



2016 Minerals Yearbook

PEAT [ADVANCE RELEASE]

PEAT

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Domestic survey data and tables were prepared by Sheema Merchant, statistical assistant.

In 2016, the United States was a producer and consumer of peat for horticultural and industrial purposes. Peat produced in the conterminous United States was 441,000 metric tons (t), a 3% decrease from that of 2015 (table 1). The United States imported 71% of its total consumption requirements, primarily from Canada (tables 1, 8). World peat production for 2016 was estimated to be 26.1 million metric tons (Mt). The leading peat-producing countries were Finland, Ireland, Germany, Sweden, Belarus, Canada, and Russia, in decreasing order of tonnage, which accounted for 80% of world production (table 9).

Reed-sedge accounted for 83% of domestic peat production, followed by sphagnum moss with 15% (table 4). Florida, with 274,000 t, accounted for 62% of U.S. peat production (table 3). 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.

Peat is a 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 peat deposits developed from the gradual decomposition of plant matter under anaerobic conditions. Approximately 15% of the world's peatlands by area are in the United States, with most of the U.S. peatlands in Alaska (Lappalainen, 1996, p. 55). Peatlands cover more than 400 million hectares (Mha) on Earth, of which 86% remains undisturbed. Of the 56 Mha that have been used by humans, 51% has been used for agriculture; 26%, forestry; 22%, drained tropical peatlands; and 1%, energy and growing media (World Energy Council, 2013, p. 265). Peat continues to accumulate on 55% 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, p. 32–33).

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 34 operations to which a survey request was sent, 26 responded. Of the respondents, 25 were active operations and 1 was closed in 2016. Data for nonrespondents were estimated based on responses to the 2015 survey or other sources. Most peat operations are relatively small (producing less than 5,000 metric tons per year) and sell their products regionally. Peat production in the conterminous United States in 2016 was 441,000 t, a 3% decrease from that of 2015 (table 1). In 2016, 70% of domestic production came from just six operations (table 2). In the Eastern United States, the region with the largest peat production, output was reported to have decreased by 8% from that of 2015 (table 3). Peat production for Alaska in 2016 was unavailable because the

Alaska Department of Natural Resources Division of Geological & Geophysical Surveys discontinued its survey of Alaskan peat producers.

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 optimum 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 4% to 443,000 t in 2016 from 460,000 t in 2015 (table 1). Packaged products accounted for 16% of total domestic sales tonnage and commanded premium prices for all grades of peat. Apparent consumption decreased slightly from that of 2015. Potting soil and general soil improvements were the two leading use categories, accounting for 71% of domestic sales tonnage and 67% of the volume (table 5). Other significant uses, by quantity of sales, included nurseries, golf course applications, and earthworm culture medium. The United States imported 71% of its total consumption requirements, primarily from Canada, where deposits of high-quality sphagnum moss are extensive. Peat from Canada was sold in bulk for blending in custom soil mixes and was packaged for horticultural use; however, a detailed distribution of imports from Canada was not available. Many of the soil blending facilities 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 by 30% to 125,000 t in 2016 from 179,000 t in 2015 (table 1). Reed-sedge peat accounted for 96% of total stocks (table 4).

Prices

The total reported free on board (f.o.b.) value for domestic peat sold in the United States was about \$14.2 million, according to the annual survey of domestic peat producers. The average unit value increased by 13% to \$31.97 per metric ton compared with \$28.39 per ton in 2015 (table 1). On an average-unit-value basis f.o.b. plant, sphagnum moss was valued at \$51.12 per ton; hypnum moss, \$49.73 per ton; reed-sedge, \$29.39 per ton; and humus, \$16.03 per ton (table 7).

Foreign Trade

U.S. companies exported 30,000 t of peat (table 1). Imports of peat decreased slightly to 1.13 Mt from 1.15 Mt in 2015 (tables 1, 8). The total customs import value was \$314 million, which averaged \$279.28 per ton (tables 7, 8). Imports of peat (sphagnum moss) from Canada decreased slightly to 1.08 Mt, which represented 96% of total United States imports and 96% of Canada's total production (tables 8, 9).

World Review

World peat production for 2016 was estimated to be 26.1 Mt, a slight decrease from that of 2015 (table 9). Peat is an important source of energy in Finland, Ireland, and Sweden, and to a lesser extent in the countries of Eastern Europe (table 9).

Canada.—Production of peat (sphagnum moss) was estimated to have decreased by 14% to 1.12 Mt in 2016 from 1.30 Mt (revised) in 2015. New Brunswick, Quebec, Alberta, and Manitoba were the major producing Provinces, in decreasing order of tonnage, accounting for about 94% of production. British Columbia, Newfoundland and Labrador, Nova Scotia, Ontario, Prince Edward Island, and Saskatchewan also reported peat production (Natural Resources Canada, 2017). In 2016, Canada's peat harvest season was below expected harvest volumes for most of Canada's production regions. Eastern Canada, the leading producing region, had a wet cool summer, which resulted in a peat harvest that was slightly below average. For Manitoba, Saskatchewan, and Alberta, the peat harvest was 20% lower than expected as a result of poor weather conditions. The peat harvest in Quebec's South Shore was mixed with only some of the peat producers achieving their expected peat harvest. In Quebec's North Shore, which had unfavorable weather conditions throughout most of the harvest period, the peat harvest was 25% lower than expected (Canadian Sphagnum Peat Moss Association, 2016).

Ireland.—In March 2016, Bord na Móna P.L.C. launched its new Biodiversity Action Plan for 2016–21. The plan explained the importance of biodiversity and how Bord na Móna intended to build upon peatland management, rehabilitation, restoration, and conservation. This plan was integral to Bord na Móna's transition towards sustainable and renewable businesses by reinforcing biodiversity development as a core value (Bord na Móna P.L.C., 2016).

For 2016, Bord na Móna's peat harvest was 3.1 Mt, which was 0.3 Mt lower than that of 2015. Adverse weather conditions had a negative impact on the peat harvest in 2016 (Bord na Móna P.L.C., 2017, p. 18).

Outlook

Preservation and restoration of peatlands may become a high priority in the efforts to reduce greenhouse gas emissions. Peatlands have been identified as carbon sinks, storing more carbon dioxide per unit hectare than any other ecosystem.

Research is ongoing on restoration measures for cut-away and post-harvest peatlands, as well as rehabilitation measures such as rewetting or afforestation. Rewetting, an effort to raise the water table, is done to begin the natural regeneration of peat. Afforestation, in tropical areas, may be helpful in retaining the surface moisture in the peatlands.

In the short term, domestic imports from Canada are likely to continue to increase and domestic peat production is likely to fluctuate. The number of domestic producers likely will continue to decline and remain dominated by large companies. Other factors, such as competition from organic soil amendments such as coir (coconut fiber) and composted yard waste, Federal and State wetlands regulations, and restrictions on permitting new production sites, likely will reduce or slow the growth of 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

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TABLE 1
SALIENT PEAT STATISTICS¹

(Thousand metric tons and thousand dollars unless otherwise specified)

	2012	2013	2014	2015	2016	
United States: ²						
Number of active producers	36	31	31	29	31	
Production	488	465	468	455	441	
Sales by producers:						
Quantity:						
Bulk	406	378	426	419 ^r	372	
Packaged	78	74	53	41	71	
Total	484	453	479	460 ^r	443	
Value	11,800	11,500	12,000	13,000 ^r	14,200	
Average value	dollars per metric ton	24.44	25.37	24.97	28.39 ^r	31.97
Average value, bulk	do.	25.37	26.39	25.72	29.03 ^r	31.58
Average value, packaged	do.	19.65	20.20	19.05	21.77	33.96
Exports	75	41	29	28	30	
Imports for consumption	909	915	994	1,150	1,130	
Consumption, apparent ³	1,240	1,380	1,390	1,620	1,590	
Stocks, December 31, producers'	218	174	222	179	125	
World, production	26,600 ^r	30,000 ^r	27,800 ^r	26,600 ^r	26,100	

^rRevised. do. Ditto.

¹Table includes data available through March 1, 2018. Data are rounded to no more than three significant digits, except average values; may not add to totals shown.

²Does not include Alaska.

³U.S. production plus imports minus exports plus adjustments for industry stock changes.

TABLE 2
PEAT PRODUCTION IN THE UNITED STATES,
BY SIZE OF OPERATION¹

Size (metric tons per year)	Active operations		Production (thousand metric tons)	
	2015	2016	2015	2016
23,000 and more	5	6	326	308
9,000 to 22,999	4	6	80	100
5,000 to 8,999	2	1	16	6
1,000 to 4,999	10	8	30	23
Less than 1,000	8	10	4	4
Total	29	31	455	441

¹Table includes data available through March 1, 2018. Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 3
U.S. PEAT PRODUCTION AND SALES BY PRODUCERS IN 2016, BY STATE¹

Region and State	Active operations	Production (metric tons)	Sales		
			Quantity (metric tons)	Value ² (thousands)	Percent packaged
East:					
Florida	6	274,000	292,000	\$6,810	--
Other ³	7	42,500	27,800	1,590	--
Total or average	13	316,000	320,000	8,400	--
Great Lakes:					
Minnesota	8	87,700	71,000	4,900	44
Other ⁴	8	34,500	50,200	743	30
Total or average	16	122,000	121,000	5,640	58
West ⁵	2	3,180	1,410	110	68
Grand total or average	31	441,000	443,000	14,200	16

-- Zero.

¹Table includes data available through March 1, 2018. Data are rounded to no more than three significant digits, except average values; may not add to totals shown.

²Free on board producing plant.

³Includes Maine, New Jersey, New York, and Pennsylvania.

⁴Includes Illinois, Indiana, Michigan, and Ohio.

⁵Includes Iowa and Washington.

TABLE 4
U.S. PEAT PRODUCTION AND PRODUCERS' YEAREND STOCKS
IN 2016, BY TYPE¹

Type	Active operations ²	Production (metric tons)	Percent of production	Yearend stocks (metric tons)
Sphagnum moss	8	66,000	15	W
Hypnum moss	4	W	W	W
Reed-sedge	17	365,000	83	120,000
Humus	3	W	W	812
Total	31	441,000	100	125,000

W Withheld to avoid disclosing company proprietary data; included in "Total."

¹Table includes data available through March 1, 2018. Data are rounded to no more than three significant digits; may not add to totals shown.

²Some plants produce multiple types of peat.

TABLE 5
U.S. PEAT SALES BY PRODUCERS IN 2016, BY TYPE AND USE¹

Use	Sphagnum moss			Hypnum moss		
	Quantity		Value (thousands)	Quantity		Value (thousands)
	Weight (metric tons)	Volume ² (cubic meters)		Weight (metric tons)	Volume (cubic meters)	
Earthworm culture medium	--	--	--	W	W	W
General soil improvement	31,500	192,000	\$1,620	1,540	3,000	\$75
Golf courses	W	W	W	--	--	--
Ingredient for potting soils	W	W	W	W	W	W
Nurseries	W	W	W	W	W	W
Other ³	W	W	W	--	--	--
Total	51,000	332,000	2,610	3,520	6,700	128
Use	Reed-sedge			Total ⁴		
	Quantity		Value (thousands)	Quantity		Value (thousands)
	Weight (metric tons)	Volume (cubic meters)		Weight (metric tons)	Volume (cubic meters)	
Earthworm culture medium	W	W	W	W	W	W
General soil improvement	48,000	152,000	\$673	82,900	351,000	\$2,390
Golf courses	W	W	W	24,400	W	1,730
Ingredient for potting soils	226,000	503,000	5,260	231,000	528,000	5,570
Nurseries	W	W	W	W	W	W
Other ³	W	W	W	W	W	W
Total	384,000	961,000	11,300	443,000	1,310,000	14,200

W Withheld to avoid disclosing company proprietary data; included in "Total." -- Zero.

¹Table includes data available through March 1, 2018. Data are rounded to no more than three significant digits; may not add to totals shown.

²Nearly all measured after compaction and packaging.

³Includes mixed fertilizers; packing flowers, plants, shrubs, and so forth; seed inoculant; and vegetable growing.

⁴Includes humus.

TABLE 6
AVERAGE DENSITY OF DOMESTIC PEAT SOLD IN 2016¹

(Kilograms per cubic meter)²

	Sphagnum moss	Hypnum moss	Reed- sedge	Humus
Bulk	216	687	551	756
Packaged	150	593	405	--
Bulk and packaged	201	665	521	756

-- Zero

¹Table includes data available through March 1, 2018.

²To convert kilograms per cubic meter to pounds per cubic yard, multiply by 1.685.

TABLE 7
PRICES FOR PEAT IN 2016^{1,2}

(Dollars per unit)

	Sphagnum moss	Hypnum moss	Reed- sedge	Humus	Average
Domestic:					
Bulk:					
Per metric ton	52.14	36.34	29.03	16.03	31.58
Per cubic meter	11.28	24.97	15.99	12.12	14.85
Packaged or baled:					
Per metric ton	46.06	99.21	32.27	--	33.96
Per cubic meter	6.89	58.86	12.67	--	11.46
Average:					
Per metric ton	51.12	49.73	29.39	16.03	31.97
Per cubic meter	10.29	33.06	15.30	12.12	14.13
Imported, total, per metric ton ³	XX	XX	XX	XX	279.28

XX Not applicable. -- Zero.

¹Table includes data available through March 1, 2018.

²Free on board plant.

³Average customs value.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF PEAT, BY COUNTRY OR LOCALITY¹

Country or locality	2015		2016	
	Quantity (metric tons)	Value ² (thousands)	Quantity (metric tons)	Value ² (thousands)
Canada	1,090,000	\$296,000	1,080,000	\$298,000
Estonia	5,300	746	628	78
Finland	833	412	1,110	539
Germany	6,870	694	3,980	664
India	133	63	401	216
Ireland	654	170	653	115
Latvia	30,900	8,980	23,200	8,930
Lithuania	3,190	491	1,780	310
Netherlands	8,690	2,290	12,500	4,670
New Zealand	1,770	285	1,550	361
Spain	537	945	214	24
Sweden	1,300	567	571	254
Other	910 ^r	640 ^r	263	230
Total	1,150,000	312,000	1,130,000	314,000

^rRevised.

¹Table includes data available through March 1, 2018. Data are rounded to no more than three significant digits; may not add to totals shown.

²Customs value.

Source: U.S. Census Bureau.

TABLE 9
PEAT: WORLD PRODUCTION, BY COUNTRY OR LOCALITY¹

(Thousand metric tons)

Country or locality ²	2012	2013	2014	2015	2016
Argentina, horticultural use ^e	7	6	5	6 ^r	6
Belarus:					
Fuel use	2,679	2,269	1,433 ^r	1,000 ^r	1,362
Horticultural use	267	164	215 ^r	237 ^r	165
Total	2,946 ^r	2,433 ^r	1,648 ^r	1,237 ^r	1,527
Burundi, fuel use	20	16 ^r	11	4	8
Canada, horticultural use	1,277	1,173	1,178	1,297 ^r	1,120
Chile, horticultural use	--	1	2	2	2 ^e
Estonia:					
Fuel use	166 ^r	260 ^r	261 ^r	89 ^r	89
Horticultural use	505 ^r	801 ^r	594 ^r	720 ^r	480
Total	671	1,061 ^r	855 ^r	809 ^r	569
Finland:					
Fuel use	5,824	6,800 ^e	6,800 ^e	6,800 ^e	6,800 ^e
Horticultural use	676	670	670	670	670
Total	6,500	7,470	7,470	7,470	7,470
France, horticultural use ^e	200	200	200	200	200
Germany, horticultural use	3,048	3,000 ^e	3,380	3,400 ^e	3,400 ^e
Hungary, horticultural use	70 ^r	101 ^r	58 ^r	97 ^r	95
Ireland: ^{e, 3}					
Fuel use	3,890 ^r	3,890 ^r	3,890 ^r	3,890 ^r	3,890
Horticultural use	500	400	400	400	400
Total	4,390 ^r	4,290 ^r	4,290 ^r	4,290 ^r	4,290
Latvia, horticultural and fuel uses	739 ^r	1,238 ^r	907 ^r	1,222 ^r	821
Lithuania:					
Fuel use ^e	60 ^r	84 ^r	101	74 ^r	68
Horticultural use	326	433	417 ^r	479	434
Total	386	517	518 ^r	553	502
Norway, horticultural use ^e	68 ^r	68	99	100	100
Poland, horticultural and fuel uses	762	818 ^r	829 ^r	877 ^r	907
Russia, horticultural and fuel uses ^e	1,200	1,500	1,100 ^r	1,000 ^r	1,000
Rwanda, unspecified ^e	13 ^r	13 ^r	13 ^r	13 ^r	13
Spain, horticultural use	61	92	91 ^e	91 ^e	91 ^e
Sweden:					
Fuel use ⁴	1,626	2,086	1,934	992	990 ^e
Horticultural use ⁴	860	1,598	1,331	1,115 ^r	1,120 ^e
Total	2,486 ^r	3,684 ^r	3,265 ^r	2,107	2,110 ^e
Turkey, unspecified	109	156	151	135 ^{r, e}	135 ^e
Ukraine:					
Fuel use	446 ^r	467 ^r	463 ^r	491 ^r	490 ^e
Horticultural use	210 ^r	131 ^r	119 ^r	79 ^r	80
Total	656	598	582 ^r	570 ^r	570
United Kingdom, by weight ⁵	500 ^r	1,104	700	704 ^e	700 ^e
United States, horticultural use	488	465	468	455	441
Grand total	26,600 ^r	30,000 ^r	27,800 ^r	26,600 ^r	26,100
Of which:					
Fuel use	14,700 ^r	15,900 ^r	14,900	13,300 ^r	13,700
Horticultural use	8,560 ^r	9,300 ^r	9,230 ^r	9,350 ^r	8,800
Unspecified	3,320 ^r	4,830 ^r	3,700 ^r	3,950 ^r	3,580

^eEstimated. ^rRevised. -- Zero.

¹Table includes data available through November 13, 2017. All data are reported unless otherwise noted. Grand totals, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

²In addition to the countries and (or) localities listed, Austria, Chile, Iceland, Italy, and Romania produced negligible quantities of peat. Australia and New Zealand also produced peat, but information was inadequate to make reliable estimates of output.

³Fiscal year data.

⁴Reported horticultural use, in thousand cubic meters: 2012—977; 2013—1,815; 2014—1,512; and 2015—1,266. Reported fuel use, in thousand cubic meters: 2012—1,846; 2013—2,369; 2014—2,196; and 2015—1,127. One cubic meter of peat equals 0.8806 metric ton.

⁵Unspecified use reported, in thousand cubic meters: 2012—568; 2013—1,254; 2014—79; and 2015—800 (estimated). One cubic meter of peat equals 0.8806 metric ton.