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LIST OF ABBREVIATION

Teat length, circumference and distance between teat to floor

1	**Right and fore teat**
2	**Right and rear teat**
3	**Left and fore teat**
4	**Left and rear teat**

Distance between teats

1	**1 & 2**
2	**1 & 3**
3	**3 & 4**
4	**2 & 4**
TMY	**Total milk yield**
LL	**Lactation length**

5- SUMMARY AND CONCLUSION

The present study was carried out using imported Friesian cows of Sakha Experimental Station belonging to Animal production Research Institute APRI (Agriculture Research Center) during period from January 2002 to June 2004.

Some phenotypic traits of the experimental animals were studied . Cows were classified according to udder shape into three groups (bowl, round and goat udder), according to teat shape into three groups (cylindrical, conical and pen shaped teats) and all experimental cows had disc teat shape additionally 21 udder and teat measurements were taken of the end of month during the first lactation. Average milk flow rates were recorded monthly for each animal also milk composition was determined monthly milk samples were taken for analysis and were analyzed by milk scanning apparatus for fat, protein, lactose, total solids and solids not fat percent . Two experimental were studies first the heifers pregnancy had been given massage in the 6^{th} – 8^{th} month of pregnancy while , the second had been not given massage.

The results obtained could be summarized in the followings:

1- The average total milk yield produced during the first lactation were 2141 ± 141 kg of the all experimental. and 2648 ± 131 kg of the animal which completed 150 day of lactation period.

2- The average of lactation length during the first lactation were 244 ± 14 day of the all experimental animal and 301 ± 11 day of all the animal which completed 150 days of lactation period.

3- Monthly milk yield reached its peak at the second month of lactation in the first lactation then it decline gradually till the end of lactation period.

4- The cows with bowl shaped udders produced more total milk yield and longer lactation period than those with round or goat shaped udders in the first lactation, these differences were not significant.

5- Cows with cylindrical shaped teats produced more milk than those with conical or pen shaped teats in the first lactation there differences were significant ($p<0.01$)

6- The cows which had been given massage produced more total milk yield than which had been not given massage these differences were significant ($p < 0.01$).

7- Udder measurements were positively and highly significantly ($p< 0.01$) correlated with total milk yield, except the distance between udders too floor which was negatively. Udder length gave the highest accuracy value.

8- Teat measurements were positively correlated with total milk yield (teat circumference had significant correlation) expectant distance between teat to floor which had negative correlation.

9- It was found that the percentages of cows with bowl, round and goat shaped udders in the first lactation were 36.50% , 53.97% and 9.53% respectively.

10- It was found that the percentages of cows with cylindrical, conical and pen in the first lactation 33.33%, 25.40 and 41.27 respectively.

11- it was found that all udders measurements reached its peak at the second month of the first lactation then it gradually decreased with advance of lactation

period except the distance between udder to floor which showed gradually increases with advance of lactation period.

12- The cows with bowl shaped udder had the highest values of udder measurements followed by the cows with round shaped udders then the cows with goat shaped udders.

13- All teat measurements reached its peak at the second month of the first lactation then period except the distance between udder to floor which showed gradual increase with advance of lactation period.

14- The cows with bowl shaped udder had the highest values of teat measurements followed by the cows with round shaped udders then the cows with goat shaped udders.

15- The cows with cylindrical teat shape had the highest values of teat measurements followed by the cows with conical teat shape then the cows with pen shaped teat.

16- The cows which have been given massage had the highest values of udder and teat measurements than the cows which have been not given massage.

17- Generally the phenotypic correlation coefficient among udder and teat measurements were positive in most cases expect the distance from udder to floor and distance from teat to floor which had negative correlation.

18- The average milk flow rate of cows in the first lactation were 1.65 kg / min and the highest value of milk flow rate were in the second month which 1.91 kg / min.

19- The cows with bowl udder shape, cylindrical teat shape and which have been given massage had highest value of milk flow rate.

20- Udder shape had not significant on milk flow rate but teat shape had positive and highly significant ($p < 0.01$) on milk flow reat.

21- Udder measurements had positive and significant correlation with milk flow rate expect udder width and distance between udder to the floor.

22- The correlation coefficient between teat circumference and distance between teats with milk flow rate are positive and significant in some cases but correlation between teat length and distance between teat to floor had negative.

23- The correlation between milk flow rate at 5 minutes with them positive and highly significant ($p < 0.01$).

24- There was a general tendency of milk constituents such as fat%, protein%, lactose%, total soilds % and solids not fat% to decline at the beginning of lactation and there after it gradually increased. In general changes in milk constituents during lactation period reflect the contrast relationship between milk production and its constituents.

25- The cows with bowl and cylindrical teat shape had higher milk composition than round and goat udder shape and conical, pen teat shape.

26- The cows which have been given massage had higher milk composition than cows which have been not given massage expectant fat%.

27- Udder length and distance between udder to floor had negative correlation with milk composition.

28- All teat measurements had positive correlation with milk composition except that some distance between teats which had negative correlation.

29- Milk composition or constituents had positive and highly significant ($p < 0.01$) with them.

30- There was a general tendency of milk somatic cell count to increase at the beginning of lactation and there after it gradually decreased and reach the lowest value at fifth month of lactation then it gradually increased with advance of lactation period.

31- The cows with bowl udder shape, cylindrical teat shape and which have been given massage had higher milk somatic cell count.

32- The correlation coefficient between udder measurements and somatic cell count had negative correlation.

33- The correlation coefficient between teat measurements and somatic cell count had negative correlation except that teat circumference had positive correlation.

The present results throw light on the obvios relationships between the morhological traits and milk performance traits . Arsenov and kotendzi (1968) ; karelin and starkov (1969) and kotendzhi (1970) , noticed the effect of both sire and dam on the inheritance of udder type . Seykira and mcDaniel (1985) calculated the heritability of teat shape , teat and shape , teat length , teat diameter and udder height as 0.38, 0.55, 0.33, 0.39 and 0.52 , respectively. In the heritability values of udder height , diatance between fore tears, distances between rear teats and the distance fore and rear tears were 0.77, 0.81, and 0.81, respectively .

Such results may support the present conclusion which lead to the importance of some morphological traits (udder shape, teat shape , udder measurments) as helpful parameters in predicting milk perfomance of animal especially when the milk records are not available .

Thus , resording these traits in milk records will be effective methods for increasing milk production when taken into consideration in selection programmes . The remarks of kaya

(1987) that the selection based on udder type would be the best method of increasing milk yield , these results support the present conclusion .