

INFORMATION RELATIVE TO DAIRY MANUFACTURES COURSES AND STUDENTS TAKING THEM IN THIRTY-ONE DAIRY DEPARTMENTS OF AGRICUL- TURAL COLLEGES IN THE UNITED STATES

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During the fall and winter of 1918-1919, through his work in connection with the DeLaval Separator Company the writer was afforded the privilege of visiting thirty-two dairy departments in the agricultural colleges of the United States and one in Canada.

The writer was interested in the organization of the departments, volume of business done, sources of supply and disposal of products, courses offered, teaching, equipment, and number of students taking dairy handling and manufactures work. Having been connected with the Extension Service the writer was interested in the Farmers' Weeks and Farmers' Days attendance and methods of getting the farmers to the colleges.

The dairy departments were working along lines that would best take care of the dairy needs of their respective states, in so far as their funds would permit. In a large number of instances they were working at a disadvantage for lack of funds.

The organization of the departments is along three general lines:

1. What dairying is given is given by the animal husbandry department.
2. Dairy departments having charge of both production and handling and manufactures.
3. Dairy departments having only handling and manufactures.

In some departments the dairy extension men were connected directly with the department and in others they were not.

One or two of the teaching departments were not connected with the experiment stations.

In one case manufactures were included under the animal husbandry department: the college department teaching four-

year students; the extension department and experiment station running the college creamery, and the head of the department having nothing to say as to extension or experiment station dairy work.

The amount of business done in different dairy departments varied from the handling of the milk from the college herd in some institutions to \$123,000 per year in one manufacturing department. Local conditions relative to supply, markets and college restrictions were the governing factors. Some departments were selling college herd milk wholesale or retail and buying milk and cream for laboratory work; and one department was running a coöperative creamery in connection with the college work.

The courses in manufactures varied from four or five lectures in Babcock testing, handling separators and buttermaking to extended courses of these and other manufactures subjects. With one or two exceptions this was governed largely by the importance of dairying in the agriculture of each state.

The teaching, or subject matter, presented in the different institutions varied. Some departments present essentially fundamentals giving laboratories to illustrate, while others give both fundamentals and detail in both lecture and laboratory work. Some institutions had no definite detailed outlines worked out for courses offered. This was brought out very plainly when one instructor went to an institution as head of the department he found no outlines whatever, and had to ask the students what they had been given in the courses they had taken.

At one institution a department makes it a practice of requiring that every course shall be outlined very specifically and fully as to subject matter. Each member of the department goes over all outlines, and these are discussed in department meetings thus giving the course the benefit of the discussion. It was found that this procedure reduced the repetition of work in the department, as well as improving the courses. As the teacher gives his work he notes any changes to be made in the course for another year, and these changes are made immediately after the close of the course work in order that they may not be over-

looked or forgotten. This has the decided advantage of having the work done and ready for the next year and keeps the work up to date.

The equipment for teaching dairy manufactures was as good, if not better in two agricultural schools in New York State than in several of the agricultural colleges. In one state practically all funds used for teaching agriculture, aside from teachers' salaries, had to come from the sale of products from the college and experiment station farm.

As no compiled data seemed to be available as to the number of students taking dairy work in the agricultural colleges it seemed that a good opportunity was open to secure it. The following form was finally adopted for convenience in working out and tabulating. Regular courses in production and Babcock testing were not included.

Courses for:

- A. Four year students.
 - 1. Required—Elementary dairying or farm dairying.
 - 2. Elective farm dairying.
 - 3. Buttermaking.
 - 4. Advanced buttermaking.
 - 5. Market milk.
 - 6. Ice cream making.
 - 7. Cheese making (cheddar and soft cheeses) or either separate.
- B. One, two or three year students.
 - 1. Farm dairying.
 - 2. Buttermaking.
 - 3. Market milk.
 - 4. Ice cream making.
 - 5. Cheese making (same as under four year).
- C. Winter course students (varying from six to twelve weeks).
 - 1. Farm dairying.
 - 2. Buttermaking.
 - 3. Market milk.
 - 4. Ice cream making.
 - 5. Cheese making (same as under four year).
- D. Women farm dairying.
- E. Special dairy course students (including two weeks courses, special dairy courses for home economic classes, etc.).
- F. Summer school students.

While gathering the other information it seemed worth while to find out the number of people going to the colleges for Farmers' Weeks and Farmers' Days. All information gathered was based on pre-war conditions. See attached tabulation:

Dairy manufacture courses for four year students

- 17 colleges required elementary or farm dairying.
- 9 colleges offered elective courses in farm dairying.
- 18 colleges offered separate courses in buttermaking.
- 4 colleges offered separate courses in advanced buttermaking.
- 9 colleges offered buttermaking combined with other courses.
- 13 colleges offered separate courses in market milk.
- 3 colleges offered courses in market milk and ice cream combined.
- 11 colleges offered separate courses in ice cream making.
- 3 colleges offered courses in ice cream and cheese making combined.
- 14 colleges offered separate courses in cheese making.
- 6 colleges offered general manufacturers courses.

Courses for one, two or three year students

- 18 colleges offered courses in farm dairying.
- 11 colleges offered no courses in farm dairying.
- 4 colleges offered courses in buttermaking.
- 1 college offered courses in ice cream making.
- 4 colleges offered courses in cheese making.
- 6 colleges offered courses in general manufactures.
- 24 colleges offered no courses in manufactures.

Winter course students

- 15 colleges offered courses in farm dairying.
- 16 colleges offered courses in manufactures.
- 5 colleges offered separate courses in buttermaking.
- 2 colleges offered separate courses in market milk.
- 3 colleges offered separate courses in cheese making.
- 13 colleges offered no courses in manufactures.

Other courses

- 4 colleges offered special courses for women.
- 8 colleges offered special dairy courses of one to two weeks duration.
- 14 colleges offered special dairy courses in summer schools.

Changes have been made in the work in several of the institutions this year. Some of them that gave general manufactures courses are splitting up these courses into courses on specific subjects. One institution has added a two-year course that will require a course of elementary dairying in which it will have 180 students.

Student statistics

	<i>per cent of total</i>
Students taking all courses:	
4654 Four year.....	53.28
1082 One, two, or three year.....	12.38
2264 Winter.....	25.92
734 Special summer, etc.....	8.42
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8734	
Students taking farm dairy courses:	
2677 Elementary or farm dairy required 57.5 per cent of four year students.	
331 Elective farm dairy, four years.	
730 Farm dairy, one, two, or three years.	
1183 Winter.	
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4921 Total, or 56.34 per cent of total students.	
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Students taking manufactures courses:	
1646 Four year.....	53.43
352 One, two or three year.....	11.39
1081 Winter.....	35.18
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3079 Total, or 43.66 per cent of total students.	

The number of students is reduced to the basis of one student per one term or semester, per course, not considering the number of hours per week or credits.

One striking feature is that 57.5 per cent of the four year students are required to take a course in elementary or farm dairying, and that 56.34 per cent of the total students taking courses in the manufactures department are elementary or farm dairying students.

What is back of this? A study of the tabulations show that all of the states requiring these courses are dairy products producing. Is this significant to the other states producing dairy products? There is great difference in the way this course is taught in the different institutions. Naturally one man stresses some points and another others. It would make quite an interesting study to take notes or outlines of these courses and compare them.

It is doubtful if we have realized the condition as it exists. When asked what text do you use, the usual answer was "there

is none that covers all the phases we want to touch so we prepare lectures, and refer to Wings' *Milk and Its Products, etc.*"

Every student taking this course has been a user of milk and if he raises a family will be again if he is not now, whether he was raised in the country or town or city. It would seem that this is where some of our best teachers should be used and some of our best teaching done.

It is a question as to whether or not the Dairy Departments as a whole are not trying to do too much work with the material that they have. In some departments men were teaching too many hours, or combining too much teaching, experiment station, extension or administration work to be able to keep up with the necessary reading and improvements so essential to good work. It is like squeezing a sponge, everything going out and little or nothing being absorbed or taken in.

Farmers' Weeks and Days

27 colleges held Farmers' Weeks.

5 colleges held Farmers' Days.

1 college held neither Farmers' Weeks nor Days.

The attendance at Farmers' Weeks in 26 colleges was 39,650, and for Farmers' Days, in 5 colleges 26,000, or a total of 65,650.

The large attendance at Farmers' Days, at Pennsylvania and Mississippi is accounted for by excursions being organized at different times, the number given being the total for a number of days. At Mississippi each county agent organizes an excursion, in all thirty counties are organized. They have an average attendance of 400 per day or excursion.

The writer feels that with the material so far gone over, and which this report represents, it would be well worth while to make a survey, possibly annually, to keep track of what is going on in all of the colleges. If this work is undertaken it should be done systematically on a well worked out plan.

COLLEGES	FOUR YEAR STUDENTS:							1,2 or 3 YEAR STUDENTS:					WINTER COURSE STUDENTS:					WOMEN FARM DAIRYING	SPECIAL DAIRY COURSES	SUMMER SCHOOL DAIRY COURSES	TOTAL STUDENTS	FARMERS' WEEKS ATTENDANCE	FARMERS' DAYS ATTENDANCE
	REQUIRED-ELEMENTARY OR FARM DAIRYING	EXECUTIVE FARM DAIRYING	BUTTERMAKING	ADVANCED BUTTER-MAKING	MARKET MILK	ICE CREAM MAKING	CHEESE MAKING	FARM DAIRYING	BUTTERMAKING	MARKET MILK	ICE CREAM MAKING	CHEESE MAKING	FARM DAIRYING	BUTTERMAKING	MARKET MILK	ICE CREAM MAKING	CHEESE MAKING						
MAINE			11		11								7								29	150	
NEW HAMPSHIRE		25						60					15								100	300	3000
VERMONT				20											35						55		
MASSACHUSETTS		7	40		20	15									35				8	125	600		
CONNECTICUT	^a 45		12		10	15		35							20			25		165	2000		
RHODE ISLAND		16		4				10												30	500		
NEW YORK CORNELL			110	30	160	50	50						18	100	100		100			718	3500		
MICHIGAN	^a 160		35		35	15	15	75							40			25	15	415	1000		
OHIO		125	25		12	15	20	70	6			4	100	30		30				437	4000		
PENNSYLVANIA	^a 230		16	13		16	?	90	13		11	?	90	30			?		7	516	900	6000	
NEW JERSEY	^b 25				10										180					185	2000		
DELAWARE		15																	25	40		3000	
MARYLAND		60						16					50						30	156		2000	
VIRGINIA			15		15		15	40					10	7			12		5	119	500		
KENTUCKY		40						10					40							90	600		
TENNESSEE	^b 50		2			1	1						20						1	75	1500		
NORTH CAROLINA	^b 100			12				20				5	20						100	257	1200		
SOUTH CAROLINA	^c 80				18					12									8	118	?		
MISSISSIPPI	^a 225		12			10		50							9				16	322		12000	
ALABAMA				^b 35				10											20	65	1000		
GEORGIA				75				30											6	111	1500		
NORTH DAKOTA		5	3		3	3	3	9					45							71	2000		
SOUTH DAKOTA	^a 50		10		10		10	50							15			25		170	200		
MINNESOTA	^a 150		10			30		75						20				65	31	40	421	1600	
WISCONSIN	^a 278		15		10		10	40	2	1		1	300		159				70	896	2000		
NEBRASKA	^a 100		25		7	16	10	40		25			175		14			20	10	452	3000		
IOWA	^a 380		102	24	40	22	46		272					127					149	1162	3000		
ILLINOIS	^a 375	38	35	11	18	12	8													497	2500		
INDIANA	^b 200		12		12	12	12								16					264	400		
KANSAS	^b 140		12		12	12							200		12			12		6	406	1200	
MISSOURI	^b 89			39	26		5						93		10				5	267	2500		
TOTALS	2677	331			1646			730		352			1183		1081			122	203	409	8734	39650	26000