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THE
FERTILIZER MANUFACTURING INDUSTRY
IN
CANADA
1941



OTTAWA
1943

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ANNUAL INDUSTRY REPORT

CHEMICALS AND ALLIED PRODUCTS GROUP

THE FERTILIZER MANUFACTURING INDUSTRY, 1941

Production by factories in Canada which were engaged principally in the manufacture of fertilizers was valued at \$15,188,645 in 1941 compared with \$15,103,819 in 1940. In addition, there was a production of 214,781 tons of cyanamide, ammonium sulphate, mixed fertilizers and fish fertilizers valued at \$5,072,215 in 1941 and 229,831 tons at \$4,914,731 in 1940 by establishments which were classified to other industrial groups.

During 1941 a total of 27 plants in Canada were occupied chiefly in making fertilizers; 10 of these were located in Ontario, 5 in British Columbia, 5 in Quebec, 3 in New Brunswick, 3 in Nova Scotia and 1 in Prince Edward Island. Capital employed in these works increased to \$20,110,569 from \$19,050,457 in 1940, the number of workers advanced to 1,748 from 1,392 and salaries and wages advanced to \$2,865,837 from \$2,142,890.

Total production of mixed fertilizers in 1941 from all industries amounted to 297,539 tons worth \$8,617,040 at factory prices and included 291,635 tons at \$8,383,862 made by plants in the fertilizer manufacturing industry and 5,904 tons at \$233,178 made in the meat-packing and glue factories. In 1940 the corresponding total was 302,842 tons at \$8,154,305 and in 1939 it was 279,425 tons at \$7,223,177.

Superphosphate was manufactured in 1941 by Canadian Industries Limited at McMasterville, Que., Hamilton, Ont. and New Westminster, B.C., and by Consolidated Mining & Smelting Company of Canada Ltd. at Trail, B.C. The output figures are not published separately since there were only two producers.

Ammonium sulphate was made by the Consolidated Mining & Smelting Company of Canada, Limited, at Trail, B.C., and also by the following coke manufacturers: Algoma Steel Corporation Limited, at Sault Ste. Marie, Ont.; Dominion Steel and Coal Corporation, Ltd., at Sydney, N.S.; Hamilton By-Product Coke Ovens, Limited, at Hamilton, Ont.; Montreal Coke & Manufacturing Company at Montreal, Que., and The Steel Company of Canada, Limited, at Hamilton, Ont. Production during the calendar year 1941 amounted to 98,662 tons; imports totalled 57 tons, and exports amounted to 59,480. Ammonium phosphate was made only by the Consolidated Mining & Smelting Company of Canada, Limited, at Trail, B.C.

A special survey of the fertilizer trade in Canada during the fertilizer year ended June 30, 1942, has been completed by the Dominion Bureau of Statistics and the results have been published in a special report. Summary figures on the sales of fertilizers have been reprinted in Tables 12 and 13 of this bulletin. A total of 427,143 tons of mixtures and materials were sold in Canada during the year ended June 30, 1942, compared with 324,201 tons during the preceding twelve-month period.

Fertilizers

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Table 1 - PRINCIPAL STATISTICS OF THE FERTILIZER MANUFACTURING INDUSTRY, 1930-1941

Year	No. of plants	Capital employed	Average number of employees	Salaries and wages	Cost of fuel and electricity at works	Cost of materials at works	Gross selling value of products at works
		\$		\$	\$	\$	\$
1930	14	4,139,498	261	262,928	18,889	1,647,478	2,504,573
1931	18	15,615,119	636	848,256	44,972	3,053,016	4,251,840
1932	19	17,083,478	748	1,097,812	49,010	2,616,333	4,006,187
1933	20	15,918,787	667	776,647	322,849	2,796,726	4,286,051
1934	20	15,452,733	776	946,178	348,716	3,647,660	5,467,154
1935	19	15,646,828	996	1,239,337	344,131	4,362,594	6,075,616
1936	20	14,800,141	930	1,196,286	443,627	4,996,084	7,075,831
1937	20	16,689,720	1,023	1,447,625	506,965	6,693,841	10,266,953
1938	26	17,155,945	1,232	1,560,873	654,359	8,344,853	12,841,300
1939	27	17,561,474	1,211	1,819,612	706,003	8,140,498	13,165,164
1940	26	19,050,457	1,392	2,142,890	760,783	9,525,143	15,103,819
1941	27	20,110,569	1,748	2,865,837	1,064,818	9,419,584	15,188,645
Per cent change - 1941 from 1940 ....	..	+ 5.5	+ 25.5	+ 32.7	+ 39.9	- 1.1	+ .5

NOTE: Profits or losses cannot be calculated from the above figures as data are not available for general expense items, such as, interest, rent, depreciation, taxes, insurance, advertising, etc.

Table 2 - PRINCIPAL STATISTICS, BY PROVINCES, 1940 and 1941

Province	No. of Plants	Capital employed	Average number of employees	Salaries and Wages	Cost of fuel and electricity at works	Cost of materials at works	Gross selling value of products at works
		\$		\$	\$	\$	\$
1940							
New Brunswick ..	3	1,571,808	138	160,920	149,066	1,453,012	2,022,091
Quebec	5	2,829,983	187	281,031	11,636	1,869,767	2,616,914
Ontario	9	4,458,323	391	574,512	33,170	2,804,050	4,107,877
British Columbia	5	9,088,159	544	975,777	690,977	2,468,489	5,046,302
Prince Edward Island	1)	1,102,184	132	150,650	5,924	929,825	1,310,635
Nova Scotia	3)						
CANADA ...	26	19,050,457	1,392	2,142,890	760,783	9,525,143	15,103,819
1941							
New Brunswick ..	3	1,950,499	145	161,542	15,363	1,380,507	1,988,865
Quebec	5	3,240,527	195	325,421	17,551	1,957,149	2,553,307
Ontario	10	4,409,135	371	554,173	34,377	2,599,338	3,865,791
British Columbia	5	9,118,535	896	1,674,326	989,823	2,325,259	5,243,755
Prince Edward Island	1)	1,391,873	141	150,375	7,704	1,157,331	1,536,927
Nova Scotia	3)						
CANADA ...	27	20,110,569	1,748	2,865,837	1,064,818	9,419,584	15,188,645

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Table 3 - CAPITAL EMPLOYED, BY PROVINCES, 1940 and 1941

Province	Present value of land, buildings, machinery and equipment	Inventory value of materials, supplies and finished prod- ucts on hand and stocks in process	Operating capital (cash, bills and accounts receiv- able, etc.)	TOTAL CAPITAL EMPLOYED
	\$	\$	\$	\$
<u>1940</u>				
New Brunswick ..	476,421	494,042	601,345	1,571,808
Quebec	1,183,757	1,061,857	584,369	2,829,983
Ontario	1,306,218	1,962,104	1,190,001	4,458,323
British Columbia	8,407,028	150,558	530,573	9,088,159
Other provinces.	332,700	512,637	256,847	1,102,184
CANADA ...	11,706,124	4,181,198	3,163,135	19,050,457
<u>1941</u>				
New Brunswick ..	314,826	596,498	1,039,175	1,950,499
Quebec	1,178,624	1,296,101	765,802	3,240,527
Ontario	1,309,665	1,870,140	1,229,330	4,409,135
British Columbia	8,392,369	185,790	540,376	9,118,535
Other provinces.	352,581	539,832	499,460	1,391,873
CANADA ...	11,548,065	4,488,361	4,074,143	20,110,569

Table 4 - EMPLOYEES, SALARIES AND WAGES, BY PROVINCES, 1940 and 1941

Province	Average number of employees				TOTAL	Salaries	Wages	TOTAL SALARIES and WAGES
	On salaries		On wages					
	Male	Female	Male	Female				
<u>1940</u>								
New Brunswick ..	15	4	119	...	138	35,629	125,291	160,920
Quebec	57	14	116	...	187	156,705	124,326	281,031
Ontario	125	39	227	...	391	328,585	245,927	574,512
British Columbia	73	8	458	5	544	203,760	772,017	975,777
Other provinces.	26	7	99	...	132	66,100	84,550	150,650
CANADA ...	296	72	1,019	5	1,392	790,779	1,352,111	2,142,890
<u>1941</u>								
New Brunswick ..	17	4	124	...	145	43,220	118,322	161,542
Quebec	61	15	119	...	195	170,522	154,899	325,421
Ontario	96	37	237	1	371	286,753	267,420	554,173
British Columbia	73	9	807	7	896	214,993	1,459,333	1,674,326
Other provinces.	22	7	112	...	141	64,252	86,123	150,375
CANADA	269	72	1,399	8	1,748	779,740	2,086,097	2,865,837

Fertilizers

Table 5 - WAGE-EARNEPS, BY MONTHS, 1940 and 1941 (On the last day of each month or nearest work day)

Month	1940			1941		
	Male	Female	TOTAL	Male	Female	TOTAL
January	868	4	872	1,502	9	1,511
February	942	5	947	1,340	6	1,346
March	942	8	950	1,448	8	1,456
April	1,452	9	1,461	2,160	6	2,166
May	1,387	8	1,395	1,620	8	1,628
June	805	6	811	1,230	6	1,236
July	852	5	857	1,246	6	1,252
August	863	4	867	1,294	6	1,300
September	871	4	875	1,245	6	1,251
October	850	4	854	1,237	6	1,243
November	1,174	5	1,179	1,239	6	1,245
December	1,224	4	1,228	1,217	6	1,223
AVERAGE	1,019	5	1,024	1,399	8	1,407

Table 6 - Hours Worked Per Week by Wage-earners, 1940 and 1941
(In one week of month of highest employment)

Hours worked per week	Number of Wage-earners			
	1940		1941	
	Male	Female	Male	Female
30 hours or less	223	4	323	6
31-43 hours	111	1	94	2
44 hours	31	4	12	-
45-47 hours.....	40	-	18	-
48 hours	845	-	966	-
49-50 hours.....	103	-	191	-
51-54 hours	184	-	162	-
55 hours	40	-	39	-
56-64 hours.....	373	-	358	-
65 hours and over.....	382	-	336	-
TOTAL	2,332	9	2,499	8
Total wages paid during week	\$ 60,171	164	64,249	234

Table 7 - FUEL AND ELECTRICITY USED, 1940 and 1941

Kind	Unit of measure	1940		1941	
		Quantity	Cost at works	Quantity	Cost at works
			\$		\$
Anthracite coal	ton	45	602	1,270	5,597
Bituminous coal - Canadian	ton	2,237	9,118	6,268	31,038
Imported	ton	940	6,837	1,036	7,384
Coke	ton	69	687	63	657
Gasoline	Imp. gal.	41,915	9,268	39,494	9,973
Fuel oil.....	Imp. gal.	4,933	500	7,314	879
Other fuel .....	...	...	84	...	133
Electricity purchased	K.W.H.	453,128,407	733,687	627,837,390	1,009,157
TOTAL	760,783	...	1,064,818

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Table 8 - POWER EQUIPMENT, 1940 and 1941

	Ordinarily in use		In reserve or idle	
	Number of units	Total rated horse power	Number of units	Total rated horse power
<u>1940</u>				
Steam engines and turbines	1	25	...	...
Gasoline, gas and oil engines ..	1	75	...	...
Total primary equipment ..	2	100	...	...
Electric motors operated by purchased power	750	18,082	107	1,536
TOTAL	752	18,182	107	1,536
Stationary boilers	2	16	...	...
<u>1941</u>				
Steam engines and turbines	1	25	...	...
Gasoline, gas and oil engines ..	2	95	1	20
Total primary equipment ..	3	120	1	20
Electric motors operated by purchased power	1,589	52,240	173	3,247
TOTAL	1,592	52,360	174	3,267
Stationary boilers	1	15		

Table 9 - MATERIALS USED IN THE FERTILIZER MANUFACTURING INDUSTRY, 1940 and 1941

Materials	1940		1941	
	Quantity	Cost at works	Quantity	Cost at works
	Short tons	\$	Short tons	\$
Ammonium phosphate	4,071	211,228	3,122	190,100
Ammonium sulphate (sulphate of ammonia)	28,484	811,656	29,428	969,856
Basic slag	70	1,092	-	-
Bone char	781	20,984	643	23,992
Bone meal and bone flour	234	7,451	673	22,345
Calcium cyanamide (cyanamid)	4,976	146,686	4,082	132,298
Calcium nitrate and nitrochalk	1,569	44,885	89	2,631
Dried blood	1,568	48,459	907	45,021
Fish meal or scrap	188	6,963	141	7,784
Lime or land plaster	7,970	20,117	7,541	38,448
Kainite and potash manure salts	-	-	3,280	59,232
Phosphate rock	143,667	1,262,847	156,038	1,573,165
Potassium chloride (muriate of potash)-				
50%	19,887	558,925	11,360	358,747
60%	24,015	789,488	31,455	1,182,036
Potassium nitrate (nitrate of potash) ..	23	1,338	4	566
Potassium sulphate (sulphate of potash) ..	5,220	206,809	2,988	134,839
Sodium nitrate (nitrate of soda)	9,446	289,695	9,131	282,001
Sulphuric acid, 66° Bé	177,075	1,869,672	189,034	1,675,133
Superphosphate, 16 to 19%	13,145	144,642	34,291	473,662
Superphosphate, 20%	160,932	1,992,426	108,587	1,219,692
Superphosphate, 45% and over	968	38,547	542	26,320
Tankege	2,411	71,669	2,852	71,969
Whale meat, bone and blood	85	3,600	126	4,860
All other materials	-	294,286	-	314,347
Containers and shipping materials	-	681,678	-	610,540
TOTAL	-	9,525,143	-	9,419,584

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Table 10 - PRODUCTS OF THE FERTILIZER MANUFACTURING INDUSTRY, CALENDAR YEARS 1940 and 1941

NOTE: Figures in this table are for the Fertilizer Manufacturing Industry, which includes only the concerns which were engaged chiefly in the manufacture of fertilizers. Some fertilizers were made also in the other industries; for the total output of mixed fertilizers in Canada, see Table 11.

Products	1940		1941	
	Quantity tons	Selling value at works \$	Quantity tons	Selling value at works \$
Mixed fertilizers	298,220	7,967,132	291,635	8,383,862
Superphosphate, ammonium phosphate and ammonium sulphate (completely manufactured) (1)	255,913	5,957,548	226,100	5,667,644
Superphosphate, milled and screened only	16%-18%... 3,808	72,342	1,060	22,832
..... 20%	32,051	627,715	34,225	680,488
..... 45%	-	-	43	817
Ammonium sulphate, milled and screened only	2,330	80,859	1,928	72,372
Muriate of potash, milled and screened only	5,501	215,934	4,272	186,473
Nitrate of soda, milled and screened only .....	...	78,291	681	28,971
All other products .....	...	92,998	...	145,186
TOTAL .....	...	15,103,819	...	15,188,645

(1) Superphosphate is manufactured in Canada by two companies only, and ammonium phosphate and ammonium sulphate are manufactured by only one company in this industry, hence the production figures are not shown separately.

Table 11 - TOTAL PRODUCTION OF MIXED FERTILIZERS IN CANADA, FROM ALL INDUSTRIAL GROUPS, CALENDAR YEARS 1922 - 1941

NOTE: Figures in this table represent the total Canadian production of mixed fertilizers, regardless of the industries in which produced.

Calendar year	Quantity tons	Selling value at works \$	Calendar year	Quantity tons	Selling value at works \$
1922	40,843	1,818,136	1932	95,857	2,447,407
1923	37,587	1,366,343	1933	106,421	2,777,702
1924	38,126	1,539,003	1934	138,750	3,517,193
1925	47,076	1,662,129	1935	145,844	3,442,017
1926	56,888	2,043,093	1936	175,703	4,222,587
1927	72,112	2,552,421	1937	213,802	6,130,523
1928	76,180	3,017,648	1938	288,634	7,486,494
1929	75,164	3,098,567	1939	219,425	7,323,177
1930	78,158	2,548,226	1940	302,842	8,154,305
			1941	297,539	8,617,040

Table 12 - SALES OF FERTILIZERS IN CANADA, EXCEPT FOR MANUFACTURING PURPOSES, DURING THE YEAR ENDED JUNE 30, 1942

Fertilizers	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba, Saskatchewan and Alberta	British Columbia	TOTAL SOLD IN CANADA
	(Tons of 2,000 pounds)							
Nitrate of soda	358	2,739	1,158	258	675	12	242	5,442
Sulphate of ammonia	477	589	2,815	2,613	4,214	187	1,356	12,281
Cyanamide	-	32	6	9	729	-	38	814
Superphosphate	4,118	2,092	5,161	11,672	14,376	317	894	38,630
Natural phosphate rock	-	-	-	115	9	-	20	144
Basic slag	-	-	-	4	-	-	-	4
Bone meal or bone flour	3	62	6	45	360	97	431	1,004
Muriate of potash	1,734	161	1,459	272	1,491	30	272	5,419
Sulphate of potash	-	2	-	2	56	1	61	122
Tankage	-	-	5	-	679	260	366	1,310
Sheep manure	-	40	2	189	360	15	45	651
Dried blood	-	-	-	2	93	88	310	493
Whale products	-	-	-	-	-	-	424	424
Fish meal	-	-	6	-	1	-	277	284
Ammonium phosphate	-	3	-	25	2,025	8,345	1,080	11,478
Other fertilizer materials ..	-	1	-	218	723	46	244	1,232
Total Fertilizer Materials .	6,690	5,721	10,618	15,424	25,821	9,398	6,060	79,732
Total Mixed Fertilizers	15,866	27,104	33,813	94,718	164,559	1,883	9,468	347,411
GRAND TOTAL, 1942	22,556	32,825	44,431	110,142	190,380	11,281	15,528	427,143
GRAND TOTAL, 1941	22,975	37,955	33,389	88,326	126,933	9,562	15,061	324,201

Fertilizers

Table 13 - TOTAL SALES IN CANADA OF FERTILIZER MATERIALS AND MIXED FERTILIZERS FOR THE YEARS ENDED JUNE 30, 1941 and 1942

Province	1941	1942
	(Tons of 2,000 pounds)	
<u>Fertilizer Materials</u>		
Prince Edward Island	11,934	6,690
Nova Scotia	6,283	5,721
New Brunswick	9,149	10,618
Quebec	11,810	15,424
Ontario	21,340	25,821
Manitoba, Saskatchewan and Alberta	8,289	9,398
British Columbia	5,729	6,060
CANADA	74,534	79,732
<u>Mixed Fertilizers</u>		
Prince Edward Island	11,041	15,866
Nova Scotia	21,666	27,104
New Brunswick	24,240	33,813
Quebec	76,516	94,718
Ontario	105,593	164,559
Manitoba, Saskatchewan and Alberta	1,273	1,883
British Columbia	9,332	9,468
CANADA	249,667	347,411

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