

-42- Summary of

Factors Affecting of Milk Flow Rate in Friesian Cattle.

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By

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SUMMARY AND CONCLUSION

The present study was carried out on 432 records imported pure Friesian cows of Karda Experimental Station, Animal Production Research Institute, Ministry of Agriculture during a period from April 2004 to April 2005. The aim of the study was to determine the effects of some environmental factors on milk flow rate traits which were measured as 2-min yield, total milk yield, 2-min% and milking time, and to find out how these traits can be incorporated into an appropriate index for selecting cows on the basis of their ease of milking. Sampled cows were classified according age, days in milk, weight, parity, season and sire. Udder and teat measurements and shapes and body measurements were recorded.

The results obtained in this study could be summarized as followings:

1- 2-min yield increased slightly with advancing age and also did total milking yield and milking time but 2-min% decreased with advancing age because large amounts of milk exist in their udder after two minutes of milk commencements which decreased the proportion of milk produced in two minutes relative to the whole duration of milking.

2- The rate of milk flow decreased with increasing days in milk which had highly significant effects on 2-min yield and total milking yield but not on milking time and 2-min%.

3- 2-min yield, total milking yield and milking time increased as cows become heavier but 2-min% decreased in a trend similar to that of age of cows.

4- The cows weighing more than 500 kg had the highest 2-min yield, total milking yield and milking time, but had the lowest 2-min%.

5- Parity had highly significant effect on total milk yield, significant effect on 2-min%, and nonsignificant effect on 2-min yield and milking time.

6- 2-min yield, total milking yield and milking time were the highest in the fifth parity, but 2-min% was the highest in the first. This was also similar to the effects of age and weight of cows.

7- The season of sampling had highly significant effect on 2-min yield and total milk yield, but had nonsignificant effect on milking time and 2-min%. Cows sampled in spring gave the highest 2-min milk yield, total milk yield and milking time but the lowest 2-min%, the highest 2-min% was found in cows sampled in winter.

8- The phenotypic correlation coefficients among milk flow rate traits were positive and highly significant except that of 2-min% with total milk yield and milking time which were negative and highly significant. These results indicated that the increase in total milk yield was associated with decrease in 2-min%.

9- Cows with cup shaped udders had the highest 2-min yield and total milk yield compared to cows with bowl, round, goat or pendulous udder shapes.

10- Cows with goat and pendulous shaped udders needed long time to finish milking compared to cows with cup shaped udders which had the lowest milking time; this indicated that cows which had low 2-min% needed long time to finish milking.

11- The phenotypic correlation coefficients of udder measurements with 2-min yield, total milking yield and milking time were positive except with the udder distance from the floor which was negative, but the phenotypic correlation coefficients of udder measurements with 2-min% were negative except with udder distance from the floor which was positive. Distance between the udder and vulva opening was nonsignificant positive approaching zero with 2-min yield, total milking yield and 2-min% but was negative with milking time.

12- Cows with cylindrical teat shape had the highest 2-min yield and 2-min% compared with those with conical, cup, pear or funnel shaped teats. They needed short time to let down most of the milk yield compared to those with pen and funnel teat shaped cows.

13- The correlation between teat length and 2-min yield, total milk yield and milking time were positive but nonsignificant except that between fore left teat length and 2-min yield which was negative, but teat length was negatively and nonsignificantly correlated with 2-min%, which indicated that cows with short teats milked faster than those with long teats.

14- Teat circumference and distance between teats had mild positive correlations with 2-min yield, total milk yield and milking time but distance between rear teats and 2-min yield was negative. Teat

circumference and distance between teats were negatively correlated with 2-min%.

15- Cows with smooth teat orifice had the highest 2-min yield, total milking yield, milking time and 2-min% compared with those of cows with tapering, disc and funnel teat orifice.

16- The phenotypic correlation coefficients between milk composition and 2-min yield and total milk yield were positive and significant, but with milking time were positive and nonsignificant and those between milk composition and 2-min% were negative and nonsignificant.

17- The correlation coefficients between milk flow rate traits and SCC were positive and nonsignificant, but those between milking time and SCC were positive approaching zero.

18- The phenotypic correlation coefficients between body measurements and 2-min yield were positive and nonsignificant except those with pin-bones height, cannon bone length and cannon bone circumference which were negative, but rump length and distance between pelvis-bones with 2-min yield were positive and high significant. 2-min% had negative correlation with all body measurements and had nonsignificant correlation except which with chest circumference had negative and high significant effect.

19- Phenotypic correlations between body measurements and milking time were positive and nonsignificant except that between milking time and cannon bone length and cannon bone circumference which was negative.

20- Daughters of different sires varied in their speed of milking some had the highest 2-min yield and 2-min% and daughters of other sires had low 2-min yield but their 2-min% was high. This indicated that daughters of the sires which produce low 2-min yield were not necessarily low in 2-min%.

21- Duncan's multiple range test indicated significant differences among sires for 2-min yield and total milking yield but milking time and 2-min% were nonsignificantly affected by sires which indicate that the variations among sires were apparent for both 2-min yield and total milking yield.

