SANITARY CONTROL PRACTICES FOR THE OYSTER INDUSTRY[1/]

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INTRODUCTION

It is often said, that it is doubtful whether any food product in this country is subject to more stringent sanitary regulations than the oyster. The waters in which the oysters are grown for market are examined bacteriologically at intervals by health authorities. After the oysters are removed from the shell, they must again meet certain bacteriological, chemical, and physical requirements. In like manner, the shucking plant and its employees are given periodic examinations which are designed to promote the production of oysters of high quality and purity.

This system of regulation might be said to have started in 1925, when shellfish producers and health authorities requested the U. S. Public Health Service to supervise the sanitary quality of shellfish entering into interstate commerce. A system of endorsement of State control measures was accordingly developed which in turn was to be acceptable to the Public Health Service. In order for these measures to be acceptable, they had to meet certain minimum requirements established by the Public Health Service. Based on these requirements is a "Manual of Recommended Practices for Sanitary Control of the Shellfish Industry", in which are given in concise form the items of sanitation to be followed.

OYSTER BEDS AND HARVESTING

Of primary importance in the packing of oysters for market is the source of the raw material. The water in which oysters grow is sometimes contaminated by the fresh water run-off from surrounding land areas and by streams and rivers which have been polluted from sewage originating in cities and towns or even isolated houses. For this reason, it is necessary that the growing areas be examined by sanitary and bacteriological surveys prior to the approval of interstate shellfish shipments. Based on such surveys, all shellfish-growing areas are classified as approved or restricted, the latter being further subdivided as being moderately polluted or grossly polluted. The taking of oysters from the different areas so designated is accordingly regulated by the U. S. Public Health Service. It is obvious that a public health hazard may easily be involved and that the strictest adherence be given to the requirements for taking oysters only from beds that are considered safe bacteriologically.

LOADING OYSTERS

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From the first harvesting operation, the oysters are subject to sources of bacterial contamination from contact with the various steps in the production line. The oyster boats may be one source of infection unless they are well cleaned and scrubbed after each trip. Any mud or sand which drops off the oyster shells on the decks may carry over yeast spores which will, under proper conditions, reproduce rapidly and cause spoilage. Washing the oysters on the decks with high pressure nozzles may be well worth while. This would eliminate carrying mud into the shucking plants where it only adds to the hazards for the preparation of clean shucked oysters.

PLANT CONSTRUCTION

There are certain requirements that must be met regarding the construction and lay-out of the shucking and packing house. The shucking operation is, at best, one in which considerable debris must be handled and is such that the shuckers' clothing becomes quite soiled. For this reason, it is considered good practice to carry out the shucking and packing operations in separate rooms, between which is a delivery window for passing the shucked oysters to the packing room. Clean rooms or lockers are needed for storage of employees' wearing apparel.

SHUCKING OYSTERS

Shellstock held in storage prior to being shucked should be adequately protected from contamination. Floors throughout the plant should be constructed of concrete or other impervious material, free from cracks, holes, or uneven surfaces, and graded so that drainage occurs rapidly. They are much more easily cleaned than those which hold dirt and water. Smooth, washable, light-colored walls, maintained in good condition, are much more apt to be kept clean than walls which have a dingy appearance.

All cans in which shucked oysters are to be packed should be stored in a clean place and protected against contamination from dust, insects, and vermin.

Some effective means, such as screens, for preventing the entrance of insects is imperative during certain times of the year. Flies should not be permitted in the packing room. Ample light, properly distributed, is required for the workers. Lighting requirements are often covered by State regulations. The working rooms must be heated when necessary and proper ventilation for the rooms must be provided.

Separate sanitary toilets, conveniently located, properly maintained and meeting the approval of State health authorities should be provided for each sex. They should not open directly into the shucking and packing room. Adequate washing facilities, provided with hot and cold running water, a supply of soap, and individual towels are needed. A requirement for employees to wash their hands thoroughly with hot water and soap is most essential. These washing facilities should be located so that the supervisor can observe compliance with this requirement.

Workers who are known to have a communicable disease or who have open lesions or infected wounds on exposed portions of the body should not be permitted in the plant.

EQUIPMENT

In order that shucking benches, blocks, and stalls may be readily cleaned, they should be made of a smooth, nonabsorbent material free from cracks or crevices. Similarly, shucking pails, knives and blocks, and all packing equipment such as skimmers, tanks, measures and paddles, should be constructed so as not to corrode readily and to eliminate grooves and cracks which will hamper proper cleaning.

Particular attention should be given to the construction and cleaning of the blower. The surfaces with which oysters come in contact should be free of rust and paint. The pipes through which the air is blown should be easily removable to permit thorough cleaning. A connection to the air line for sterilization by steam or other means is quite important. Unless cleaned thoroughly at the end of each day's operation, the pipes will accumulate material that supports active bacterial growth. Subsequent use of an uncleaned blower will serve to inoculate the oysters with bacteria which may cause rapid spoilage. Sufficient distance should be allowed between the air pipes and the bottom of the tank to allow easy and thorough cleaning. The air intake should be protected to prevent contamination of the oysters by unclean air.

PLANT AND EQUIPMENT CLEANLINESS

Immediately following each day's operation, floors, walls, benches, shucking utensils--in fact, any equipment used in the production and preparation of shucked oysters--should be cleaned thoroughly. In addition, all utensils used in shucking and all packing room equipment should be sterilized after cleaning, by an accepted method of sterilization. After sterilization, the utensils must be stored under conditions which will prevent recontamination. Benches, blocks, and stalls should be washed with an approved disinfecting agent at the close of each day's operation. Hot water and soap applied with stiff brushes is excellent for this purpose, followed by a wash with clean hot water. After the water treatment, the entire plant should be treated with some chemical cleaning agent. There is a variety of them available for this purpose. However, there is no chemical or detergent which can take the place of hot water and a scrubbing brush.

The importance of having someone in the plant designated to be responsible for seeing that the accepted rules of sanitation, plant cleanliness, and proper handling of a food product are observed cannot be too strongly emphasized. He should be familiar, at least, with the fundamental requirements for good sanitation and should understand the reasons behind these requirements. He should be on the alert at all times to see that hand-washing by the employees is not forgotten and is done properly. It is his job to see that floors, walls, benches, shucking utensils and other equipment in the plant are given thorough daily cleaning and that the employees' wearing apparel is maintained in as clean a condition as possible. Careful observation of the health of the employees should be noted. Proper and frequent disposal of oyster shells should be made to prevent contamination of the shucked product. He should see that toilets and wash rooms are maintained in proper condition.

The job of sanitation supervisor is a highly important one and a responsible, alert person should be selected for it.

Only brief consideration of these sanitation practices is necessary in order for their purpose to become apparent. Back of each one will be found the same

reason: sanitation and cleanliness--a desire to have produced a food product that will meet the highest standards of purity. By following these practices closely, the oyster industry will find that the seemingly extra work and often-considered needless cleaning will be compensated for by a superior product reaching the market.

CLEANING SHELLSTOCK AND MEATS

So much for the sanitation and equipment angle. We also have other angles to consider in producing a superior product. The condition of the shellstock and the nature of the shucking operation is such that considerable debris, such as sand, grit, and broken shell fragments will be mixed with the meats. The quantity will vary, among other things, with the source of the shellstock and the practice followed in the shucking operation. Shell oysters from different localities and beds will vary widely in the quantity and type of debris found on the shell. Some stock will be relatively clean, with only some sand and pieces of seaweed on the outside. Other stock may reach the other extreme and be covered with a type of mud that sticks tenaciously to the shell. Regardless of the source of stock, it is believed that if more attention were given to the removal of sand and mud from the shells before opening, cleaner oysters would be obtained during shucking. The amount of washing required for cleaning the meats would thereby be lessened.

The cleaning of the oyster meats is an important step in the plant operation. The methods followed in handling and washing the shucked meats vary considerably in different sections of the country. The degree of exposure to water after shucking is subject to considerable variation. Methods used in one area will be found impracticable in another area. Some latitude must therefore be permitted in the shucking and washing method.

When oysters are removed from the shell and allowed to remain in fresh water, some of their soluble constituents are removed and some of the water is absorbed by the oysters. Within certain limits, the amount of water absorbed and soluble constituents removed is in direct proportion to the time the oysters are in the water.

In tests conducted by the U. S. Fish and Wildlife Service, it was brought out that the dry matter content of oysters blown for an extended period in fresh water was, on the average, only about 75 percent of the original amount. Salt, being very susceptible to leaching, dropped to less than 10 percent of the original value. Since the flavor of oysters is dependent to some extent on the salt and mineral content, an improved flavor is to be expected by keeping the exposure to fresh water and the blowing time at a minimum. Oysters should not be washed longer than is necessary to clean them. The degree of exposure of shucked oysters to water during production, the adequacy of draining, and the size designations are specified in the requirements of the U. S. Food and Drug Administration promulgated to establish definitions and standards of identity of shucked oysters.

REFRIGERATION

The need for adequate refrigeration cannot be overemphasized. It happens only too often that the effort taken to produce a high-quality food product is cancelled by the failure to provide sufficient refrigeration to retard spoilage. If allowed to remain at a temperature of about 50° F. or more, oysters are an excellent medium for the growth of bacteria. It is therefore essential that facilities be provided for cooling the oysters immediately after being packed. It

is highly desirable to maintain the temperature of shucked oysters between 33° and 40° F., but they should not be allowed to freeze, if they are to be marketed as fresh oysters.

The size of the container obviously will have an effect on the cooling rate of the oysters packed in it. In tests conducted by this Service, it was found that the time required for oysters initially at room temperature to reach a temperature of about 40° F., when packed in crushed ice, varied from 1½ hours in the half-pint size container to about 19 hours in a 5-gallon container. The quart size required 3½ hours, while a gallon took about 5½ hours. For optimum chilling, the smaller size containers are obviously more satisfactory.

PACKING OYSTERS

Ice used for cooling oysters should be obtained from an approved source and should be handled and stored under conditions to prevent contamination. Storage on a floor over which there is foot traffic or drainage should be avoided.

Ample refrigeration is essential from the time of packing, through distributing channels, and until used by the ultimate consumer.

PACKING AND PRODUCTION

Packing house operators should give consideration to a more widespread usage of sealed containers in order to reduce tampering to the final point of destination. All of the care put into the production of a high-quality product may be wasted through filthy handling and adulteration after it leaves the packing house.

Production should be gauged to avoid holding the oysters any longer than necessary. In like manner, distributors should make every effort to estimate probable supply and demand so that the freshest possible product will get into the hands of the ultimate consumer at all times.

In abiding by the accepted practices for the taking, preparation, and distribution of oysters, the ultimate consumer will be assured of obtaining a high-quality product of which the industry can be proud. Such product will be the best advertisement to aid in increasing consumption of this delectable sea food.