

## JAPANESE FISH-NETTING INDUSTRY

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The Japanese fish-netting industry originated at the end of the last century with the turning point of the Japanese-Chinese War, 1894-1895. Since that time the manufacture of fish netting in Japan has paralleled the gradual development of the Japanese fishing industry.

As a home handcraft, the fish-netting industry has been in existence since ancient times. But the turn of the last century saw a development towards the mechanization of part of the industry. The partial development from a handcraft to a mechanized industry is attributed mainly to the change from flax to cotton netting. Because the military ordered the use of cotton for netting towards the latter part of the last century, the manufacture of netting by machinery became possible. Since flax, a hard fiber, is not amenable to machine operations, its use had held back the mechanization of the netting industry.

Scarcity of raw materials and the extensive destruction of fishing gear during World War II caused the production of fish netting to drop off almost to zero during 1943-45 (table 1). At the end of the war the rehabilitation of the fishing industry was considered of primary importance to the reconstruction of Japan by the Army of Occupation, because it was the most obvious method of overcoming the severe food shortage that had developed. Although all spinning factories in Japan were suffering from the lack of cotton, 32 million pounds of raw cotton were allocated to the fish-netting industry at a subsidized price. The quantity of cotton allocated was twice the amount of raw material used in prewar years for netting, and the subsidized price of the cotton was considerably lower than the black-market price (reported at about 20 times the subsidized price).

Table 1 - Japanese Fish-Netting Production

Year	Quantity Lbs.	Ratio Index (Prewar Avg.=100)
		Percent
1953	14,850	59
1952	14,000	56
1951	15,500	62
1950	39,500	159
1949	33,492	134
1948	27,350	111
1947	22,614	91
1946	12,278	47
1945	297	1
1944	398	1
1943	7,489	30
1942	15,009	60
Prewar Avg. 24,857		100

Source: Fishing Materials, Japanese Export Library No. 21, Ministry of Agriculture and Forestry, Japanese Government.

The favored position of the fish-netting industry was an incentive for new firms to enter this profitable industry. Over 500 firms were making fish-netting in 1950, <sup>1/</sup> and the production capacity a few years after the end of the war surpassed the prewar level.

However, the favorable position of the fish netting industry could not continue indefinitely. As soon as the shortage of fish nets after the war was met, decreased demand pointed up overproduction and overexpansion. In addition, government control over cotton yarn was gradually becoming less strict and the fish-netting industry was compelled to compete on the same basis as all other industries. Under these conditions, the fish-netting industry at the turning point in 1949 entered a period of depression. The outlook for its recovery is not very bright.

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<sup>1/</sup> Cotton Fishing Nets, Ministry of Agriculture and Forestry, Japanese Government.

The overexpansion of the industry is attributed to overinvestment because of the favored position of the industry right after the war. The postwar Japanese fishing industry, which lost important fishing areas off Kamtchatka, in the Yellow Sea, and in the East China Sea, requires less netting than in prewar days. However, fish-netting production was expanded to one-and-a-half of the prewar level. With the industry no longer in the same favored position as just after the war, it was not able to compete successfully. The industry is still subject to competition from the home handcraft section, which still produces about two-thirds of all the netting in Japan.<sup>2/</sup> Therefore, firms manufacturing fish netting have not been able to show a reasonable profit.

In order to realize the ratio between raw-material costs and labor and other manufacturing costs, the prewar ratio was 45 percent for raw material to 55 percent for labor and other costs. Recently, however, this ratio has been changed to 80 percent and 20 percent.<sup>3/</sup>

A limiting characteristic of the industry is the low productivity and the smallness of the individual firms. The productivity is low because a considerable quantity of the cotton fish nets as well as Manila hemp nets are now made by hand.

On the other hand the firms using mechanized means for manufacturing nettings are very small. There are only a few firms whose capital investment exceeds US\$30,000. As of April 30, 1954, there were 28 principal fish-netting manufacturing firms in Japan. Of these 2 were capitalized at US\$444,000 and US\$375,000 respectively, 1 at US\$90,000, and 2 at US\$83,000 each. Of the remaining 23 firms, 3 were capitalized at US\$28,000, 3 at US\$17,000, 10 at US\$12,000-14,000, and 7 at less than US\$10,000.

Another limiting characteristic of the industry is the fact that the demand for fish nets is limited to two seasons: spring and summer. Add to this the fact that the products produced are quite diversified, and it can readily be seen that there are a number of limiting factors which account for the industry's difficulties. For example, classifying nets by type of materials used in their manufacture, there are cotton, abaca, hemp, flax, linen, ramie, silk, coconut, and synthetic nets. Grouping nets by types of fishing, there are gill nets, casting nets, dip nets, seine nets, drift nets, surrounding nets, fixed nets. Taking into consideration production techniques, there are reef-knotted nets, English-knotted nets, woven nets, moji nets, and knotless nets. These can be further divided into several different types based on size of mesh and twine. To complicate the matter further, the specifications demanded by the fishing industry are subject to change depending upon natural conditions, such as the movement and growth of the fisheries, tide conditions, etc., in each fishing season. This does not make it possible to mass produce these nets or plan production systematically in advance. Low productivity, seasonal production, a wide diversification in products, and the continual change in specifications are factors which enhance inelasticity in the supply and demand relationship and the fundamental inconsistencies of the industry.

With the situation of the industry as described, what measures has the industry taken to combat its problems?

Investment of capital by the manufacturing firms has been in cotton yarn speculations and the buying up of stockpiles from smaller firms. Profit from speculative enterprises has been sought after more than profit from a legitimate manufacturing enterprise. But this has not been as effective as it originally was because the capital that the firms now have available for speculative purposes is too small. In addition, these firms have suffered from monetary restrictions and economic instability.

<sup>2/</sup> Japan Textile Yearbook, 1953

<sup>3/</sup> Cotton Fishing Nets, and other reports of Ministry of Agriculture and Forestry.

In order to stabilize production, foreign markets for fish netting have been sought (table 2). The export outlook, however, is not very bright. Russia and Red China, the largest importers of Japanese fish netting, have been lost. Half of the

Year	Quantity	Index	Percentage of Total
	1,000 Lbs.	Percent	Production Exported
1953	854	15	0.3
1952	937	16	0.7
1951	1,578	27	1
1949	982	17	3
1942	566	9	4
1941	1,593	28	6
1940	2,810	49	11
1939	4,185	72	16
1938	3,280	50	12
1937	5,121	89	20
1936	3,544	63	14
1935	7,311	128	29
1934	6,307	110	25
Prewar Avg.	5,692	100	23

<sup>1/</sup>Source: Japanese Export Library No. 31 and from Japanese Customs House reports.

Japanese prewar production of fish netting used to be exported to these two countries. Other countries which used to import fish netting from Japan during and since World War II have become self-sufficient in this commodity. In view of the difficulty in regaining their prewar markets, and because of overproduction, export prices for fish netting are about 30 percent below those for domestic nets. The comparatively lower-priced netting for export is possible because it is manufactured

during the period when the netting mills are ordinarily operating at a low-seasonal production level. The principal activity of the mills is geared to the seasonal demand of the domestic fishery. These seasonal orders are obtained during the spring and fall. The netting for export is ordinarily produced in the period between the peak months of demand for the domestic fisheries. Consequently, the cost of export netting represents roughly the cost of keeping the plants operating at a minimum maintenance level during the off-season production periods. Hence, the reason for the low cost of netting for export in comparison with the cost of netting for the domestic fisheries.

Under such unfavorable conditions, what is the outlook for the industry? Certain firms are becoming subsidiaries of big spinning or synthetic fiber makers, obtaining foreign capital for financing their operations, obtaining the cooperation of small manufacturers for their specialties, and tending towards the organization of cartels.

There is also a trend towards modernization of the industry. Small makers are finding it difficult to use the new synthetic fibers for home handcraft production. Principal obstacles are financing and the need for mass production to offset the higher cost of the synthetic fibers compared to cotton twine. The increase in the use of synthetic fibers, just as the use of cotton did many years ago, is resulting in further mechanization of the fish-netting industry. However, inelasticity of demand and supply relationships, seasonal demand, low productivity, and the excess potential of the industry, and tight foreign markets are some of the problems that the industry must meet before it is able to revitalize itself.

Year	Quantity	Avg. F.O.B. Price
	1,000 Lbs.	¢ per Lb.
1953 <sup>1/</sup>	206	77
1952 <sup>1/</sup>	216	80
1951 <sup>2/</sup>	715	85
1949 <sup>2/</sup>	308	75
Prewar Avg.	85	26

<sup>1/</sup>Fishing Materials, Japanese Export Library No. 1.  
<sup>2/</sup>Japanese Customs House.

