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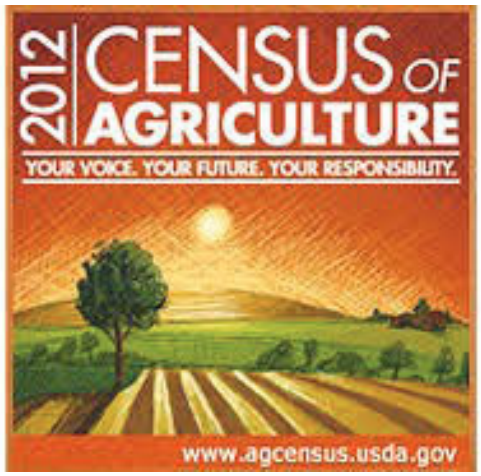
FE1001

What the 2012 Census of Agriculture Is Telling Us about Miami-Dade County[1]

Edward Evans and Fredy H. Ballen[2]

Introduction

The agricultural and food industry is an important contributor to Florida's economy, second only to tourism in terms of employment. In 2012, for instance, agricultural output was estimated at $141.8 billion (US dollars), accounting for 14.9% of the state's gross domestic product, and providing employment for 20.8% of the state's labor force (Hodges et al. 2014). The top three Florida counties in terms of value of agricultural products sold in 2012 were Palm Beach ($999 million), Miami-Dade ($604 million), and Hendry ($499 million) (FDACS 2016). Monitoring the performance of the sector over time is therefore of critical importance to various stakeholders.



Credits: USDA

Every five years, the USDA/NASS conducts the Census of Agriculture which provides detailed information on the US agricultural sector at the state and county level. The census collects information on about 70 indicators at the state level and about 55 indicators at the county level.

Both the private and public sectors benefit greatly from information contained in the Census of Agriculture. For example, agricultural input companies use Census data to plan their operations to better serve their customers; federal, state, and local governments use Census data to implement policies and programs to stimulate the rural economy; and farmers use the information in a variety of ways to assist them with their production and marketing plans. Moreover, although the Census is not a perfect indicator, examining the changes in Census data over time allows one to gain useful insight into some of the major trends and developments within the agricultural sector.

This document focuses on the Agricultural Census data for Miami-Dade County (MDC) and specifically examines trends over the 15-year period from 1997 to 2012 (using data from 1997, 2002, 2007, and 2012). The purpose is not to illustrate each and every one of the 55 indicators available at the county level, but rather to provide the reader with an overview of the trends in selected indicators from the Census. For a detailed list of the county-level indicators for Florida described in the Census, the reader may visit the USDA/NASS website at http://

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2. Edward Evans, professor, Food and Resource Economics Department; and Fredy H. Ballen, economic analysis coordinator; UF/IFAS Tropical Research and Education Center, Homestead, FL 33031. Tropical Research and Education Center, UF/IFAS Extension, Homestead, FL.

www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_2_County_Level/Florida/.

Value of Agricultural Outputs

Because of its subtropical climate, agriculture in Miami-Dade County is very diverse; for example, it includes nurseries, vegetables, tropical fruits, and livestock. In nominal terms, total sales of agricultural products grew by 57% over the 1997–2007 period, from $421.2 million to $661 million. Then things changed. By 2012, total sales had dropped to $604.2 million, about 9.4% less than in 2007 (Table 1). This decline was due to weak demand for nursery products after the Florida real estate crisis in 2007. On the bright side, increases in the sales of vegetables and tropical fruits helped to offset some of the reduction in sales experienced by nurseries in 2012.

Historically, nurseries have accounted for more than half of the total agricultural sales in Miami-Dade County. With the economic downturn in 2007, nursery sales declined 30% between 2007 and 2012, from $493.7 million to $380.5 million. Recovery for the nursery industry is a work in progress; sales in 2012 were still below the sales volume registered in 2002.

While the total number of vegetable farms in Miami-Dade County has declined by 77%, from 192 farms in 2002 to 108 farms in 2012, the value of vegetables sold has exhibited a more or less upward trend, with 2012 receipts of $136.7 million, representing an increase of 33% from 2002. One explanation for the increased value is the consolidation of vegetable production where higher production takes place in a smaller area. Consolidation allows MDC growers to remain profitable in a globally competitive market. In general, larger farms show better financial performance due to economies of scale and the ability to adapt to an increase in regulatory requirements and foreign competition.

Compared to nurseries and vegetable farms, fruit production in Miami-Dade County is the sector that experienced the highest sales growth during the 1997–2012 period. Fruit sales increased 3.5 times, from $20.6 million in 1997 to $73.7 million in 2012. At the same time, the number of fruit farms almost tripled, reaching 1,712 farms in 2012. As the US population continues to diversify and more people opt for healthier lifestyles and consume a broader array of foods, the demand for tropical and subtropical fruits produced in the United States is on the rise. Fruits once considered exotics such as avocados, pitaya, and guavas are now finding their way onto the shelves of more retailers.

Historically, Miami-Dade County has not engaged much in livestock production. While total sales of livestock and livestock products in Miami-Dade County have grown only slightly, from $9.4 million in 1997 to $11.9 million in 2012, there has been a substantial increase in the number of farms devoted to livestock production. The number of livestock farms increased 73% between 1997 and 2012, from 187 to 325 farms. Most of the new farms raise poultry, horses, and small ruminants.

With respect to certified organic production, the Census data between 2002 and 2012 showed a sharp decline in both the number of farms engaged in this activity as well as revenue generated in Miami-Dade County. The data revealed that in 2002 there were 36 certified organic farms in Miami-Dade County with sales valued at $1.9 million, whereas in 2012 the corresponding figures were 19 farms and $0.8 million, respectively. The reduction in the number of organic farms and revenue in Miami-Dade County is unsurprising given the increased competition from foreign organic suppliers. Foreign competition has led to a gradual reduction in the premiums once commanded by organic crops. This trend in Miami-Dade County is in contrast to organic production at the national level. The Organic Trade Association (OTA 2016) reported that consumer demand for organics at the national level increased tenfold, from $3.6 billion in 1997 to more than $39 billion in 2014. Besides foreign competition, another reason that MDC growers are struggling for market share is south Florida's warm tropical environment that is ideal for pests and diseases, thus considerably increasing the production costs for organics in the MDC area.

Turning attention now to sales of agricultural products through direct-to-consumer outlets (direct sales), the information presented in Table 1 shows a definite upward trend in the use of this marketing channel. The number of farms selling directly to consumers in 1997 was about 121; by 2012, the number had increased to 496 farms. Likewise, the value of agricultural products sold directly to consumers grew significantly, from $0.8 million in 2002 to $2.7 million in 2012, an increase of more than 200%. This trend is expected to continue aided by increased desire among consumers to know the source of their food and programs supporting the purchase of local food.

Sales Volume Distribution

Table 2 shows in detail the number of farms by sales volume for 1997, 2002, 2007, and 2012. Total sales is an important indicator of the evolution of the agricultural industry in Miami-Dade County. In addition, a look at farm sales

volume distribution offers an interesting insight in terms of revenue concentration. In 2012, 26.1% of MDC farms had a sales volume of up to $4,999, accounting for less than 1% of the total sales, and about 75% of the farms registered sales below $49,999, which accounted for less than 5% of the total sales. One possible explanation for this could be the fact that the MDC agricultural area is in close proximity to a major urban center (Miami). This allows people to experience the benefits of a rural lifestyle without losing the benefits of a large urban center, resulting in an increase in the number of hobby/lifestyle farms or agricultural landholdings for speculative real estate purposes.

In 2012, about 25% of MDC farms had sales above $50,000. As a group, these farms accounted for more than 95% of the total sales volume that year. At the upper end of the group, 188 farms (6.36 % of the total) had sales of $500,000 or greater, accounting for almost 83% of the total sales volume in 2012. However, revenue for this group was obtained mainly from nurseries which were hit hard as a result of the Florida real estate crisis; sales in 2012 were 16% below those in 2007.

Number of Farms and Acreage Used for Agriculture

Table 3 provides information regarding the number of farms and the amount of land in agriculture in Miami-Dade County over the four census periods between 1997 and 2012. There was a definite upward trend in the number of farms. Between 1997 and 2012, the number of farms rose by 56%, from 1,887 to 2,954 farms. This increase has been attributed to both an increase in the number of entrepreneurs interested in starting a farm business and individuals interested in a more rural lifestyle. Area dedicated to agricultural activities declined from 90,373 acres in 2002 to 67,050 acres in 2007 at the peak of the real estate boom, but then increased to 81,303 acres in 2012 as the pressure from real estate developers eased off. Compared to 1997, the combination of decreases in agricultural production and increases in number of farms implies a general reduction in the average size of landholdings. Of importance is the fact that the value of land in Miami-Dade County resumed an upward trend after the real estate bust in 2007. The estimated market value of land and buildings almost tripled between 1997 and 2012, from $690.1 million to $2.06 billion. This bodes well for farmers because land continues to be the most important asset on the farmer's balance sheet. The estimated market value of farm machinery and equipment reflects a similar trend to that observed with regard to land value, although the increase was not of the same magnitude.

Number of Farms by Size

Farm size distribution is presented in Table 4. Farms of 1 to 9 acres had the highest growth rate during the 1997–2012 period, growing by 76%, from 1,160 farms to 2,045 farms. The share of farms within this category accounted for 61% of total landholdings in 1997 and 70% in 2012. This is consistent with the observation made earlier that there has been a considerable increase in the number of hobby/lifestyle and small-scale farmers. In terms of area, small farms occupied about 7,400 acres, representing 9.01% of the 81,303 acres used for agriculture in 2012.

In contrast, the number of farms with over 500 acres in Miami-Dade County has declined from 43 (2.28%) farms in 1997 to 35 (1.19%) farms in 2012. Of significance is the fact that although the number of farms in this group has declined in nominal and relative terms, the acreage accounted for by this group has actually increased. Thus, whereas in 1997 the group accounted for 32,071 acres, or 37.9 % of total acres, in 2012 the corresponding figures were 35,904 acres and 44.2%, respectively. This implies that while fragmentation might be occurring at the lower levels, consolidation is taking place at the upper end of the farm size range. The data further suggest that larger farms that depend almost exclusively on sales of agricultural commodities as the main source of income are seeking a competitive advantage by exploiting economies of scale.

Farm Production Expenses

Information on production expenses is shown in Table 5. The data reveal that between 1997 and 2012, production expenses grew by 52%, from $287.4 million in 1997 to $436.9 million in 2012. Earlier it was shown that agricultural sales grew just 43% during the same period, implying that revenue growth has not kept pace with production expenses. Figure 1 shows the overall trend in sales and expenses. Thus, although production expenses declined in 2012 relative to 2007, the benefit of such a decline was outweighed by an even greater absolute decline in revenue. The declines recorded for expenses and revenue were $52.4 million and $56.8 million, respectively.

The top three costs for the MDC agricultural industry in 2012 included hired labor, representing 30.2% of the total cost, followed by chemicals (9.6%), and fertilizers (8.5%). Together, these three inputs accounted for 48.3% of the total production costs in 2012.

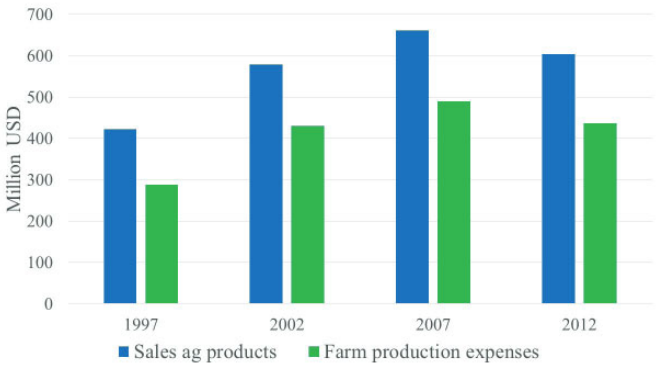

Figure 1. Sales of agricultural product vs farm production expenses in Miami-Dade County, 1997–2012

As is the case in other industries, labor accounts for a significant share of the production expenses in agriculture. Hired labor costs increased by 74.5%, from $88.3 million in 1997 to $154.1 million in 2007. Since then, there has been a shift from hired labor (employees) to contracted labor (service contractors). In 2012, hired labor costs had dropped by 16.7% and the cost associated with contract labor had increased by 49% ($16.5 million in 2007 vs $24.63 million in 2012).

After labor expenses, the cost of chemicals is next in importance. Chemical expenses grew by 123% between 1997 and 2012, from $18.8 million to $42 million. Because of the growing threat of pests and diseases to agriculture, the costs of chemicals in the MDC agricultural industry grew by 57% during this period.

Fertilizer expenses more than doubled between 1997 and 2012, reaching $37.5 million in 2012. However, the growth in fertilizer expenses was only 1.7% from 2007 to 2012. The deceleration in the growth rate is a reflection of the general decline in the price of fossil fuel, an important cost component in the manufacturing and transportation of fertilizers.

Information for other expenses—such as planting material, repairs and maintenance, and contract labor, along with their respective shares of the total production costs—is reported in Table 5.

Net Cash Farm Income

Table 6 shows that net cash farm income increased from $130.6 million in 1997 to $188.3 million in 2007 before dropping by 2.7% to $183.3 million in 2012. On the positive side, the number of farms with net gains increased from 825 farms in 1997 to 1,703 farms in 2012. On the negative side, the number of farms that registered net losses over the same period increased by 45%, from 753 farms in 1997 to 1,251 farms in 2012. The size of the net losses increased by a factor of 6, from $8.3 million in 1997 to $51.3 million in 2012. For the 2012 census, 58% of the farms had positive net gains. Although total net gains far outstripped total net losses, the losses experienced by some is a reminder that there are many risks involved in agricultural operations.

Farm Operator Demographics

Demographics of landownership patterns, and primary occupation and sex of the farm operator are shown in Table 7. Landownership is a key indicator for designing policies related to farm credit, land-use, and conservation. While the number of operating farms has been on the rise, the acreage used for agricultural activities fluctuated during the 1997–2012 period. Area devoted to agriculture dropped substantially in 2007, with just 67,050 acres being used for agriculture (35% drop compared to 90,373 acres in 2002). This noticeable drop in acreage coincided with the real estate boom. By 2012, 81,303 acres were being used for agricultural production which, although still below the 90,373 acres that was used for agriculture in 2002, represents a gain for agriculture.

The number of farm operations with full ownership has followed a positive trend, growing by 67%, from 1,524 farms in 1997 to 2,546 farms in 2012. However, while the number of farm operations that own land grew substantially over the period, the acreage decreased from 31,527 in 1997 to 30,615 in 2012, implying smaller average size per landholder. In contrast, the number of farm operations with part ownership grew from 159 farms in 1997 to 197 farms in 2012, but the acreage increased noticeably from 24,325 acres to 34,931, respectively. This signifies the relatively high cost of farmland in Miami-Dade County. Farmland leases followed a downward trend, declining from 29,224 acres in 1997 to 6,853 acres in 2007. However, by 2012, land leases rose appreciably to 15,757 acres, but this was still only about half of the acreage that was leased in 1997.

Interest in farming is growing, with the number of operators listing farming as their primary occupation increasing by 74%, from 960 full-time operators in 1997 to 1,670 full-time operators in 2012. MDC agriculture is also viewed as an interesting secondary (part-time) occupation or as an additional source of income. The number of part-time farmers (farm operators that farm as a secondary occupation) showed a steady 39% increase over the period, from 927 in 1997 to 1,284 in 2012. Off-farm income compensates for downturns in agriculture, thus saving farms. Whether this trend continues will depend on farmers' resources for combating invasive species (pests amd diseases).

Although farming in Miami-Dade County continues to be a male-dominated activity the gender gap is narrowing. Between 1997 and 2012, the number of male farm operators grew by 47%, from 1,636 in to 2,408. In comparison, during the corresponding period, the number of female farm operators has grown by more than 117%, from 251 to 546. Thus, whereas in 2007 female-operated farms accounted for about 18.48% of all farm operators, by 2012 their share had increased to almost 20%.

Concluding Remarks

The aim of this publication is to highlight some of the major trends occurring in the Miami-Dade County agricultural sector as revealed by data provided by the US Agricultural Census for the 1997–2012 period. In general, the data show that in spite of challenging times, the agricultural industry has remained important, contributing $604 million to the Florida economy in 2012.

There has been a noticeable increase in the number of small farms, as well as changes in the distribution of landholdings, specifically for farms of 1 to 9 acres in size in Miami-Dade County. On the one hand, agriculture in this area is becoming a viable secondary source of income because of its proximity to the Miami urban area due to farming operations or as speculation for future land value appreciation. On the other hand, small farm operations without the required financial resources or technical expertise to control pest or disease outbreaks may harm commercial operations.

The environmental horticulture ("green") industry is and will continue to be the leading sales segment in MDC agriculture despite major setbacks in the first decade of the twenty-first century. Although the nursery industry has not yet fully recovered, prospects seem good given that this industry can operate year-round and has little foreign competition. Also, the construction industry is rebounding, which privides more customers to the nursery industry. One interesting development is that many of the small-scale farm operators are now joining forces (becoming suppliers) with large-scale farm operators as a means of remaining financially viable.

Vegetable production will continue to face tough times because of intense foreign competition and the fact that production costs are not expected to decrease despite an overall drop in fertilizer and energy costs. A combination of the shortage of undocumented workers, increases in minimum wages, and competition for labor from the construction and hospitality industries is driving up the cost of agricultural labor which is a major cost component of agricultural production expenses. To combat this trend, significant numbers of farms have been consolidating, a practice that has successfully increased vegetable sales volume. In addition several vegetable operations are relocating their farm operations farther north where land, labor, and housing are more affordable, thus enabling the industry to remain viable. This trend is expected to continue within the vegetable industry.

In contrast to vegetable production, tropical fruit production is expected to continue growing, fueled by consumers seeking healthier lifestyles and a broader array of foods in their diet. In this regard, the best prospects are for those exotic tropical fruits that can be grown locally and those with limited foreign competition. The main concern for the tropical fruit industry is finding a cost-effective treatment for eradicating laurel wilt disease which has caused the death of thousands of avocado trees (1.5% of avocado acreage) in south Florida, especially given that this crop accounts for more than half the total acreage occupied by the MDC tropical fruit production.

Notwithstanding, there are concerns regarding the long-term viability of the MDC agricultural industry. Profit margins have declined and production costs have outpaced revenue growth, resulting in some growers exiting the industry. Other major problems are foreign competition and invasive species (pests and diseases). Only time will tell what the future holds for Florida agriculture.

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Table 1. Market value of agricultural products sold, Miami-Dade County, 1997–2012 ($1,000)

		Year			
		1997	2002	2007	2012
Total sales	Farms (#)	1,887	2,244	2,498	2,954
	Sales ($1000)	421,279	578,000	661,100	604,237
Nursery, floriculture	Farms (#)	N/A	714	838	952
	Sales ($1000)	N/A	434,410	493,710	380,481
Vegetables	Farms (#)	N/A	192	156	108
	Sales ($1000)	N/A	102,592	127,774	136,676
Fruits	Farms (#)	668	1,122	1,354	1,712
	Sales ($1000)	20,598	35,826	(D)	73,687
Livestock	Farms (#)	187	199	293	325
	Sales ($1000)	9,370	4,650	(D)	11,971
Certified organic production	Farms (#)	N/A	36	31	19
	Sales ($1000)	N/A	1,946	495	854
Direct sales to consumers	Farms (#)	121	221	295	496
	Sales ($1000)	1,589	803	1,913	2,727

(D) Withheld to avoid disclosing data for individual farms.
N/A Data not available.

Table 2. Number of farms by sales volume, Miami-Dade County, 1997–2012

		Year				% of farms	% of sales
		1997	2002	2007	2012	2012	2012
Total sales	Farms (#)	1,887	2,244	2,498	2,954	—	—
	Sales ($1000)	421,279	578,000	661,100	604,237	—	—
Up to $4,999	Farms (#)	837	776	861	771	26.10	—
	Sales ($1000)	884	1,018	1,828	1,446	—	0.24
$5,000–$9,999	Farms (#)	176	223	351	456	15.44	—
	Sales ($1000)	1,217	1,551	2,519	3,186	—	0.53
$10,000–$19,999	Farms (#)	176	287	354	535	18.11	—
	Sales ($1000)	2,494	3,907	4,927	7,283	—	1.20
$20,000–$49,999	Farms (#)	196	383	324	473	16.01	—
	Sales ($1000)	6,242	11,967	9,703	14,611	—	2.41
$50,000–$99,999	Farms (#)	127	170	151	245	8.30	—
	Sales ($1000)	8,796	12,204	10,460	16,743	—	2.77
$100,000–$249,000	Farms (#)	132	121	185	189	6.40	
	Sales ($1000)	20,104	18,616	27,825	28,495	—	4.72
$250,000–$499,000	Farms (#)	76	112	71	97	3.28	—
	Sales ($1000)	26,027	38,071	24,662	33,460	—	5.53
$500,000 or more	Farms (#)	167	172	201	188	6.36	—
	Sales ($1000)	355,514	490,666	579,176	499,013	—	82.60

Table 3. Number of farms and estimated market value, Miami-Dade County, 1997–2012

		Year			
		1997	2002	2007	2012
Farms	(number)	1,887	2,244	2,498	2,954
Land	(acres)	85,076	90,373	67,050	81,303
Value of land & buildings	($1,000)	690,116	1,224,093	1,853,814	2,060,994
Value of machinery & equipment	($1,000)	84,583	96,486	113,216	140,741

Table 4. Distribution of farms by size, Miami-Dade County, 1997–2012

Size	Year							
	1997		2002		2007		2012	
	Farms	%	Farms	%	Farms	%	Farms	%
1–9 acres	1,160	61.47	1,423	63.41	1,777	71.14	2,045	69.23
10–49 acres	520	27.56	587	26.16	552	22.10	697	23.60
50–179 acres	107	5.67	124	5.53	96	3.84	119	4.03
180–499 acres	57	3.02	77	3.43	51	2.04	58	1.96
> 500 acres	43	2.28	33	1.49	22	0.88	35	1.19
Total	1,887	—	2,244	—	2,498	—	2,954	—

Table 5. Farm production expenses, Miami-Dade County, 1997–2012 ($1,000)

		Year				% of cost
		1997	2002	2007	2012	2012
Total expenses	Farms (#)	1,897	2,244	2,498	2,954	—
	($1,000)	287,400	430,425	489,314	436,927	—
Hired labor	Farms (#)	862	749	982	1,318	—
	($1,000)	88,377	158,626	154,160	132,061	30.2
Chemical	Farms (#)	1,369	1,801	1,657	2,155	—
	($1,000)	18,867	22,345	30,897	42,014	9.6
Fertilizer	Farms (#)	1,589	1,942	2,150	2,041	—
	($1,000)	17,430	24,682	36,547	37,152	8.5
Planting material	Farms (#)	694	1,288	1,031	1,009	—
	($1,000)	26,518	82,162	96,082	35,151	8.0
Repairs & maintenance	Farms (#)	1,318	2,102	2,318	2,272	—
	($1,000)	12,272	30,048	28,112	31,136	7.1
Contract labor	Farms (#)	529	736	552	714	—
	($1,000)	20,538	17,888	16,505	24,638	5.6

Table 6. Net cash farm income, Miami-Dade County, 1997–2012, ($1,000)

		Year				% of farms
		1997	2002	2007	2012	2012
Net cash farm income	Farms (#)	1,897	2,244	2,498	2,954	—
	($1,000)	$130.6	$153.0	$188.3	$183.3	—
Farms with net gains	Farms (#)	825	1,315	1,248	1,703	57.6
	($1,000)	$138.9	$170.1	$230.1	$234.7	—
Farms with net losses	Farms (#)	753	929	1,250	1,251	42.4
	($1,000)	$8.3	$17.0	$41.8	$51.3	—

Table 7. Landownership patterns, primary occupation of the farm operator, and sex of the operator, Miami-Dade County, 1997–2012

	Number	Year			
		1997	2002	2007	2012
Land in farms	Farms	1,887	2,244	2,498	2,954
	Acres	85,076	90,373	67,050	81,303
Full owners	Farms	1,524	1,947	2,112	2,546
	Acres	31,527	48,149	29,572	30,615
Part owners	Farms	159	163	217	197
	Acres	24,325	28,162	30,625	34,931
Tenants	Farms	204	134	169	211
	Acres	29,224	14,062	6,853	15,757
Primary occupation	Farming	960	1,152	1,266	1,670
	Other	927	1,092	1,238	1,284
Sex of the farm operator	Male	1,636	1,884	2,038	2,408
	Female	251	360	460	546