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2007 Minerals Yearbook

PEAT [ADVANCE RELEASE]

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PEAT

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In 2007, peat produced in the conterminous United States was 635,000 metric tons (t); output from Alaska was 51,000 cubic meters.

The United States is a significant producer and consumer of peat for horticultural and industrial purposes. The types of peat are classified according to the degree of decomposed component plant material, with sphagnum moss being the least decomposed, followed by hypnum moss, reed-sedge, and humus.

Reed-sedge accounted for 82.1% of domestic peat production, followed by sphagnum moss, 8.5%; humus, 6.5%; and hypnum moss, 2.9% (table 4). Florida and Minnesota accounted for 82% of U.S. peat production (table 3). Florida was the leading producer with 475,000 t.

Peat is a renewable natural organic material of botanical origin and commercial significance. Peatlands are situated in wetland areas, primarily in the temperate and cold belt of the Northern Hemisphere, where large deposits developed from the gradual decomposition of plant matter under anaerobic conditions. The United States contains approximately 15% of the world's peatlands by area (Lappalainen, 1996, p. 55). There are more than 400 million hectares (Mha) of peatlands on Earth, of which 80% remains undisturbed. Of the 80 Mha that has been used by humans, 50% has been used for agriculture; 30% for forestry; 10% for miscellaneous uses; and 10% for peat extraction. Peat continues to accumulate on 60% of global peatlands; however, the volume of global peat resources has been decreasing at a rate of 0.05% per year owing to human activity (Joosten and Clarke, 2002).

Production

Domestic production data for peat were developed by the U.S. Geological Survey from a voluntary canvass of operations in the conterminous United States. Of the 50 operations to which a survey request was sent, 32 responded (including 3 idle and 5 closed operations), representing about 64% of total production tonnage. There were 38 active operations and 8 companies were idle in 2007. Data for nonrespondents were estimated based on responses to the 2006 survey or other sources. Most peat operations are relatively small and sell their products regionally. Peat production in the conterminous United States in 2007 was 635,000 t, a 15% increase from that of 2006 (table 1). However, a 14% decrease in peat production was reported in the Great Lakes region. Output from Alaska was 51,000 cubic meters in 2007, according to the Alaska Department of Natural Resources, which conducted its own survey of mineral production in the State (Szumigala and Hughes, 2008, p. 13). Peat production in Alaska was reported by volume only. In 2007, 72% of domestic production came from just four operations (table 2).

Consumption

Peat is widely used as a plant-growth medium in a variety of agricultural and horticultural applications where its fibrous structure and porosity enable a unique combination of water-retention and drainage characteristics. Commercial applications include lawn and garden soil amendments, potting soils, and turf maintenance on golf courses. In industry, peat is used primarily as a filtration medium to remove toxic materials from process waste streams, pathogens from sewage effluents, and deleterious materials suspended in municipal storm-drain water. In its dehydrated form, peat is a highly effective absorbent for fuel and oil spills on land and water.

Sales of domestic peat decreased by 5% to 694,000 t from 734,000 t in 2006. Packaged products composed 15% of total domestic sales tonnage and commanded premium prices for all grades of peat. Apparent consumption increased by 6% compared with that of 2006. Potting soil and general soil improvement mixes were the two leading usage categories, accounting for 94% of domestic sales tonnage and 90% of the volume (table 5). Other significant uses, by quantity of sales, included golf course applications, nursery applications, and seed inoculants. The United States imported 61% of total consumption requirements, primarily from Canada, where deposits of high-quality sphagnum moss are extensive. Canadian peat was sold in bulk for blending in custom soil mixes and was packaged for horticultural use; however, a detailed distribution of Canadian imports was not available. Many of the soil blending facilities that are located in the Southern and Western United States are owned by subsidiaries of Canadian peat producers and import much of their peat requirements.

Stocks

U.S. yearend stocks of peat decreased to 98,000 t from 128,000 t in 2006 (table 1). Reed-sedge peat accounted for 73% of total stocks, followed by humus, sphagnum moss, and hypnum (table 4).

Prices

The total reported free on board (f.o.b.) value for domestic peat sold in the United States was $18 million, according to the annual survey of domestic peat producers. The average unit value decreased to $25.59 per metric ton compared with $27.34 per ton in 2006 (table 1). On an average unit-value basis, sphagnum moss was valued at $54.34 per ton, f.o.b. plant; hypnum moss, $35.83 per ton; reed-sedge, $24.21 per ton; and humus, $15.39 per ton (table 7).

Foreign Trade

Imports of peat increased by 6% to 977,000 t from 924,000 t in 2006 (table 8). The total customs import value was $240 million or $246.03 per ton. Imports of sphagnum moss from Canada increased to 949,000 t, which represented 97% of total U.S. imports and 76% of total Canadian production. U.S. companies exported 56,000 t of peat (table 1).

World Review

Finland, Ireland, Belarus, Estonia, Russia, Sweden, Canada, and Latvia were the leading producer countries in decreasing order of tonnage (table 9). World peat production for 2007 was estimated to be 25.7 million metric tons (Mt) a slight decrease from 2006. Other significant producing countries included Moldova, Poland, Ukraine, and the United States. Peat is an important source of energy in Finland, Ireland, and Sweden and to a lesser extent in Eastern Europe.

Canada.—Production of sphagnum moss is estimated to have increased slightly to 1.25 Mt from 1.245 Mt in 2006. New Brunswick, Quebec, and Alberta were the major producing provinces, in decreasing order of tonnage, accounting for 82% of production. British Columbia, Manitoba, Newfoundland, Nova Scotia, Prince Edward Island, and Saskatchewan also reported peat production (Natural Resources Canada, 2008).

Sun Gro Horticulture Canada Ltd. entered into an agreement to acquire Quebec-based peat moss producer Tourbiere Omer Belanger Inc. for $3.9 million. The transaction will strengthen Sun Gro's long-term peat supply in eastern Canada while increasing the diversity of its peat harvest resources. The acquisition included 769 hectares (ha) of largely undeveloped professional grade peat bogs, 57 ha of retail-grade bogs, and three adjacent production facilities, all located in Quebec (Sun Gro Horticulture Canada Ltd., 2007).

Uganda.—The city of Kabale announced plans to build a 30 megawatt (MW) to 35 MW thermal powerplant worth $65 million. The plant, which will be built by Madhvani International South Africa, a subsidiary of Kabale Energy, will be peat-fired (The New Vision, 2007).

Outlook

The domestic short-term peat situation will likely include steadily increasing Canadian imports and fluctuating domestic peat production. The number of domestic producers will continue to decline and remain dominated by large companies. Other factors, such as competition from organic soil amendments like coir (coconut fiber) and composted yard waste, Federal and State wetlands regulations, and restriction on permitting new production sites will likely have a negative influence on the domestic peat industry.

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TABLE 1
SALIENT PEAT STATISTICS[1]

(Thousand metric tons and thousand dollars unless otherwise specified)

	2003	2004	2005	2006	2007
United States:[2]					
Number of active producers	54	50	45	39	38
Production	634	696	685	551	635
Sales by producers:					
Quantity:					
Bulk	447	550	537	525	590
Packaged	185	191	214	209	104
Total	632	741	751	734	694
Value	18,800	21,200	20,800	20,100	17,800
Average value dollars per metric ton	29.74	28.64	27.76	27.34	25.59
Average value, bulk do.	22.60	22.88	23.08	23.00	24.69
Average value, packaged or baled do.	46.98	45.20	39.54	38.28	30.64
Exports	29	29	36	41	56
Imports for consumption	767	786	891	924	977
Consumption, apparent[3]	1,400	1,380	1,600	1,500	1,590
Stocks, December 31, producers	180	251	195	128	98
World, production	33,700 r	25,500 r	25,700	25,800	25,700 e

eEstimated. rRevised. do. Ditto.
[1]Data are rounded to no more than three significant digits, except average values per metric ton.
[2]Excludes Alaska.
[3]Apparent consumption equals U.S. production plus imports minus exports plus adjustments for industry stock changes.

TABLE 2
RELATIVE SIZE OF PEAT OPERATIONS IN THE UNITED STATES

Size	Active operations		Production (thousand metric tons)	
(metric tons per year)	2006	2007	2006	2007
23,000 and more	4	4	396	455
9,000 to 22,999	6	7	75	106
5,000 to 8,999	7	6	46	41
1,000 to 4,999	10	11	29	28
Less than 1,000	12	10	6	5
Total	39	38	551	635

TABLE 3
U.S. PEAT PRODUCTION AND SALES BY PRODUCERS IN 2007, BY STATE[1]

			Sales		
Region and State	Active operations	Production (thousand metric tons)	Quantity (thousand metric tons)	Value[2] (thousands)	Percentage packaged
East:					
Florida	6	475	501	$9,800	2
Pennsylvania	4	2	2	79	48
Other[3]	8	68	76	1,630	7
Total or average	18	545	579	11,500	3
Great Lakes:					
Minnesota	9	45	41	4,350	26
Other[4]	8	42	70	1,800	32
Total or average	17	87	111	6,140	30
West[5]	3	3	4	122	50
Grand total or average	38	635	694	17,800	15

[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Values for free on board producing plant.
[3]Includes Maine, New Jersey, New York, and West Virginia.
[4]Includes Illinois, Indiana, Michigan, and Ohio.
[5]Includes Iowa, Washington, and Wisconsin.

TABLE 4
U.S. PEAT PRODUCTION AND PRODUCERS' YEAREND STOCKS
IN 2007, BY TYPE

Type	Active operations[2]	Production[1] (metric tons)	Percentage of production	Yearend stocks[1] (metric tons)
Sphagnum moss	8	54,100	9	11,400
Hypnum moss	4	18,700	3	1,190
Reed-sedge	17	522,000	82	71,900
Humus	9	40,900	6	13,400
Total	38	635,000	100	98,000

[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Some plants produce multiple types of peat; may not add to totals shown.

TABLE 5
U.S. PEAT SALES BY PRODUCERS IN 2007, BY TYPE AND USE[1]

	Sphagnum moss			Hypnum moss			Reed-sedge		
	Quantity			Quantity			Quantity		
Use	Weight (metric tons)	Volume[2] (cubic meters)	Value (thousands)	Weight (metric tons)	Volume (cubic meters)	Value (thousands)	Weight (metric tons)	Volume (cubic meters)	Value (thousands)
Earthworm culture medium	--	--	--	--	--	--	280	665	$8
General soil improvement	13,600	96,000	$1,140	957	2,000	$36	79,500	178,000	1,970
Golf courses	7,020	46,800	586	--	--	--	12,900	43,300	2,360
Ingredient for potting soils	19,900	82,900	520	14,100	31,000	475	472,000	980,000	9,100
Mixed fertilizers	--	--	--	--	--	--	--	--	--
Nurseries	249	1,000	11	--	--	--	8,780	38,600	515
Packing flowers, plants, shrubs, etc.	673	5,000	33	334	800	12	--	--	--
Seed inoculant	--	--	--	--	--	--	6,020	18,000	75
Vegetable growing	375	700	6	--	--	--	23	50	1
Other	363	200	2	675	1,700	51	--	--	--
Total	42,200	233,000	2,300	16,000	35,500	574	579,000	1,260,000	14,000

	Humus			Total		
	Quantity			Quantity		
	Weight (metric tons)	Volume (cubic meters)	Value (thousands)	Weight (metric tons)	Volume (cubic meters)	Value (thousands)
Earthworm culture medium	155	302	$2	435	967	$10
General soil improvement	4,360	7,250	65	98,400	283,000	3,210
Golf courses	218	400	2	20,100	90,500	2,940
Ingredient for potting soils	46,000	66,600	666	552,000	1,160,000	10,800
Mixed fertilizers	200	339	4	200	339	4
Nurseries	809	1,530	29	9,840	41,100	555
Packing flowers, plants, shrubs, etc.	272	500	3	1,280	6,300	47
Seed inoculant	272	500	3	6,290	18,500	78
Vegetable growing	--	--	--	397	750	7
Other	4,690	7,950	104	5,720	9,850	159
Total	57,000	85,300	878	694,000	1,610,000	17,800

-- Zero.
[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Volume of nearly all sphagnum moss was measured after compaction and packaging.

TABLE 6
AVERAGE DENSITY OF DOMESTIC PEAT SOLD IN 2007

(Kilograms per cubic meter)[1]

	Sphagnum moss	Hypnum moss	Reed-sedge	Humus
Bulk	271	594	603	891
Packaged	176	519	593	855
Bulk and packaged	179	590	602	874

[1]To convert kilograms per cubic meter to pounds per cubic yard multiply by 1.685.

TABLE 7
PRICES FOR PEAT IN 2007[1]

(Dollars per unit)

	Sphagnum moss	Hypnum moss	Reed-sedge	Humus	Average
Domestic:					
Bulk:					
Per metric ton	53.65	34.08	24.27	14.62	24.69
Per cubic meter	13.06	20.24	14.63	13.02	14.20
Packaged or baled:					
Per metric ton	77.42	75.56	23.79	16.28	30.64
Per cubic meter	18.18	39.24	14.11	13.92	15.48
Average:					
Per metric ton	54.34	35.83	24.21	15.39	25.59
Per cubic meter	12.90	21.15	14.57	13.45	14.42
Imported, total, per metric ton[2]	XX	XX	XX	XX	246.03

XX Not applicable.
[1]Prices are free on board plant.
[2]Average customs value.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF PEAT MOSS, BY COUNTRY[1]

	2006		2007	
Country	Quantity (metric tons)	Value[2] (thousands)	Quantity (metric tons)	Value[2] (thousands)
Canada	906,000	$216,000	949,000	$231,000
Denmark	645	258	364	126
Estonia	--	--	934	268
Finland	625	229	603	222
Germany	356	101	793	258
Ireland	4,500	1,390	4,530	1,220
Latvia	11,700	4,400	20,000	7,080
Netherlands	318	93	122	48
United Kingdom	23	16	--	--
Other	199	175	155	234
Total	924,000	223,000	977,000	240,000

-- Zero.
[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Customs value.

Source: U.S. Census Bureau.

TABLE 9
PEAT: WORLD PRODUCTION, BY COUNTRY[1, 2]

(Thousand metric tons)

Country[3]	2003	2004	2005	2006	2007[e]
Argentina, horticultural use	9	9	11	15 [r]	15
Australia[e]	5	6	6	7	7
Belarus:					
Horticultural use[e]	100	100	100	100	100
Fuel use	1,802	2,008	2,308	2,400 [e]	2,400
Total	1,902	2,108	2,408	2,500 [e]	2,500
Burundi, fuel use	5	5	5	10 [r]	10
Canada, horticultural use	1,341 [r]	1,347	1,304	1,245	1,250
Denmark, horticultural use[e]	295	296	298	300	300
Estonia:					
Horticultural use	10,886	769	1,034	1,207	1,300
Fuel use	362	279	378	507	600
Total	11,248 [r]	1,048 [r]	1,412 [r]	1,714 [r]	1,900
Finland:					
Horticultural use	929	905	900 [e]	900 [e]	900
Fuel use	8,415	8,159	8,200 [e]	8,200 [e]	8,200
Total	9,344	9,064	9,100 [e]	9,100 [e]	9,100
France, horticultural use[e]	200	200	200	200	200
Germany, horticultural use	135	120	120 [e]	120 [e]	120
Hungary, horticultural use[e]	(4) [r]	(4) [r]	(4) [r]	(4) [r]	(4)
Ireland:[5]					
Horticultural use[e]	451 [6]	400	475	500	500
Fuel use	2,739	5,200	4,100	3,800 [e]	3,800
Total	3,190	5,600	4,575	4,300 [e]	4,300
Latvia, horticultural use and fuel use	1,076	595 [r]	791 [r]	931 [r]	1,000
Lithuania, horticultural use and fuel use	367	368	536	471 [r]	307 [6]
Moldova, fuel use[e]	475	475	475	475	475
New Zealand, horticultural use[e]	24	25	26	27	27
Norway, horticultural use[e]	30	30	30	30	30
Poland, horticultural use	431	509 [r]	500 [r]	500 [r, e]	500
Russia, horticultural use and fuel use	1,000	1,500	1,600 [r]	1,400 [r]	1,300 [6]
Spain[e]	50	57 [6]	60	60	60
Sweden:[e]					
Horticultural use	540	330	360	400	380
Fuel use	790	560	570	970	900
Total	1,330	890	930	1,370	1,280
Ukraine, horticultural use and fuel use	559 [r, e]	544 [r]	639 [r]	462 [r]	395 [6]
United Kingdom[e]	(4) [r]	(4) [r]	(4) [r, 6]	(4) [r]	(4) [6]
United States, horticultural use	634	696	685	551	635 [6]
Grand total	33,700 [r]	25,500 [r]	25,700	25,800	25,700
Of which:					
Horticultural use	16,000 [r]	5,740 [r]	6,040 [r]	6,090 [r]	6,260
Fuel use	14,600 [r]	16,700 [r]	16,000 [r]	16,400 [r]	16,400
Unspecified	3,060 [r]	3,070 [r]	3,630 [r]	3,330 [r]	3,070

[e]Estimated. [r]Revised.
[1]World totals, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.
[2]Table includes data available through June 20, 2008.
[3]In addition to the countries listed, Austria, Chile, Iceland, Italy, and Romania produced negligible amounts of peat.
[4]Less than ½ unit.
[5]Fiscal year data.
[6]Reported figure.