Employment Needs In Six North Dakota Agricultural Industries

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Agribusiness firms in North Dakota employ several thousand workers in occupations of essential importance to the economy of the state. Information concerning the number of workers in these businesses and the types of occupations they hold is needed for planning by educational agencies and businesses. Those making occupational choices also need these data.

Research designed to secure information regarding agricultural manpower needs in North Dakota is being carried out by the Agricultural Experiment Station at NDSU through the Department of Agricultural Education. This article includes data concerning six agricultural business sectors in North Dakota. These categories include the agricultural implement, grain, horticulture, dairy products, meats and veterinary service businesses or industries.

Methods

Employment data was secured from firm managers by direct mail questionnaires with some follow-up telephone interviews. Data was gathered for the year in which the survey was conducted and respondents were asked to project needs for certain future years. In some cases data was provided for recent past years to help provide an indication of trends.

Managers of the business firms were asked to provide data concerning total numbers of full and part-time workers as well as the number of individuals in specific job categories. They also provided data concerning their opinions regarding training and work experience and the need for competence in agriculture for each of the occupational categories. Training needs and work experience data are not included in this article.

Agricultural Implement Businesses

North Dakota implement dealers had an estimated total of 3,087 employees in 1978 including 3,157 full-time and 630 part-time. This was estimated to increase to 4,390 total employees by 1982. Current economic conditions may have considerable impact upon the actual figures. Estimated hiring of new employees was 324 full-time and 166 part-time annually at the time of the survey. The largest single employee category was mechanic/service technician with 848 employees including 56 working part-time. Other categories with 300 or more workers include those in management, parts, sales, set-up, bookkeeping or some combination of these occupations.

TABLE 1

ESTIMATED EMPLOYMENT FOR AGRICULTURAL IMPLEMENT BUSINESSES IN NORTH DAKOTA 1978 THROUGH 1982

Year	Estimated Full-time Employees	Estimated Part-time Employees	Estimated Total Employment
1978	3,157	630	3,787
1979	3,309	631	3,940
1980	3,504	687	4,191
1981	3,669	725	4,394
1982	3,663	727	4,390

Grain Handling Industry

A total of 594 grain dealerships was surveyed. These were primarily grain elevators with many involved in selling fertilizer, feed and agricultural chemicals. The estimated number of employees for 1982 is 2,997. This includes 2,273 full-time and 724 part-time employees. Estimated annual replacement needs for 1982 are 330 full-time and 220 part-time workers. The largest category of workers was general elevator work with more than 1,000 persons employed including 610 full-time and 434 part-time. Other categories with more than 300 workers include manager, assistant-manager, and secretary/bookkeeper. Other classifications reported were truck drivers, feed specialists, warehousemen and secretaries.

Horticulture Industry

The businesses included in this study were tree farms, nurseries, greenhouses, florists, nursery dealers and agents, lawn and garden stores, and fruit and vegetable growers. Other businesses such as grocery stores,

department stores and farm supply stores were not surveyed, although they may do some business in nursery stock or related items. A total of 218 different firms was surveyed.

Part-time employees were more numerous than full-time workers in these firms. The estimated total need for workers in 1982 was 1,539 including 611 full-time employees and 928 who work part-time. Estimated annual replacement needs in 1982 were 94 full-time and 258 part-time workers. Those occupations with more than 125 workers included nursery worker, greenhouse worker, floral designer, manager and sales person in that order. There were several other occupations reported.

Dairy Products Industry

Forty-five North Dakota firms were contacted to gather these data. These firms are engaged in the distribution, processing and manufacture of dairy foods. The managers of these firms estimate employment needs in 1982 at 1,127 workers including 987 full-time and 140 part-time. Replacement needs in 1982 are estimated at 105 full-time and 47 part-time employees. There were a large number of different occupations reported in these businesses. Those occupations involving 65 or more persons included delivery personnel, office personnel, truck driver/bulk pickup, processors, equipment operators and cheese makers.

Meat Processing Industry

A total of 86 meat processing and packing plants were surveyed in this study. These included four larger commercial packing plants with the rest being smaller businesses doing custom slaughtering and meat processing. The majority of the firms were also retailing meat. The managers of these firms reported an estimated total of 814 employees in 1982 including 669 full-time and 145 part-time. They estimated a replacement need for 122 full-time and 41 part-time workers in 1982. A slightly larger number of employees was estimated for 1983. Those worker categories with more than 50 workers included utility worker, meat cutter, butcher, salesman, manager and office personnel. Several other occupations were also reported.

Veterinary Services

Sixty firms including veterinary clinics or hospitals and veterinarians in private practice were contacted in this study. Veterinarians employed by government agencies were not included. The estimated number of

TABLE 2
ESTIMATED EMPLOYMENT FOR NORTH DAKOTA GRAIN HANDLING INDUSTRY
1977 THROUGH 1982

Year	Estimated Full-time Employees	Estimated Part-time Employees	Estimated Total Employment	Est. Annual Replacements Full Time	Est. Annual Replacements Part Time
1977	2,037	723	2,760	295	220
1978	2,066	716	2,782	299	218
1979	2,122	724	2,846	308	220
1980	2,194	737	2,931	318	224
1981	2,234	723	2,957	324	220
1982	2,273	724	2,997	330	220

TABLE 3

ESTIMATED EMPLOYMENT FOR NORTH DAKOTA
HORTICULTURE RELATED INDUSTRY
1977 THROUGH 1982

Year	Estimated Full-time Employees	Estimated Part-time Employees	Estimated Total Employment	Est. Annual Replacements Full Time	Est. Annual Replacements Part Time
1977	479	813	1,292	74	226
1978	518	796	1,314	80	221
1979	546	838	1,384	84	233
1980	559	889	1,448	86	247
1981	591	888	1,479	91	247
1982	611	928	1,539	94	258

veterinarians needed in 1982 was 120 with an estimated replacement need of five. These firms estimated a total of 197 other employees in 1982 including 130 full-time and 67 part-time workers. The estimated replacement needs in 1982 for employees other than veterinarians included 25 full-time and 18 part-time workers for a total of 43. Occupations included were secretary/receptionist/bookkeeper, animal technician/veterinary assistant, animal handler, and various other combinations of these groupings.

Education Preferred

There were a limited number of occupations for which no special training was expected or preferred. College was often indicated as preferred but not required for managerial positions. A large number of managers preferred that employees in several of the categories have secondary or post-secondary vocational education with more expecting this training to include the post-secondary level.

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TABLE 4

ESTIMATED EMPLOYMENT FOR NORTH DAKOTA DAIRY PRODUCTS INDUSTRY 1977 AND 1979 THROUGH 1983

Year	Estimated Full-time Employees	Estimated Part-time Employees	Estimated Total Employment	Est. Annual Replacements Full Time	Est. Annual Replacements Part Time
1977	1,013	116	1,129	107	39
1979	990	148	1,138	105	49
1980	986	135	1,121	105	45
1981	982	140	1,122	104	47
1982	987	140	1,127	105	47
1983	987	140	1,127	105	47

TABLE 5

ESTIMATED EMPLOYMENT FOR NORTH DAKOTA MEAT PROCESSING INDUSTRY 1977 AND 1979 THROUGH 1983

Year	Estimated Full-time Employees	Estimated Part-time Employees	Estimated Total Employment	Estimated Replacements Full Time	Estimated Replacements Part Time
1977	607	152	759	111	43
1979	691	155	846	126	44
1980	656	145	801	120	41
1981	666	145	811	122	41
1982	669	145	814	122	41
1983	694	149	843	127	42

TABLE 6

TOTAL PROJECTED EMPLOYMENT FOR NORTH DAKOTA VETERINARY SERVICE BUSINESSES 1977 THROUGH 1982

Year	Estimated Veterinarians	Estimated Full-time Employees	Estimated Part-time Employees	Est. Annual Replacements Vets Only	Est. Annual Replacements Full Time	Est. Annual Replacements Part Time
1977	109	119	72	5	23	20
1978	110	121	67	5	24	18
1979	113	124	70	5	24	19
1980	119	126	71	5	25	19
1981	120	131	70	5	26	19
1982	120	130	67	5	25	18

Table 1. ENERGY SUPPLEMENTATION FOR WINTERING BEEF COWS

	Control NRC	Energy Level 120% NRC	Floating[1,2]
No. Head	80	79	51
Days on Trial	88	88	86
Dry Matter Intake (lb/hd/day)	16.8	19.2	19.3
TDN Intake (lb/hd/day)	9.5	10.9	10.9
Weight Change (lb.)	-8.0	34.4	23.7
Birth Weight (lb.)	80	82	83
No. Difficult Births[3]	3	4	5
Conception Rate (%)	85	81	90
Adj. 205 Day Weaning Weight (lb)	458	468	454

1. Same as control ration plus 2 Lbs. TDN for every 5 degrees below 0 degrees F.
2. Data available only for winters of 1977-78 and 1978-79.
3. Birth considered difficult if any assistance was needed.

Condition of the beef cows in this experiment was not quantified prior to the start of the trial each fall. However, cows fed according to NRC were generally maintained in good condition, so body reserves may have been adequate to overcome any stress from prolonged or extreme cold. Cows on increased rations were probably receiving more than adequate energy levels in their daily feed. Jordon **et al.** (1968) note that the lack of energy will initially draw down the cow without severe effects on the fetus. Cows in poor body condition at the start of the winter that do not receive supplemental energy may have reduced lactation potential and longer post partum interval.

Cow age is also a factor, as mature cows require less feed during adverse conditions than 2 and 3-year-old cows (Davis **et al.**, 1977). Body condition of the cow in the fall appears to be a major factor in winter feeding levels (Wiltbank **et al.**, 1962). Most research does not quantify this variable, so the producer must make a judgement based on experience and/or advice. It is a fact that in cold weather more energy is expended for maintenance. This energy must come from either body stores or feed. In years of short feed supply, cattlemen may be able to get by feeding recommended levels or less depending on the severity of the winter and cow condition. It is still a general recommendation that beef cows in North Dakota need more energy than cows in a moderate climate if all other variables are equal.

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Summary

There are numerous career opportunities in agricultural businesses and industries in North Dakota. The estimates indicate that employment has grown modestly in the agricultural implement, grain handling and horticultural businesses. Specific training and/or experience is needed or expected for many of these occupations. Further data regarding results of this study is available from the Department of Agricultural Education at North Dakota State University.