MEMORANDUM

AGENDA ITEM #IV.E

DATE: MARCH 18, 2024

TO: COUNCIL MEMBERS

FROM: STAFF

SUBJECT: AGRICULTURAL LAND USE TRENDS IN MIAMI-DADE COUNTY PRESENTATION

"Evaluation of Agricultural Land Use Trends and Outlook in Miami-Dade County, Florida" Report, Miami-Dade County BCC Resolution R-423-2022

On May 3, 2022, the Miami-Dade County Board of Commissioners authorized execution of an Interlocal Agreement between Miami-Dade County and the University of Florida to conduct a study and prepare a report that:

- provides an overview of agriculture in Miami-Dade County;
- documents the importance of agriculture to Miami-Dade County and beyond;
- documents economic trends associated with major agriculture crops;
- identifies major factors affecting the profitability and sustainability of agriculture;
- identifies and evaluates emerging technological changes that may help or harm agriculture;
- provides recommendations to improve the economic sustainability of agriculture; and
- projects future agricultural land use needs in the years 2030, 2040, and 2050.

As stated in Mayor Levine Cava's October 10, 2023 Memorandum to Chair Gilbert and the Members of the Board of County Commissioners, a key finding of this study is that Miami-Dade County is "approaching a critical point with the respect to the amount of agricultural land needed to sustain a viable industry."

The Strategic Regional Policy Plan for South Florida

The *Strategic Regional Policy Plan for South Florida (SRPP)* contains 22 goals that reflect the priority issues of the Region. These issues, including affordable housing, school facilities, transportation, natural resources, emergency planning, and rural and agricultural lands, are addressed in the context of the SRPP's supporting values: *Sustainability, Connectivity, and Responsibility.* Indicators and targets are

provided for each goal to help determine progress, identify opportunities for improvement and collaboration, and recognize regional success. The *SRPP* provides the policy foundation which is the basis of the Council's review and comments of Comprehensive Land Use Plan Amendments. Of relevance to today's presentation on Agricultural Lands, SRPP Goal 12 encourages the retention of the Region's rural lands and agricultural economy.

Rural & Agricultural Lands
Goals & Policies

Goal 12 Encourage the retention of the Region's rural lands and agricultural economy.

Development Patterns

Policy 12.1 Maintain the character of rural and agricultural areas by encouraging compatibility of adjacent land uses.

Policy 12.2 Encourage the environmental compatibility of rural and agricultural lands through such means as best management practices for stormwater runoff.

Policy 12.3 Discourage the expansion of urban service areas into agricultural lands except: 1) when the expansion is necessary to accommodate projected population growth; and 2) when the development densities will be sufficient to support public transportation.

Policy 12.4 In the event that land is converted from agriculture to urban uses, local governments should discourage sprawl development patterns and require urban design and density necessary to support pedestrian-orientation, public transportation, and the efficient provision of other infrastructure.

Agricultural Competitiveness

Policy 12.5 Promote the local agricultural economy by:

a. developing cooperative value-added processing activities for locally-grown produce;
b. establishing a brand identity for locally grown and processed goods;
c. promoting farmer's markets in each of our Region's urban centers;
d. marketing local brands to the Region's restaurants and tourist destinations; and
e. supporting the establishment of a County Farmbudsman position to assist in these endeavors;
f. utilizing Best Management Practices in agricultural activities.

Please find in the following pages, Mayor Levine Cava's Memorandum to Chair Gilbert and the Miami-Dade Board of County Commissioners as well as the Executive Summary of the aforementioned study. A full copy of the 400+ page Study can be accessed at the Council's Public Share Point https://sfrpc.sharepoint.com/:f:/s/public/EiGRKQ_3FV5DsVBXj495qKgBa2MEwfDNA6ws7y7Wm7M34g

Recommendation: Information Only.

Memorandum

MIAMI-DADE COUNTY

Date: October 10, 2023

To: Honorable Chairman Oliver G. Gilbert, III
and Members, Board of County Commissioners

Agenda Item No. 2(B)(5)
December 12, 2023

From: Daniella Levine Cava
Mayor

Subject: "Evaluation of Agricultural Land Use Trends and Outlook in Miami-Dade County, Florida" Report, Resolution R-423-2022

Executive Summary

On May 3, 2022, the Board of County Commissioners (Board) adopted Resolution No. R-423-22 authorizing execution of an Interlocal Agreement (ILA) between Miami-Dade County and the University of Florida (UF) to conduct a study and prepare a report that:

- provides an overview of agriculture in Miami-Dade County;
- documents the importance of agriculture to Miami-Dade County and beyond;
- documents economic trends associated with major agriculture crops;
- identifies major factors affecting the profitability and sustainability of agriculture;
- identifies and evaluates emerging technological changes that may help or harm agriculture;
- provides recommendations to improve the economic sustainability of agriculture; and
- projects future agricultural land use needs in the years 2030, 2040, and 2050.

The attached report, "Evaluation of Agricultural Land Use Trends and Outlook in Miami-Dade County, Florida" (The Study), finds that we are approaching a critical point with respect to the amount of agricultural land needed to sustain a viable industry.

Miami-Dade County is one of very few areas in the United States with year-round growing conditions enabling production of fruits and vegetables in the winter and production of certain ornamental plants and tropical crops. About 89 percent of the County's agricultural products are shipped out of the region to markets in the northeast and central U.S. and Canada, bringing new dollars into our economy that stimulate local economic activity. Our agricultural area is designated by the United States Department of Agriculture (USDA) as having soils of unique importance, meaning that they are capable of sustainably producing high value crops under appropriate management. Miami-Dade ranks first in the U.S. in production of ornamental plants and second in Florida in overall farm production value. In 2021, economic contributions of agriculture and related industries included 12,836 full-time and part-time jobs and $1.6 billion in industry output or sales revenues.

The Study estimates that a minimum of 64,800 acres will be needed in 2030, 60,900 acres will be needed in 2040, and 56,300 acres will be needed in 2050 to maintain an economically viable agricultural industry in Miami-Dade. The County had 58,606 acres Classified as agriculture for tax exemption purposes (Agriculture Classified) by the Property Appraiser in 2017 (the year of the most recent Census of Agriculture) then representing 74.6 percent of the total 78,543 acres identified as agriculture land in the Census, which also includes land not eligible for tax exemption and land where the owner did not request the exemption. As of September 2023, the County had a total of 52,630 acres of Agriculture Classified lands. Based on prior Census reports and available Property Appraiser data, approximately three-quarters (75%) of the Census of Agriculture-identified agriculture land area is Agriculture Classified by the Property Appraiser, which infers that about 69,844 acres of agricultural lands are in the County as of September 2023, based on the current 52,630 acres of agriculture classified lands.[1] **This represents a reduction of over 10% in total agricultural**

[1] Within the Census of Agriculture-identified agricultural lands, non-commercial pastures, environmentally protected areas within farms, farm residences and farmworker housing, landscaped areas surrounding farms, etc. are examples of land uses that do not qualify for the Property Appraiser's Agriculture Classification, which substantially accounts for why Agriculture Classified lands

land (as defined by the Census) over the last 6 years. ***If this trend continues over the next few years, the County will be below the projected minimum acreage estimate of 64,800 needed by the year 2030.***

For reference, the Comprehensive Master Development Plan (CDMP) adopted 2030 and 2040 Land Use Plan map designates a total roughly 69,072 acres for the future land use category of "Agriculture", including 1,183 acres inside the Urban Development Boundary (UDB) in "Horse Country" and 67,889 acres outside the UDB. This number does not include the approximate 400 acres pending removal from designation for the Aligned application. It is worthwhile to note that there are multiple existing farms and agricultural operations currently inside the UDB on lands that are not designated "Agriculture" by the CDMP but that are instead designated for urban development.

The Study further makes a series of recommendations to improve the viability and sustainability of agriculture, summarized below, including maintaining CDMP policies to protect farmland, limiting expansions of the UDB to Urban Expansion Areas when warranted after the year 2030 or to areas unsuitable for agriculture or environmental protection, and taking steps to support and promote agriculture through lobbying for state land policies, enabling urban farming in developed areas, carefully managing agritourism, and more.

Methodology

The Study examined available data as well as information about emerging technologies with the intention to help shape policy needed to maintain the County's viable agriculture and help the agricultural industry to prosper. The Study also made extensive use of industry-leading modeling techniques to forecast future conditions. Additional research included interviews with 74 industry stakeholders and four focus groups.

Relationship to the Comprehensive Development Master Plan (CDMP)

Miami-Dade County has long supported agriculture as a viable economic use of suitable lands through the CDMP. Specifically, CDMP Policy LU-1R states, in part, that the County shall take steps to reserve the amount of land necessary to maintain an economically viable agricultural industry. Policy LU-1S lists protection of viable agriculture and environmentally sensitive land as a key outcome for the Miami-Dade County Strategic Plan. Furthermore, Policy LU-8C states: "through its planning, capital improvements, cooperative extension, economic development, regulatory and intergovernmental coordination activities, Miami-Dade County shall continue to protect and promote agriculture as a viable economic use of land in Miami-Dade."

The CDMP Interpretive Text for Agriculture (page I-70 of the Land Use Element) explains that the area of the County designated as "Agriculture" contains the best agricultural land remaining in Miami-Dade County while providing that land uses incompatible with agriculture and uses and facilities that support or encourage urban development are not allowed in the agricultural area.

Study Findings and Recommendations

The study describes the agriculture industry, forecasts its future conditions, and makes recommendations towards maintaining a viable agricultural industry. Highlights of the forecasts and recommendations are outlined below.

historically represent 75% of the total agriculture lands. To obtain the Agriculture Classification, a property owner needs to voluntarily apply and provide evidence that the property in question, or a portion of that property, is specifically engaged in commercial agricultural production.

Needed Agriculture Land Area Forecasts

The Study used a combination of statistical and economic models to project the future land area that is needed to ensure adequate amounts of farmland for a viable agriculture industry. This resulted in a consensus estimate that 64,800 acres will be needed in 2030, 60,900 acres will be needed in 2040, and 56,300 acres will be needed in 2050. These projections represent the minimum acreage required to meet demand for agricultural production, including farmland and uses directly supportive of agriculture, without compromising the viability of the industry.

According to the 2017 USDA Census of Agriculture, The County had 78,543 acres (both inside and outside the UDB), including cropland for vegetables (38%), nursery-floriculture (35%), and fruit orchards (27%), as well as farm buildings and other supporting service areas. From 1997 through 2017, total farmland area decreased by 6.2 percent – but 10% over just the last 6 years. Agriculture land has declined throughout the County's history, from over 120,000 acres across Miami-Dade in 1959.

Loss of farmland is a national and a local issue. From 2001 to 2016 over 11 million acres of farm and ranchland throughout the United States were lost to development, including 299,000 acres in Florida, representing 3.4 percent of the State's total farmland. Significantly, Miami-Dade County has had the lowest percentage of agricultural land loss among the ten largest metropolitan counties in the nation, except for Kings County/Brooklyn, NY, which has no discernable agriculture. Between 1997 and 2017, while the County lost 6.2% of its farmland, other large metropolitan counties had losses of 29.7 to 71.8 percent. This finding indicates that the County's land use policies, including the Urban Development Boundary (UDB), have been effective in limiting the loss of agricultural land as compared with peer counties around the nation.

When farmland is converted to development, it is nearly impossible to return it back to agriculture. Loss of the agriculture area's soils of unique importance would negatively impact agricultural industry viability. The forecasted amounts needed for agriculture for the years 2030, 2040, and 2050 are necessary for a viable agricultural industry in Miami-Dade County and to maintain one of the few tropical farming areas within the United States. The Study provides guidance for various policies that can be developed to ensure that agriculture remains viable and that tropical agriculture continues to exist in the continental United States.

Recommendations to Improve the Economic Sustainability of Agriculture

The Study recommends that the County maintain the CDMP policies to protect farmland, and that future expansions of the UDB be limited to Urban Expansion Areas or to areas unsuitable for agriculture or environmental protection because of soil types or environmental factors. It also recommends that the County focus agricultural lobbying efforts on the promotion of state land policies, national trade policies, and immigration and guest worker policies to support reduced production costs, agriculture trade, and a viable workforce. The County is also encouraged to continue to work with agriculture-related local institutions to support education, technology development, marketing, succession planning, and risk management for the industry. Coordination with environmental agencies is also important to protect farmland from sea level rise and saltwater intrusion. The Study also recommends further enabling urban farming in developed areas, promotion and marketing of local agriculture products in the County, and carefully managing agritourism. Land use policies to further facilitate development of agricultural worker housing would improve workforce availability.

In accordance with Ordinance No. 14-65, this report will be placed on the next available Board meeting agenda. If additional information is needed, please contact Lourdes Gomez, Director, Department of Regulatory & Economic Resources.

Attachment

c: Geri Bonzon-Keenan, County Attorney
Gerald Sanchez, First Assistant County Attorney
Jess McCarty, Executive Assistant County Attorney
Office of the Mayor Senior Staff
Lourdes M. Gomez, Director, Department of Regulatory and Economic Resources
Jerry Bell, Assistant Director, Department of Regulatory and Economic Resources
Jennifer Moon, Chief, Office of Policy and Budgetary Affairs
Yinka Majekodunmi, Commission Auditor
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Evaluation of Agricultural Land Use Trends and Outlook in Miami-Dade County, Florida

Final Report

Prepared for Miami-Dade County Board of County Commissioners and Department of Regulatory and Economic Resources

Prepared by University of Florida-Institute of Food and Agricultural Sciences (UF/IFAS)
Food and Resource Economics Department, Gainesville, FL
Tropical Research and Education Center, Homestead, FL
Southwest Florida Research and Education Center, Immokalee, FL
September 29, 2023

UF IFAS
UNIVERSITY of FLORIDA

MDC005

Executive Summary of Final Report: Evaluation of Agricultural Land Use Trends and Outlook in Miami-Dade County, Florida

Prepared for Miami-Dade County Board of County Commissioners and Department of Regulatory and Economic Resources

By The University of Florida-Institute of Food and Agricultural Sciences, Food and Resource Economics Department, Tropical Research and Education Center, and Southwest Florida Research and Education Center

September 29, 2023

Study Scope and Methods. This study assessed the current situation, trends, threats, and the long-term economic outlook for agriculture in Miami-Dade County, Florida. It also projected future agricultural land needs to maintain a viable industry in years 2030, 2040 and 2050. Investigators used a wide variety of published data sources, individual and group interviews with local stakeholders, and economic and physical models. The study updates a previous economic and land use assessment conducted in 2001-2002. Information was compiled on County population and demographics; the local economy; number of farms, farm sales, employment, and worker earnings; farm operating income, expenses, net income, and return on assets; regional economic contributions; agricultural land use and farmland loss; the emerging aquaculture industry; local and direct marketing and agritourism. A previous study that surveyed County residents regarding willingness to pay for protection of agricultural lands was also summarized. Potential threats confronting the agricultural industry addressed in the report include climate change and sea level rise, import competition, increasing production costs, invasive pests and diseases, water supply, workforce availability, urban development, weather hazards, market disruptions, financial risk, and government policies. Climate, sea level and groundwater models were used to predict the effects of sea level rise on groundwater levels and quality. The profitability and risk of representative agricultural commodities were evaluated with budget data. Emerging agricultural technologies for specialty crop production were considered for their potential to reduce labor, increase efficiency, and improve management and profitability. A regional economic model (IMPLAN) for the County was used to estimate the current economic contributions of agriculture arising from interactions with other industry sectors and employee households. A separate economic model (REMI) was used to forecast the economic impacts of projected population growth to the year 2050 and assess the effects of various positive and negative scenarios for the agricultural industry in the future. Agricultural land use in the County was projected for the years 2030, 2040, and 2050 using various statistical and economic models.

Aerial view of farmland in Miami-Dade County, showing the patchwork of different types of nurseries, tropical fruit orchards, and field crops. Source: Miami-Dade County.

Description of the County. Miami-Dade County is very diverse, with over 50 percent of the population being foreign-born, 75 percent speaking languages other than English at home, and nearly 70 percent identifying as Hispanic/Latinx, with a strong social and cultural identity around immigrant communities from Latin America and

the Caribbean. The local economy is a mix of basic and service industries, including agriculture, construction, real estate, transportation, and travel/tourism. The County is a major commercial center for global trade and a destination for domestic and international tourism. The economy continues to grow significantly faster than the rest of the United States in terms of population, employment, and Gross Domestic Product (GDP). Population is projected to grow from around 2.66 million currently to 3.29 million in 2050.

The County has strong land use planning policies to manage urban development and conserve farmland and open space through the Urban Development Boundary and other planning policies, which concentrate housing and non-agricultural commercial activity in urban areas. These policies have resulted in the lowest percentage of farmland loss among the ten largest U.S. metropolitan counties during 1997-2017.

Topic 1 -- Overview of Agriculture. Miami-Dade County has a long history of agriculture dating back to the late 1800s. It is one of only a few areas in the United States with an extremely mild subtropical winter climate and year-round growing conditions for production of fruits and vegetables for the wintertime market, along with production of ornamental plants and tropical crops not otherwise domestically available. About 89 percent of County agricultural products are shipped out of the region to markets in the northeast and central U.S. and Canada, bringing new dollars into the local economy that stimulate additional economic activity. A large area of the County is designated as having soils of unique importance for agriculture in the state, meaning that they are capable of sustainably producing high value crops under appropriate management.

Historic photo of papaya grove in Miami-Dade County. Source: University of Florida-IFAS, Smathers Archives.

According to the 2017 USDA Census of Agriculture, the County had 2,752 farms, total farm sales of $830 million, 78,543 acres of farmland, and $3.25 billion in farm assets. Farmland acreage has slowly declined from over 120,000 acres in 1959. The primary agricultural products are nursery/floriculture plants (83% of total value), vegetables (11%), and tropical fruits (5%). The County is ranked first in the U.S. in production of ornamental plants, and second in the State of Florida in terms of overall farm production value. The agricultural industry is increasingly concentrated in the nursery/floriculture sector. Nursery/floriculture is closely allied with the landscape services industry to maintain the lush, tropical appearance of the area that attracts visitors to the County. Livestock and animal products are a relatively small part of agriculture currently, but development of a large salmon aquaculture facility could be a significant economic contributor in the future. Intensive recirculating aquaculture systems land area requirements would not materially affect the overall demand for land.

In 2021, farm income in the County from product sales, inventory growth, government payments, and other non-operating income sources was $950 million, with production expenses of $905 million, and net farm income of $45.6 million, representing an operating margin of 4.8 percent (U.S. Department of Commerce, Bureau of Economic Analysis). Farm operating margins historically averaged around 30 percent, but reduced profits in 2021 were due to lower revenues and significantly higher production expenses, associated with the Covid-19 pandemic. The rate of return on farm assets calculated from various sources was 7.7 percent in 2017. In 2021, employment in agriculture

and related sectors averaged 8,872 full-time and part-time jobs, representing an increase of 6.6 percent since 2001. Total salaries and wages paid to agriculture workers was $302 million in 2021, an increase of 47 percent since 2001 in inflation-adjusted terms (U.S. Bureau of Labor Statistics).

Topic 2 -- Importance of Agriculture. Total economic contributions of agriculture and related natural resource industries in the County in 2021 were 12,836 full-time and part-time jobs, $1.555 billion in industry output or sales revenues, $902 million in value added (GDP), and $183 million in local, state, and federal government tax revenues. Economic contributions included activity generated in other sectors through supply chain spending (indirect multiplier effects) and employee household spending (induced multiplier effects) estimated by the IMPLAN regional economic model. GDP contributions of agriculture increased 14 percent during 1998-2021. Agricultural sales have increased in inflation-adjusted terms, but the industry now represents a smaller share of employment and GDP in the local economy than in 2001 due to rapid growth in other sectors and urbanization of the County.

Topic 3 -- Trends in the Agricultural Industry. Nursery/floriculture production in the County has expanded rapidly over the past 20 years, while tropical fruits have increased slightly, and vegetables have declined significantly. Agricultural industry production and investment in the County is expected to continue increasing in the future, although at rates less than historically seen, due to market forces and other factors. Agricultural land use intensity will also continue increasing due to adoption of improved technology, improved management and production practices, and changes in crop mix, leading to higher value per acre and lower land requirements per unit of production. Profitability of agriculture is highly volatile and appears to be slowly declining due to increasing production costs and stable or declining product prices in inflation-adjusted terms.

Photo of ornamental bromeliad plants growing in a nursery shade house in Miami-Dade County. Source: University of Florida-IFAS.

Agritourism in the County has rapidly grown, capitalizing on the unique agricultural systems and large numbers of domestic and international visitors seeking nature-based experiences; however, no documented data is available on overall value. Additionally, local food systems can be significantly more developed to take advantage of the abundance of fresh produce and support regional food security.

Interviews and focus groups with over 70 stakeholders revealed optimism about the future of the nursery/floriculture industry which has shown robust growth, but pessimism about the fruit and vegetable industries that are threatened by import competition, rising production costs, and labor issues. Stakeholders foresee a future with many smaller farm operations producing more specialized crops. Many stakeholders expressed frustration that there is a lack of awareness and support for agriculture in the County, and indicated that myriad overlapping local, state, and federal regulations hamper profitability and competitiveness.

Topic 4 -- Factors Affecting Profitability and Sustainability of Agriculture. Among threats to agriculture in the County, specialty crop industries are challenged by pests and diseases, import competition, increasing production costs, and high debt loads that present financial risk from changes in market interest rates and macroeconomic conditions. Imported agricultural products, particularly from Mexico, reduce domestic prices and pose a dire threat to the U.S. fruit and vegetable industries. Phytosanitary regulations prohibiting import of live plants in soil media

effectively protect domestic nursery producers from foreign competition, which is one reason that this industry has thrived.

Agricultural production costs in the County increased 42 percent during 2001-2021 in inflation-adjusted terms, exceeding overall growth in the U.S. economy. The combined effect of rising costs and declining farmland acreage increased the average expense per acre by 63 percent between 2012 and 2017. Increasing costs for agriculture in the County are comparable to U.S. agriculture generally.

Public groundwater withdrawals in the County are declining in total quantity and per capita, and water demand for agricultural irrigation is projected to decline in the future due to improvements in water use efficiency. Saltwater intrusion into the Biscayne Aquifer will accelerate due to rising sea levels, especially in coastal areas of the County.

Workforce availability for agriculture is complicated by low compensation rates, difficult working conditions, high cost of living, and lack of affordable housing. Nearly one half of agricultural workers in the U.S. are undocumented immigrants, according to farm worker surveys. Use of foreign workers under the H-2A Temporary Agricultural Workers visa program has remained relatively low in the County due to higher wage rates and requirements to provide worker housing and transportation; however, it is likely that agricultural producers will increase their use of H-2A workers to meet needs in the future. Labor markets in Florida are very uncertain because of recent state policy changes to enforce federal immigration law.

The County frequently experiences hurricanes, tropical storms, and other severe weather events that can disrupt the agricultural industry, in some cases for years. Hurricane Andrew in 1992 caused significant losses of agricultural products and infrastructure, and led to massive recovery, reinvestment, and rebuilding in the County. Projections show that even higher losses would occur today if a Category 5 hurricane struck the County, because of the more intensive production systems and structures at risk.

Global climate models downscaled to 35 local weather stations predict that average temperatures in the County will increase 1.5 to 1.8 degrees Celsius (2.7 to 3.2 degrees Fahrenheit) by the year 2050, and precipitation will be more variable, with more frequent droughts and flooding, although there is no discernable trend in overall annual amounts. The increase in temperatures could lead to loss of the County's comparative advantage for production of subtropical crops as other areas of Florida and the U.S. become suitable for these crops; however, the County may become more suitable for other truly tropical crops. Sea level rise will elevate groundwater levels and cause more seasonal flooding of agricultural lands, leading to increased losses of field crops and perennial orchards; however, nursery plants in above-ground benches and containers may not be as affected. In addition, seawater intrusion into the Biscayne aquifer may render groundwater unusable for irrigation in areas near the coast, although it is not expected to impact the agricultural areas located farther from the coast until after the year 2100.

Topic 5 -- Agricultural Technology. Emerging agricultural technologies – such as artificial intelligence, smart sensors, robotics, mechanical harvesters, and whole farm information systems – may help reduce product losses, reduce labor and chemical requirements, and control input costs; however, capital costs, efficiency improvements, and farmer adoption rates over the next 5 to 30 years are uncertain, especially for

Photo of unmanned aerial vehicle equipped with multispectral camera for assessing crop conditions, pests and diseases. (Source: Ioannis Ampitzidis, University of Florida).

the numerous small farms with limited capital. Greenhouse hydroponic and vertical growing systems have potential to dramatically increase production per unit area and avoid pest pressures, but production and capital costs are high and the potential for increasing capacity is unknown.

Topic 6 -- Estimate Minimum Acreage Required to Maintain a Viable Agricultural Industry. A combination of various statistical and economic models was used to project the future agricultural land area needed in the County, resulting in a consensus estimate of 64,800 acres in 2030, 60,900 acres in 2040, and 56,300 acres in 2050. These projections represent the minimum acreage required to meet demand for farmland without compromising the viability of the industry under current or future land use policies. A forecast for the County using the REMI regional economic model and projected population growth indicates strong growth for the overall economy and the agricultural sector through the year 2050. A "most-likely scenario" for agriculture indicates that import competition, loss of farmland to the urban area, and climate change/sea level rise will reduce agricultural production about 24 percent compared to the baseline forecast in 2050.

Topic 7 -- Recommendations to Maintain a Strong Agricultural Industry. A variety of recommendations were made to support continued growth and development of the agricultural industry in the County. Some of the key recommendations are:

Photo of for-sale signs for residential development in Miami-Dade County. Source: William Messina, UF-IFAS.

- Maintain the current land use plan in the County with the Urban Development Boundary to control urban development, limit low density rural residential development, maintain open space for agriculture and natural resources, and avoid urban sprawl.
- Lobby State and Federal elected leaders to seek more favorable international trade agreements that safeguard domestic agriculture from international competition.
- Work with State and Federal leaders to address labor shortages by developing an agricultural guest worker program that is less burdensome as an alternative to the H-2A Temporary Agricultural Workers visa program.
- Maintain strong County support for existing agricultural programs and partnerships, including the County Agricultural Manager's Office, Agricultural Practices Advisory Board, University of Florida-Tropical Research and Education Center, and County Cooperative Extension Service, as well as vocational agriculture and post-secondary educational programs.
- Coordinate with the U.S. Army Corps of Engineers, South Florida Water Management District, and Florida Department of Environmental Protection to consider changes in water management regulations to avoid flooding associated with extreme rainfall events and elevated groundwater levels due to sea level rise.

The future viability of the agricultural industry in Miami-Dade County depends on maintaining profitability, securing resources to support the capacity to produce, and being resilient in adapting to change. Wise policy choices regarding land use, regulations, labor, and other issues affecting agriculture are critical to meet this need over the next three decades and beyond.