The Case of Whale Oil Vs Tallow

By E. L. THOMAS

Specialist, Oils and Fats, Foodstuffs Division, Bureau of Foreign and Domestic Commerce, Washington, D. C.

(Continued from January issue.)

THE data below illustrate the foregoing remarks and the details of the figures discussed.

	Per cent total Consumption	Estimated Available for Consumption (Based on Report of Distribution of Consumption of Bureau of Census, 1929) 1924	1926	1927
		(In 1,000 Pounds)		
Whale oil	100	43,419	58,860	60,035
Tallows and greases.	88) 68)	414,516	420,276	435,079
Palm oil	90	87,196	124,728	122,926
Coconut and palm kernel oils	60	246,077	312,808	336,470
Cottonseed oil	12	127,311	161,948	188,138
Fish oils	51	33,768	36,987	49,866
		1928	1929	1930
Whale oil	100	66,209	71,022	61,568
Tallows and greases.	88) 68)	459,761	445,277	444,203
Palm oil	90	169,933	207,882	221,624
Coconut and palm kernel oils	60	375,547	437,056	419,033
Cottonseed oil	12	180,315	190,326	190,209
Fish oils	51	61,713	57,580	37,541

[Author's Note.—In the absence of a previous determination of consumption by an official government agency, the facts established by the Bureau of Census' initial report in 1929 have been used arbitrarily as the basis of calculating diversion of oils and fats to the soap industry. Although possibly subject to some slight revision, if similar information were available for earlier years, the variation is not believed likely to be of material consequence. "Net available for consumption" for the information of those who might be uncertain as to the exact meaning of the term, is the sum of the stocks on hand at the beginning of the year, the production for the year and any imports, from which total is deducted exports and stocks at end of the year. The result, designated as "net available for consumption" may or may not agree with actual consumption as reported but does indicate quantity of material that must have been consumed during the year presupposing the accuracy of the component figures.]

The Situation of the Current Year in Reference to Tallow and Greases

The suggestion has already been put forth earlier in this article that whale oil consumption will be heavier this year than last in the United States. Several facts were recited to show why this would be so.

Stocks of whale oil on September 30th according to the Bureau of the Census quarterly report exceeded those of March 31st by 55 per cent but were 13 per cent lower than on June 30th. Part of the larger supplies on September 30th can be credited to seasonal arrivals during the second quarter but the heavier commitments for deliveries out of last season's crop of oil was likewise a material factor in the expansion of stocks. However, there is indication in the reduction in stocks since June 30th that consumption is absorbing a certain volume of the supplies.

In contrast total stocks of all oils (including those of the minor group going to the soap kettle) were 4.7 per cent lower at the end of June than the close of the first quarter and had increased at the end of September less than 2 per cent over the March quarter.

Since October 1st there has been a certain liquidation of tallow inventories accompanied by some improvement in prices but at the end of the third quarter accumulated supplies were 22 per cent larger than the same date in 1930 and likewise about 25,000,000 pounds in excess of stocks on hand at the beginning of the year. In fact, except for the present year tallow stocks have been materially lower on January 1st of every year since 1925 and including 1921. There has been a progressive gain in stocks each quarter since March 31, 1930, the gross of the increase to September 30th being 56,500,000 lbs. or exactly 50 per cent. Production increased each quarter of the present year over the corresponding three months of last year but fell off about 6 million pounds in the September quarter as compared with the June quarter. There was a gain of about 15 per cent in the net quantity of tallow available for consumption for the first nine months of the year as compared with a similar period in 1930. The

consumption of inedible tallow and grease by the soap industry, is estimated to have increased on this basis from a proportion of 32 per cent in 1930 to 35 per cent for the first nine months of 1931.

Much of that which has been written concerning tallow could be related with equal truth concerning white, yellow and brown greases. As with tallow, supplies of these greases on September 30th surpassed by a comfortable margin quantities on hand the first of each year since 1925 (as well as 1921) and were 40 per cent above the corresponding date of 1930. The expansion was more noticeable with the white and brown varieties than the yellow. A gain of 1,400,000 pounds in white grease production during the first nine months (this year) was almost counterbalanced by the shrinkage in production volume reported for yellow grease. The chief increase was in brown grease—5½ million pounds. Each quarter registered a substantial contribution to this gain, a partial explanation being possibly greater care practiced in the separation of hotel and restaurant kitchen greases and bones from other refuse prompted by a more general desire to economize although prices paid for such wastes are lower than a year ago.

Below there are presented figures on net availability of oils and fats for consumption for the first three quarters of 1931 which will serve as an annex to the table immediately preceding:

	Per cent total Consumption	9 mos. 1930 (In 1,000	9 mos. 1931 Pounds)
Whale oil	100	47,601	63,023
Tallows and greases	88) 68)	343,529	368,330
Palm oil	90	168,415	197,683
Coconut and palm kernel oils	60	311,926	274,937
Cottonseed oil	12	138,800	111,827
Fish oils	51	28,249	46,256

How Have Vegetable and Fish Oils Fared Thus Far This Year?

The question, of course, refers only to the consumption of the major oils in these groups entering into soap manufacture. Let us give thought first of all to palm oil. Here we find an increase in net availability for soap making during the first three quarters of this year of 29,000,000 lbs. or 17 per cent. Then, too, the ratio advanced from 16 per cent of total available consumption to 19 per cent for the present year up to September 30th. Stocks of January 1, 1931, were 78 per cent in excess of the same date the year before. Imports, however, were about the same—200,000,000 lbs.—for January-September period of both years. Hence, since stocks on September 30th, though 22 per cent heavier than the same date in 1930, were 20 per cent lower than on January 1st, consumption of palm oil through the first nine months of the current year has been 17 per cent more than the same period of 1930.

Coconut and palm kernel oils began the year in a more favorable stock position than was the situation with these oils on January 1, 1930. Coconut oil imports were 29,000,000 lbs. or 13 per cent larger during January-September this year as compared with the same number of months in 1930. There were also substantially more palm kernels crushed in the United States, a gain in oil from this source of approximately 11,200,000 lbs. To offset these increased supplies there was a reduction in palm kernel oil imports of 12,800,000 and a small crush of copra which yielded 28,000,000 fewer pounds of oil for January-September, 1931, than the corresponding month of 1929. Actually therefore the net result, combining imports and production, was a loss in supplies of 800,000 lbs. The net amount available for consumption was augmented through a shrinkage in exports of 7,400,000 lbs. during the 9 months of 1931 while stocks of coconut oil were 60,800,000 lbs. heavier on September 30th than the same date in 1930, against which stocks of palm kernel oil were 3,600,000 lbs. lower. To sum up, then, the net available quantity of coconut and palm kernel oils for consumption during the first three quarters of the present year was some 60 million pounds under the figure for the same months of 1930. The proportion of coconut and palm kernel oils calculated in total consumption of oils and fats by the soap industry was therefore reduced from 30 per cent in 1930 to 26 per cent for January-September period of 1931.

The combined stocks of crude and refined cottonseed oil were approximately at the same level the first of 1931 as on the identical date of the previous year. Likewise as of September 30th in both years there was no material difference in stock position. A decrease in total avail-

(*Continued on page* 43)

THE CASE OF WHALE OIL VS. TALLOW

(*Continued from page 38*)

able for consumption of 19 per cent reflected naturally in quantity of "foots" destined for the soap kettle may be attributed directly to a corresponding reduction in the production of crude cottonseed oil over the period of the first three quarters of 1931. This was most marked in the June quarter of 1931, when the production reported to the Bureau of the Census was 56 per cent under the same quarter of the preceding year. Exports of both crude and refined oils were 14 per cent under the January-September 1930 export total. The availability of "foots" for soap making purposes is estimated to have dropped to 10 per cent for the nine months of 1931 while it was 14 per cent in 1930.

Fish oils, the smallest factor among the fatty ingredients of soaps were in much improved position on September 30, 1931, as regards stocks as a result of heavier consumption which brought stocks down 23,000,000 lbs. or 20 per cent from amounts reported on hand the first of the year. The actuating influence here was a curtailment in production of menhaden and herring oils during the nine months of approximately 25 per cent. There was a notable expansion (23 per cent) in the volume of our exports, in conjunction with which it might be mentioned that the declining tendency exhibited by our imports since 1928 continued to hold true. Reckoned as 51 per cent of the total available consumption, the actual increase in the employment of fish oils in soap manufacture was thus 22,000,000 lbs. or 78 per cent more during the January-September period of 1931 as compared with the same months of 1930 which occasioned a gain to 4 per cent in the proportion of fish oils to the total of all oils and fats entering into soaps.

Summary

The following conclusions might be drawn from the facts brought out by this article:

1. The world's whale oil production has increased nearly nine-fold in the last twelve years but according to latest available data is only 5 per cent of the estimated world supplies of oils and fats entering international trade.

2. Measures proposed for the regulation of the whaling industry, if adopted, will probably result in a reduced volume of production in the future.

3. The production for the present, or 1931-1932 season, will be a negligible factor in the total of available supplies of oils and fats for the coming year.

4. Actual consumption of whale oil in the United States in 1931 will be greater than the previous year, but stocks on hand in this country at the end of the year will be heavy.

5. Tallow constitutes, on the basis of volume, 6.8 per cent of the world's estimated commercial production of oils and fats.

6. The soap industry of the country offers an outlet for 7¼ per cent of oils and fats supplies of the world, and of this quantity, over half is tallow (largely domestic inedible) and coconut oil. The largest bulk of fats is comprised of the two mentioned as well as animal greases, palm oil, whale and fish oils, with whale oil furnishing but 4.4 per cent in 1929.

7. The estimated percentage of inedible tallow entering into soap manufacture declined from 43½ per cent in 1924 to 32 per cent in 1930, but increased during the first nine months of 1931 over 1930. Palm and coconut oils made up much of this deficiency. Estimated consumption of oils and fats by the soap industry gained 44 per cent in the six years ending with 1930, but animal fats increased in consumption volume only 7 per cent, the percentage of whale oil remaining virtually unchanged in relation to total consumption of oils and fats in soaps.

8. Stocks of tallow on October 1 were 50 per cent larger than on the same date the year before. Stocks of palm oil October 1 were 20 per cent less than on the first of the year. Coconut oil supplies were in excess of those at hand at the beginning of the year.

The Department of Agriculture has just issued a very complete report prepared by A. F. Sievers, Senior Biochemist, and M. S. Lowman, Assistant Biochemist, entitled "A Study of Cottonseed with Reference to Varietal Characteristics and Sources of Production." This report gives the results obtained in a study conducted over a period of more than five years, covering the percentages of oil and ammonia in thirty varieties of cottonseed.