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2005 Minerals Yearbook

PEAT

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PEAT

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Peat production in the conterminous United States in 2005 was 685,000 metric tons (t), a slight decrease from that of 2004 (table 1). Output from Alaska was 45,900 cubic meters, according to the Alaska Department of Natural Resources, which conducted its own survey of mineral production in the State (Szumigala and Hughes, 2006, p. 15). Production in Alaska was reported by volume only.

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 composition of component plant material with sphagnum moss being the least decomposed, followed by hypnum moss, reed-sedge, and humus.

Reed-sedge accounted for 88% of domestic peat production, followed by sphagnum moss, 5%; humus, 4%; and hypnum moss, 3% (table 4). Florida, Michigan, and Minnesota accounted for 87% of U.S. production (table 3). Florida was the leading producer with 436,000 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). More than 400 million hectares (Mha) of peatlands exists 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 (tables 1, 2). Of the 69 operations to which a survey request was sent, 58 responded, representing about 75% of total production tonnage. There were 45 active operations, and 13 companies reported no activity in 2005. Data for nonrespondents were estimated based on responses to the 2004 survey or other sources.

Consumption

Sales of domestic peat increased slightly to 751,000 t from 741,000 t in 2004. Packaged products composed 28% of total domestic sales tonnage and commanded premium prices for all grades of peat. Apparent consumption increased by 15% compared with that of 2004 owing to higher imports of peat and a reduction in stocks. Potting soil and general soil improvement mixes were the two leading usage categories, accounting for 93% of domestic sales tonnage and volume (table 5). Other significant uses included golf course applications, mixed fertilizers, nursery applications, and seed inoculants. The United States imported 57% 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 uses was not available.

Peat has widespread use as a plant-growth medium in a variety of agricultural and horticultural applications where its fibrous structure and porosity promote 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.

Stocks

U.S. yearend stocks of peat decreased to 195,000 t from 251,000 t in 2004 (table 1). Reed-sedge peat accounted for 77% of total stocks, followed by hypnum moss, humus, and sphagnum moss (table 4).

Prices

The total reported free on board (f.o.b.) value for domestic peat sold in the United States was $20.8 million, according to the annual survey of domestic peat producers. The average unit value decreased to $27.76 per metric ton compared with $28.64 per ton in 2004 (table 1). On an average unit-value basis, sphagnum moss was valued at $70.84 per ton, f.o.b. plant; hypnum moss, $44.36 per ton; reed-sedge, $23.84 per ton; and humus, $18.34 per ton (table 7).

Foreign Trade

Imports of peat increased by 13% to 891,000 t from 786,000 t in 2004 (table 8). The total customs import value was $195 million or $219.14 per ton. Imports of sphagnum moss from Canada increased to 876,000 t, which represented 98% of total U.S. imports and 66% of total Canadian production. U.S. companies exported 36,000 t of peat.

World Review

Finland, Ireland, Russia, Belarus, Canada, and Ukraine were the leading producer countries in decreasing order of tonnage (table 9). Other significant producing countries included Estonia, Latvia, Sweden, and the United States. Peat is an important source of energy in Finland and Ireland and to a lesser extent in Eastern Europe.

Canada.—Production of sphagnum moss decreased to 1.33 million metric tons (Mt) from 1.35 Mt in 2004. 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, 2006§[1]). Exports to the United States increased to 876,000 t compared with 773,000 t in 2004.

Outlook

Peat consumption is likely to increase owing to strong demand in the horticultural industry. Domestic peat production is likely to remain level in the near term, however, and the shortfall will probably be filled by increased imports from Canada; sphagnum peat from Canada is preferred for custom soil blending and retail sales. Other factors, such as competition from organic soil amendments like coir (coconut fiber) and composted yard waste, Federal and State wetlands regulations, and restrictions on permitting new production sites, will likely have a depressing effect on domestic peat production.

[1]A reference that includes a section mark (§) is found in the Internet References Cited section.

References Cited

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TABLE 1
SALIENT PEAT STATISTICS[1]

(Thousand metric tons and thousand dollars unless otherwise specified)

	2001	2002	2003	2004	2005
United States:[2]					
Number of active operations	57	55	54	50	45
Production	736	642	634	696	685
Sales by producers:					
Quantity:					
Bulk	500	515	447	550	537
Packaged	320	213	185	191	214
Total	820	728	632	741	751
Value	21,100	21,000	18,800	21,200	20,800
Average value dollars per metric ton	25.75	28.85	29.74	28.64	27.76
Average value, bulk do.	22.91	22.74	22.60	22.88	23.08
Average value, packaged or baled do.	30.18	43.61	46.98	45.20	39.54
Exports	31	32	29	29	36
Imports for consumption	776	763	767	786	891
Consumption, apparent[3]	1,500	1,420	1,400	1,380	1,600
Stocks, December 31, producers'	257	207	180	251	195
World, production	23,200 r	26,200 r	25,200 r	26,400 r	26,400 e

eEstimated. rRevised.

[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)	2004	2005	2004	2005
23,000 and more	7	7	553	551
9,000 to 22,999	3	5	38	52
5,000 to 8,999	11	8	75	48
1,000 to 4,999	11	9	23	27
Less than 1,000	18	16	7	8
Total	50	45	696	685

TABLE 3
U.S. PEAT PRODUCTION AND SALES BY PRODUCERS IN 2005, BY STATE[1]

Region and State	Active operations	Production (thousand metric tons)	Sales		
			Quantity (thousand metric tons)	Value[2] (thousands)	Percentage packaged
East:					
Florida	7	436	464	$9,450	1
Pennsylvania	5	7	7	210	75
Other[3]	6	21	22	998	42
Total or average	18	464	493	10,700	4
Great Lakes:					
Michigan	5	117	117	3,300	84
Minnesota	10	43	68	5,670	65
Other[4]	7	52	64	914	85
Total or average	22	212	248	9,890	79
West[5]	5	8	9	298	6
Grand total or average	45	685	751	20,800	28

[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, and Ohio.
[5]Includes Iowa, Montana, Washington, and Wisconsin.

TABLE 4
U.S. PEAT PRODUCTION AND PRODUCERS' YEAREND STOCKS IN 2005, BY TYPE

Type	Active operations	Production[1] (metric tons)	Percentage of production	Yearend stocks[1] (metric tons)
Sphagnum moss	9	32,500	5	5,800
Hypnum moss	5	22,700	3	28,900
Reed-sedge	21	605,000	88	151,000
Humus	10	25,400	4	10,200
Total	45 [2]	685,000	100	195,000

[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 2005, BY TYPE AND USE[1]

Use	Sphagnum moss			Hypnum moss			Reed-sedge		
	Quantity			Quantity			Quantity		
	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	91	612	$8	--	--	--	321	474	$6
General soil improvement	45,100	297,000	3,060	7,830	15,100	$510	177,000	329,000	3,880
Golf courses	6,900	33,100	586	72	101	2	13,900	37,000	2,300
Ingredient for potting soils	2,640	10,600	214	13,600	22,900	450	441,000	707,000	8,800
Mixed fertilizers	--	--	--	--	--	--	--	--	--
Nurseries	742	3,520	58	576	994	21	7,870	24,300	347
Packing flowers, plants, shrubs, etc.	249	1,680	22	408	765	16	--	--	--
Seed inoculant	--	--	--	--	--	--	6,400	12,200	90
Vegetable growing	58	98	2	54	76	1	91	153	5
Other	--	--	--	--	--	--	--	--	--
Total	55,800	347,000	3,950	22,500	40,000	1,000	647,000	1,110,000	15,400

Use	Humus			Total		
	Quantity			Quantity		
	Weight (metric tons)	Volume (cubic meters)	Value (thousands)	Weight (metric tons)	Volume (cubic meters)	Value (thousands)
Earthworm culture medium	966	1,610	$17	1,380	2,700	$31
General soil improvement	5,460	8,070	84	236,000	650,000	7,530
Golf courses	227	321	2	21,100	70,600	2,890
Ingredient for potting soils	2,020	2,450	36	460,000	743,000	9,500
Mixed fertilizers	852	1,030	21	852	1,030	21
Nurseries	8,070	11,700	173	17,200	40,500	599
Packing flowers, plants, shrubs, etc.	667	826	8	1,320	3,270	46
Seed inoculant	395	443	6	6,790	12,700	96
Vegetable growing	422	489	7	625	817	15
Other	6,330	7,620	112	6,330	7,620	112
Total	25,400	34,600	466	751,000	1,530,000	20,800

-- 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 2005

(Kilograms per cubic meter)[1]

	Sphagnum moss	Hypnum moss	Reed-sedge	Humus
Bulk	218	606	601	751
Packaged	144	480	531	723
Bulk and packaged	161	564	583	735

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

TABLE 7
PRICES FOR PEAT IN 2005[1]

(Dollars per unit)

	Sphagnum moss	Hypnum moss	Reed-sedge	Humus	Average
Domestic:					
Bulk:					
Per metric ton	68.82	32.31	21.31	18.19	23.08
Per cubic meter	14.98	19.59	12.81	13.66	13.19
Packaged or baled:					
Per metric ton	71.73	74.63	31.95	18.45	39.54
Per cubic meter	10.36	35.80	16.96	13.34	14.27
Average:					
Per metric ton	70.84	44.36	23.84	18.34	27.76
Per cubic meter	11.40	25.01	13.89	13.47	13.61
Imported, total, per metric ton[2]	XX	XX	XX	XX	219.14

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]

	2004		2005	
Country	Quantity (metric tons)	Value[2] (thousands)	Quantity (metric tons)	Value[2] (thousands)
Canada	773,000	$155,000	876,000	$191,000
Denmark	1,650	379	176	71
Finland	374	110	450	155
France	500	26	--	--
Germany	320	99	357	106
Ireland	3,940	274	4,260	306
Latvia	5,580	1,980	9,150	3,300
Netherlands	136	79	96	64
United Kingdom	184	110	37	30
Other	212	177	100	160
Total	786,000	159,000	891,000	195,000

--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]	2001	2002	2003[e]	2004[e]	2005[e]
Argentina, horticultural use	10	8	9 [4]	111 [r, 4]	100
Australia[e]	5	5	5	6	6
Belarus:[e]					
Horticultural use	100	100	100	100	100
Fuel use	2,000	2,201 [4]	1,802 [4]	1,800	1,800
Total	2,100	2,301 [4]	1,902 [4]	1,900	1,900
Burundi, fuel use	7	7	5	5 [4]	5
Canada, horticultural use	1,319	1,385	1,341 [4]	1,347 [r, 4]	1,325 [4]
Denmark, horticultural use[e]	287	290	295	296	298
Estonia, horticultural use and fuel use	844	1,508	1,012 [4]	764 [r, 4]	800
Finland:					
Horticultural use	834	759 [r]	929 [r, 4]	905 [r, 4]	900
Fuel use	5,368	6,515 [r]	8,415 [r, 4]	8,159 [r, 4]	8,200
Total	6,202	7,274 [r]	9,344 [r, 4]	9,064 [r, 4]	9,100
France, horticultural use[e]	200	200	200	200	200
Germany, horticultral use	115 [r]	123 [r]	135 [r, 4]	120 [r, 4]	120
Hungary, horticultural use[e]	45	45	45	45	45
Ireland:[5]					
Horticultural use[e]	300	350	451 [4]	400	400
Fuel use	4,599	4,138	2,739 [4]	5,200	5,000
Total	4,899	4,488	3,190 [4]	5,600	5,400
Latvia, horticultural use and fuel use	555	1,485	1,076 [4]	689 [r, 4]	800
Lithuania, horticultural use and fuel use	273	513	367 [4]	369 [r, 4]	370
Moldova, fuel use[e]	475	475	475	475	475
New Zealand, horticultural use[e]	24	24	24	25	25
Norway, horticultural use[e]	30	30	30	30	30
Poland, horticultural use	325	316	431 [r, 4]	400 [r]	400
Russia, horticultural use and fuel use	2,100	2,100	2,100	2,100	2,100
Spain[e]	50	50	50	50	50
Sweden:[e]					
Horticultural use	400	540	540	330	360
Fuel use	700	850	790	560	570
Total	1,100	1,390	1,330	890	930
Ukraine, horticultural use and fuel use[e]	1,000	1,000	1,000	1,000	1,000
United Kingdom[e]	500	500	250	250	250
United States, horticultural use	736	642	634 [4]	696 [4]	685 [4]
Grand total	23,200 [r]	26,200 [r]	25,200 [r]	26,400 [r]	26,400
Of which:					
Horticultural use	4,730 [r]	4,820 [r]	5,160 [r]	5,000 [r]	4,990
Fuel use	13,100	14,200 [r]	14,200 [r]	16,200 [r]	16,000
Unspecified	5,330	7,160	5,860	5,230 [r]	5,380

[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 25, 2006.

[3]In adddition to the countries listed, Austria, Chile, Iceland, Italy, and Romania produced negligible amounts of peat.

[4]Reported figure.

[5]Fiscal year data.