemented. Moreover, further investigation considering more causes should be carried out to identify the specific cause of abortion and the associated loss in the study area.

Keywords: Dairy cattle; Abortion; Risk factor; Prevalence; Jimma horro

Materials and Methods

Description of study area

The study was conducted from October 2016 and October 2017 in four selected peasant associations (Une, Ilu Kitaye, Mekanisa and Abono) of Jimma Horro district, Kellem Wollega zone in western Ethiopia. This district is bounded by Begi district in North, Gawo Kebe district in East, Yamalugi Wolel district in South and Gidami district in West. The area is located at about 665 km west of Addis Ababa. The area is located at an elevation of 1400-1830 meters above sea level. The Topography of this district is characterized by forest of Wolel Mountain and Dati Wolel Park. The main river in this district is Supe, Burar and Kumbabe. The climatic condition alternates with long summer rain fall (June to September), short rainy season (March to May) and winter dry season (December to February) The minimum and maximum annual rain fall and daily temperature range from 800 to 1200 mm and 15 to 25°C, respectively. Jimma Horro district is characterized by Dega (19.7%), Woyna dega (48.5%) and Kola (31.8%).

Livestock population in area is estimated to be about 68,500 heads of cattle, 19,952 sheep and 13,575 goats. The farmers in the area practice mixed (crop-livestock) farming system

Study population: Target populations were female cattle in Jimma Horro district of Kellem Wollega zone in western Ethiopia whereas study population were breeding cows in selected peasant associations of the study district. Cows and heifers above three years were study animals in this study.

Study design: Cross-sectional study was undertaken from October 2016 until October 2017 in selected peasant associations of Jimma Horro district of Kellem Wollega zone in western Ethiopia. This study was carried out to estimate prevalence and the potential risk factors of abortion in dairy cattle.

Sampling procedure and sample size determination: The study district was selected purposively based on history of abortion reports. Simple random sampling technique was used to select four peasant associations from Jimma Horro district. The sample size required for this study was determined depending on the expected prevalence of abortion and the desired absolute precision by the formula given by Thrusfield [31]. Hence, using 95% confidence interval, 5% precision and 50% expected prevalence of abortion, the numbers of dairy cattle needed to demonstrate prevalence of abortion in study areas were 384 dairy cattle. Simple random sampling method was also used to selected individual animals from selected peasant associations based on number of cattle population.

Results

In this study, a total of 384 pregnant cows were examined for abortion problem. Out of those, 11 (2.9%) of them had abortion problem. The highest (6.3%) and lowest (1.0%) prevalence of abortion was recorded in Nunu Inaro and Une peasant associations respectively in Jimma Horro district The prevalence of abortion was higher in cows with >6 years age group (5.3%) than those <3 years age group (1.8%). However, there was no statistically significant variation ($P>0.05$) in prevalence of abortion between age groups. The prevalence of abortion in pluriparous cows (3.4%) was higher than that of monoparous cows (1.7%); the variation was not statistically significant ($P>0.05$).

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