yellow. Seeds which were ground for two weeks before pressing gave an oil of greenish red color in reflected light and dark olive-green in transmitted light.

When subjected to hydrogenation at 220 to 240° C., with powdered nickel—prepared from nickel oxide just previous to its addition to the expressed oil—there was produced a bland yellowish white fat with a melting point of 29 to 36° C., a solidifying temperature of 25° C., and an iodine number of 76.6.

Feeding experiments with mice attested the non-poisonous character of both the original oil and the hydrogenated fat.

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VARIATION IN THE ETHER EXTRACT OF SILAGE¹

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Received May 26, 1917

Having occasion to repeat the analysis of some samples of silage 10 months after the first analysis was made, considerable variation in the samples was

TABLE I—ANALYSIS OF AIR-DRY SILAGE—NEW AND 10 MONTHS LATER

Silage No.	Date Analyzed	A—RESULTS IN PERCENTAGES ON AIR-DRY BASIS—						B—RESULTS IN PERCENTAGES ON DRY BASIS—					
		Moisture	Ether Extract	Crude Fiber	Ash	Nitrogen	Protein N X 6.25	Moisture	Ether Extract	Crude Fiber	Ash	Nitrogen	Protein N X 6.25
1.....	3/16	5.54	3.61	21.07	5.20	1.32	8.25	56.33	3.82	22.31	5.51	1.40	8.73
2.....	2/17	6.02	2.55	19.43	5.25	1.12	7.00	59.75	2.71	20.68	5.59	1.19	7.45
2.....	3/16	5.52	3.76	19.40	4.87	1.12	7.00	59.45	3.98	20.53	5.15	1.19	7.45
3.....	2/17	6.51	2.99	17.74	4.88	1.08	6.75	61.13	3.20	18.98	5.22	1.16	7.22
3.....	4/16	7.85	4.81	20.05	5.72	1.24	7.75	53.82	5.22	21.76	6.21	1.35	8.41
4.....	2/17	5.67	2.71	19.53	5.74	1.20	7.50	58.85	2.87	20.70	6.09	1.27	7.95
4.....	5/16	7.28	5.10	22.68	6.42	1.27	7.94	50.58	5.50	24.46	6.92	1.37	8.56
	2/17	6.09	2.75	21.67	6.53	1.25	7.81	55.15	2.93	23.07	6.95	1.33	8.32

noted. The ether extract in particular showed great variation, much less being found in the old than in the fresh silage. Table I shows the comparative results of the analyses of silage when new and also 10 months later. The results show that some factors entered into the determination when the silage was fresh which did not appear in the silage 10 months later.

Inasmuch as the sample must be dried before the ether extraction the effect of vacuum and oven drying on the percentages of moisture obtained was first studied. The results are shown in Table IIA. The effect of vacuum and oven drying on the results for ether extract are shown in Table IIB.

TABLE II—RESULTS ON AIR-DRY BASIS BY DIFFERENT METHODS OF DRYING

A—PERCENTAGE OF MOISTURE				
DRYING METHOD USED	Silage 1	2	3	4
Vacuum.....	6.02	6.51	5.67	6.09
Vacuum + Oven (15 min.).....	6.30	6.90	6.18	6.64
Oven (100 to 105° C.).....	8.73	9.31	8.71	9.13
B—PERCENTAGES OF ETHER EXTRACT				
DRYING METHOD USED	Silage 1	2	3	4
Vacuum, before and after Extraction....	2.55	2.99	2.71	2.75
Vacuum + Oven, before and after Extrac.	2.01	2.11	1.90	2.12
Vacuum before, vacuum + oven after Extraction.....	2.87	3.27	2.94	3.06

It was thought that the acidity of silage might have some part in the variation of the results for moisture and ether extract. The acidity of silage is due prin-

cipally to the presence of acetic acid, and lactic acid. The former is volatile in a vacuum, the latter is not. Table III illustrates the determination of the acidity of silage based on this fact.

TABLE III—ACIDITY OF AIR-DRY SILAGE

Silage No.	TOTAL ACIDITY As Lactic Acid		ACIDITY VOLATILE in Vacuum		TOTAL ACIDITY Recalculated as Acetic and Lactic Acids
	Original	After Air-Dry in Vacuum	Figured as Lactic	Figured as Acetic	
1.....	4.43	4.13	0.30	0.20	4.33
2.....	4.78	4.40	0.38	0.26	4.66
3.....	4.66	4.25	0.41	0.27	4.52
4.....	3.93	3.56	0.37	0.25	3.81

Comparison was made of the acidity of the samples before and after the determination of moisture and before and after the determination of the ether extract, in order to study the effect of the acidity upon these two determinations. The results are shown in Tables IV and V. The last column in Table V shows that water will wash from silage not only the acid but also other substances soluble in ether.

No attempt is made in this report to explain the causes for the above variation. Further studies are being made with a view of ascertaining what these causes are. We only wish to indicate at this time that variations do occur in value for ether extract

depending upon changes in the sample itself on standing and upon the drying operations employed.

It is evident that the analyses should be made as

TABLE IV—EFFECT OF ACIDITY OF AIR-DRY SILAGE UPON MOISTURE DETERMINATION

Silage No.	ACIDITY OF SILAGE		Acidity Volatilized	% Loss on Drying at 100°	% Mixture After Deducting Volatilized Acidity	By Vacuum Corrected
	Original	After Air-Dry in Vacuum				
1.....	4.33	1.80	2.53	8.78	6.25	5.82
2.....	4.66	1.89	2.77	8.68	6.24	6.25
3.....	4.52	1.89	2.63	9.39	6.62	5.40
4.....	3.81	1.97	2.69	9.24	6.55	5.84

TABLE V—EFFECT OF ACIDITY OF AIR-DRY SILAGE UPON THE DETERMINATION OF ETHER EXTRACT

Silage No.	ACIDITY AS LACTIC ACID		Total Ether-Soluble Material Found	ETHER EXTRACT Less After Soluble with Water
	Of Air-Dry in Vacuum	Of Residue after Extraction with Ether	Ex-tracted by Ether	
1.....	4.13	3.47	0.66	1.87
2.....	4.40	3.45	0.68	1.88
3.....	4.25	3.69	0.71	2.19
4.....	3.56	3.63	0.77	2.31

soon as possible after the feed is used and that a uniform method of drying be employed, if these variations are to be avoided.

¹ Presented at the 54th Meeting of the American Chemical Society, Kansas City, April 10 to 14, 1917.