

sult of feed. To substantiate such a belief, we must needs rely upon the work of the scientific man, the investigator who has spent long years governing conditions so as to find out exactly what the actual facts are. In a recent work (1) published by Cornell University, the conclusion is drawn that liberal feeding and hitherto poorly fed cows increased the quality — percent. of fat—in milk only to the extent of $\frac{1}{4}$ of 1%. Four cows in very poor condition and poor surroundings were selected, and a test covering four years was made, the first of which was carried on at their former barn. Tests were made and accurate records were kept. Subsequently, the cows were removed to the University stables and fed liberally for two years, while the test was running. At the end of the third year the cows were returned to their former quarters and the test was continued for another year. Such a finding, which verifies previous experimental work, and also the contention of our present day cow men, ought to have some weight, and should do a great deal to relieve the farmer of the doubt that is cast when he says: "Well my cows ought to test better; they're getting better feed now."

2. Feed Affects the Quantity of Fat Produced.

That the percentage of fat does not increase materially with liberal feeding, however, does not prove that it is not a good policy to feed well. The real proof of the question is found when other factors are considered. In the same work referred to above, results show that liberal feeding increased the total yield of milk, and with it of fat, by 50%, and also that the same increase was produced economically. In fact, every feeder knows well that he is well repaid for

liberal feeding. This is quite easily understood when we consider that body life must be maintained in the cow, and a certain portion of the feed consumed must be utilized to that end. A cow that is being fed barely a living ration then, is using all to sustain life. What extra she consumes is converted into milk if she is the proper type of dairy cow. Or putting it in other words, the maintenance factor is practically constant; and the amount of milk produced and with it the amount of fat, is wholly dependent upon the extra given, or the amount of feed consumed above maintenance. Missouri Agricultural Experimental Station (2) reports that:—

Cow No. 1—On a milk ration consumed 8241 C. of food per day; On a maintenance ration, consumed 4783 C. of food per day; and therefore had available for milk production 3448 C. of food per day.

On the other hand:

Cow No. 2—On a milk ration, consumed 14614 C. of food per day; on a maintenance ration, consumed 5535 C. of food per day; and likewise had available for milk production 9079 C. of food per day.

Or Cow No. 2 had 2.63 times as much food available for milk production as Cow No. 1. In actual fat production, Cow No. 2 produced 2.77 times as much as No. 1, which agrees favorably with the ratio obtained by the food value—above—maintenance comparison. Deducting cost of maintenance, either cow produced milk as economically as the other; but No. 2 produced 8522 lbs. of milk compared to 3188 lbs. for No. 1, and is, therefore, a much more desirable cow. It is therefore, quite clear that the amount of fat produced is a widely variable factor and one that is controlled to a