

MILK ANALYSES.

BY JOSEPH F. GEISLER.

In presenting this short paper on the monthly analysis of the milk of a herd of cows I desire briefly to call attention to a few factors which deserve consideration in the production of milk.

Variations in the quality of milk are widest in the milk from individual cows, while milk from a herd of cows approaches more nearly a common average in composition. Aside from the number of cows which may have contributed to a given sample of milk, it is a known fact that the quality of the milk is directly affected by the breed of the cows, the condition of their health and surroundings, the time since the last parturition, the character as well as the quality and quantity of the food, and also to some extent the season and atmospheric conditions.

All cows will not produce equally good milk from the same class of fodder, and strange as it may seem it is reported upon good authority that a certain herd of cows produced a poor quality of milk as a direct result of overfeeding. The milk improved in quality when the quantity of fodder was properly regulated.

In the following table are given the monthly analyses of the milk from a herd of about twenty-five cows kept at Washingtonville, Orange Co., New York. The samples submitted to me were fair average samples for the days of the respective months and the data will give a fair idea of the variations to be expected in the milk from a herd of common native cows kept in good condition and subsisting on the character of fodder as noted in the accompanying table. On five occasions I was enabled to obtain the morning milk and the evening milk of the preceding day. Evening milk is generally somewhat richer in fat than the morning's milk, but in two of these cases the variation was very slight. It would have been interesting to know the exact yield of milk but

I was unable to obtain the data. In thirteen of the samples the milk sugar was estimated and the casein and albumen by difference. The average for milk sugar was 5.05% and for the casein and albumen 3.02%, the quantities fluctuating but very little from these averages. The fat was in all cases estimated by the Adams or *coil method* (see Jour. Amer. Chem. Soc., **12**, 488). For the taking of samples and the data as to feeding I am indebted to the kindness of Mr. F. D. Tuthill, Assist. N. Y. State Dairy Commissioner.

MONTHLY ANALYSES OF PURE HERD MILK.

When taken.	Sp. Gr. at 60° F.	Water. %	Total Solids.	Fat. %	Casein & Sugar.	Ash. %	Solids Not Fat
1890.							
Jan. 11th, a. m.	1.0321	89.074	12.926	4.297	7.861	.768	8.629
Feb. 16th, p. m.	1.0310	86.977	13.023	4.396	7.899	.728	8.62
Feb. 17th, a. m.	1.0324	87.308	12.692	3.777	8.184	.731	8.91
March 16th, p. m.	1.0326	86.944	13.056	4.222	8.119	.715	8.83
March 17th, a. m.	1.0331	86.614	13.386	4.212	8.414	.760	9.17
April 13th, p. m.	1.0311	87.377	12.623	4.058	7.820	.745	8.56
April 14th, a. m.	1.0321	87.094	12.906	4.110	8.044	.752	8.79
May 25th, p. m.	1.0322	86.969	13.031	4.347	7.959	.725	8.68
May 26th, a. m.	1.0319	87.200	12.800	3.937	8.135	.728	8.86
June 14th, a. m.	1.0319	87.422	12.578	3.697	8.160	.721	8.88
July 21st, a. m.	Not taken	87.546	12.454	3.878	7.836	.740	8.57
Aug. 18th, a. m.	1.0318	87.155	12.845	3.890	8.195	.760	8.95
Aug. 24th, p. m.	1.0312	87.152	12.848	4.181	7.928	.739	8.66
Aug. 25th, a. m.	1.0313	87.558	12.442	3.716	7.990	.736	8.72
Sept. 22d, a. m.	1.0313	87.255	12.745	3.917	8.088	.740	8.82
Oct. 14th, a. m.	Not taken	87.045	12.955	4.021	8.182	.752	8.93
Nov. 24th, a. m.	1.0323	87.192	12.808	4.001	8.037	.770	8.80
Dec. 16th, a. m.	1.0321	87.299	12.701	3.955	7.995	.751	2.74

DAILY FODDER RATIONS.*

January 1890, $\frac{1}{2}$ Bushel Brewery Grains, 4 qts. Bran, 2 qts. Hominy Meal.

February, 1890, $\frac{1}{2}$ Bushel Brewery Grains, 4 qts. Bran, 2 qts. Hominy Meal.

* During the Winter months the cows had all the hay they wanted.

March 1890,	$\frac{1}{2}$ Bushel Brewery Grains,	4 qts. Bran,	2 qts. Hominy Meal.
April, 1890,	$\frac{1}{2}$ Bushel Brewery Grains,	4 qts. Bran,	2 qts. Corn Meal.
May, 1890,	Grass alone.		
June, 1890,	“	“	
July, 1890,	“	“	
August, 1890,	Grass and $\frac{1}{2}$ Bushel Brewery Grains.		
September, 1890,	“	“	“
October, 1890,	“	“	“
November, 1890,	“	“	“
December, 1890,	“	“	“
			4 qts. Bran.
			8 qts. Bran.
			8 qts. Bran.

ON CONDENSATIONS.

BY WM. BERNHARDT.

It was with deep interest I have read Dr. T. Sterry Hunt's paper on "mineral condensation," published in this journal and reprinted in the *Chemical News*, but, whilst accepting most of his views, it has seemed to me, that what is commonly called "condensation" is an expression comprising processes of very different kind, and of strongly distinguished characters. For instance, formaldehyde and the products of its condensation exhibit the distinctions between "condensation" in the strict sense of the word and identical with "polymerisation," and ordinary condensation, by which compounds result that cannot strictly be considered as polymers of the original substance. Formaldehyde when kept for some time is partly transformed into solid paraformaldehyde, from which by applying heat formaldehyde may easily be regenerated. Not so from the sugars which result from treating the aldehyde with milk of lime, or with tin shavings. Although their aldehydic character can scarcely be denied and is manifested in the formation of alcohols under the influence of