

## RECENT PROGRESS IN CERTIFICATION OF MILK LABORATORIES

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### SURVEYS

Public Health Service activities in milk laboratory certification during the two years since the Sixth National Conference on Interstate Milk Shipment include surveys of laboratory practices of 38 states, covering 31 State health departments and 10 agricultural or other State departments. These surveys included 33 of the 36 states listed on the April 1, 1959, Sanitation Compliance Ratings of Interstate Milk Shippers, as well as 5 potential interstate milk shipping states. With one exception the central laboratories of the 43 states and District of Columbia visited during the past 3 years are in substantial compliance with Standard Methods.

All 36 of the states and D. C. currently listed as interstate milk shippers have programs for certification of local milk laboratories, as do 5 of the 7 past or potential interstate milk shipping states. In addition, 1 milk receiving state and 2 other states are known to require approval of all local milk laboratories within their respective jurisdictions.

Accordingly, a map was prepared as of January 1, 1959, (Figure 1) showing the states which regulate local milk laboratories. This information was supplied by State milk laboratory certifying officials in response to a questionnaire distributed by the standing Laboratory Committee of the National Conference on Interstate Milk Shipment. To provide additional information, data were requested on the number of official, commercial, and industrial (or private) milk laboratories currently under state supervision. These figures for each state are shown in the top row of numerals on the map. The lower row gives the number of each type of laboratory reported as actually used for interstate shipment.

During the past two years 45 State milk laboratory certifying officials were visited in the 38 states in which central laboratories were surveyed or reviewed. Sanitary Engineering Center personnel accompanied State milk laboratory officials in visits to local milk laboratories in 11 states. In anticipation of the adoption of the 1953 recommendations of the Public Health Service, which requires that Standard Meth-

ods for Examination of Water and Sewage be followed in examining water supplies (initially for private plant and dairy farms, semiannually for all plant supplies, and after repair, modification, or disinfection), the water laboratory procedures of 24 State health departments were reviewed and approved.

State compliance with the provisions of the National Conference relative to certification of local milk laboratories has been charted in Figure 2. All states currently listed as interstate milk shippers have forwarded surveys of local laboratories to the Public Health Service during the past two years, and as of January 1, 1959, split sample results had been received from all states currently listed.

### SPLIT SAMPLES

A pilot shipment of split milk samples was sent by the Public Health Service to several states during the summer of 1957. During the fall of that year and spring of 1958, split samples were sent to 41 states. In October 1958, one series of split samples was sent to 22 states and in November another 22 states received samples. Generally the standard plate and coliform counts were in good agreement, with the exception of one state whose materially lower plate counts resulted from use of apparently toxic distilled water. However, considerable differences were reported in phosphatase test results, particularly in the November series. Consequently these results were tabulated and graphic charts prepared, coded for each state, to show the results for each sample as reported by each analyst. The tabulations and individual charts were returned to the participating states together with two pages of explanatory comments and recommendations for improved procedures and practices. It should be noted that states differ as to the level of phosphatase considered negative.

In the past, staff members of the Sanitary Engineering Center have occasionally served as reference analysts in the bacteriology of milk. They have been unable to continue this service to State milk laboratory certifying officials, not because of lack of interest or belief in the value of the procedure, but solely because of lack of resources. Because of these limitations on technical assistance and since most State laboratories now have split sample programs, it is suggested that they further develop reciprocity by serv-

<sup>1</sup>Substance of reports presented at the Seventh National Conference on Interstate Milk Shipments, April 20, 1959, St. Louis, Mo.

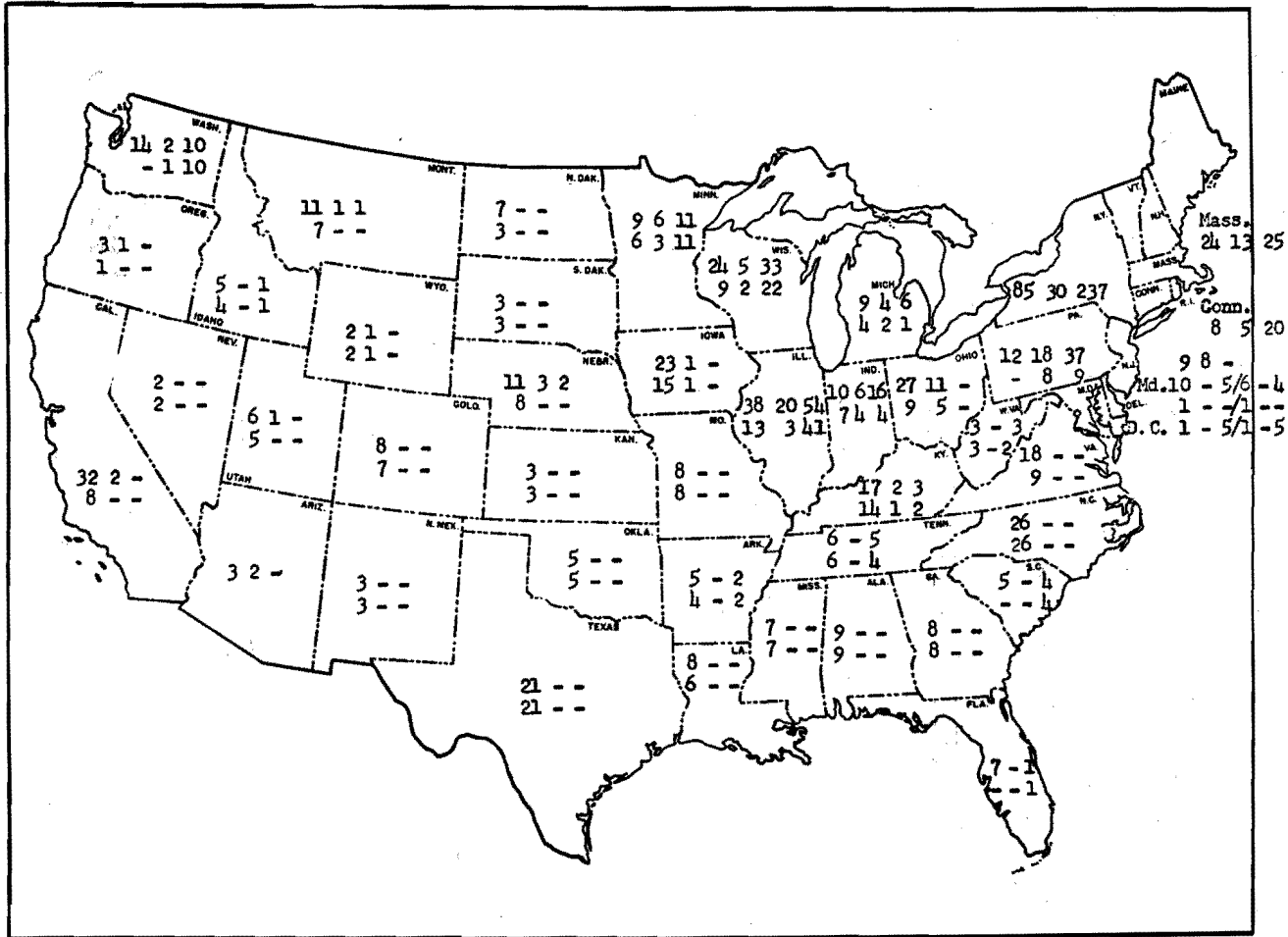


FIGURE 1—NUMBER OF OFFICIAL, COMMERCIAL, AND INDUSTRIAL (OR PRIVATE) MILK LABORATORIES UNDER STATE REGULATION JANUARY 1, 1959  
LOWER LINE GIVES NUMBER OF EACH ACTUALLY USED FOR INTERSTATE SHIPMENT

ing as reference analysts for each other in the conduct of intrastate split sample evaluations.

TRAINING COURSES IN MILK LABORATORY ANALYSES

The annual course on milk laboratory analyses at the Robert A. Taft Sanitary Engineering Center was attended in 1958 by 19 persons from 13 states, and in 1959 by 10 persons from 8 states and 1 foreign country. Center personnel assisted in conducting a course in 1957 in 1 state with 22 in attendance and in 1958 in 1 state with 44 in attendance.

GENERAL

In August, 1957, and again in June, 1958, all PHS Regions were supplied with a sufficient quantity of a list of State milk laboratory certifying officials to furnish a copy to each State Laboratory Director and to each of the other approximately 50 officials named.

During the past two years, 5 of the 8 PHS Regional Offices were visited by staff members of the Sanitary Engineering Center to review the status of milk

laboratory certification by the states concerned and to discuss special problems. Center personnel participated in 3 PHS regional conferences of State milk laboratory certifying officials and of State milk sanitation survey officers.

Discussions of the milk certification program were presented at the Texas Public Health Association meeting in 1958, and in 1959 at a conference on milk administration sponsored by the Communicable Disease Center. A report on milk laboratory certification under the interstate milk shipment program was presented at the Conference of State and Provincial Public Health Laboratory Directors in 1957 and at the Association of State and Territorial Public Health Laboratory Directors Planning Conference in 1958. Thus most State laboratory directors have been apprised of the requirements and current status of milk laboratory certification; although in the past there has been no direct channel of communication between the Secretary of the National Conference and the laboratory directors, for example, to give advance notice of the Seventh National Conference. Al-

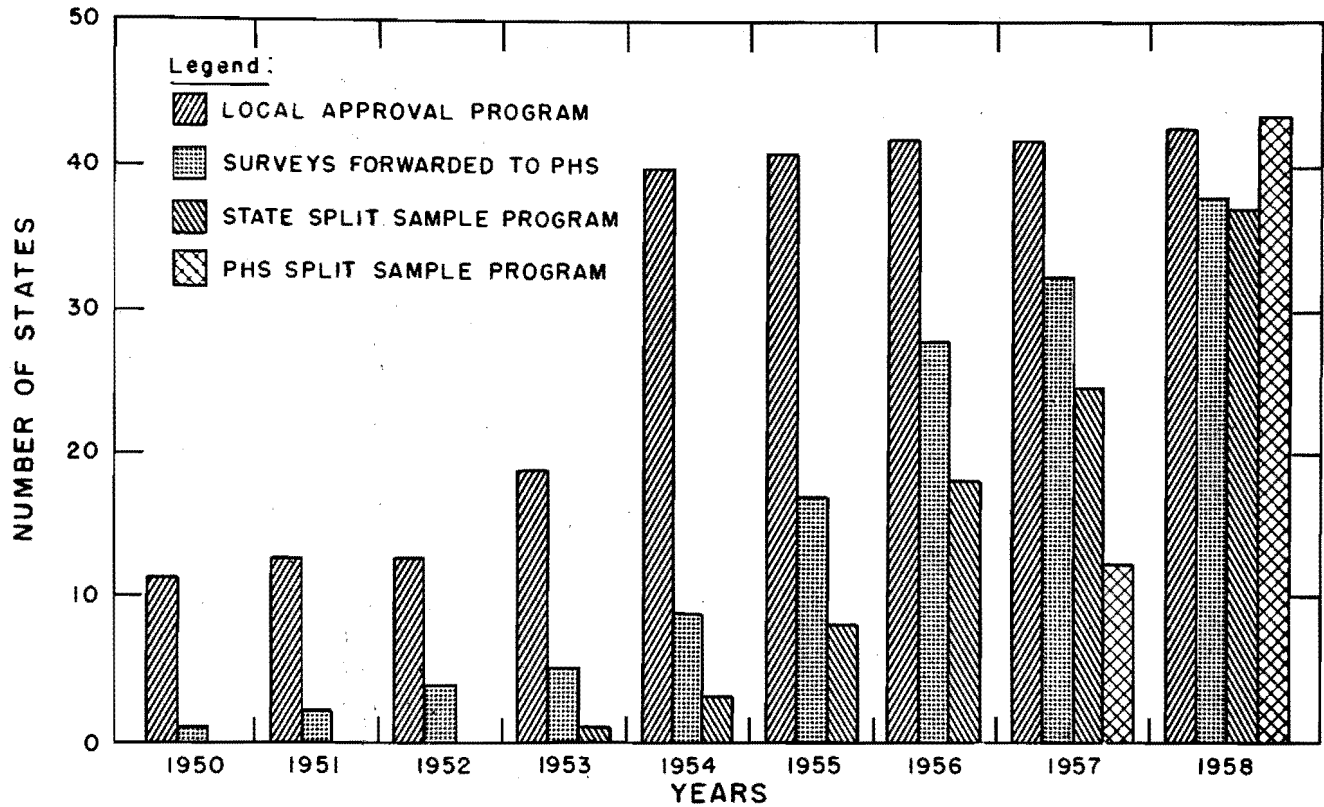


FIGURE 2—STATUS OF MILK LABORATORY CERTIFICATION

though the majority of directors may be notified by their State milk sanitation control officials, this situation is not true for all states.

STATE ACTIVITIES IN MILK LABORATORY CERTIFICATION

In preparation for a progress report at the Seventh National Conference on Interstate Milk Shipment, in January, 1959, the standing Laboratory Committee wrote to 42 State milk laboratory certifying officials to request up-to-date information on their laboratory approval programs. To secure uniform records for the current report, officials were requested to tabulate their data under specified headings on an accompanying questionnaire. The response was excellent, with 100 percent returns. Detailed results for each state were entered by code number under the appropriate PHS Region on three Tables. Table 1 shows that as of January 1, 1959, the ratings of interstate milk shippers are based on the use of 407 laboratories (252 official, 32 commercial, and 123 industrial or private). Officials of 42 states receiving the original questionnaire plus those of 3 additional states from whom data were later obtained had approved 1179 milk laboratories (556 official, 142 commercial, and 481 industrial or private).

Data in Table 2 shows that 42 states reported send-

ing split milk samples to 561 laboratories, of which 518, 503, and 465 examined pasteurized milk respectively by standard plate count, coliform, and phosphate tests, and 488, 473, and 416 so examined cream or other milk products. Split samples of raw milk were examined by 289 laboratories using standard plate counts, 161 by direct microscopic counts, and 43 in 5 states by methylene blue reduction. Liquid split samples were shipped by 27 states, frozen samples by 10 states, and in 4 states samples were occasionally or routinely split at the time State milk laboratory certifying officials visited a local laboratory. Detailed results are tabulated for each state.

The standing Laboratory Committee also obtained information, by means of the questionnaire, on other state practices in approval of milk laboratories, as detailed in Table 3. This Table shows that 22 states surveyed laboratories annually, while 20 surveyed them at more or less frequent periods. Only 13 states issued certificates annually to locally approved laboratories and 2 at some other time. With reference to the recommendation of the Fourth National Conference in 1953 that the State laboratory agency publish annually or semiannually a list of approved laboratories including the date and test or tests for which approved, as of January 1, 1959, 13 states reported

## CERTIFICATION OF MILK LABORATORIES

TABLE I—STATE ACTIVITIES IN MILK LABORATORY CERTIFICATION

Region	State	No. of labs. (a)			Tests approved for:								No. of labs. (b)			Tests approved for:					
		Official	Commercial	Industrial	Past. milk			Raw milk				Official	Commercial	Industrial	Past. milk			Raw milk			
					SPC	Coli	Phos	SPC	DMC	MB	Res				SPC	Coli	Phos	SPC	DMC	MB	
I	43*	8	5	20	33	33	33	33	33	1											
	44*	24	13	25																	
II	45*	9	8																		
	1	1			1	1	1	1			1			1	1	1					
	2	85	30	237	85	85	85	138	352												
	3	12	18	37	67	66	61	67	20			8	9	4	4	4	3	9			
III	4	1		5	6	6	4	6	1		1		5	6	6	4	6	1			
	5	17	2	3	17	17	15	17	10		14	1	2	14	14	14	14	12			
	6	10		5	12	14	13	12	14		6		4	7	9	4	2	9			
	7	26			25	25	25	25	19		26			25	25	25		19			
	8	18			18	18	18	18			9			9	9	9	9	9			
	9	3		3	6	6	6	5	3		3		2	3	3	3	4	2			
IV	10	9			9	9	9	9			9			9	9	9	9				
	11	7		1	8	8	8	8	5				1				1	1			
	12	8			8	8	8	8			8			8	8	8	8				
	13	7			7	7	7	7			7			7	7	7	7				
	14	5		4	9	9	9	9					4	4	4	4	4				
	15	6		5	6	6	6	11			6			4	6	6	6	11			
V	16	38	20	54	90	85	67	90	59	46		13	3	41	18	18	13	18	30	29	
	17	10	6	16	31	31	21	31	4	5	3	7	4	4	15	15	15				
	18	9	4	6	14	9	9	7	13	2		4	2	1	4	4	4	1	5	1	
	19	27	11		31	31	31	1	28			9	5		12	12	12	1	11		
	20	24	5	33	47	46	40	59	12	7		9	2	22	14	14	13	29	6	5	
VI	21	23	1		24	24	24	23	3			15	1		14	14	14	9	1		
	22	3			3	3	3	3				3			3	3	3	3			
	23	9	6	11	15	15	15	9	17			6	3	11	10	10	10	6	15		
	24	8			8	8	8	8		2		8			8	8	8	8		2	
	25	11	3	2	14	14	13	14	5	2	2	8			8	8	8	5	3		
	26	7			7	7	7	7				3			3	3	3	3			
	27	3			3	3	3	3	1			3			3	3	3	2	1		
	28	5		2	7	7	7	7				4		2	6	6	6	6			
VII	29	8			6	6	6			8		6			6	6	6			8	
	30	3			3	3	3	3				3			3	3	3	3			
	31	5			5	5	5	5				5			5	5	5	5			
	32	21			21	21	21	21				21			21	21	21	21			
	33	8			8	8	8	8				7			7	7	7				
VIII	34	5		1	6	6	6	6				4		1	5	5	5	5			
	35	11	1	1	13	13	5	13				7			7	7	4	7			
	36	6	1		6	6	6	6	1			5			5	5	5	5	1		
	37	2	1		3	3	2					1	2		1	1	1				
	38	3	2		5	5	5	5													
IX	39	32	2		8	8	8	8				8			8		8	8			
	40	2			2	2	2	2				2			2	2	2	2			
	41	3	1		4	1	4	4				1			1	1	1	1			
	42	14	2	10	26	26	15	10	1				1	10	11	11		10	1		
	Total:	556	142	481	694	681	619	694	568	72	5	252	32	123	303	297	278	251	127	45	

Legend: (a) Total number of local milk laboratories approved;

(b) Number of local milk laboratories actually used for interstate shipment;

SPC = Standard plate count; Coli = Coliform tests; Phos = Phosphatase tests;

DMC = Direct microscopic counts; MB = Methylene blue reduction test; Res = Resazurin reduction test.

\*Data supplementary to original survey.

issuing such an annual list, and 9 states issued lists at other more or less frequent periods. Thus 22 states now issue such certificates as compared with only 4 two years ago.

Sixteen states reported having requirements for laboratory personnel, whereas 25 reported no requirements. Thirty-four states reported reciprocity in lab-

oratory surveys and analyses, whereas 5 have no reciprocity. State milk laboratory certifying officials in 16 states reported receiving copies of the Interstate Milk Shipper Report (Form 1659) from State milk sanitation authorities, although 22 reported they did not. In 20 states milk laboratory certifying officials reported they completed the Survey Form on Samp-

TABLE 2—STATE SPLIT SAMPLE PRACTICE

January 1, 1959

Region	State	Number	Local laboratories examining split samples										Nc. of Samples	Liquid	Frozen	At Time of Visit		
			Pasteurized milk			Cream or other Milk products			Raw Milk		Counts SPC	DMC					Reduction MB	Res
			SPC	Coli	Phos	SPC	Coli	Phos	SPC	DMC								
II	1	0																
	2	12	12	12	12	12	12	12	12	12			14	X				
	3	19	19	18	18	19	18	18	19	19			10	X				
III	4	5	5	5	5	5	5	5	5				12	X				
	5	17	17	17	15	17	17	15	17	10			10	X	X			
	6	16	14	14	13	14	14	14					6-10	X	X			
	7	26	25	25	25	25	25	25	25	19			4		X			
	8	18	18	18	18	18	18	18	18				10		X			
	9	6	6	6	6	6	6	6	6	4			10	X				
IV	10	0																
	11	8	8	8	8				8	5			10			X		
	12	8	8	8	8	8	8	8	8				10	X				
	13	7	7	7	7	7	7	7	7				8	X				
	14	9	9	9	9	9	9	9	9				6			X		
	15	11	11	6	6	11	6	6	11				10-20	X		X		
V	16	112	90	90	90	90	90	90	18	30	29		8	X				
	17	15	15	15	15	15	15	15	15				10	X				
	18	18	14	11	9	14	11	9	4	12	2		6-10	X				
	19	17	17	17	17	17	17	17		16			10+	X				
	20	61	59	53	40	59	53	40		12			5+	X				
VI	21	21	21	21	21	21	21	21	21	3			10	X				
	22	3	3	3	3				3				10			X		
	23	26	12	12	12	12	12	12	9	17			8			X		
	24	7	7	7	7	7	7	7	7		2		6-12			X		
	25	16	14	14	13						2		2	X				
	26	7	7	7	7	7	7	7	7				12	X				
	27	2	2	2	2	2	2	2	2				10	X				
VII	28	7	7	7	7	7	7	7	7				12-14				X	
	29	8	6	6	6	6	6	6			8		6	X				
	30	2	2	2	2	2	2	2	2				8	X				
	31	5	5	5	5	5	5	5					10	X				
	32	21	21	21	21	21	21										X	
VIII	33	8	8	8	8	8	8	8					10	X				
	34	5	5	5	5				5				variable			X		
	35	13	13	13	5	13	13	5	13				10	X				
	36	7	6	6	6	6	6	6	6	1			7	X				
	37	0																
IX	38	2	2	2	2	2	2	2	2				1	X				
	39	16	8	8	8	8	8	8	8				10			X		
	40	2											10	X				
	41	4	4	4	4	4	4	4	4				10	X				
	42	15	11	11		11	11		11	1			6			X		
Total:		561	518	503	465	488	473	416	289	161	43		317-343	27	10		4	

## CERTIFICATION OF MILK LABORATORIES

TABLE 3—STATE PRACTICES IN APPROVAL OF MILK LABORATORIES

January 1, 1959

		Surveys Laboratories		Issues Certificates		Approved List Issued		Personnel Requirements		Reciprocity		Lab. Official Receives IMS Form 1659		Official Completing Sampling Form	
		Annual	Other	Annual	Other	Annual	Other	Yes	No	Yes	No	Yes	No	Lab.	Other
II	1	X						X		X			X		
	2		X		X	X			X		X				X
	3		X					X	X				X	X	
III	4	X							X		X		X	X	
	5		X	X		X		X		X			X		X
	6	X				X		X	X				X		X
	7	X		X		X		X		X		X		X	
	8		X			X			X	X			X		X
IX	9		X				X		X	X		X			X
	10		X						X						
	11	X							X		X		X		
	12	X		X					X	X			X		X
	13	X		X		X		X		X		X			X
	14						X			X			X	X	
V	15	X							X	X		X		X	X
	16		X	X		X		X					X		X
	17	X		X		X		X	X				X	X	
	18		X	X		X		X			X		X	X	
	19		X			X			X	X			X		X
VI	20	X		X		X		X	X				X	X	
	21	X		X					X			X		X	
	22		X	X				X		X		X			X
	23	X		X						X		X		X	
	24		X				X			X			X	X	
	25	X	X			X			X				X		X
	26		X						X	X			X		X
VII	27	X				X			X	X		X		X	X
	28		X						X	X		X		X	X
	29	X						X			X		X		
	30	X						X	X			X			
	31		X					X	X			X			X
VIII	32		X					X	X			X		X	X
	33	X		X		X		X		X			X	X	
	34		X			X			X	X			X		X
	35		X		X				X	X		X			X
	36		X						X	X			X		X
	37	X						X		X				X	
IX	38	X							X	X					X
	39	X						X		X		X			X
	40		X					X		X		X		X	X
	41	X							X	X		X		X	
	42	X		X		X	X	X		X		X	X		X
Total:		22	20	13	2	13	9	16	25	34	5	16	22	20	22

ling, whereas 22 states reported this was completed by milk control officials.

In conclusion it appears that the milk laboratory approval programs, split sample programs, and other

recommendations of the National Conference concerning laboratory practices are being carried out satisfactorily by states participating in the interstate milk shipment program.