PEAT

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Peat production in the conterminous United States in 2004 was 696,000 metric tons (t), a 10% increase compared with that of 2003 (table 1). Output from Alaska was estimated to be 22,900 cubic meters, according to the Alaska Department of Natural Resources, which conducted its own survey of mineral production in the State (Szumigala and Hughes, 2005, p. 13). 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 84.3% of domestic peat production, followed by hypnum moss with 6.5%; sphagnum moss, 5.0%; and humus, 4.2% (table 4). Florida, Michigan, and Minnesota accounted for 86% of U.S. production (table 3). Florida was the leading producer at 439,000 t, a 16% increase compared with 2003. Percentages were calculated using unrounded data.

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 have 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 from a voluntary canvass of operations in the conterminous United States by the U.S. Geological Survey (table 2). Of the 69 operations to which a survey request was sent, 59 responded, representing 84% of total production tonnage. Data for nonrespondents were estimated based on 2003 surveys or other sources.

Consumption

Sales of domestic peat increased by 17% to 741,000 t from 632,000 t in 2003. Sales in the Eastern States were up by 26% owing to a 28% growth in sales in Florida, which is the location of several large soil blending facilities. Packaged products composed 26% of total domestic sales tonnage and commanded premium prices for all grades of peat. Apparent consumption decreased slightly from that of 2003 owing to higher stocks of peat. General soil improvement and potting soil mixes were the two leading usage categories, accounting for 92% of domestic sales tonnage and volume. Other significant uses included golf course applications, mixed fertilizers, nursery applications, and seed inoculants. The United States imported 57% of its total domestic 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.

Because peat is the primary constituent of growing media, the demand for peat generally follows that of horticultural applications. Domestic horticulture sales grew a slower rate during the past year, which likely affected the use of peat for residential and commercial applications (U.S. Department of Agriculture, Economic Research Service, 2005§[1]). In addition, large growers tend to use peat as a constituent of custom soil blends rather than as an individual product, which has reduced packaged peat sales.

Stocks

U.S. yearend stocks of peat increased by 39% to 251,000 t from 180,000 t in 2003 (table 1). Reed-sedge peat accounted for 53% of total stocks, followed by sphagnum moss, hypnum moss, and humus (table 4).

Prices

The total reported free on board (f.o.b.) value for domestic peat sold in the United States was $21.2 million, according to the annual survey of domestic peat producers. The average unit value decreased to $28.64 per metric ton compared with $29.74 per ton in 2003. On an average unit-value basis, sphagnum moss was valued at $61.62 per ton, f.o.b. plant; hypnum moss, $45.19 per ton; reed-sedge, $25.71 per ton; and humus, $18.08 per ton (table 7).

[1]References that include a section mark (§) are found in the Internet References Cited section.

Foreign Trade

Imports of peat increased by 3% to 786,000 t from 767,000 t in 2003 (table 8). The total customs import value was $159 million, or $201.82 per ton. Imports of sphagnum moss from Canada increased to 773,000 t, which represented 98% of total U.S. imports and 66% of total Canadian production. U.S. companies exported 29,000 t of peat.

World Review

Finland, Ireland, Germany, Belarus, Russia, Canada, and Estonia were the leading producer countries in order of decreasing magnitude (table 9). Other significant producing countries in terms of tonnage included Latvia, Lithuania, Sweden, Ukraine, 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 by 11% to 1.18 million metric tons (Mt) from 1.34 Mt in 2003. New Brunswick, Quebec, and Alberta were the major producing provinces, in decreasing order of tonnage, accounting for 79% of production. British Columbia, Manitoba, Newfoundland, Nova Scotia, Prince Edward Island, and Saskatchewan also reported peat production (Natural Resources Canada, 2005§). Exports to the United States increased to 773,000 t from 754,000 t in 2003.

Outlook

Domestic peat production and consumption will likely remain level in the short-term because of slower increases in horticultural sales and greater imports from Canada, offset by higher sales to soil blending companies. 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 negative influence on the domestic peat industry.

References Cited

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GENERAL SOURCES OF INFORMATION

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Peat. Ch. in United States Mineral Resources, Professional Paper 820, 1973.

Other

Global Peat Resources. International Peat Society, 1996.

Peat. Ch. in Mineral Facts and Problems, U.S. Bureau of Mines Bulletin 675, 1985.

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TABLE 1
SALIENT PEAT STATISTICS[1]

(Thousand metric tons and thousand dollars unless otherwise specified)

		2000	2001	2002	2003	2004
United States:[2]						
Number of active producers		61	57	55	54	50
Production		792	736	642	634	696
Sales by producers:						
Quantity:						
Bulk		483	500	515	447	550
Packaged		364	320	213	185	191
Total		847	820	728	632	741
Value		22,700	21,100	21,000	18,800	21,200
Average value	dollars per metric ton	26.85	25.75	28.85	29.74	28.64
Average value, bulk	do.	23.45	22.91	22.74	22.60	22.88
Average value, packaged or baled	do.	31.36	30.18	43.61	46.98	45.20
Exports		37	31	32	29	29
Imports for consumption		786	776	763	767	786
Consumption, apparent[3]		1,530	1,500	1,420	1,400	1,380
Stocks, December 31, producers'		279	257	207	180	251
World, production		24,700	25,700	28,500 [r]	26,000 [r, e]	27,600 [e]

See footnotes at end of table.

TABLE 1—Continued
SALIENT PEAT STATISTICS[1]

[e]Estimated. [r]Revised.
[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)	2003	2004	2003	2004
23,000 and more	7	7	500	553
9,000 to 22,999	4	3	43	38
5,000 to 8,999	8	11	55	75
1,000 to 4,999	12	11	29	23
Less than 1,000	23	18	7	7
Total	54	50	634	696

TABLE 3
U.S. PEAT PRODUCTION AND SALES BY PRODUCERS IN 2004, BY STATE[1]

Region and State	Active operations	Production (thousand metric tons)	Sales		
			Quantity (thousand metric tons)	Value[2] (thousands)	Percentage packaged
East:					
Florida	8	439	478	$9,710	1
Pennsylvania	5	11	11	307	75
Other[3]	6	14	18	800	48
Total or average	19	464	507	10,800	4
Great Lakes:					
Michigan	7	122	122	3,360	79
Minnesota	11	38	63	5,210	70
Other[4]	8	33	36	751	72
Total or average	26	193	221	9,330	75
West[5]	5	39	14	1,090	13
Grand total or average	50	696	741	21,200	26

[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 2004, BY TYPE

Type	Active operations	Production[1] (metric tons)	Percentage of production	Yearend stocks[1] (metric tons)
Sphagnum moss	11	34,600	5	71,600
Hypnum moss	5	45,500	7	23,500
Reed-sedge	25	587,000	84	136,000
Humus	11	29,100	4	19,500
Total	50 [2]	696,000	100	251,000

[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 2004, 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	135	960	$17	--	--	--	151	214	$3
General soil improvement	43,200	281,000	2,500	5,870	12,300	$457	145,000	270,000	3,660
Golf courses	6,820	32,800	580	--	--	--	12,400	32,800	2,270
Ingredient for potting soils	4,030	14,300	236	14,900	25,500	494	455,000	739,000	9,060
Mixed fertilizers	--	--	--	--	--	--	--	--	--
Nurseries	1,230	5,070	76	1,000	1,710	36	8,160	22,100	350
Packing flowers, plants, shrubs, etc.	249	1,680	22	408	765	16	--	--	--
Seed inoculant	--	--	--	--	--	--	6,990	5,890	77
Vegetable growing	--	--	--	--	--	--	1,360	4,590	750
Other	--	--	--	--	--	--	--	--	--
Total	55,700	336,000	3,430	22,200	40,400	1,000	629,000	1,070,000	16,200

	Humus			Total		
	Quantity			Quantity		
Use	Weight (metric tons)	Volume (cubic meters)	Value (thousands)	Weight (metric tons)	Volume (cubic meters)	Value (thousands)
Earthworm culture medium	1,260	1,940	$21	1,550	3,110	$41
General soil improvement	8,140	12,500	132	202,000	575,000	6,750
Golf courses	562	677	7	19,800	66,300	2,860
Ingredient for potting soils	7,650	10,300	111	481,000	789,000	9,900
Mixed fertilizers	1,140	1,350	25	1,140	1,350	25
Nurseries	9,030	13,000	214	19,400	41,900	676
Packing flowers, plants, shrubs, etc.	562	707	7	1,220	3,150	45
Seed inoculant	--	--	--	6,990	5,890	77
Vegetable growing	335	363	5	1,700	4,950	755
Other	5,790	6,970	102	5,790	6,970	102
Total	34,500	47,800	623	741,000	1,500,000	21,200

-- 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 2004

(Kilograms per cubic meter)[1]

	Sphagnum moss	Hypnum moss	Reed-sedge	Humus
Bulk	248	585	607	762
Packaged	144	479	513	701
Bulk and packaged	166	550	585	721

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

TABLE 7
PRICES FOR PEAT IN 2004[1]

(Dollars per unit)

	Sphagnum moss	Hypnum moss	Reed-sedge	Humus	Average
Domestic:					
Bulk:					
Per metric ton	58.77	33.25	21.37	20.07	22.88
Per cubic meter	14.57	19.44	12.96	15.30	13.31
Packaged or baled:					
Per metric ton	62.93	74.86	43.35	17.01	45.20
Per cubic meter	9.07	35.88	22.23	11.92	15.65
Average:					
Per metric ton	61.62	45.19	25.71	18.08	28.64
Per cubic meter	10.23	24.86	15.05	13.03	14.17
Imported, total, per metric ton[2]	XX	XX	XX	XX	201.82

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]

	2003		2004	
Country	Quantity (metric tons)	Value[2] (thousands)	Quantity (metric tons)	Value[2] (thousands)
Canada	754,000	$146,000	773,000	$155,000
Denmark	1,230	463	1,650	379
Finland	235	59	374	110
France	3	15	500	26
Germany	191	83	320	99
Ireland	6,760	484	3,940	274
Italy	102	12	--	--
Latvia	3,700	1,140	5,580	1,980
Netherlands	60	39	136	79
United Kingdom	--	--	184	110
Other	157 r	184 r	212	177
Total	767,000	148,000	786,000	159,000

[r]Revised. --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]	2000	2001	2002	2003[e]	2004[e]
Argentina, horticultural use	11	10	8	9 [4]	9
Australia[e]	3	5	5	5	6
Belarus:[e]					
Horticultural use	100	100	100	100	100
Fuel use	2,000	2,000	2,201 [r, 4]	1,802 [r, 4]	1,800
Total	2,100	2,100	2,301 [r, 4]	1,902 [r, 4]	1,900
Burundi, fuel use	4	7	7	5 [r]	5
Canada, horticultural use	1,277	1,319	1,385	1,341 [4]	1,180 [p]
Denmark, horticultural use[e]	247	287	290	295	296
Estonia, horticultural use and fuel use	760	844	1,508	1,012 [r, 4]	1,000
Finland:					
Horticultural use	1,174	834	770	800	820
Fuel use	3,932	5,368	6,450	7,000	6,800
Total	5,106	6,202	7,220	7,800	7,620
France, horticultural use[e]	200	200	200	200	200
Germany:[e]					
Horticultural use	2,500	2,600	2,500	2,500	2,500
Fuel use	15	--	--	--	--
Total	2,515 [4]	2,600	2,500	2,500	2,500
Hungary, horticultural use[e]	45	45	45	45	45
Ireland:[5]					
Horticultural use[e]	325	300	350	451 [r, 4]	400
Fuel use	5,378	4,599 [r]	4,138	2,739 [4]	5,200
Total	5,703	4,899 [r]	4,488	3,190 [r, 4]	5,600
Latvia, horticultural use and fuel use	456	555	1,485 [r]	1,076 [r, 4]	1,000
Lithuania, horticultural use and fuel use	246	273	513	367 [r, 4]	380
Moldova, fuel use[e]	475	475	475	475	475
New Zealand, horticultural use[e]	24	24	24	24	25
Norway, horticultural use[e]	30	30	30	30	30
Poland, horticultural use	380	325	316	320	320
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	300	400	540	540 [r]	330
Fuel use	400	700	850	790 [r]	560
Total	700	1,100	1,390	1,330 [r]	890
Ukraine, horticultural use and fuel use[e]	1,000	1,000	1,000	1,000	1,000
United Kingdom[e]	500	500	500	250	250
United States, horticultural use	792	736	642	634 [4]	696 [4]
Grand total	24,700	25,700	28,500 [r]	26,000 [r]	27,600
Of which:					
Horticultural use	7,410	7,210	7,200	7,290 [r]	6,950
Fuel use	12,200	13,100	14,100 [r]	12,800 [r]	14,800
Unspecified	5,110	5,330	7,160 [r]	5,860 [r]	5,790

[e]Estimated. [p]Preliminary. [r]Revised. -- Zero.

[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, 2005.

[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.