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MINING, METALLURGICAL & CHEMICAL STATISTICS



THE
FERTILIZER MANUFACTURING INDUSTRY
IN
CANADA
1946



OTTAWA
1948

Price 15 cents

44-502

UNITED STATES DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF INVESTIGATION

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Herbert Marshall
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ANNUAL INDUSTRY REPORT

CHEMICALS AND ALLIED PRODUCTS GROUP

THE FERTILIZER MANUFACTURING INDUSTRY, 1946

Production by factories in Canada which were engaged principally in the manufacture of fertilizers was valued at \$49,992,443 in 1946 compared with \$34,505,756 in 1945. In addition, there was a production of 245,572 tons of cyanamid, ammonium sulphate, mixed fertilizers and fish fertilizers valued at \$8,276,369 in 1946, and 269,616 tons at \$7,741,640 in 1945, by establishments which were classified to other industrial groups. The quantity of fish used as fertilizer in 1946 amounted to 54,606 barrels valued at \$37,408.

Twenty-nine plants were occupied chiefly in the manufacture of fertilizers in 1946, there being 10 in Ontario, 5 in British Columbia, 5 in Quebec, 3 in New Brunswick, 3 in Nova Scotia, 2 in Prince Edward Island and 1 in Alberta. The average number of workers increased from 2,146 in 1945 to 2,805 in 1946, with a corresponding increase in the total salaries and wages from \$4,418,916 to \$5,929,796.

Total production of mixed fertilizers in 1946 from all industries amounted to 597,855 tons worth \$17,956,075 at factory prices and included 593,953 tons at \$17,767,769 made by plants in the fertilizer manufacturing industry and 3,902 tons at \$188,306 made in the meat packing and the adhesives industries. In 1945 the corresponding total was 539,462 tons at \$16,256,250 and in 1944 it was 542,520 tons at \$15,585,502.

Superphosphate was manufactured in 1946 by Canadian Industries Limited at McMasterville, Quebec; Hamilton, Ontario; and New Westminster, British Columbia. Ammonium nitrate (fertilizer grade) was manufactured in 1946 by the Welland Chemical Works Ltd., at Welland, Ontario, and also by the Consolidated Mining and Smelting Company of Canada, Limited, at Trail, British Columbia and at Calgary, Alberta. The output figures are not published separately since there was only one producer in the case of the former and only two in the case of the latter.

Ammonium sulphate was made by the Consolidated Mining and Smelting Company of Canada, Limited, at Trail, British Columbia, and also by the following coke manufacturers: Algoma Steel Corporation Limited, at Sault Ste. Marie, Ontario; Dominion Steel and Coal Corporation, Ltd., at Sydney, Nova Scotia; Hamilton By-Product Coke Ovens, Limited, at Hamilton, Ontario; Montreal Coke and Manufacturing Company, at Montreal, Quebec, and The Steel Company of Canada, Limited, at Hamilton, Ontario. Production during the calendar year 1946 amounted to 197,103 tons; imports totalled 63 tons, and exports amounted to 155,446 tons. Ammonium phosphate was made only by the Consolidated Mining and Smelting Company of Canada, Limited, at Trail, British Columbia.

A special survey of the fertilizer trade in Canada during the fertilizer year ended June 30, 1947 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 11-13 of this bulletin. A total of 660,721 tons of mixtures and materials were sold in Canada during the year ended June 30, 1947, compared with 632,943 tons during the preceding twelve-month period.

Table 1 - PRINCIPAL STATISTICS OF THE FERTILIZER MANUFACTURING INDUSTRY, 1937-1946

Year	Number of plants	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
			\$	\$	\$	\$
1937	20	1,023	1,447,625	506,965	6,693,841	10,266,953
1938	26	1,232	1,560,873	654,359	8,344,853	12,841,300
1939	27	1,211	1,819,612	706,003	8,140,498	13,165,164
1940	26	1,392	2,142,890	760,783	9,525,143	15,103,819
1941	27	1,748	2,865,837	1,064,818	9,419,584	15,188,645
1942	26	1,973	3,413,722	1,164,650	13,112,322	21,140,397
1943	26	2,204	4,314,742	1,141,339	19,036,806	27,105,357
1944	26	2,226	4,610,420	1,162,992	17,690,683	31,188,945
1945	26	2,146	4,418,916	1,116,081	18,708,175	34,505,756
1946	29	2,805	5,929,796	3,232,099	22,865,328	49,992,443
Per cent change, 1946 from 1945	..	+30.7	+34.2	+189.6	+22.2	+44.9

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.

(This report was prepared by Mr. J.J. Parchelo, Statistician, Metal & Chemical Products)

Fertilizers

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Table 2 - PRINCIPAL STATISTICS, BY PROVINCES, 1945 and 1946

Province	Number of plants	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
			\$	\$	\$	\$
<u>1945</u>						
Prince Edward Island ..	1)					
Nova Scotia	3)	149	214,893	11,500	1,958,855	2,589,975
New Brunswick	3	186	313,127	12,319	2,471,615	3,550,907
Quebec	5	354	684,339	34,692	4,033,381	5,434,479
Ontario	9	417	798,030	38,780	5,227,166	7,028,743
British Columbia	5	1,040	2,408,527	1,018,790	5,017,158	15,901,652
CANADA	26	2,146	4,418,916	1,116,081	18,708,175	34,505,756
<u>1946</u>						
Prince Edward Island ..	2)					
Nova Scotia	3)	135	192,075	12,742	2,228,210	2,975,364
New Brunswick	3	181	339,362	21,489	2,612,061	3,484,020
Quebec	5	282	518,359	33,458	3,581,077	5,031,505
Ontario	10	863	1,697,974	769,126	7,676,615	13,405,580
Alberta	1)					
British Columbia	5)	1,344	3,182,026	2,395,284	6,767,365	25,095,974
CANADA	29	2,805	5,929,796	3,232,099	22,865,328	49,992,443

Table 3 - EMPLOYEES, SALARIES AND WAGES, BY PROVINCES, 1945 and 1946

Province	Average Number of Employees					Salaries	Wages	TOTAL SALARIES and WAGES
	On Salaries		On Wages		Total			
	Male	Female	Male	Female				
<u>1945</u>								
New Brunswick	14	9	161	2	186	55,552	257,575	313,127
Quebec	62	37	255	...	354	243,262	441,077	684,339
Ontario	87	57	272	1	417	340,798	457,232	798,030
British Columbia .	105	34	779	122	1,040	435,659	1,972,868	2,408,527
Other provinces ...	25	12	112	...	149	80,381	134,512	214,893
CANADA	293	149	1,579	125	2,146	1,155,652	3,263,264	4,418,916
<u>1946</u>								
New Brunswick	16	7	158	...	181	74,698	264,664	339,362
Quebec	41	11	230	...	282	135,432	382,927	518,359
Ontario	164	51	646	2	863	518,492	1,179,482	1,697,974
British Columbia .	117	24	839	3	983	417,212	2,024,086	2,441,298
Other provinces ..	77	28	380	11	496	247,689	685,114	932,803
CANADA	415	121	2,253	16	2,805	1,393,523	4,536,273	5,929,796

Table 4 - WAGE-EARNERS, BY MONTHS, 1945 and 1946 (On the last work day of each month)

Month	1945			1946		
	Male	Female	Total	Male	Female	Total
	January	1,613	147	1,760	2,211	27	2,238
February	1,743	146	1,889	2,448	17	2,465
March	1,910	146	2,056	2,626	15	2,641
April	1,959	152	2,111	2,640	16	2,656
May	1,648	144	1,792	2,377	17	2,394
June	1,449	147	1,596	2,076	15	2,091
July	1,372	138	1,510	2,002	14	2,016
August	1,368	133	1,501	2,067	15	2,082
September	1,402	128	1,530	2,081	14	2,095
October	1,429	107	1,536	2,114	15	2,129
November	1,535	74	1,609	2,182	14	2,196
December	1,526	39	1,575	2,208	16	2,224
AVERAGE	1,579	125	1,704	2,253	16	2,269

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Table 5 - FUEL AND ELECTRICITY USED, 1945 and 1946

Kind	Unit of measure	1 9 4 5		1 9 4 6	
		Quantity	Cost at works	Quantity	Cost at works
		\$		\$	
Bituminous coal - Canadian	ton	1,506	13,078	38,371	286,784
Imported	ton	41	334	17,310	124,620
Anthracite coal	ton	164	2,193	179	2,475
Lignite coal	ton	...	...	963	5,539
Coke	ton	77	923	64	850
Gasoline	Imp.gal.	80,496	22,379	123,475	29,136
Kerosene	Imp.gal.	1,691	407	1,601	428
Fuel oil	Imp.gal.	95,855	11,397	4,719,176	309,410
Gas (natural)	M cu.ft.	...	...	2,425	1,850
Other fuel .....	...	...	80	...	106
Electricity purchased	K.W.H.	646,227,267	1,065,290	827,051,661	2,470,901
TOTAL .....	...	...	1,116,081	...	3,232,099

Table 6 - POWER EQUIPMENT, 1945 and 1946

	Ordinarily in Use		In Reserve or Idle	
	Number of units	Total rated horse power	Number of units	Total rated horse power
1 9 4 5				
Steam engines and turbines	2	55	...	...
Gasoline, gas and oil engines ...	4	135	1	2
Electric motors operated by purchased power	1,482	30,508	193	3,274
TOTAL	1,488	30,698	194	3,276
Stationary power boilers	1	15	...	...
Motor-generator sets	5	857	...	...
1 9 4 6				
Steam engines	10	3,905	...	...
Steam turbines	11	1,690	5	205
Gasoline, gas and oil engines ...	6	190	2	52
Electric motors operated by purchased power	2,291	85,618	408	8,226
TOTAL	2,318	91,403	415	8,483
Stationary power boilers	5	7,015	...	...
Motor-generator sets	33	1,366 k.v.a.	2	75 k.v.a.

Table 7 - MATERIALS USED IN THE FERTILIZER MANUFACTURING INDUSTRY, 1945 and 1946

Material	1 9 4 5		1 9 4 6	
	Quantity	Cost at works	Quantity	Cost at works
	Short tons	\$	Short tons	\$
Ammonia, anhydrous	1,031	95,944	653	54,285
Ammonia liquor	1,061	49,736	5,164	272,955
Ammonium nitrate	15,494	826,190	20,651	1,115,478
Ammonium phosphate	3,938	205,628	7,115	384,904
Ammonium sulphate (sulphate of ammonia)	40,309	1,369,266	32,883	1,109,860
Basic slag	6,218	11,153	7,785	25,419
Bone cher	133	2,974	103	2,295
Bone meal and bone flour	146	6,249	520	19,586
Borax	248	14,910	472	18,721
Calcium cyanamide (cyanamid)	10,366	408,146	9,121	358,789
Coke (except for fuel) .....	...	...	106,087	1,312,851
Diatomaceous earth .....	...	...	8,185	308,446
Dried blood and blood meal	850	42,220	559	26,937
Fish meal and scrap	110	6,820	...	...
Lime or land plaster	5,789	18,519	26,245	63,451
Magnesium oxide	109	4,492	724	23,667
Magnesium sulphate	431	16,628	57	1,689
Phosphate rock	365,195	4,230,410	372,914	4,525,698

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Table 7 - MATERIALS USED IN THE FERTILIZER MANUFACTURING INDUSTRY, 1945 and 1946 (concluded)

Material	1 9 4 5		1 9 4 6	
	Quantity	Cost at works	Quantity	Cost at works
	Short tons	\$	Short tons	\$
Potassium chloride (muriate of potash)				
50%	7,727	267,474	8,554	299,435
60%	62,003	2,429,074	66,562	2,448,963
Potassium nitrate (nitrate of potash)	...	...	...	...
Potassium sulphate (sulphate of potash)	3,853	176,339	3,356	140,797
Potassium magnesium sulphate (sulphate of potash magnesia)	1,624	59,042	3,141	96,727
Potash manure salts and kainite	10,979	209,894	4,720	84,988
Silica sand	42,405	98,281	44,070	101,050
Sodium nitrate (nitrate of soda)	399	18,121	248	12,295
Sulphuric acid, 66° Be	488,894	2,122,805	481,106	2,471,392
Superphosphate: 16-18%	4,454	70,908	16,711	237,138
20%	213,871	3,602,607	237,638	4,147,483
38-45%	2,098	88,914	1,233	58,822
Tankage	1,711	39,685	2,528	75,823
Whale meat, bone and blood	220	10,660	...	...
All other materials .....	...	393,390	...	812,466
Containers and shipping materials ....	...	1,811,696	...	2,250,918
TOTAL .....	...	18,708,175	...	22,865,328

Table 8 - PRODUCTS OF THE FERTILIZER MANUFACTURING INDUSTRY, CALENDAR YEARS 1945 and 1946

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 9.

Product	1 9 4 5		1 9 4 6	
	Quantity	Selling value at works	Quantity	Selling value at works
	tons	\$	tons	\$
Mixed fertilizers	535,588	16,077,430	593,953	17,767,769
Superphosphate, ammonium nitrate (fertilizer grade), ammonium phosphate and ammonium sulphate (completely manufactured)(a) (b)	549,180	17,594,160	801,498	30,068,707
Superphosphate, milled and screened only: 16%-18%	384	8,610	350	7,680
20%	8,399	186,994	8,922	210,311
38%-45% .....	...	...	...	...
Ammonium sulphate, milled and screened only	1,770	58,306	1,656	67,429
Muriate of potash, milled and screened only: 50%	1,116	52,091	930	42,502
60%	2,263	109,906	2,235	111,674
Nitrate of soda, milled and screened only	82	4,117	189	10,346
All other products .....	...	414,142	...	1,706,025
TOTAL .....	...	34,505,756	...	49,992,443

(a) Ammonium nitrate (fertilizer grade) is manufactured in Canada by two companies only; superphosphate, ammonium phosphate and ammonium sulphate are manufactured by only one company in this industry, hence the production figures are not shown separately.

(b) 1945 figures do not include ammonium nitrate (fertilizer grade)

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Table 9 - TOTAL PRODUCTION OF MIXED FERTILIZERS IN CANADA, FROM ALL INDUSTRIAL GROUPS, CALENDAR YEARS 1936 - 1946

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

Year	Quantity tons	Selling value at works \$	Year	Quantity tons	Selling value at works \$
1936	175,703	4,222,587	1942	406,141	12,480,300
1937	243,802	6,130,523	1943	507,816	15,039,197
1938	288,634	7,426,494	1944	542,520	15,585,502
1939	279,425	7,223,177	1945	539,462	16,256,250
1940	302,842	8,154,305	1946	597,855	17,956,075
1941	297,539	8,617,040			

Table 10 - PRODUCTION IN CANADA, IMPORTS AND EXPORTS OF AMMONIUM SULPHATE, 1936-1946

Year	Production	Imports (tons)	Exports
1936	98,483	5,729	83,835
1937	87,621	3,230	56,485
1938	119,520	5,911	77,191
1939	129,865	3,217	109,260
1940	115,679	355	72,485
1941	98,662	57	59,480
1942	116,796	5,045	79,236
1943	196,404	39	141,080
1944	209,578	104	167,496
1945	221,499	105	181,189
1946	197,103	63	155,446

Table 11 - SALES OF FERTILIZER MATERIALS, EXCEPT FOR MANUFACTURING PURPOSES, YEAR ENDED JUNE 30, 1947.

Kind	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba, Saskatchewan and Alberta	British Columbia	TOTAL SOLD IN CANADA
(Short tons)								
Fertilizer Materials								
Nitrate of soda .....	...	...	...	...	587	...	31	618
Sulphate of ammonia .	680	493	224	150	331	850	1,501	4,229
Cyanamide	54	292	83	24	2,138	2	298	2,891
Ammonium nitrate (nitraprills)	679	1,396	733	546	1,284	10	1,125	5,773
Ammonium phosphate -								
11-48-0 .....	...	...	...	...	2,369	34,959	2,924	40,252
16-20-0 .....	...	...	...	...	143	3,008	1,417	4,568
Superphosphate	4,193	2,413	1,745	7,710	9,851	16	1,355	27,283
Bone meal or bone flour .....	...	...	1	...	170	82	252	505
Muriate of potash -								
50% .....	...	...	33	40	398	...	...	471
60%	903	63	460	46	1,009	1	642	3,124
Sulphate of potash ..	...	...	...	1	113	1	56	171
Tankage .....	...	...	...	...	...	339	54	393
Sheep manure .....	...	...	1	311	652	30	210	1,204
Dried blood .....	...	...	...	...	6	8	48	62
Other fertilizer materials	1	33	8	1,045	1,348	1,527	364	4,326
TOTAL 1947	6,510	4,690	3,288	9,873	20,399	40,833	10,277	95,870
Total 1946	6,942	5,173	5,819	12,213	16,911	30,737	12,651	90,446

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Table 12 - MIXED FERTILIZERS SOLD DURING THE YEAR ENDED JUNE 30, 1947

Formulae				Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba, Saskatchewan and Alberta	British Columbia	TOTAL SOLD IN CANADA	Exported from Canada
	N	P ₂ O ₅	K ₂ O	(Short tons)								
0 12 20	...	...	...	...	...	...	...	1,077	...	999	2,076	...
0 14 7	...	...	...	...	...	...	4,720	20,605	...	...	25,325	...
2 8 16	...	...	...	...	...	...	522	3,664	...	...	4,186	...
2 10 8	...	...	...	...	...	...	3,731	45,117	...	...	48,848	...
2 12 6	1,792	11,867	10,721	...	...	...	57,223	96,453	30	...	178,086	820
2 12 10	...	...	...	...	...	...	6,861	7,746	...	84	14,691	15
2 15 12	...	...	...	...	...	...	...	...	...	1,045	1,045	...
2 16 6	...	...	...	...	...	...	1,469	8,395	119	1,577	11,560	...
3 10 8	...	...	...	...	...	...	85	13,208	...	...	13,293	...
3 15 6	3,817	1,829	10	...	...	...	...	...	...	...	5,656	152
4 8 6	...	...	39	...	...	...	199	2,874	...	...	3,112	...
4 8 10	26,368	10,332	58,337	48,431	21,648	24	...	...	...	...	165,140	3,058
4 12 6	220	11,077	3,136	5,349	13,612	45	...	...	...	...	33,439	1,578
4 12 8	...	...	...	...	...	...	...	41	6,474	...	6,515	463
4 24 12	...	...	...	...	...	...	...	8,023	...	...	8,023	...
5 7 10	...	...	...	...	...	...	...	...	...	...	...	22,401
5 8 7	...	...	...	3,797	7	...	...	...	...	...	3,804	328
5 10 10	13,081	386	659	...	...	...	...	...	...	...	14,126	4,761
6 7 6	...	...	...	...	...	...	...	...	...	2,762	2,762	...
6 9 12	...	...	...	...	...	...	...	...	...	...	...	7,785
6 18 12	...	...	...	...	...	...	...	...	...	985	985	...
6 30 15	...	...	...	...	...	...	...	...	...	1,226	1,226	...
8 10 5	...	...	...	...	...	...	...	15	1,277	...	1,292	...
9 5 7	...	4,813	229	1,880	396	...	...	...	...	...	7,318	114
10 20 10	...	...	...	...	...	...	...	...	...	766	766	...
Other mixtures	2	25	26	1,083	9,312	382	747	...	...	...	11,577	2,208
TOTAL 1947 ..	45,280	40,329	73,157	135,350	252,137	656	17,942	564,851	43,683	...	...	...
Total 1946 ..	49,783	37,895	77,611	139,095	220,169	465	17,479	542,497	50,504	...	...	...

Table 13 - TOTAL SALES IN CANADA OF FERTILIZER MATERIALS AND MIXED FERTILIZERS FOR THE YEARS ENDED JUNE 30, 1946 and 1947

Province	Year Ended June 30	
	1946	1947
(Tons of 2,000 pounds)		
Fertilizer Materials -		
Prince Edward Island	6,942	6,510
Nova Scotia	5,173	4,690
New Brunswick	5,819	3,288
Quebec	12,213	9,873
Ontario	16,911	20,399
Manitoba, Saskatchewan and Alberta	30,737	40,833
British Columbia	12,651	10,277
CANADA	90,446	95,870
Mixed Fertilizers -		
Prince Edward Island	49,783	45,280
Nova Scotia	37,895	40,329
New Brunswick	77,611	73,157
Quebec	139,095	135,350
Ontario	220,169	252,137
Manitoba, Saskatchewan and Alberta	465	656
British Columbia	17,479	17,942
CANADA	542,497	564,851

LIST OF FIRMS IN THE FERTILIZER INDUSTRY, 1946

Name	Location of Plant
<u>Prince Edward Island -</u>	
The Island Fertilizer Co. Ltd.	Charlottetown
The Summerside Fertilizer Co. Ltd.	Summerside
<u>Nova Scotia -</u>	
Canadian Industries Limited (Fertilizer Div.)	Pier 9, Halifax
Geo. A. Chase Ltd.	Port Williams
Colonial Fertilizer Co. Ltd.	Nesbit St., Windsor
<u>New Brunswick -</u>	
Canada Packers Limited (Fertilizer Div.)	Bayside Drive, East Saint John
International Fertilizers Limited	East Saint John
Summers Fertilizer Co. Inc.	Prince William St., St. Stephen
<u>Quebec -</u>	
Agricultural Chemicals Ltd.	Chambly
Canada Packers Limited	6000 St. Patrick St., Montreal
Canadian Industries Limited (Fertilizer Div.)	1490 Marlborough St., Montreal
Canadian Industries Limited (Fertilizer Div.)	McMasterville
International Fertilizers Limited	National Harbours Board, Shed #29, Quebec
<u>Ontario -</u>	
Agricultural Chemicals Ltd.	Marsh St., Port Hope
Canada Packers Limited	2200 St. Clair Ave. W., Toronto
Canadian Industries Limited (Fertilizer Div.)	King St. E., Chatham
Canadian Industries Limited (Fertilizer Div.)	Burlington & Ottawa Sts., Hamilton
Misner Seeds & Fertilizer	Port Dover
Canada Packers Limited	Welland
Stone, William, Sons Ltd.	Ingersoll
United Farmers Co-Operative Co. Limited	4004 Dundas St. W., Toronto
Welland Chemical Works Ltd.	Garner Road, Niagara Falls
Witts Fertilizer Works Ltd.	Norwich
<u>Alberta -</u>	
Consolidated Mining and Smelting Co. of	
Canada Limited	Calgary
<u>British Columbia -</u>	
Buckerfield's Limited	P.O. Box 219, Vancouver
Canadian Industries Limited (Fertilizer Div.)	foot of 16th St., New Westminster
Consolidated Mining and Smelting Co. of	
Canada Limited	Trail
Globe Fertilizer Co. Ltd.	foot Crompton Road, Vancouver
Old Gardener Products Ltd.	319 W. Pender St., Vancouver

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