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MECHANIZING THE BLUE CRAB INDUSTRY

Part III - Strengthening the Industry's Economic Position

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ABSTRACT

Because the production of meat from the blue crab has required a large amount of hand labor, the recent amendment of the Fair Labor Standards Act resulted in hardship for the blue crab industry in that compliance with the minimum wage requirement narrowed the spread between cost and selling price. This article suggests a number of measures for strengthening the economic position of the industry by indicating how the spread between cost and price can be widened.

These suggestions involve mechanization of the industry, developing additional markets for the product, and increasing the supply of raw crabs.

INTRODUCTION

The blue crab industry of the South Atlantic and Gulf Coast has faced economic disaster as a result of its being included under a revision of the Fair Labor Standards Act, effective September 3, 1961. In fact, a number of plants were shut down during the first year that this revision of the Act was in effect. Picking the meat from the crab in the production of blue crab meat involves a large amount of hand labor. Prior to September 1961, crab pickers were paid on a piece-work basis, and only the faster pickers were able to earn a dollar or more per hour. Because many of the pickers could not work fast enough to earn this minimum wage required by the Act and because industry profits were already low even under the piecework system with many plants operating marginally--the packers were greatly concerned over the effect of the resulting increase in cost of production.

When funds were appropriated by Congress to provide relief for the industry, a contract was granted to a research and development firm to conduct the necessary investigations into how the mechanization could be accomplished.

The first step the contractor took was to survey the industry to determine what machines are needed and also what changes in the operation of the industry might be helpful to it in the interim period while the desired machines are being developed.

The survey substantiated the opinion that, even aside from the effect of the Fair Labor Standards Act, the crab industry as a whole was in serious economic trouble. From the survey it became clear that new machinery and methods must do more than merely offset the immediate increased cost of labor resulting from the amendment to the Fair Labor Standards Act. The survey indicated that the blue crab industry, even for some time before being included under the Act, was not particularly geared to growth and profit and, indeed, had at times operated below actual cost. In short, survival of the industry in its present form was in danger, minimum wage or no.

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As a result of the contractor's survey, he made three major suggestions, as follows:

1. That the industry needs a "family" of four machines to provide the flexibility required because of the great differences in plant size and economic health. The purpose of the first article in the present series was to report the contractor's recommendations concerning this "family" (Lee, Knobl, and Deady, 1963).

2. That there are certain modifications in plant practice that the individual operator can make to enable his plant to remain in business during the interim period required for mechanization. The purpose of the second article (Lee, Knobl, Abernethy, and Deady, 1963) in the present series was to report the contractor's recommendations concerning these modifications.

3. That in addition to mechanization, other steps are needed in order to strengthen the industry's economic position. The purpose of the present paper is to report the contractor's recommendations for industry action by which it might strengthen itself economically.

The industry's current difficulty is due to a lack of spread between cost and selling price, which leaves little room for profit. The solution to the problem is, of course, to lower the cost by introducing economies in production and/or to improve the price structure by creating greater demand for the industry's products. Accordingly, in the present article, we discuss the following three main topics:

1. The lack of spread between production cost and selling price.

2. The possibility of lowering the cost by introducing operating economies (mainly through mechanization).

3. The possibility of improving the price structure by creating greater demand.

LACK OF SPREAD BETWEEN COST AND SELLING PRICE

Using average yield data and an average price for raw crabs based on the assumption that two-thirds of the catch is purchased during the summer season and that one-third is purchased at a higher price during the off season, we computed that the average cost of the raw crabs yielding 1 pound of crab meat (lump, flake, and claw in normal proportions) was 29 cents. The average picking cost, based on plant records and Labor Department surveys, was 27 cents per pound[1/]. Costs of cooking, cans, ice, and utilities added another 28 cents, making the average direct cost of production of 1 pound of crab meat 84 cents. The average sale price was computed as shown in table.

Average Price to the Packer of a Pound of Crab Meat Based on the Wholesale Price of Lump Meat, Flake Meat, and Claw Meat in the Relative Proportion Obtained from the Whole Crab

Style of Meat	Average Price of Meat	Average Relative Yield	Average Price of Meat
	Dollar Per Pound	Percent	Dollars Per Proportionate Part of a Pound
Lump	1.40	28	0.39
Flake	0.90	52	0.47
Claw	0.70	20	0.14
Total		100	1.00

From these figures, it is evident that industrywide, on an average year-round basis, the packer has a margin of only 16 cents per pound above direct costs to pay for transportation, losses from spoilage, salary costs of management, accounting, office costs (telephone and supplies, etc.) and cover such items as depreciation, taxes, and insurance. Only a few of the plants had records that made it possible to determine these costs accurately. Records of one plant, however, indicated that these indirect costs totaled 15 percent, or in this case 15 cents.

Although it is, perhaps, unjustifiable to speak of the crab industry in terms of an "average" plant and "average" costs, yet the estimate of a net profit of 1 cent per pound is certain-

1/These data were obtained during the survey period, October 1961-January 1962, and may have changed since that time.

ly an indication of trouble in many plants. It is obvious that there is not sufficient spread between costs and selling price to sustain the industry, even at the present $1.00 per hour minimum wage, to say nothing of the $1.15 and the $1.25 per hour wage with which it will be faced in September 1964 and September 1965, respectively.

Though it would be desirable to have a more extensive inspection of industry cost records so as to evaluate the range of spread between cost and selling price more precisely, the foregoing data are sufficient to indicate the critical situation in which the industry now finds itself.

POSSIBILITY FOR LOWERING COST OF PRODUCTION BY INTRODUCING OPERATING ECONOMIES

In this section, we consider the major factors in the cost of production, which will show that one of the major factors is the cost of labor. We then consider the economic value of mechanization.

MAJOR FACTORS IN THE COST OF PRODUCTION: The cost of production varies principally with:

1. Seasonal change in cost of raw crabs. This cost ranges from $3\frac{1}{2}$ to 9 cents per pound.

2. Cost of picking labor. At $1.00 per hour, pickers are paid from 23 to 38 cents per pound of crab meat. Experienced pickers (the main labor force) are scarce, but there are almost no trainee or recruiting programs. A large proportion of the workers are over 50 years of age.

3. Yield of meat. The average yield may range from 11-16 pounds of meat per 100 pounds of raw crabs. During months of high production when crabs are cheapest, the yield is highest; and vice versa.

4. Proportion of lump, flake, and claw meat obtained per pound. The price per pound of lump meat is about twice that of claw meat and flake meat, so that the proportional yield of lump meat is a major factor in determining profit margin.

5. Cost of shipment of crab meat to market (and of raw crabs to plant). The cost of shipping the meat ranges from 3 to 9 cents per pound.

One of the major factors in the foregoing list is the cost of labor, especially under the requirements of the amendment to the Fair Labor Standards Act. This law sets interim minimum wages of $1.00 per hour until September 3, 1964. It then sets interim minimum wages of $1.15 per hour--the wage that is to prevail until September 3, 1965. At that time the industry must pay a minimum of $1.25 per hour. Some uncertainty as to these $1.00 and $1.15 interim rates exists, however, because owing to their nature, various crab-packing operations may have been brought under an "enterprise" classification. This classification carried with it an immediate $1.15 minimum that was raised to $1.25 on September 3, 1963.

To assist the packers in adjusting to the new minimum wages, the Department of Labor at first permitted handicapped-worker certificates for those elderly pickers who are below average producers as well as for those crab pickers who are handicapped for the job. However, these provisions for paying handicapped workers at less than the minimum wage are being eliminated in several steps, resulting in a continuing increase in labor costs even prior to September 3, 1964.

ECONOMIC VALUE OF MECHANIZATION: Since the survey showed that it was feasible to reduce the cost of labor by mechanization, it was desirable to estimate what savings would potentially result. This estimate would serve as a guide to the amount of money that the individual plants might be expected to invest in mechanization, which in turn would determine

the size and complexity of the machines to be developed. In the case of any contemplated machine, it is, of course, difficult to arrive at its economic value. At best, such an estimate must be based on an "educated guess." Making such an estimate requires estimating values for such factors as original costs, interest rates, efficiency, power requirements, maintenance problems, and repair costs. In the case of the blue crab industry--which is characterized by a wide variety of economic, geographic, and other differences--the problems are compounded by the many variations possible.

Based, however, on the probable elimination of 90 percent of the picking labor when the whole family of four machines is used (10 percent of the best workers could maintain and operate the new equipment), direct savings of about $20,000 per year might be anticipated for a typical plant having some 25 pickers when they are being paid $1.00 per hour. If savings were figured on the basis of $1.25 hourly wage, a correspondingly larger saving would be realized. Cost of power, maintenance, and repairs would reduce the estimated savings, but possibly $15,000 per year would still be available for financing of mechanization, including original costs of the machines, interest, and depreciation.

The most recent development resulting from the contractor's investigations has been the design of a novel and basically simple machine for cleaning and debacking the crabs. This machine is designed to handle about one crab per second and will probably cost about $2,000 per unit. Moreover, the machine has been designed with the idea of attaching a second relatively simple machine for removal of the lump meat. The contractor believes that in combination, these two machines alone will enable the industry to operate at a profit with the $1.25 wage.

Profits from the addition of the claw- and flake-picking machines would support much needed cooperative exploratory studies and development of new gear for catching crabs. With the successful mechanization of the cleaning and picking operations, the future government-industry program should include development of rapid pasteurization methods, and continuing biological studies of the resource, exploratory fishing and gear studies. It is reasonable to expect that the next 5 to 10 years will see a completely new crab industry with a sound economic base for the first time in many years.

POSSIBILITY FOR IMPROVING THE PRICE STRUCTURE BY CREATING GREATER DEMAND

To make concrete proposals for improving the price structure, the contractor conducted a brief marketing study to obtain a better understanding of the industry's marketing problem. With this factual background, he then made a number of specific recommendations.

The main topics discussed in this section of the article therefore are:

1. Marketing study.

2. Proposed marketing program.

MARKETING PROBLEMS: The initial survey of the industry indicated that one serious block to progress is the present pattern of marketing. A limited survey therefore was made to learn more of the nature of the problem. In this survey, the Baltimore crab market was selected for study, not because it is typical, but rather because it is the largest crab market in the country and is the main sales outlet for a great many of the smaller plants. This survey revealed that:

1. With the exception of some hotel and restaurant managers who appreciate the benefit of the longer shelf life, pasteurized crab meat does not sell nearly as readily as does the fresh meat. Some prejudice against pasteurization apparently resulted from use of this process to hold spoiling, over-age meat during the early trial-period of pasteurization. Packers also object to the extra can and storage costs and the inventory tied up in storage. However, the

short (6-10 days from picking) shelf life of the fresh meat leads to considerable loss at the retail level, which loss reverts to the crab meat packer.

2. Quality of pack is variable from picker to picker. The cans are not coded to identify the pickers for the packs of low quality. Standardization and control of quality thus are badly needed.

3. Dredged crabs, the only crabs available locally during the winter in Chesapeake Bay, are the source of another factor that reduces quality--sand in the meat. Crab meat shipped from Florida and Louisiana during this period has a price advantage because the meat is cleaner. In the South, crabs are taken in crab pots (traps) the year around.

4. Most of the crab meat coming into Baltimore is bought by commission merchants. When the packer ships the meat, he often does not know what price he will receive for his product--or even that it will be sold.

PROPOSED MARKETING PROGRAM: Among the packers there exists no well-organized pattern of cooperation to solve such common problems as uniformity of product, product specifications, marketing, and advertising.

Most of the packers attempt to sell their products in long-established markets. There seems to have been no concerted effort by the industry to develop new markets.

Accordingly, the contractor made a number of specific proposals for expanding existing markets. However, it was evident that if the market for blue crab is expanded, the problem of supply of raw crabs may become critical. He, therefore, also made a number of suggestions relating to the supply. An increased supply of raw crabs not only would permit an expanded market and thereby strengthen the price structure but would also help stabilize production costs. Stabilization of the price of the raw crabs will benefit both the fishermen and the processors. The contractor's suggestions regarding the expansion of the market for the product and the expansion of the supply of the raw crabs are discussed in the following subsections.

Expansion of the Market: A marketing program will require an industrywide cooperative effort. Emphasis should be placed on new processes that will provide more stable market forms of the product as well as greater control of quality. Pasteurization should be perfected to the point where the product is entirely acceptable by the market for fresh crab meat and to the point where most of the pack can be so treated. Greater effort should also be devoted to expanding the production of frozen specialty products.

Only when stable products of uniform quality are available will it be practical to extend the market area to include the smaller towns and inland regions that are not in the present pattern of distribution of fresh, chilled crab meat. There seems little doubt that the current marketing pattern had its origin in the very short shelf life of the chilled product. A strong marketing program is needed to change this pattern. The development of a stable market would help greatly to stabilize the price of crab meat, and a stabilized price would increase industry profits by enabling management to establish a more even schedule of production.

Expansion of the Supply of Raw Crabs: The conversion to general use of pasteurization and efforts to expand the market for crab meat into new regions should be preceded by, and later be concurrent with, a program to improve the supply of live crabs. Although in areas such as Chesapeake Bay, there are indications that the harvest of live crabs is already near its maximum yield, this condition is not believed to be representative of the potential yield of blue crabs in all other parts of its range. The production of the South Atlantic and Gulf Coast States, for example, has been approximately doubled in the past decade, and this increase has occurred without any really coordinated industry effort.

There are still large regions within the range of blue crabs where there are very few or no crab plants. Exploration of these new shore areas offers an opportunity to increase pro-

uction. New gear for catching crabs, such as tangle nets or trawls that would permit exploitation of possible deeper-water crab populations, needs study. Crab fishermen often make but little effort to follow even local shifts in the crab populations that occur due to temporary changes in salinity in the estuarine areas where the crabs are most generally concentrated. Efforts of these types to expand the fishery for blue crabs should be accompanied by biological studies, with the objective of determining the maximum sustained yield of the fishery from the major production areas and the factors that influence the annual yield.

CONCLUSIONS

Briefly stated, the needs of the crab industry to place it on a solid economic base are threefold:

1. The cost of production must be reduced. It is believed that the mechanization program will achieve this objective.

2. A strong, aggressive, and sustained marketing effort by the industry is required to create a stabilized and, eventually, an expanded demand for the product.

3. A concerted effort is needed to expand the catch of live crabs and to minimize the seasonal and annual fluctuation in the catch.

SUMMARY

A survey of the blue crab industry indicated that even before the amended Fair Labor Standards Act, many crab plants operated with little profit. Mechanization therefore will have to do more than simply enable plants to pay the minimum hourly wage required by the Act. Eventually mechanization must also ensure a sufficient margin of profit to permit a cooperative attack by the blue crab industry on such basic problems as limited markets, need to develop modern products, lack of knowledge of the resource, and need for modern harvesting and processing methods.

Direct cost of production varies with changes in the cost of raw crabs, quality of crabs, cost of picking labor, and cost of cans, ice, cooking, etc. The average direct cost of producing a pound of crab meat was calculated to be $0.84, for which the average sale price was calculated to be $1.00. The 16 cents difference is barely adequate to pay for shipping and indirect costs, indicating that many plants are already operating at the break-even point or at a loss.

Present marketing practices do not contribute to a stable economic structure for the industry. The quality of the meat is highly variable, and the short shelf life of chilled crab meat causes excessive losses. Yet the pasteurized product, which has a longer shelf life, has not been sufficiently "sold" to either the packer or the potential customer. There has been little cooperative effort by the industry to develop a wider market.

Estimated savings that are anticipated to result from mechanization of a plant employing about 25 pickers would be about $15,000 per year at the $1.00 hourly wage. Recent developments in the mechanization studies indicate that the price of the machines may be less than early estimates as the contractor has now been able to simplify his design concepts of both a debacking machine and a lump-picking machine. As the result of this simplification and consequent reduction in the potential cost of mechanization, even the small plants should eventually find complete mechanization economically feasible.

Three conclusions were derived from this study: (1) the cost of producing crab meat needs to be reduced by means of mechanization, (2) a strong marketing effort by the industry is needed, and (3) the catch of crabs should be expanded and the fluctuation in catch minimized.

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CURRIED SCALLOPS WITH RICE PILAF

Flavorful scallops from cold New England waters blend readily with savory curry to capture compliments for the imaginative homemaker. Skewered scallops, magically marinated, and broiled until brown, will bring the charm of the Middle East to your table to appease apathetic appetites.

1 ½ pounds scallops, fresh or frozen
⅓ cup melted fat or oil
⅓ cup cider or apple juice
2 tablespoons chopped parsley
1 teaspoon curry powder
1 teaspoon salt
Rice Pilaf

Thaw frozen scallops. Rinse with cold water to remove any shell particles. Cut large scallops in half. Place scallops in a shallow baking dish. Combine remaining ingredients except Rice Pilaf; mix thoroughly. Pour sauce over scallops and let stand for 30 minutes, stirring occasionally. Remove scallops, reserving sauce. Place scallops on 6 skewers, approximately 7 inches each. Place on a well-greased broiler pan. Brush with sauce. Broil about 3 inches from source of heat for 3 to 4 minutes. Turn carefully and brush with remaining sauce. Broil 3 to 4 minutes longer. Serve over Rice Pilaf. Serves 6.

RICE PILAF

1 cup uncooked rice
2 tablespoons melted fat or oil
1 package (1-3/8 or 1¾ ounces) onion soup mix
2 ⅓ cups boiling water
¼ cup chopped parsley

Cook rice in fat until golden brown, stirring occasionally. Add soup mix and water; stir. Cover and bring to the boiling point. Reduce heat and simmer for 30 to 35 minutes or until liquid is absorbed. Add parsley. Serves 6.

--From Fisheries Marketing Bulletin: "Protein Treasure from the Seven Seas." Issued by the National Marketing Services Office, U. S. Bureau of Commercial Fisheries, Chicago 5, Ill.