

Development of nori markets in the western world

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Key words: nori, *Porphyra*, marketing, aquaculture

Abstract

Extensive effort has been made over the past decade to introduce nori (species of *Porphyra*) farming in North America and other western countries. A key aspect has been the evaluation of markets within these countries and in the region as a whole. This report is an overview of relevant market data, including: (1) estimates of market sizes and values; (2) trends observed in these data over time, including extrapolations into the future; (3) typical market structures from producer to consumer; (4) examples of specific marketing efforts and their status. Possible activities that could enhance future prospects for these products within the markets of the western world are discussed.

Introduction

The desire to develop a successful seaweed farming industry in the western world has captivated the energies and creativities of phycologists for decades. One alga that has received particularly intensive scrutiny during the past 10–15 years is *Porphyra*, or nori (Mumford, 1987; Merrill, 1989; Mumford, 1990). Critical factors in selection of *Porphyra* farming for special emphasis have been (1) pre-existing, well-advanced technology for production and processing and (2) pre-existing markets of modest size in western countries (Kramer, Chin and Mayo, Inc., 1982). The careful evaluation of markets for the target products has been a major emphasis throughout these efforts. This report presents some essential market information for *Porphyra* products, with emphasis on potential new production in the western world.

Data are considered for Europe and North America, with emphasis on the U.S.A. the largest existing market for nori products outside Asia,

and one for which there is the most information. In addition, the U.S.A. market history provides a useful model for considering future trends in the less well developed markets in Europe and elsewhere.

How is nori marketed in the west?

Virtually all of the nori sold in the west is marketed as an intrinsically 'Japanese' food item (B. Rankin, pers. comm.). There has been no significant 'westernization' of nori or development of popular western recipes incorporating nori. It is sold through Asian specialty retail outlets, Asian restaurants, and natural food or health food outlets, in all cases for use in preparation of Japanese style foods (Zen-Nori, 1981). Sales through mainstream grocery stores may be considered a fourth channel, although the number of such stores and their volume of sales are extremely limited.

Nori is typically sold in packages of 5–10 paper

thin, rectangular (19 × 21 cm) sheets, each sheet weighing about 3 g (Mumford and Miura, 1989). In the U.S.A., current (1992) retail prices normally fall between \$0.20 and \$0.60 per sheet.

Nori sold in the U.S.A. may pass through a number of levels in the distribution chain before reaching the consumer. The pathway shown in Fig. 1 probably includes the maximum number of possible steps. A particular business entity may span two or more of these steps. Examples include a Japanese packing/exporting firm that operates its own importing and distribution operation in the U.S.A. or a distributor who sells directly to retail stores or restaurants when purchase volumes are sufficiently large. The makeup of this distribution chain may also differ depending on the market segment. Large sales volumes and relatively low profit margins at Asian specialty 'supermarkets' in the larger cities encourage the retailer to obtain products farther down the distribution chain so as to avoid intermediate markups. In contrast, the typical small health and natural food store sells fewer units at significantly higher prices, but relies on potentially greater service provided by the local wholesaler or distributor.

There is little or no standardization in the price markup taken at each level in the distribution chain. Common ranges, however, are 20% to 40% gross profit at each level. Thus the per sheet price for nori at retail may be 2 to 4 times the

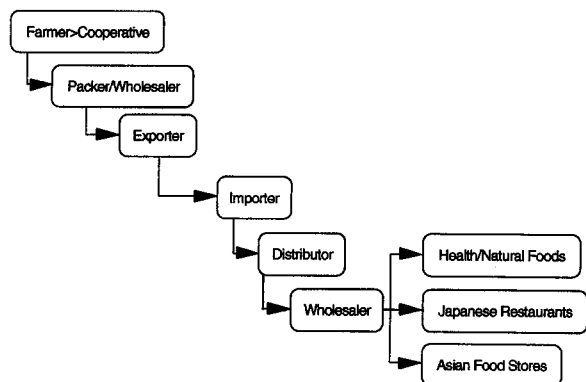


Fig. 1. Model of the distribution chain for nori products entering western markets. Specific market participants may bridge two or more individual distribution levels.

landed value. At the importer and distributor level, the markup depends considerably upon the marketing responsibilities, such as advertising and packaging. Retail markups may also depend on advertising or other marketing costs, and also on sales volumes, competition and many other factors. Because of the relatively high value of nori per unit dry weight, shipping costs have a relatively insignificant effect on the final product price.

What is the size of the nori market in western countries?

Japan has been historically the major exporting country, and its export statistics (Japan Ministry of Finance, 1976–1991) can be examined for overall trends. Within the North American market (Canada, U.S.A., Mexico) U.S.A. sales comprise about 95% of the total. Japanese exports to the U.S.A. experienced strong growth during the period to 1985 (Fig. 2). An average annual growth rate of over 23% during this period (1976–85) primarily resulted from a dramatic increase in the awareness of Japanese cuisine, especially 'sushi', among Americans not of Japanese descent. The increased consumption of nori occurred principally in the restaurant market segment. Since 1986, Japanese exports to the U.S.A. have been

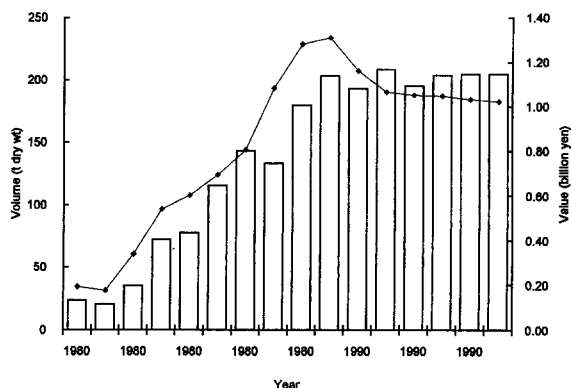


Fig. 2. Exports of nori from Japan to the U.S.A. Bars represent export volumes in dry t. Line shows corresponding export values in billion yen. Data from Japan Ministry of Finance (1976–1991).

relatively steady at about 200 t yr⁻¹ dry weight. This stabilization relates to both the export volumes and values, although minor differences are apparent.

To understand the causes for the stabilization in Japanese nori exports to the U.S.A. since 1986, we must understand changes taking place in nori production within China and Korea. Both of these countries have long histories of *Porphyra* consumption. The traditional product forms, however, differ from Japanese nori, making them largely unsuitable for use in Japanese-style sushi, the main U.S.A. growth market. In the mid 1980s, with technical assistance and investment from Japanese companies, significant quantities of Japanese-style sheets began to be produced in China and Korea. Various market considerations have subsequently led to Chinese exports, and to a lesser extent Korean exports, capturing a growing market share in the U.S.A. (Fig. 3). The primary factors of influence in this regard have been: (1) lower costs of production and (2) less stringent quality criteria among U.S.A. consumers. Current year (1992) estimates for Chinese and Korean market shares are 60% and 10%, respectively (M. Takaoka, pers. comm.), or 400 and 65 t, for a total market (including Japanese products) of about 660 t (Fig. 3). Thus, despite stabilization

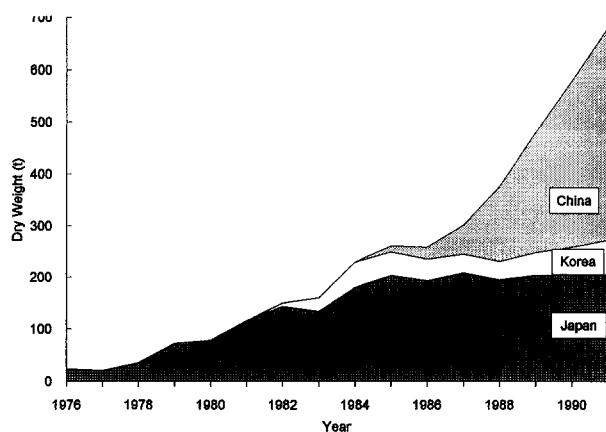


Fig. 3. Total U.S.A. nori imports, including products from Japan, Korea, and China. Note that Japanese imports level off as Korean, and later Chinese, products begin to enter. Data for Japan are from published sources (Japan Ministry of Finance, 1976–1991), those for Korea and China are estimated (see text).

in Japanese exports, total market growth has remained quite strong at greater than 20% annually (Table 1).

Assigning an accurate value to the U.S.A. market is rather difficult. From the standpoint of a potential producer of nori, the essential values must relate to the level at which the producer intends to sell products. For the purposes of this discussion, I will consider 'landed value' (C.I.F. port of entry) to be the minimum level at which domestic product would compete. The values shown in Fig. 2 are export values, and therefore underestimate landed values. Published figures for landed values are not available. Through interviews with various importers and distributors, however, I have been able to estimate the total landed value of U.S.A. imports from Japan, Korea, and China at between \$20 and \$25 million (U.S.A.) for 1991.

Exports of nori products to Europe also show a trend of expansion in the total market (Fig. 4), although the estimated 1991 totals (including estimated imports from China and Korea) of 20–30 t are far below sales in the U.S.A. Four countries, the United Kingdom (32.4%), Germany (18.7%), France (17.9%), and the Netherlands (14.2%), make up over 80% of current (1991 calendar year) European nori sales. Belgium, Austria, Switzerland, Denmark, Italy, and Spain each represents 3% or less of the European imports. In the most recent 5-year period, the U.K., Germany, and the Netherlands all averaged 15%

Table 1. Average annual percent changes in nori exports to selected western countries calculated for the most recent 1-year, 5-year, and 10-year periods. Calculated as $((cv/pv)^{1/term}) - 1$, where *cv* is current value, *pv* is past value, and *term* is number of years. Data from Japanese Ministry of Finance (1981–1991), USA data include estimates for Korean and Chinese products (see text).

	1 yr	5 yr	10 yr
USA	17.7%	21.4%	19.4%
United Kingdom	42.6%	15.5%	18.8%
Germany	1.6%	14.8%	9.8%
France	-11.0%	5.7%	8.0%
Netherlands	81.6%	17.4%	13.6%

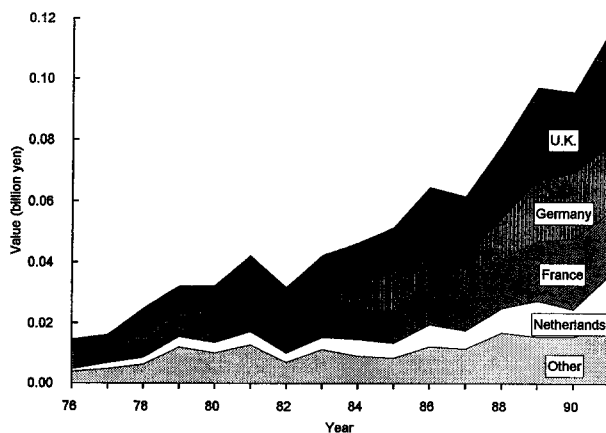


Fig. 4. Value (in billion yen) of nori exports from Japan to select European countries by year. Data from Japan Ministry of Finance (1976–1991).

or higher growth rates (Table 1). It is not known whether these figures are significantly affected by imports from China or Korea, but the U.S.A. model may be applicable, in which case the total volumes could be double those from Japan alone.

What future growth trends can be predicted?

The large populations in western countries can and should be viewed as immense potential markets ready for exploitation by marketers of nori products. On a per capita basis, about 0.9 sheets per person are consumed in the U.S.A. annually. This number indicates a virtually untapped market when compared to 70–90 sheets per capita in the mature, stable markets of Japan and Korea. The contrast is even more striking for European consumption levels. Incompatible western culinary traditions will almost certainly prevent attainment of consumption levels equal to those in Asia, however, even modest gains in per capita consumption can translate into significant growth in sales volumes.

In predicting a growth trend, it is safest to predict a continued growth in the range of 15–20%, consistent with recent historical trends. However, this is highly dependent upon many factors, especially on whether or not significant marketing efforts are undertaken and if these are successful.

A prediction for growth in European sales might reasonably be higher than that for the U.S.A. since the more easily achieved first phase, spread of Japanese restaurants, has not yet occurred. Growth rates of close to 25%, as seen in the U.S.A. during the 1976–1985 period, are highly possible. This would entail considerably faster growth than the 12% average annual growth for all of Europe observed during the most recent 5-year period (Japan Ministry of Finance, 1986–1991).

Discussion

Most observers of nori marketing in the west would probably agree that these products are not being marketed aggressively. Attractive and sophisticated packaging designs can be seen in retail settings, and sales aids, such as recipes and instructions in the local language, have improved the ease of use for new consumers. However, these efforts alone cannot be expected to effect significant market expansion. The absence of more widespread marketing campaigns is probably the result of several factors. A significant marketing project would be too expensive for small importers or distributors to undertake. Even a large Japanese packer/exporter might find the costs excessive relative to potential short-term or even medium-term benefits. A producers association with a long-term view and a strong funding base would be the likely source for a major marketing effort. However, factors such as the shift from Japanese products to Chinese products in the U.S.A. markets makes this possibility unlikely.

To date the market for nori products remains largely in institutional (restaurant) sales and to a lesser degree in gourmet ethnic foods. Although continued growth in markets can be expected on the basis of an expanding Japanese restaurant trade, it is clear that a large potential market exists in home consumption. An objective cited in the early feasibility reports on nori farming in the west (Kramer, Chin and Mayo, Inc., 1982) was the transition to in-home consumption. Basically,

the expectation has been that following a spread of Japanese specialty restaurants and a growing interest in sushi, consumers would experiment with making similar preparations at home, gradually incorporating nori into the home diet on a regular basis. At the current time this objective has not been met. At-home preparation of sushi is still quite rare. Most potential consumers still feel that sushi is exotic and difficult to prepare, or that they would not know how to obtain and prepare the necessary ingredients. There continues a widespread mistaken belief that the name 'sushi' (vinegared or flavored rice) refers to raw seafood (actually called 'sashimi') and thus is rejected by many potential consumers.

In order to increase sales in western countries, the following marketing steps might be considered. Since the principal bulk ingredient in sushi is rice, producers and marketers of nori might consider approaching the rice producing industry with a proposal to cooperatively encourage sushi consumption, with special emphasis on adaptations for western tastes. Important in this regard will be the educational task of clarifying that sushi is not raw fish. Another key aspect for such an effort will be to 'de-mystify' the preparation of sushi. Although the exotic art and showmanship that is emphasized by the sushi chefs in restaurant settings has been essential in stimulating the wave of interest seen thus far, it is counter-productive in achieving the larger goal of a transition to home consumption. A strong effort to teach simple preparation techniques using simple ingredients should be a high priority. In addition, further effort should be made toward finding appropriate ways to incorporate *Porphyra* products into western-style cooking. This could be achieved by targeting gourmet cooking, perhaps at the most avant-garde restaurants. Flakes or powders could be utilized in sauces, soups, or chowders, having the additional benefit of requiring somewhat lower quality starting material. Or perhaps the key is to work from within the west's own heritage by rediscovering traditional preparations such as 'laver bread' and expanding from that base.

Despite many years of intensive effort to de-

velop a nori cultivation industry in the west, the goal remains unachieved. Current markets, especially in North America, can potentially support the production from several farms should they be established. However, significant market growth will be necessary to support a new 'industry', composed of more than a few farms. One factor difficult to assess in this regard is the impact local sea vegetable farms may have in stimulating market growth. The highly conspicuous farming activities will generate public interest that hopefully, will stimulate market growth.

In conclusion, it can be safely asserted that an ample market exists for the establishment of nori sea-farming in western countries. Although the current size of these markets is small in absolute economic terms, growth trends have been strong and consistent. Furthermore, potential exists for enormous expansion in these markets if in-home consumption can be stimulated. Where biological and environmental criteria are shown to be suitable, where social and political issues are favorable, where a careful economic analysis is positive, and where sufficient investment capital can be brought to the project, strong markets await *Porphyra* products from new sea-farms in the western world.

Acknowledgements

I thank Prof. A. Miura for his extensive assistance in preparation of this report, Mr Masanori Takaoka (Takaokaya Co., Ltd, Tokyo) and Mr-Blake Rankin (Granum Inc., Seattle) for their generosity in providing valuable data on western markets and Mr Steve Crawford (Coastal Plantations, Eastport, Maine) for sharing his views on the U.S.A. nori market.

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