

SUMMARY

This study was carried out to determine the level of fertility and milk production and to investigate the effects of some environmental factors to reproduction and milk production traits of Holstein cows reared in five private farms which are memberships of Denizli Province Cattle Breeders' Association of Holstein. The material of the study consisted of production records of Holstein Friesian cows reared between the years of 2004-2012 in five farms. Total 567 lactation and 414 artificial insemination records belonging 228 heifers and cows for the milk production and reproductive traits were evaluated among the research period.

The means of the gestation length, first-pregnancy insemination interval, first gestation age, age at first calving, first age of insemination and the number of inseminations per pregnancy reproductive traits of Holstein heifers were found 273.63 days, 31.73 days, 547.65 days, 821.28 days, 516.92 days and 1.49 respectively.

Some important reproductive traits as the means of the gestation length, parturition-first insemination interval, first insemination-pregnancy interval, service period, calving interval and number of inseminations per pregnancy of Holstein cows were found 274.88 days, 98.30 days, 135.28 days, 163.22 days, 431.83 days and 2.18 respectively.

The investigated milk production characteristics of the cows were found as follow: Lactation length 305.27 days, actual milk yield 8140.73 liters, 2×305 days corrected milk yield 7892.67 liters and dry period 61.10 days, respectively.

The effect of farm to the gestation length was found non-significant while was found statistically significant to the first insemination-pregnancy interval first pregnancy age ($P<0.05$), first parturition age and number of insemination per pregnancy ($P<0.01$), first insemination age ($P<0.001$) for Holstein heifers. The effect of parturition age to gestation period was found non-significant, first insemination-pregnancy interval first pregnancy age, first parturition age, first insemination age and insemination per pregnancy ($P<0.001$) was found significant. The effect of calving year effect was found non-significant to the first pregnancy age, first calving age and number of insemination per pregnancy while were found significant to the gestation length ($P<0.05$), first insemination, pregnancy interval and first insemination age ($P<0.001$); the effect of calving season effect was found statistically non-significant to the gestation length, first insemination- pregnancy interval, first pregnancy age, first calving age, first insemination age and number of insemination pregnancy.

The effect of farm was found non-significant to gestation length, actual milk yield and dry period and found significant to parturition-first insemination interval, the first insemination-

pregnancy interval, service period, calving interval and lactation length ($P < 0.05$), number of inseminations per pregnancy, 2×305 day corrected milk yield ($P < 0.01$). The order of lactation had a non-significant effect to the gestation length, parturition-first insemination interval, service period, calving interval, number of inseminations per pregnancy, lactation length, actual milk yield, 2×305 days corrected milk yield and dry period while a significant effect found on first insemination-pregnancy interval ($P < 0.01$) for Holstein cows. The effect of parturition year was found non-significant to the parturition-first insemination interval and number of inseminations per pregnancy, and was found significant effect to the service period, calving interval, ($P < 0.05$), gestation period, first insemination-pregnancy interval, lactation length, actual milk yield, 2×305 days corrected milk yield and dry period ($P < 0.001$); the calving season effect was found non-significant to the pregnancy period, parturition-first insemination interval, service period, calving interval, number of inseminations per pregnancy, and 2×305 day corrected milk yield; while were found significant effect to the first insemination-pregnancy interval and actual milk yield ($P < 0.01$), lactation length and dry period ($P < 0.001$) respectively.

The results obtained in this study shows that the fertility and milk production traits of Holstein cows were similar with the desired levels of Holstein breed, while the heifers' some reproductive trait levels were found lower. Selection and culling programs could be applied with taking care with the environmental factors in the enterprises. It is concluded that depending on all of these assessments, it should be developing of the fertility and milk production traits of Holstein cows and heifers reared in the private farm conditions, increasing field studies, and productive levels should be rise with this technical and academic research.

Keywords: Holstein, reproductive traits, milk production, environmental factors