

# Fat and solids not fat percentages in milk of the crossbred cows in Kerala

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There had been tremendous increase in the milk production in Kerala in the last 40 years. This had been due to mostly the cross breeding of Desi cattle with exotic bulls and also improvement brought into management systems. The goal in milk production has always been for increasing fluid milk only. The levels of milk components in the milk of the crossbred cows has not been given emphasis till recently.

The Prevention of Food Adulteration (PFA) rules specify the minimum milk fat percentage as 3.5 and solids not fat (SNF) percentage 8.5. Sale of milk below this standard is punishable. There had been many instances where the farmers caught on this issue, had been pleading innocent. Complaints from the farmers about low fat and SNF percentage in their cow's milk had been pouring in. But the low fat problem generally disappears with pooling of milk. As the milk fat increases with the advancing stages of lactation, the pooling of milk of cows in different stages of lactation in large farms or in collection centres results in a fat percentage above 3.5. So in bulk handling of milk ultimately this does not become a serious problem. But handling of milk of individual cows as it is the practice in Kerala where the farmers generally has only one milking cow, low fat or SNF pose threat under the PFA rules. Milk societies also face problems of this issue. There were instances where the society itself had fallen victim to the existing PFA rules.

Considering the gravity of the situation in Centre for Advanced Studies in Animal Genetics & Breeding of Kerala Agricultural University undertook detailed study on

milk fat percentage of crossbred cows. The facilities available with the ICAR research programme on Progeny Testing of the crossbred bulls in areas around Mannuthy were utilized for the study. During this study on milk fat percentage made during the period from 1986 to 1993 the crossbred cows were having inheritance from exotic bulls in areas around Mannuthy were utilized for the study. This study on milk fat percentage made during the period from 1986 to 1993, the crossbred cows having inheritance from the exotic bulls, Jersey and Brown Swiss. Holstein cross was not prevalent in the area of study at that time. More than 40,000 samples were collected from CB cows at different stages of lactation, analyzed separately and average for the different stages worked out. It was seen that in early lactation, ie, in the second month of lactation 66% of the crossbred cows were having milk fat percentage less than 3.5. There had been a continuous increase in the milk fat percentage with advancement of lactation. But even in the last stage of lactation there were cows less than the minimum standard of milk fat percentage as can be seen from the table. It was contrary to the belief that the problem of low fat percentage in milk is only with Holstein breed and not with Jersey or Brown Swiss.

A separate study on fat and SNF on the Holstein-Friesian crossbred test bulls revealed that about half the cows' SNF percentage below the minimum prescribed. The second study made by Radhika G (1997) using 1284 samples of Holstein cross and their contemporaries distributed in farmers' herds and three

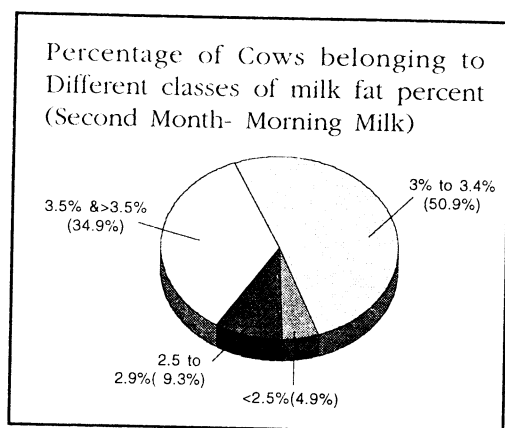
**Table - 1 Percentage of cows belonging to different classes of fat percentage**

Months of lactation	Second		Fifth		Eighth	
	AM	PM	AM	PM	AM	PM
Times of milking						
3.5 and above	34.9	5.6	83.6	95.2	91.6	98.3
3 to 4	50.9	21.2	13.6	4.2	5.6	1.0
2.5 to 2.9	9.3	2.2	1.5	0.5	2.5	0.7
Less than 2.5	4.9	1.0	1.3	0.1	0.3	-

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University dairy herds revealed that morning milk in second month had an average fat percentage less than 3.5. One important finding of the study had been that even in the University farms where weaning is practiced and sufficient roughage are fed to cows, 28.4 percent was with milk fat below minimum standards in early lactation. In the farmers'



cows, the percentage was 66, which was in conformity with first study on farmers' cows. This showed that the low fat problem existed for Brown Swiss

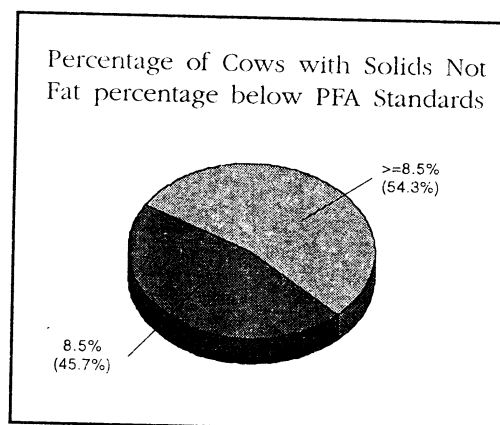
and Jersey as well as Holstein crosses.

The SNF percentage was 8.57 and 8.54 for early lactation for morning and evening milk samples. The stages of lactation were not found to be influencing the SNF percentage as in the case of fat. So also the times of milking ie, morning and evening milk unlike in fat. But the farmers' cows and University dairy herd were having similar SNF content in milk. Situation leading to different levels of milk components are to be properly explored considering the strategic angle. The immediate necessity is to change the PFA rules in the light of the present study, as the rules formed in 1955 do not seem to be applicable today. The alarming situation was brought to the notice of the Government and recommendation was made to change the PFA rules regarding the minimum standards.

In certain countries it is a practice to make the payments of milk based on the solid content. Kerala also has adopted the policy at least in the organized sector to make payment based on fat and SNF percentages. When it becomes imperative

that the payment is only for the solids and not for the water in the milk, the chance of adulteration will definitely be less. Moreover, there are other measures to find out adulteration of milk instead of relying on the percentages of the component alone.

A detailed and continuous study into the circumstances leading to the low fat and SNF percentages ie, genetic as well as environmental, need to be undertaken. The study on genetic variation in the second study revealed that the heritability estimate for fat percent was 0.326 indicating the possibility of improvement by selection. Fat yield was found to be having 0.11 and SNF yield 0.157 heritability estimates. The present global trend is producing higher quantity of total fat and not high fat milk as such. The studies made so far pin point to the need for emphasis



to be laid down to changing the PFA rules and making necessary changes in the breeding policy and programmes.

### REFERENCES

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