COTTAGE CHEESE PROBLEMS IN PRODUCTION AND SANITATION — PUBLIC HEALTH ASPECTS

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One of the most encouraging aspects of cottage cheese manufacture and distribution for human consumption has been the lack of illnesses attributed to it. A survey of literature revealed no reports of disease outbreaks or food poisoning caused from cottage cheese. The fact that physicians have recommended its use for infants is an additional indication of its relative safety. Consequently, public health per se apparently has not been a problem associated with the various kinds on the market, although the current total production is roughly a billion pounds per year.

Nevertheless, several trends indicate the desirability of increased precaution. The lack of a closed system during production, sweet curd type (higher pH), more handling, longer storage, more combination with fruits, vegetables and other products necessitate constant vigilance from industry and public health personnel.

Furthermore, numerous surveys within the last five years have shown the need for greater attention to the bacteriological condition of cottage cheese in some production areas. A report (2) of 53 samples from nine companies in Baltimore during June through September, 1959, shows that 89% had more than 50 coliforms and/or 100 yeasts and molds per g. Two per cent had staphylococci contamination. Lyons and Mallmann (1) examined 150 samples from eight plants. They concluded the coliform counts were high enough to suggest a potential health hazard. These investigators, as well as others, demonstrated the importance of a low pH in the destruction of “seeded” pathogenic organisms in cottage cheese. The possibility that pathogens can survive the less acid cottage cheese still remains.

In order to ascertain the nature and extent of regulatory problems with cottage cheese, a survey was conducted. For the industry viewpoint, executives intimately familiar with cottage cheese operations of six major companies each reported his principle problems involving regulatory agencies. Chief administrative officials of health departments or dairy branches of the department of agriculture of 42 states communicated their views (depending upon which one had jurisdiction). Representatives of 16 major city health departments also responded.

Information was sought from regulatory agencies regarding cottage cheese standards (composition and quality control), sanitation of hand and machine packaging with special reference to recently designed equipment, testing methods, regulatory problems considered of importance and related information.

In summarizing the reports, the executives of the large companies involved in cottage cheese manufacture and distribution seemed to rate the lack of uniform standards as the number one problem when shipping intercity and interstate. Labeling is particularly troublesome. The custom packing of 30 or more differently labeled cartons for as many outlets was reported. Size and style of lettering, exact wording, printing on body and/or on the cover of a carton, contents in fluid or avoirdupois measure are most of the items needing standardization for labels. Recognition of Grade A or failure to provide Grade A regulations has been a handicap in interstate shipment. The diversity of milk (also non-fat dry milk) production and plant requirements for cottage cheese manufacture among adjacent states presents formidable restrictions on sales without influencing the adequacy of control.

The prohibition or use of additives such as coagulants, stabilizers, flavorings and mold inhibitors to the milk or the creaming mixture differ widely. One respected authority estimated that 85% of the cottage cheese manufacturers presently are not able to adhere strictly to the regulations in all respects in all their markets.

The duplication of inspections frequently results in a nuisance because of requirements and interpretation differences of each agency with respect to sanitation, physical facilities and processing methods. The economic savings to the companies and taxpayers certainly should justify corrective measures. For example, one midwest plant making a few million pounds per year has seven or eight different agencies making routine plant inspections each year. In another case, an executive estimated that the cost of Grade A milk inspection to his company for one milk interchange was $12,000 per year. Much of this expense could be reduced by the elimination

of the inspections by more than one appropriate agency.

Another handicap to the industry is the application of the regulations by the various agencies especially from different areas. Not only are facilities and methods involved as was mentioned previously, but this category also includes: a 2% fat product; tolerance in enforcement of fat content requirement (some expect the same exact control as for milk which is impossible); inclusion or disallowance of fat dilution with the addition of flavoring ingredients. Last on the suggested list of problems is the failure of the agencies or the regulation to be sufficiently flexible to keep pace with desirable product manufacture and distribution changes. Excessive demands that all changes be permitted only through legislative approval causes an unreasonable burden on the taxpayer and industry and restricts progress.

Not one of the 42 state agency officials reported a health hazard with cottage cheese. In fact, 12 reported no major problems. Many of the remainder considered some phase of sanitation or product quality as their major concern. The break-down for these was as follows (some listed more than one problem):

1. Unsatisfactory hand packaging or machine packaging - 8
2. Poor quality raw skim milk - 6
3. Lack of sanitation during processing - 5
4. High coliform, yeast and/or mold counts - 4
5. Illegal labeling of container - 3
6. Short storage life - 2
7. Lack of uniform fat content among containers of creamed cottage cheese - 2
8. Excessive marketing time - 2
9. Inconsistent quality - 1
10. Inadequate or unsanitary vat covers - 1
11. No comment - 7

The regulations for the use of "additives" in cottage cheese manufacture varied according to the listing below:

1. None allowed - 13
2. Follow federal regulations - 9
3. No comment or decision - 9
4. Food stabilizer (one or more kinds) - 5
5. Coloring - 2
6. Lactic acid - 2
7. Sugar, citric acid, flavor creator (1 each) - 3

Twenty-four state agencies favored machine packaging without qualification. Most of the others preferred it with limitations such as "newer designed machines only," "must meet 3A standards," etc. A few expressed the opinion that with good sanitary precautions, hand packaging could be comparable to average machine conditions. However, it is significant that none stated a general preference for hand packing. The use of direct steam for cooking cottage cheese is allowed by 15 and prohibited by 12 states. The others either had no comment or no decision.

The specific labeling requirements varied widely among the states but the general basic principles involved were similar. Two states reported no labeling specifications.

The moisture requirement of 80% or less in uncreamed or creamed cottage cheese and fat requirement of not less than 4% were unanimous. Most states do not have microbiological standards. Some states have coliform limits of 10 to 20 per g. One state allows 50 in a package obtained from the store or 20 in a "fresh" sample. Reports from very few states specified the maximum for yeasts and molds. Occasionally among states an agency will check keeping quality and make organoleptic examinations.

The responses from the 16 health departments in the principal cities of the U.S.A. indicated the largest heterogeneity of conditions. Some have promulgated their own regulations; others follow the state laws or the recommendations of U. S. Public Health Service; divided authority with the state was reported by one; and a number leave the enforcement to the state officials.

Of those who check cottage cheese, all reported no major health problems. Most frequent troubles involved quality factors particularly keeping quality and coliform counts (which may be potentially important). However, few city health departments make routine chemical or bacteriological tests. One or a combination of the following were reported: fat, total solids, phosphatase, coliform, yeast, molds, total count, flavor, shelf life and residues. Of interest is the fact one health department will not allow the addition of pineapple or "garden salads" from a new source of supply to cottage cheese without a coliform pretest that is acceptable. Only two sources supplied these products with a satisfactory coliform content.

In conclusion, the opportunities are great for the guardians of public health to standardize the regulations from raw materials and production through distribution. Attention should be given to a vigorous effort for the discontinuance of inspection duplications. Although cottage cheese has not been a public health hazard, in some areas increased emphasis on quality and sanitation standards will benefit industry and the welfare of the consumer.

REFERENCES