Acknowledgements

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Project Completed by:

United States Department of Agriculture
National Agricultural Statistics Service
Maryland Field Office

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Introduction

The Turfgrass Industry is an essential and sometimes overlooked part of our State's economy. Our industry encompasses an extremely broad field that is very extensive. The industry's contribution to the economy of the State of Maryland has an estimated value that exceeds **$1.5 billion dollars** in terms of dollars spent for purchases of capital equipment and the production, maintenance, and use of turfgrass products and services. The turfgrass industry provides career opportunities for thousands of golf course superintendents, grounds managers, landscapers, lawn care technicians, and sod producers.

Turfgrass not only creates beautiful aesthetics to home lawns, golf courses, parks and recreation areas, but it provides safe playing surfaces for sports and athletics, and adjoins miles of highways and airport runways. Turfgrass provides a great number of environmental benefits. Its dense root system makes it a very efficient erosion control device. Turfgrass improves water quality by filtering runoff and contaminants which could ultimately contaminate ground water and the Chesapeake Bay. And, turfgrass contributes significantly to temperature moderation and enhances air quality. For beauty, for sports, for our own personal recreation and leisure time activities, and for the environment, turfgrass is a unique and beautiful gift of nature that adds value to our daily lives.

Survey Objectives

The primary objective of the 2005 Maryland Turfgrass Survey was to measure the scope and economic impact of the turf industry in the year 2005. Specific objectives were to calculate the total acreage in turfgrass, the number of workers employed in the industry, the amount of equipment owned by the industry, and total expenses for the industry in 2005.

The turfgrass industry is made up of many diverse groups, or sectors, including airports, cemeteries, religious institutions, parks and athletic fields, golf courses, county facilities and roadways, state highways, apartment complexes, lawn care firms, sod farms, single family residences, and schools. The survey was designed to estimate the economic characteristics of the industry as a whole, and to separately estimate the characteristics of the individual groups (sectors).

Summary of Survey Results

Results from the 2005 Maryland Turfgrass Survey indicate that the total turfgrass area maintained and used in Maryland in 2005 was 1.1 million acres, or 18 percent of total land in the state. The majority of this land, 937,000 acres, was in single family residences. Nearly 31,000 acres of new turf were installed in calendar year 2005 at an expense of over $89 million.

Turf-related assets in equipment had an estimated value of nearly $2.4 billion, including over $273 million in equipment purchased in 2005. Most of that equipment was owned by single family residences, who valued their lawn care equipment at over $2.0 billion. An estimated $1.2 billion was spent for the production, maintenance, and use of turfgrass products and services. If purchases of capital equipment ($273 million) are factored into the total, an estimated $1.5 billion was spent on turf maintenance in 2005. The turfgrass industry employed an estimated 12,730 workers in 2005, two-thirds of them full-time employees. Wages paid to turfgrass employees topped $291.3 million.

Summary Statistics

The following pages provide detailed summaries of the Maryland turfgrass industry. First are provided summaries of the industry as a whole. This is followed by summary reports of individual industry sectors.

Turfgrass Acreage

An estimated 1.1 million acres of turf were maintained in Maryland in 2005, representing approximately 18 percent of the total land area (6.2 million acres). This is more than any single agricultural crop, and compares with an estimated 2.6 million acres of forest land[1] and 2.1 million acres in farmland[2] in the State of Maryland. The greatest portion of this turfgrass area, an estimated 937,000 acres, is in single family residences. A large area of turf is also owned by county governments, who care for an estimated 78,200 acres of turfgrass.

Nearly 31,000 acres of new turf were installed in calendar year 2005 at an expense of over $89 million. This comes to an average $2887 per acre to install new turfgrass. The majority of the new turfgrass installed was by single family homeowners, who established an estimated 28,190 acres of turf in 2005.

Turfgrass areas used and maintained in Maryland, 2005

Sector	Turf Acres	Percent of Turf Acres	New Turf Established	Cost of Establishing New Turf	Average Cost per Acre to Establish New Turf
	- acres -	*- percent -*	*- acres -*	*- dollars -*	*- dollars -*
Airports	5,000	0.4	----	----	
Cemeteries	4,200	0.4	130	361,000	2,777
Religious Facilities	9,400	0.8	250	581,000	2,324
Parks and Athletic Fields	21,800	1.9	320	3,275,000	10,234
Golf Courses	16,400	1.4	310	2,105,000	6,790
County Government	78,200	6.9	480	3,914,000	8,154
State Highways	9,000	0.8	650	1,570,000	2,415
Apartments	7,500	0.7	200	765,000	3,825
Lawn Care	[1/]		[1/]	[1/]	
Sod Farms	8,000	0.7	[2/]	[2/]	
Single Family Homes	936,900	82.6	28,190	73,112,000	2,594
Schools	38,400	3.4	360	3,481,000	9,669
Total	1,134,800		30,890	89,164,000	2,887

[1] Maryland Department of Natural Resources, 2006.
[2] USDA, National Agricultural Statistics Service, Maryland Field Office, 2006.

Turfgrass-Related Equipment

The value of all equipment utilized to maintain turf in Maryland was estimated at nearly $2.4 billion, with over $273 million spent on new equipment in 2005. Most of that equipment was owned by single family residences, who collectively valued their lawn care equipment at over $2.0 billion. Of the remaining sectors, golf courses claimed the highest value of turf-related equipment at $103.5 million.

Homeowners spent an estimated $231.6 million on new equipment in 2005, 85 percent of equipment purchases by all sectors. Lawn care companies, county governments, and golf courses also had high expenditures for new equipment. Golf courses had the highest level of equipment invested, $6311 per acre.

Value of turf-related equipment owned and purchased, 2005

Sector	Turf Acres	Value of Turf Equipment	Value of Equipment per Acre	Cost of New Equipment Purchased
	- acres -	*- dollars -*	*- dollars -*	*- dollars -*
Airports	5,000	1,609,000	322	85,000
Cemeteries	4,200	3,827,000	911	321,000
Religious Facilities	9,400	4,914,000	523	961,000
Parks/Athletic Fields	21,800	43,155,000	1980	2,272,000
Golf Courses	16,400	103,510,000	6311	8,351,000
County Government	78,200	36,666,000	469	9,950,000
State Highways	9,000	20,000,000	2222	327,000
Apartments	7,500	1,316,000	175	86,000
Lawn Care	[1/]	67,148,000	1750	12,228,000
Sod Farms	8,000	13,999,000	2150	3,314,000
Single Family Homes	936,900	2,012,494,000		231,594,000
Schools	38,400	62,266,000	1622	3,569,000
Total	1,134,800	2,370,904,000	2089	273,058,000

[1/] **Equipment includes such items as mowers, tractors, trailers, trimmers, blowers, hand tools, and irrigation equipment.**

Expenditures for Turfgrass Products and Services

In 2005, an estimated $1.2 billion was spent for the production, maintenance, and use of turfgrass products and services in Maryland. These expenditures included labor, seed and sod, fertilizers and chemicals, miscellaneous supplies, equipment parts and repairs, and contracted lawn care services. If purchases of capital equipment ($273 million) are also factored into the total, an estimated $1.5 billion was spent on turf maintenance in 2005.

By sector: Residential households (single family homes) spent over $667 million on turfgrass maintenance and accounted for 58% of all expenditures. Lawn care services were another sector with large expenditures, spending an estimated $210.6 million in 2005. Over half of their expenses were for labor. Average expenditure per acre of turfgrass, by sector, ranged from $216 per acre for airports to $5,018 per acre for golf courses.

By expenditure: The largest expenditures among all sectors combined were for contracted lawn care services ($426 million) and labor ($291 million). Lawn care services were the largest expense for single family homes, apartment complexes, religious facilities, and State highways. Airports spent approximately the same amount for contract services and labor, making these their largest expenses. The largest expense for all remaining sectors was for labor.

Expenditures for miscellaneous supplies and equipment were an estimated $193.8 million. Another $155.9 million were spent on seed, sod, chemicals, and fertilizers, and $91.3 million was spent on equipment parts and repairs. Residential homeowners and lawn care companies had the highest expenses in these remaining categories.

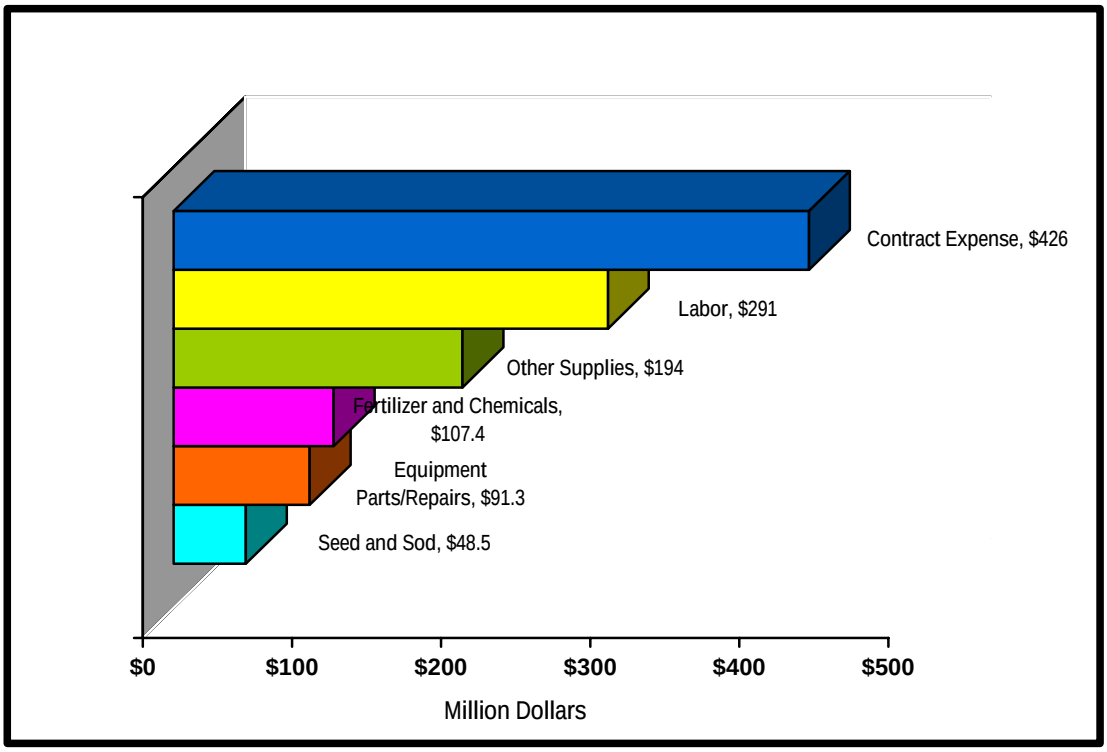
Turf Maintenance Expenditures, 2005

Sector	Labor	Seed and Sod	Fert. and Chem.	Misc. Supplies Expenses	Equipment Parts and Repairs	Contracted Lawn Care	Total Expenses
	- dollars -						
Airports	484,000	4,000	4,000	67,000	32,000	490,000	1,081,000
Cemeteries	3,615,000	68,000	121,000	400,000	478,000	2,683,000	7,364,000
Religious Facilities	937,000	257,000	115,000	326,000	214,000	10,817,000	12,666,000
Parks/Athletic Fields	41,754,000	785,000	801,000	1,602,000	1,052,000	2,371,000	48,365,000
Golf Courses	49,233,000	1,955,000	13,453,000	10,626,000	4,243,000	2,788,000	82,298,000
County Government	16,211,000	1,236,000	1,655,000	1,317,000	1,656,000	1,628,000	23,704,000
State Highways	2,520,000	16,000	480,000	240,000	1,111,000	3,900,000	8,267,000
Apartments	3,351,000	4,000	55,000	89,000	10,000	33,290,000	36,799,000
Lawn Care	135,536,000	8,734,000	19,441,000	39,242,000	7,651,000	[3/]	210,604,000
Sod Farms	7,124,000	[2/] 1,882,000	1,596,000	1,925,000	1,297,000	[3/]	13,823,000
Single Family Homes	[1/]	32,534,000	68,546,000	135,009,000	71,432,000	359,769,000	667,290,000
Schools	30,525,000	1,039,000	1,086,000	3,000	2,102,000	8,326,000	46,078,000
Total	291,290,000	48,514,000	107,353,000	193,843,000	91,278,000	426,062,000	1,158,339,000

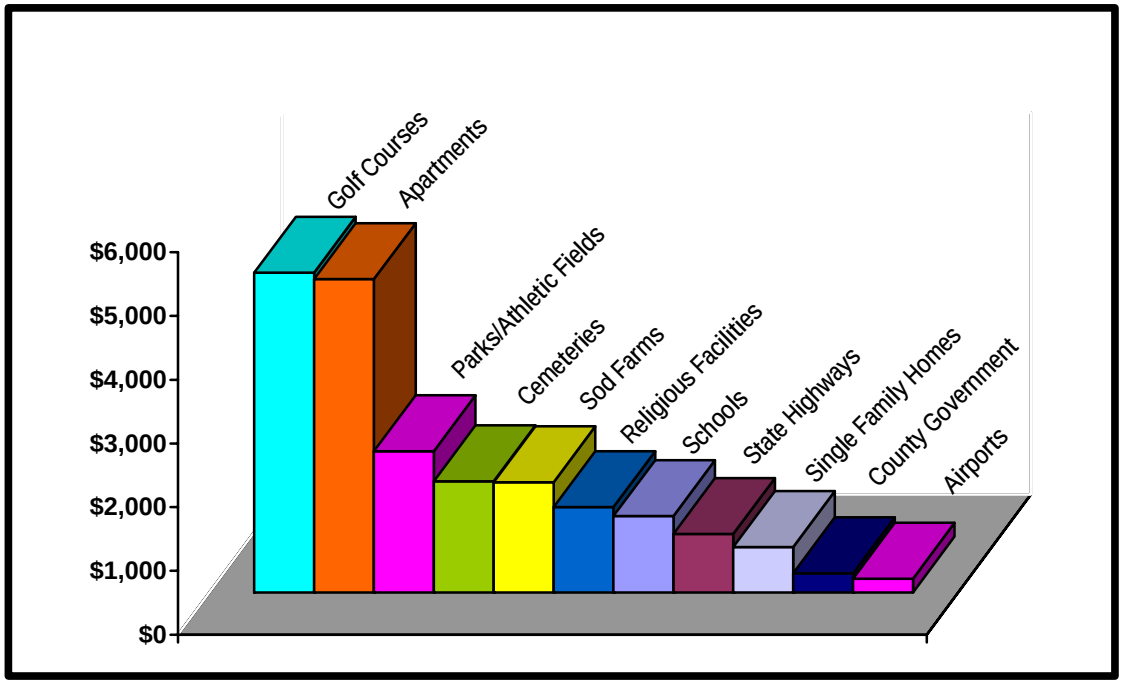
Miscellaneous expenses include such items as topsoil, lime, mulch, fuel, irrigation, and equipment leasing.

[1/] Question not asked on single-family home version. Average hours spent on turf maintenance asked.
[2/] Seed only.
[3/] Not applicable.

Turf Maintenance Expenditures, All Sectors, 2005



Average Maintenance Cost per Acre by Sector, 2005



Employment in Maryland's Turfgrass Industry

In 2005, there were an estimated 12,730 individuals employed by the turfgrass industry, either on a part-time or full-time basis. Lawn care companies hired the most workers, nearly 5,800, followed by golf courses with 2,330 workers, and schools with 1,200 turf maintenance employees. Sixty-four percent of all workers were hired on a full-time basis. No attempt was made to assess the value of unpaid labor for the residential (single family) sector, although homeowners indicated that they spent an average 6.9 hours per month on lawn maintenance activities.

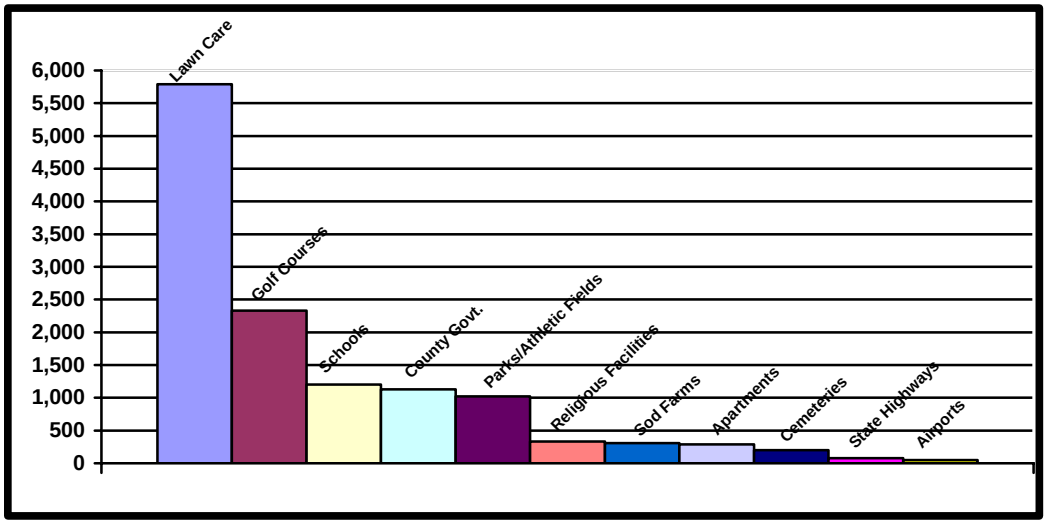
Some sectors, such as apartments, had low direct costs for labor but had high expenditures for contract services. All users of contract services were asked to indicate (by percent) whether these services were for mowing, application of chemicals and/or fertilizer, seeding and sodding, or other services. These results are presented by sector later in this report.

Paid Workers, Full And Part Time, 2005

Sector	Full Time	Part Time	All Paid Workers
Airports	20	30	50
Cemeteries	150	50	200
Religious Facilities	60	270	330
Parks/Athletic Fields	720	300	1,020
Golf Courses	1,020	1,310	2,330
County Government	710	420	1,130
State Highways	80	0	80
Apartments	220	70	290
Lawn Care	4,050	1,740	5,790
Sod Farms	220	90	310
Single Family Homes	1/	1/	1/
Schools	860	340	1,200
Total	8,110	4,620	12,730

1/ Not applicable.

Number of Turf Maintenance Employees by Sector, 2005



Revenue from Turfgrass Products and Services

Revenue from the sale of turfgrass products and services were estimated for lawn care firms and sod farms. These businesses had total revenues of just over $400 million in 2005, with $375 million in sales generated by lawn care firms and $28 million in sales by sod farms.

Use of Cooperative Extension Service Programs

Some sectors, including lawn care companies, sod farms, homeowners, and schools were asked if they had ever used the services of Maryland Cooperative Extension Service to make decisions about their turf management. The following table shows use of Cooperative Extension Services.

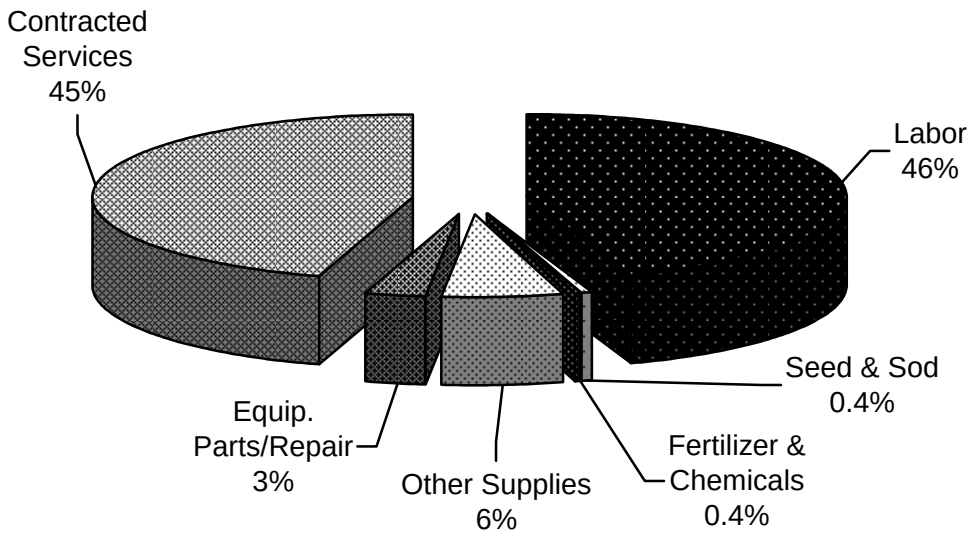
Use of Cooperative Extension Service Programs By Turfgrass Industries

Sector	Percent Of Firms Using CES
Lawn care businesses	15
Sod farms	31
Single family homes	9
Schools	11

Airports

There were 33 commercial airports represented in the Maryland Turfgrass Survey. These airports maintained approximately 5,000 acres of turfgrass. Airports had the lowest cost per acre for turfgrass maintenance of any other sector, at $216 per acre. Over half of the dollars spent on the care of turf were paid to contracted lawn services. Twenty full-time and thirty part-time workers were employed by airports directly for turfgrass maintenance.

Turfgrass Expenditures, Airports, 2005

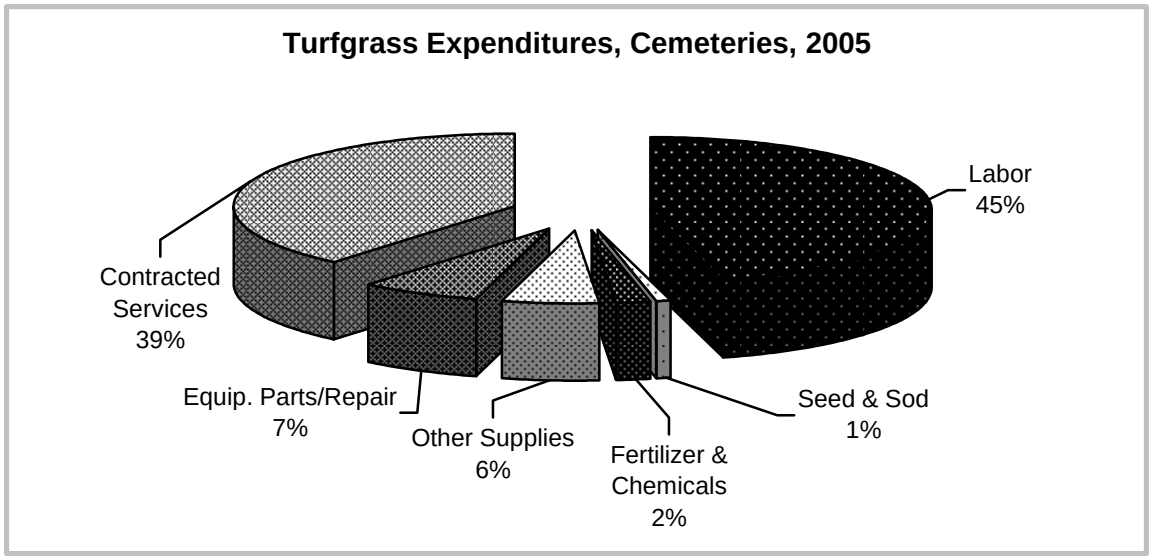


General Statistics	
Acres of Turf Maintained	5,000
Number of Full-Time Employees	20
Number of Part-Time Employees	30
Value of Equipment (dollars)	1,609,000
Expenditures for New Turf-Related Equipment	85,000
Total Expenditures (dollars)	1,081,000
Labor	484,000
Seed & Sod	4,000
Fertilizer & Chemicals	4,000
Miscellaneous Supplies & Equipment	67,000
Equipment Parts and Repairs	32,000
Contracted Services	490,000
Percent for Mowing	70
Percent for Fertilizer/Chemical Applications	6
Percent for Seeding/Sodding New Turf Acres	2
Percent for Other Services	22

Cemeteries

The cemetery sector represents 4,200 acres of managed turf located in 106 cemeteries. These cemeteries employed 150 full-time and 50 part-time workers to maintain turf. Cemeteries reported a total of $7.4 million of turf-related expenditures in 2005, approximately $1,750 per acre. The majority of these expenditures were for labor ($3.6 million) and contract services ($2.7 million).

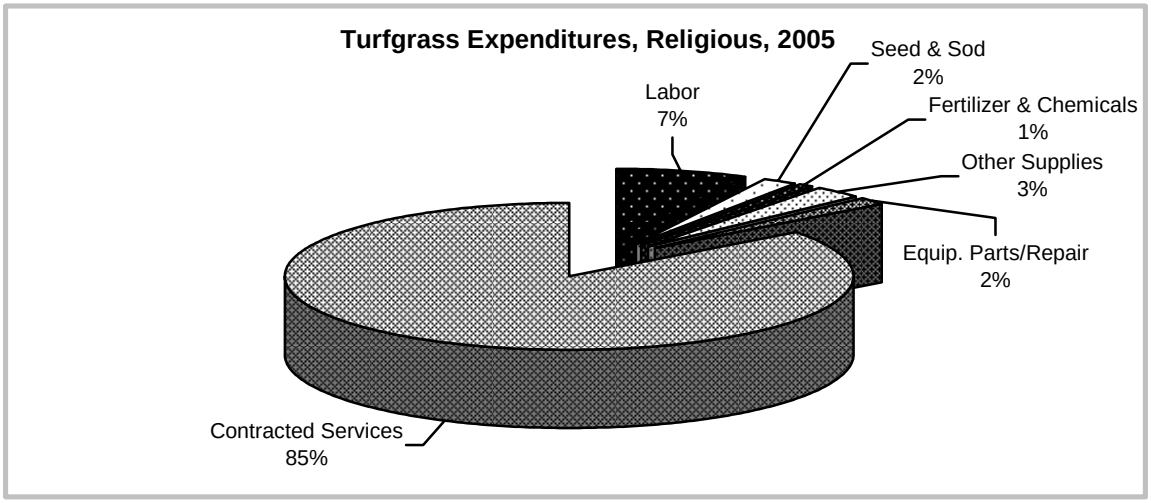
The cemetery sector excludes cemeteries located on church properties and private family cemeteries. Data for the additional 1,300 acres of managed turf in church cemeteries are included in the religious facilities sector.



General Statistics	
Acres of Turf Maintained	4,200
Number of Full-Time Employees	150
Number of Part-Time Employees	50
Value of Equipment (dollars)	3,827,000
Expenditures for New Turf-Related Equipment	321,000
Total Expenditures (dollars)	7,364,000
Labor	3,615,000
Seed & Sod	68,000
Fertilizer & Chemicals	121,000
Miscellaneous Supplies & Equipment	400,000
Equipment Parts and Repairs	478,000
Contracted Services	2,683,000
Percent for Mowing	81
Percent for Fertilizer/Chemical Applications	11
Percent for Seeding/Sodding New Turf Acres	6
Percent for Other Services	2

Religious Facilities

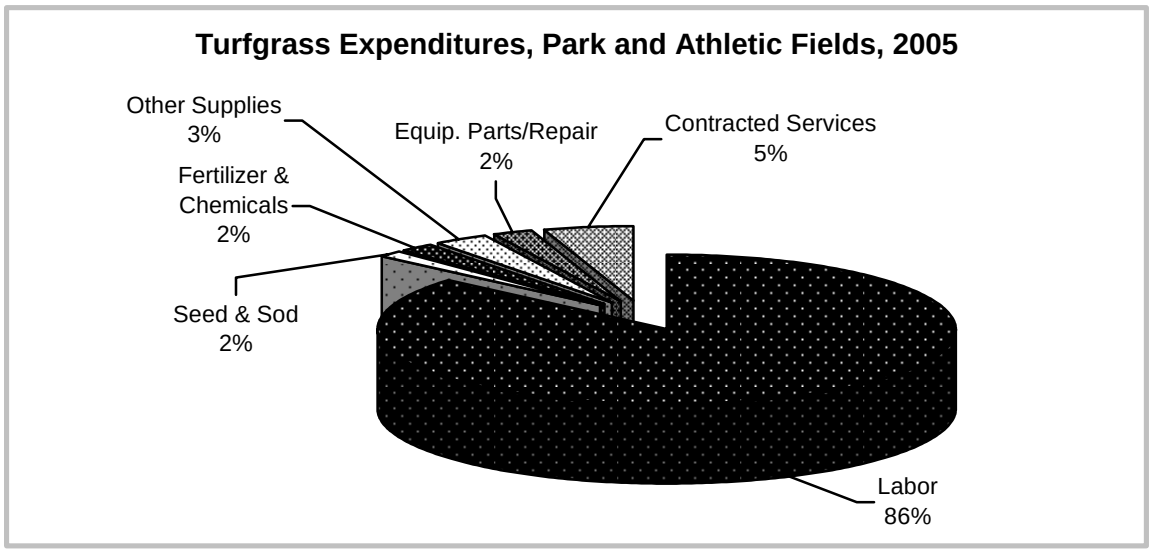
The religious facilities in this survey included 604 churches, temples, and mosques located in the State of Maryland. These facilities maintained 9,400 acres of turf in 2005. Nearly 14 percent of this turf was in cemeteries, over 7 percent was in athletic fields, and just over 4 percent was in school areas. Over $4.9 million of turf-related equipment was owned by these facilities, including the purchase of almost $1.0 million in new equipment in 2005. Religious facilities spent $12.7 million on turf maintenance in 2005, the majority ($10.8 million) for contracted services. Only 60 full-time workers were employed by these facilities, as most of the work was accomplished through the use of contract services, part-time employees, and church volunteers.



General Statistics	
Acres of Turf Maintained	9,400
Acres of Turf in Cemeteries	1,300
Acres of Turf in Athletic Fields	700
Acres of Turf in Schools	400
Number of Full-Time Employees	60
Number of Part-Time Employees	270
Value of Equipment (dollars)	4,914,000
Expenditures for New Turf-Related Equipment	961,000
Total Expenditures (dollars)	12,666,000
Labor	937,000
Seed & Sod	257,000
Fertilizer & Chemicals	115,000
Miscellaneous Supplies & Equipment	326,000
Equipment Parts and Repairs	214,000
Contracted Services	10,817,000
Percent for Mowing	85
Percent for Fertilizer/Chemical Applications	8
Percent for Seeding/Sodding New Turf Acres	2
Percent for Other Services	5

Parks and Athletic Fields

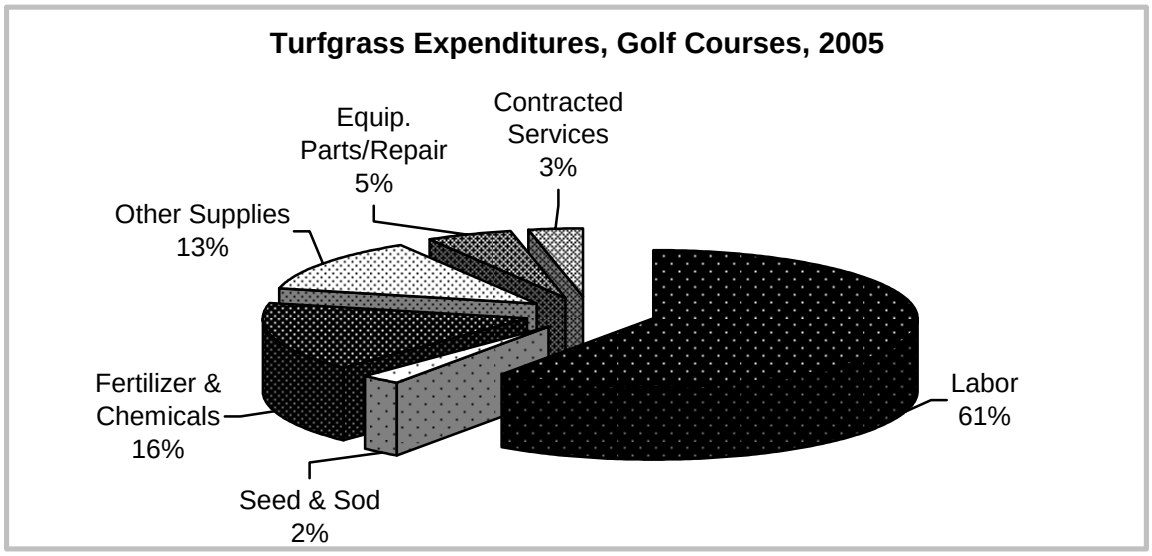
The data in this sector represents 21,800 acres of managed turf on county and state park lands, athletic fields (except for athletic fields located on school grounds), and turf acreage maintained by professional sports organizations. This sector employed a large number of workers to manage turf, making labor the largest expense for this sector. Nearly $41.8 million, or 86% of all turfgrass expenses was for labor. An additional $2.4 million was spent for contract services, mostly for mowing of fields. This sector owned $43.2 million in equipment, including $2.3 million in purchases of new equipment in 2005.



General Statistics	
Acres of Turf Maintained	21,800
Acres of Turf in Athletic Fields	2,300
Number of Full-Time Employees	720
Number of Part-Time Employees	300
Value of Equipment (dollars)	43,155,000
Expenditures for New Turf-Related Equipment	2,272,000
Total Expenditures (dollars)	48,365,000
Labor	41,754,000
Seed & Sod	785,000
Fertilizer & Chemicals	801,000
Miscellaneous Supplies & Equipments	1,602,000
Equipment Parts and Repairs	1,052,000
Contracted Services	2,371,000
Percent for Mowing	96
Percent for Fertilizer/Chemical Applications	1
Percent for Seeding/Sodding New Turf Acres	1
Percent for Other Services	2

Golf Courses

Although land in turf that is located on golf courses is only one percent of the total turf acreage in Maryland, golf courses had the third highest overall expenses for turfgrass management. Golf courses spent more than any other sector on turf maintenance - over $5,000 per acre. Nearly 60% of this expense was for hired labor. Approximately 2,330 workers were employed by golf courses, evenly split between full-time and part-time employees. Golf courses also had high expenses for fertilizer and chemicals, miscellaneous expenses, and equipment parts and repair. A very small percentage of total expenditures were related to contract services, most related to seeding and sodding of new turf areas. Golf courses owned an estimated $103.5 million in turf-related equipment, including purchases of $8.4 million in new equipment in 2005.

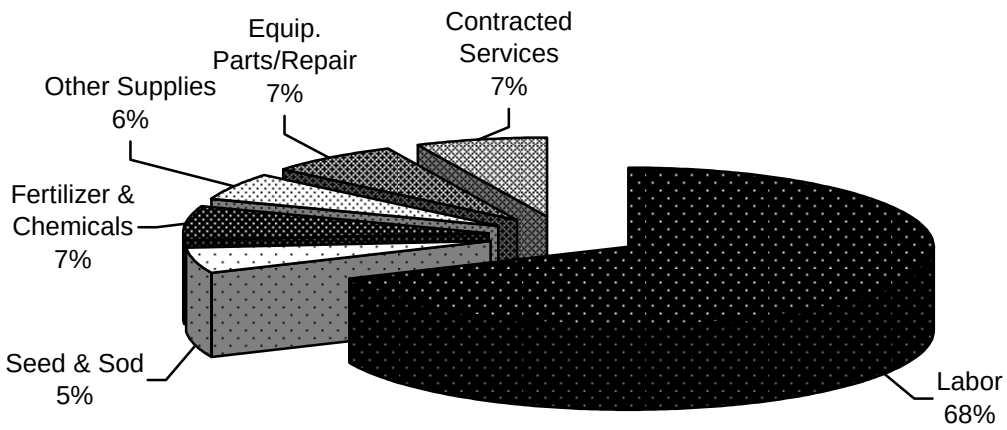


General Statistics	
Acres of Turf Maintained	16,400
Number of Full-Time Employees	1,020
Number of Part-Time Employees	1,310
Value of Equipment (dollars)	103,510,000
Expenditures for New Turf-Related Equipment	8,351,000
Total Expenditures (dollars)	82,298,000
Labor	49,233,000
Seed & Sod	1,955,000
Fertilizer & Chemicals	13,453,000
Miscellaneous Supplies & Equipment	10,626,000
Equipment Parts and Repairs	4,243,000
Contracted Services	2,788,000
Percent for Mowing	9
Percent for Fertilizer/Chemical Applications	4
Percent for Seeding/Sodding New Turf Acres	61
Percent for Other Services	26

County Government Facilities

County governments reported 78,200 acres of managed turf in 2005. Eighty-nine percent of the acreage reported was in county roadways. Counties had approximately $23.7 million in expenses for turf management, spending less per acre for turf management than any other sector except airports. As with other sectors, the majority of this was for labor. County governments employed 1,130 workers to maintain turf, and an additional $1.6 million was spent for contract services, mostly for mowing. Counties also spent $3.9 million to establish 480 acres in turf in 2005. County governments reported an estimated $36.7 million in new equipment, including $10.0 million in equipment purchases in 2005.

Turfgrass Expenditures, Government Facilities, 2005

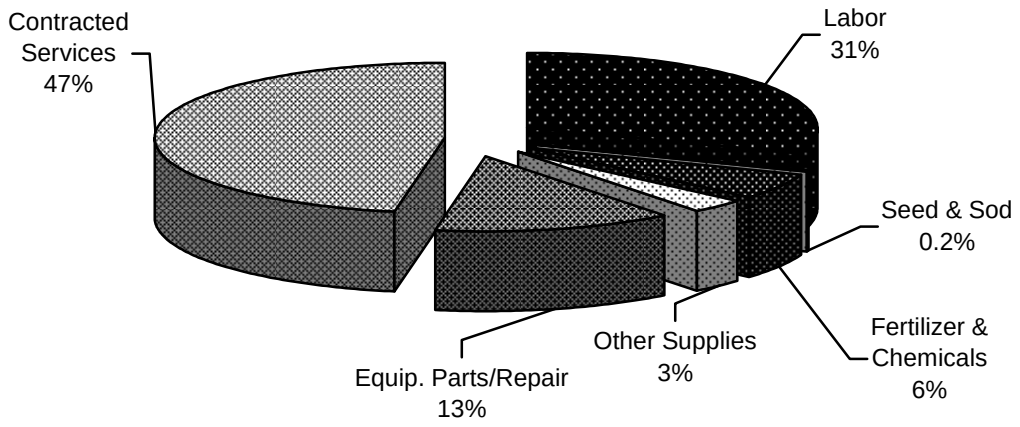


General Statistics	
Acres of Turf Maintained	78,200
Acres of Turf in County Roadways	69,600
Number of Full-Time Employees	710
Number of Part-Time Employees	420
Value of Equipment (dollars)	36,666,000
Expenditures for New Turf-Related Equipment	9,950,000
Total Expenditures (dollars)	23,704,000
Labor	16,211,000
Seed & Sod	1,236,000
Fertilizer & Chemicals	1,655,000
Miscellaneous Supplies & Equipment	1,317,000
Equipment Parts and Repairs	1,656,000
Contracted Services	1,628,000
Percent for Mowing	85
Percent for Fertilizer/Chemical Applications	11
Percent for Seeding/Sodding New Turf Acres	2
Percent for Other Services	2

State Highways

Nearly half of all expenditures spent on state highways were related to contracted services, primarily for mowing roadside right-of-ways. In addition, 80 full-time workers were employed to work on turf areas, at a cost of $2.5 million. The state highway department established 650 new acres of turf in 2005, more new acreage than was established by any other sector except single family residences. However, the cost to establish the new acreage was relatively low, at $1.6 million. Approximately $20 million in equipment was reported by this sector, with $327,000 spent on new equipment, but $1.1 million spent on equipment parts and repair. The 9,000 acres of managed turf reported by state highways excludes acreage maintained on federally maintained highways. County roadways were reported earlier in the County Government sector.

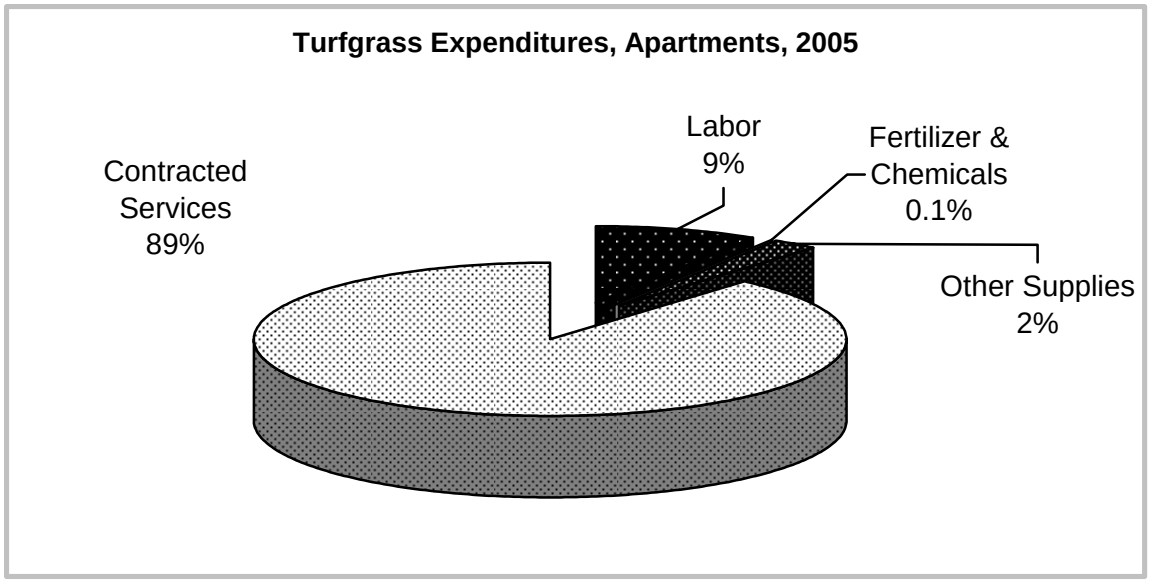
Turfgrass Expenditures, State Highways, 2005



General Statistics	
Acres of Turf Maintained	9,000
Number of Full-Time Employees	80
Number of Part-Time Employees	-
Value of Equipment (dollars)	20,000,000
Expenditures for New Turf-Related Equipment	327,000
Total Expenditures (dollars)	8,267,000
Labor	2,520,000
Seed & Sod	16,000
Fertilizer & Chemicals	480,000
Miscellaneous Supplies & Equipment	240,000
Equipment Parts and Repairs	1,111,000
Contracted Services	3,900,000
Percent for Mowing	79
Percent for Fertilizer/Chemical Applications	15
Percent for Seeding/Sodding New Turf Acres	5
Percent for Other Services	1

Apartments

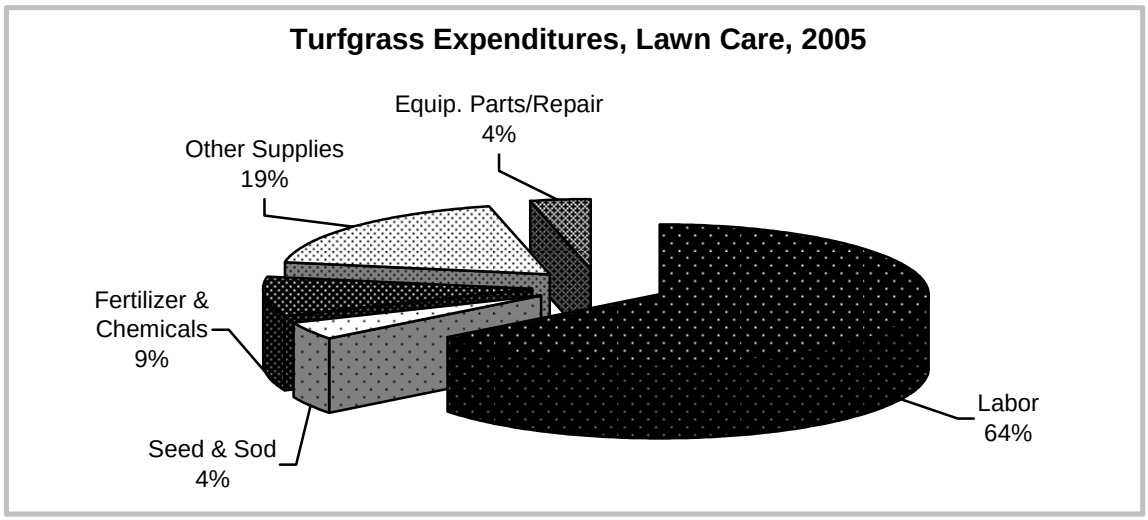
Statewide, apartment complexes had an estimated 7,500 acres dedicated to turfgrass. Although some of this acreage was maintained by paid employees, over 90 percent of all expenditures made by apartments for turf management was for lawn care or service companies. This expense made the turf maintained by apartment complexes second only to golf courses in cost per acre, at $4,906. Apartment complexes employed 290 workers for turf maintenance and owned $1.3 million in turf-related equipment.



General Statistics	
Acres of Turf Maintained	7,500
Number of Full-Time Employees	220
Number of Part-Time Employees	70
Value of Equipment (dollars)	1,316,000
Expenditures for New Turf-Related Equipment	86,000
Total Expenditures (dollars)	36,799,000
Labor	3,351,000
Seed & Sod	4,000
Fertilizer & Chemicals	55,000
Miscellaneous Supplies & Equipment	89,000
Equipment Parts and Repairs	10,000
Contracted Services	33,290,000
Percent for Mowing	72
Percent for Fertilizer/Chemical Applications	13
Percent for Seeding/Sodding New Turf Acres	4
Percent for Other Services	11

Lawn Care Businesses

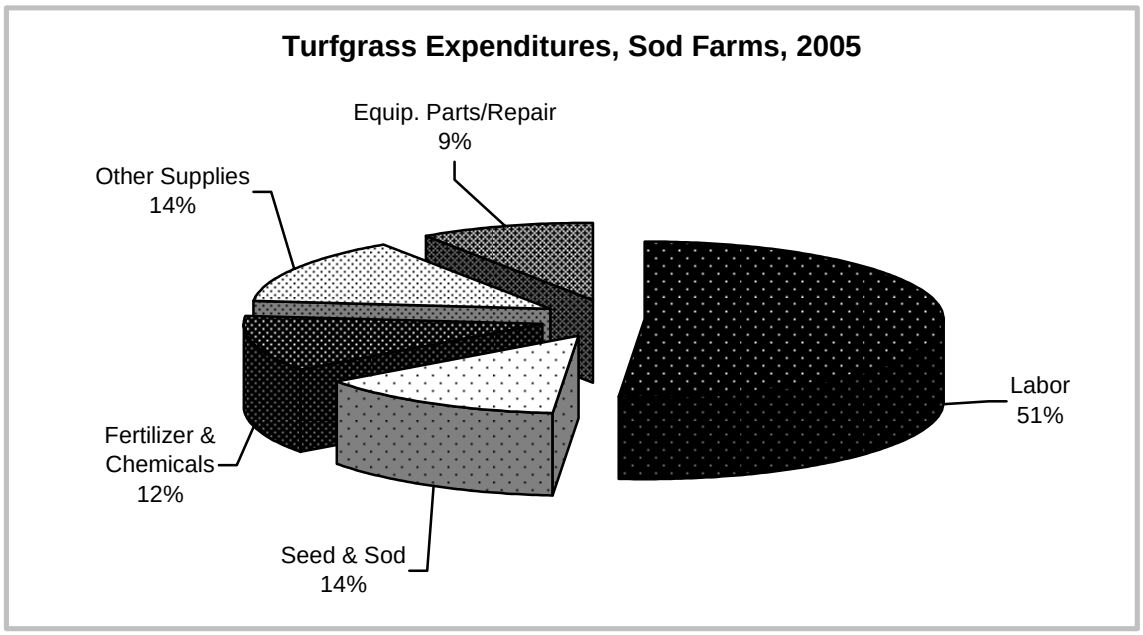
Maryland lawn care businesses serviced an estimated 316,300 acres of turf in 2005, generating well over $375 million dollars in revenue. An estimated 15 percent of this acreage was in commercial business parks. Not unexpectedly, labor comprised the greatest portion of their expenses, as these firms employed more workers and spent more on labor than any other sector. Almost 5,800 workers were employed by lawn care businesses, including 4,050 full-time workers and 1,740 part-time workers. Expenditures on miscellaneous supplies were also high, and are estimated at almost 20 percent of the total. Lawn care companies spent $19.4 million for fertilizer and chemicals, and $8.7 million to apply seed and sod. Lawn care businesses owned an estimated $67.1 million in equipment, spent $7.7 million to maintain that equipment, and an additional $12.2 million to purchase new equipment. Fifteen percent of the companies surveyed reported that they had used the services of the Maryland Cooperative Extension Service.



General Statistics	
Acres of Turf Serviced	316,300
Number of Full-Time Employees	4,050
Number of Part-Time Employees	1,740
Value of Equipment (dollars)	67,148,000
Expenditures for New Turf-Related Equipment	12,228,000
Total Expenditures (dollars)	210,604,000
Labor	135,536,000
Seed & Sod	8,734,000
Fertilizer & Chemicals	19,441,000
Miscellaneous Supplies & Equipment	39,242,000
Equipment Parts and Repairs	7,651,000
Revenue (includes revenue from Hydroseeding) (dollars)	375,287,000
Percent of Business Attributed to Commercial Business Parks	18

Sod Farms

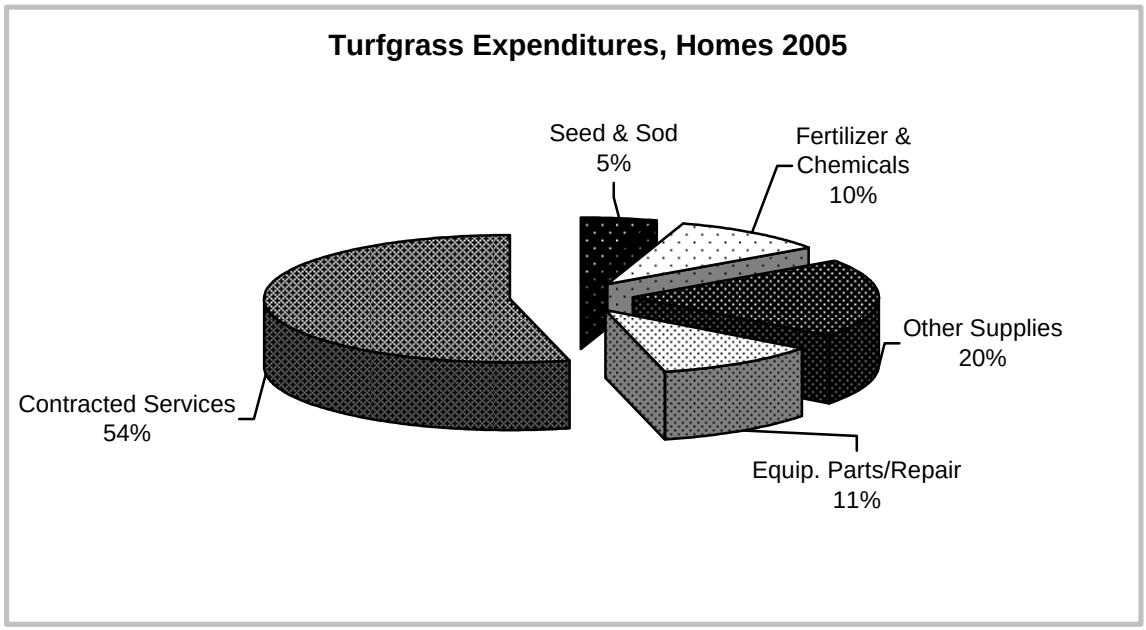
Central to the industry are sod growers who produce the product that is used directly, or indirectly, by the rest of the industry. Maryland sod farmers produced an estimated 18 million square yards of turf on 8,000 acres in 2005, generating over $28 million in revenue for the State's economy. Sod farms employed 300 workers, approximately two-thirds of them full-time. Labor was their major expense, as they paid out $7.1 million in wages. Nearly a third of the sod farms relied on the technical expertise of the University of Maryland Cooperative Extension to make decisions on their farming operation.



General Statistics	
Acres of Sod in Production	8,000
Number of Full-Time Employees	220
Number of Part-Time Employees	90
Value of Equipment (dollars)	13,999,000
Expenditures for New Turf-Related Equipment	3,314,000
Total Expenditures (dollars)	13,823,000
Labor	7,124,000
Seed	1,882,000
Fertilizer & Chemicals	1,596,000
Miscellaneous Supplies & Equipment	1,925,000
Equipment Parts and Repairs	1,297,000
Production (in square yards)	18,000,000
Revenue (dollars)	28,162,000

Single Family Homes

Collectively, this sector accounted for the majority of the acreage in turfgrass, owned the most equipment, and spent the most to maintain their lawns. Homeowners maintained 936,900 acres in lawn, including 28,190 new acres that were established in 2005 at a cost of $73.1 million. The value of equipment owned by all households was $2.0 billion, or 85% of equipment owned by all sectors. Single family homeowners also accounted for 85% of all new equipment purchases in 2005, and spent $667.3 million on other expenses - half of this for contracted lawn services. However, on a per acre basis, homeowners spent only $712, less than any other sector except county governments and airports. Homeowners reported spending an average of 6.9 hours per month working on their lawns.

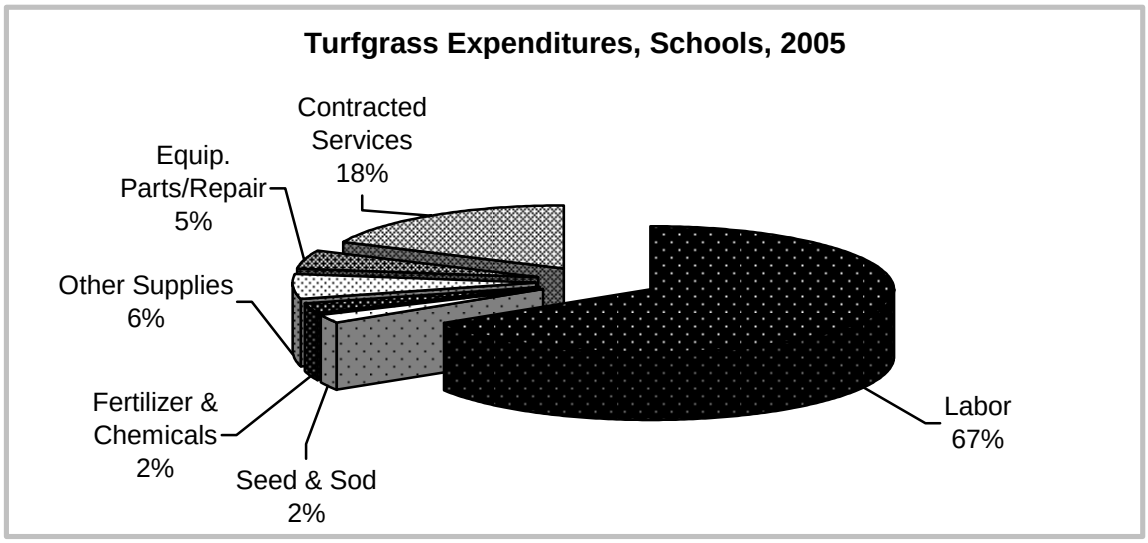


General Statistics	
Acres of Turf Maintained	936,900
Average Hours per Month Spent on Lawn Care	6.9
Value of Equipment (dollars)	2,012,494,000
Expenditures for New Turf-Related Equipment	231,594,000
Total Expenditures (dollars)	667,290,000
Seed & Sod	32,534,000
Fertilizer & Chemicals	68,546,000
Miscellaneous Supplies & Equipment	135,009,000
Equipment Parts and Repairs	71,432,000
Contracted Services	359,769,000
Percent for Mowing	53
Percent for Fertilizer/Chemical Applications	24
Percent for Seeding/Sodding New Turf Acres	9
Percent for Other Services	14

Schools

The school sector includes data for 38,400 acres of turf located at 780 public schools, private schools, and universities. Turf areas devoted to athletic fields account for 10,500 acres of turfgrass reported by schools.

Schools employ 1,200 workers to manage turf at a cost of $30.5 million. As in other sectors, labor accounted for the majority of the $46.1 million in lawn care expenses reported by schools. Schools also spent another $8.3 million on contract services. Schools own a fairly large amount of lawn care equipment, valued at $62.3 million, and spent $3.6 million to purchase new equipment in 2005. Eleven percent of the schools surveyed reported using the services of the Maryland Cooperative Extension Service.



General Statistics	
Acres of Turf Maintained	38,400
Acres of Turf in Athletic Fields	10,500
Number of Full-Time Employees	860
Number of Part-Time Employees	340
Value of Equipment (dollars)	62,266,000
Expenditures for New Turf-Related Equipment	3,569,000
Total Expenditures (dollars)	46,078,000
Labor	30,525,000
Seed & Sod	1,039,000
Fertilizer & Chemicals	1,086,000
Miscellaneous Supplies & Equipment	3,000,000
Equipment Parts and Repairs	2,102,000
Contracted Services	8,326,000
Percent for Mowing	59
Percent for Fertilizer/Chemical Applications	12
Percent for Seeding/Sodding New Turf Acres	8
Percent for Other Services	21

Survey Methodology

The primary objective of the 2005 Maryland Turfgrass Survey was to measure the scope and economic impact of Maryland's turf industry. Earlier surveys, conducted in 1995 and 1987, were less comprehensive in scope and drew on administrative sources to account for smaller samples and coverage. While the current study is more comprehensive in nature, we recognize the potential for incompleteness in our attempt to describe the impact of the industry on Maryland's economy. The survey reference year for all data collected was calendar year 2005.

Survey Sample

Unique survey questionnaires were sent to twelve groups, or sectors, sampled based on their likelihood of being involved in the care or production of turf. These sectors included: airports, cemeteries, religious institutions, parks and athletic fields, golf courses, county facilities and roadways, state highways, apartment complexes, lawn care firms, sod farms, single family residences, and schools.

Every effort possible was made to avoid duplication of reporting across sectors. For example: the sample of cemeteries only included public or private locations, while cemeteries located on church properties were included in the sample of religious facilities. Due to the difficulty involved in defining a population and building a list, "general areas" of business properties are not included in the survey data published in this document. Lawn care companies were asked to indicate what percent of their acreage maintained represented commercial business parks.

The following table provides sample sizes and final response rates by sector. Sector lists were assembled from a combination of industry mail lists, Internet sources, commercial mail lists, and the USDA's National Agricultural Statistics Service (NASS) list of agricultural producers. Sampled respondents were eligible for completing a survey form if they maintained or grew sod at some time during calendar 2005.

Sector	Sample Size	Response Rate
Airports	33	97.0%
Cemeteries	106	60.4%
Religious Institutions	604	49.8%
Parks/Athletic Fields	56	78.6%
Golf Courses	177	83.1%
County Government Facilities	23	39.1%
State Highways	1	100.0%
Apartments	900	29.6%
Lawn Care Firms	1,686	53.2%
Sod Farms	50	94.0%
Single Family Residences	5,500	17.3%
Schools	780	22.5%
TOTAL	**9,916**	

The survey was designed to provide coverage of as many government entities, residences, farms, and institutions as possible in an effort to describe the turfgrass industry in Maryland. Due to the difficulty of defining such a large complex population, there was no attempt to include general areas related to businesses, although lawn care firms were asked what percent of their business was related to service business accounts. In addition, there was no attempt to describe the amount of revenue generated through mass merchandisers ("box stores") or supply firms selling equipment or supplies; however, all sampled respondents were asked their expenditures on these items. Respondents were eligible for completing a survey form if they maintained or grew sod at some time during calendar 2005.

Data Collection

Survey respondents were sent an initial questionnaire in early January 2006 with non-respondents receiving a second request questionnaire around March 1, 2006. Selective telephone and field non-response follow-up occurred in May and June 2006 based on sectors that had lower response rates and sectors that represented less homogeneous populations (such as lawn care service firms). All respondents received survey publicity letters stressing the importance of this effort to the Maryland turf industry from the survey sponsor.

Data Validation and Analysis

All questionnaires were reviewed and validated to make sure the correct operation was reporting, for reasonableness of data, and for missing entries. Questionable reports were either re-evaluated or respondents re-contacted prior to final data analysis.

An operation reporting no turf or related expenditures was considered in-scope and counted as a "zero" report, if in fact they still were a member of the population (for example, a homeowner with no grass). If an operation was determined to be out-of-scope, they were removed from the population (for example, a business sampled as a lawn care firm that in fact does not do lawn care). An example of an "out of business" operation is a golf course that has closed and is no longer in business. In this case, the sampled golf course was left in the population to account for other "out of business" records.

Data were imputed for missing data cells if respondents were unable or unwilling to report specific items on the questionnaires. These data were imputed from ratios calculated from reported data on "usable" questionnaires, by sector. Following imputation, data were summarized with SAS (Statistical Analysis System) and weighted using calculated sampling weights. Additional detailed data analysis was conducted using NASS in-house developed software called the Interactive Data Analysis System (IDAS). This additional review provided a final step in ensuring that data were comparable, not only within a sector, but across all questionnaire versions.