June 2026

Florida Statewide
Agricultural Irrigation Demand

Estimated Agricultural Water Demand:

2024 - 2050

THE BALMORAL GROUP
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AADF	Average Annual Daily Flow	ILG	Irrigated Lands Geodatabase
AFSIRS	Agricultural Field Scale Irrigation Requirements Simulation	INYR	Inches/Year
ALG	Agricultural Lands Geodatabase	IWM	Irrigation and Water Management
AWS	Actual Water Savings	LKB	Lower Kissimmee Basin
BMP	Best Management Practices	LWC	Lower West Coast
CDL	USDA Cropland Data Layer	MGD	Millions of Gallons per Day
CFWI	Central Florida Water Initiative	MIL	Mobile Irrigation Labs
CUP	Consumptive Use Permit	NAIP	National Agricultural Imagery Program
DEP	Florida Department of Environmental Protection	NASS	National Agricultural Statistics Service
DOR	Florida Department of Revenue	NRSP	North Ranch Sector Plan
DPI	Division of Plant Industry	NWFWMD	Northwest Florida Water Management District
EAA	Everglades Agricultural Area	OAWP	Office of Agricultural Water Policy
ET	Evapotranspiration	SFWMD	South Florida Water Management District
EWUR	Estimated Water Use Report	SJRWMD	St. Johns River Water Management District
FAPRI	Food and Agricultural Policy Research Institute	SRWMD	Suwannee River Water Management District
FDACS	Florida Department of Agriculture and Consumer Services	SWFWMD	Southwest Florida Water Management District
FLUCCS	Florida Land Use/Land Cover and Forms Classification System	UEC	Upper East Coast
FRIS	Farm and Ranch Irrigation Survey	UKB	Upper Kissimmee Basin
FNAI	Florida Natural Areas Inventory	USDA	U.S. Department of Agriculture
FSAID	Florida Statewide Agricultural Irrigation Demand	USGS	U.S. Geological Survey
GIS	Geographic Information System	WMD	Water Management District
GOES	Geostationary Operational Environmental Satellites	WUP	Water Use Permit
GPD	Gallons per Day		

Executive Summary

The Florida Department of Agriculture and Consumer Services (FDACS) is charged with developing estimates of statewide agricultural water demand[1]. This process is described as the Florida Statewide Agricultural Irrigation Demand project, or FSAID. The current Draft FSAID report covers the projection period through 2050 to align with regional water supply plan projection periods.

A crucial part of estimating statewide agricultural water needs is identifying the agricultural lands that are currently irrigated. **Table ES-1** provides a summary of agricultural lands and irrigated lands in production as of crop year 2024 to correspond with the most recent year of available water use data from the Water Management Districts (WMDs). **Figures 3 and 5** in the report provide graphics of county-level projected changes in acreage and water use.

Table ES- 1. Florida Agricultural Acreage in Production, by WMD

WMD	Agricultural Lands 2024, Acres	Irrigated Crop Land 2024, Acres
NWFWMD	713,877	54,886
SFWMD	2,875,607	946,281
SJRWMD	1,131,621	124,312
SRWMD	791,737	156,632
SWFWMD	1,757,114	252,688
Total	**7,269,956**	**1,534,799**

Through 2050, statewide total irrigated crop acreage is projected to decrease by approximately 62,000 acres (~4% drop in irrigated area). The projected decline in overall irrigated acreage is based on historical county-specific trends in irrigated area from 2015 to 2024, the most recent years of FSAID annual irrigated lands refinements. The associated average-year water use is projected to decrease overall by about 3% or 50 MGD by 2050, with varying impacts on individual WMDs. South Florida Water Management District (SFWMD), St. Johns River Water Management District (SJRWMD) and Southwest Florida Water Management District (SWFWMD) are forecast to see declines in irrigated areas, while the northernmost WMDs are expected to see increases in their irrigated agricultural lands.

The current total agricultural irrigation water use statewide is estimated at 1,675 MGD for an average year and 2,168 MGD for a 1-in-10 dry year. **Table ES-2** provides a breakdown by WMD of total crop irrigation use. **Table ES-3** provides estimated water use for livestock and aquaculture.

[1] Florida Statute 570.93. Department of Agriculture and Consumer Services; agricultural water conservation and agricultural water supply planning.

Table ES- 2. Estimated Irrigated Cropland Water Use

WMD	2024	2024	2024	2024 (1-in-10)
	Acres	Avg MGD	Inches/Year	Dry MGD
NWFWMD	54,886	44	10.8	61
SFWMD	946,281	1,071	15.2	1,425
SJRWMD	124,312	141	15.2	198
SRWMD	156,632	159	13.7	204
SWFWMD	252,688	259	13.8	357
Total	**1,534,799**	**1,675**	**14.7**	**2,245**

Table ES- 3. Estimated Livestock/Aquaculture Water Use

WMD	Livestock water use (MGD)	Aquaculture water use (MGD)
NWFWMD	1.6	4.8
SFWMD	11.4	7.3
SJRWMD	3.9	1.7
SRWMD	9.1	0.4
SWFWMD	6.1	6.3
Total	**32.1**	**20.5**

Table ES-4 shows projected water use estimates by crop. These projections are based on historical water use and projected irrigated acreage, but are not necessarily specific to a particular crop type. The primary crop categories are based on crop type and similarities in water use. By 2050, total average-year agricultural irrigation water demand is estimated at 1,625 MGD, down from 1,675 MGD in base year 2024, a reduction of about 50 MGD in average-year water demand from the previous estimate.

Table ES-5 summarizes WMD-level irrigated acreage projections from 2024 to 2050. The latest acreages projections estimate a roughly 62,000-acre decrease in statewide irrigated agricultural area through 2050.

Table ES- 4. Irrigation Demand, MGD by Crop, 2024-2050

Statewide	2024	2025	2030	2035	2040	2045	2050	2050
Primary Crop	**Avg MGD**	**Avg MGD**	**Avg MGD**	**Avg MGD**	**Avg MGD**	**Avg MGD**	**Avg MGD**	**Dry MGD**
Citrus	215	217	214	210	203	197	189	280
Field Crops	145	144	148	152	151	150	150	196
Fruit (Non-citrus)	84	84	82	80	79	77	75	95
Greenhouse/Nursery	134	153	173	169	166	167	167	186
Hay	112	107	100	99	100	100	101	145
Potatoes	31	31	31	30	30	29	28	42
Sod	61	61	60	59	59	58	57	70
Sugarcane	638	638	629	625	623	619	618	853
Vegetables (Fresh Market)	256	257	254	251	248	245	240	303
Total	**1,675**	**1,691**	**1,690**	**1,674**	**1,658**	**1,642**	**1,625**	**2,168**

Table ES- 5. Projected Irrigated Acreage by WMD, 2024-2050

WMD	2024	2025	2030	2035	2040	2045	2050	2024-2050	2024-2050
	Acres	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Change**	**% Change**
NWFWMD	54,886	55,131	56,140	57,167	58,228	59,305	60,362	5,476	10%
SFWMD	946,281	946,427	937,963	929,546	920,834	912,271	903,119	(43,163)	-5%
SJRWMD	124,312	124,696	122,102	119,847	117,663	115,437	112,817	(11,495)	-9%
SRWMD	156,632	157,458	161,109	164,825	168,578	172,274	175,928	19,296	12%
SWFWMD	252,688	251,219	245,257	239,301	233,474	227,050	220,779	(31,909)	-13%
Total	**1,534,799**	**1,534,931**	**1,522,572**	**1,510,686**	**1,498,777**	**1,486,337**	**1,473,004**	**(61,795)**	**-4%**

Historical records from USDA survey data indicate that Florida farmers have improved efficiency on average about 0.6% per year, overall. A long-term record (1978 to 2023) of producer-reported acreage and water use was used to develop trends to project future irrigation conservation[2]. **Table ES-6** provides the future conservation results, which project irrigation efficiency improvements of about 7.3% of the total average year irrigation demand by 2050. Detailed information on conservation methods and data sources are provided in **Appendix E**.

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[2] USDA Irrigation and Water Management Survey, Florida data

Table ES- 6. Estimated Cumulative Water Savings from Irrigation Efficiency Improvements by WMD, MGD

WMD	2025	2030	2035	2040	2045	2050
NWFWMD	0.4	1.9	3.2	3.9	4.4	4.8
SFWMD	5.2	28.8	39.3	46.1	51.4	56.1
SJRWMD	1.3	6.5	10.1	12.8	15.0	16.7
SRWMD	1.6	8.8	15.5	21.7	27.1	29.0
SWFWMD	1.2	5.8	8.3	10.1	11.4	12.3
Total	**9.7**	**51.8**	**76.5**	**94.6**	**109.3**	**119.0**

**Amounts are cumulative over time; i.e. 9.7 mgd from 2025 is included in 51.8 mgd in 2030*

Agriculture in Florida, and across the U.S., is facing particularly challenging economic conditions at present: extremely high input costs and historically low commodity prices (Farm Bureau, 2026a). This is a recurring challenge in recent years, but with the conflict in Iran contributing to higher fertilizer and fuel costs, the economic hardship facing Florida farmers is especially severe in 2026 (Farm Bureau, 2026b). While industry analysts expect fertilizer costs to moderate later this year and into 2027 (Fonseca, 2026), there could be impacts on production decisions in Florida that might reduce irrigated agricultural lands.

The FSAID model incorporates both agronomic and economic factors (described in **Appendix E**) that affect irrigation water demand. The model's ability to capture the variation in water use by profitability across crops and by crops over time provides an enhanced estimate of future irrigation demands. A number of factors present uncertainty in future projections for Florida agricultural irrigation demand: environmental and land use changes, changes in trade relations and market conditions, emerging crops or diseases, among others.

The 20+ year projections in this FSAID report are based on historical data that has included a range of economic conditions, including extreme input cost spikes, housing booms that accelerated land use change, drought years, and more. Several factors present uncertainty in future projections for Florida agricultural irrigation demand, including environmental and land use changes, changes in trade relations and market conditions, emerging crops or diseases, among others.

In **Appendix E**, the results of four agricultural water demand alternative scenarios are presented to show potential outcomes related to 1) western U.S. to eastern U.S. irrigated area shifts, 2) possible trade policy changes, 3) potential citrus greening resolution and bounce-back in citrus area, and 4) increased conversion to non-agricultural land uses. These four scenarios had MGD changes (differences from the expected 50 MGD decrease in demand by 2050) ranging from -10 to +44 MGD. Additionally, the possible impacts from currently evolving agricultural trade relations are discussed in Appendix E: “Global Agriculture Market Changes and Scenario Analysis” section.

Introduction

Under Section 570.93(2), F.S., Florida Department of Agriculture and Consumer Services (FDACS) is directed to establish an agricultural water supply planning program and to develop estimates of statewide agricultural water demand[3]. The process is described as the Florida Statewide Agricultural Irrigation Demand project, or FSAID. This report is the eighth annual update of FSAID water use estimates prepared by FDACS. The current and projected agricultural water use estimates are based on a model fitted to 2007 to 2024 metered or reported permit-level water use data from all Water Management Districts (WMDs) and have utilized updated spatial data to improve the representation of irrigated and non-irrigated agricultural lands.

The current baseline acreage and water use estimates are for the year 2024, which is the most recent year of available water use data provided by the WMDs. This report includes estimates of irrigated agricultural areas and water demands for 2024 and projections for 2025 – 2050, in five-year increments. The estimates herein are provided to the WMDs for their review and comment and ultimately for consideration in development of their respective water supply plans. This report describes the methodologies used to estimate agricultural land acreages and water use demands. It also provides an overview of how frost-freeze protection, irrigation conservation, and livestock and aquaculture water demands were determined.

This iteration of the FSAID agricultural water demand projections can be referenced as FSAID XIII (FDACS 2026). Previous FSAID reports or datasets can be referenced similarly (i.e. FSAID III; FDACS 2016).

Methodology and Agricultural Land Acreage Estimates

Two spatial datasets of Florida's agricultural lands were created for the FSAID project. The Agricultural Lands Geodatabase (ALG) includes all agricultural land, while the Irrigated Lands Geodatabase (ILG) includes only irrigated agricultural land, as well as the estimated current and projected irrigation water use for each field.

A. ALG: Refinement of Agricultural Lands Geodatabase

The original FSAID ALG was developed in 2014 as part of the initial establishment of the FSAID program and underlying datasets. The following primary spatial data sources were used to develop the current FSAID:

[3] Florida Statute 570.93. Department of Agriculture and Consumer Services; agricultural water conservation and agricultural water supply planning.

- Florida Statewide Land Use/Land Cover and Forms Classification System (FLUCCS) from the WMDs and the Florida Department of Environmental Protection (DEP),
- Consumptive Use Permit (CUP) polygons from the WMDs,
- well locations,
- United States Department of Agriculture (USDA) Cropland Data Layer (CDL) data,
- USDA National Agricultural Imagery Program (NAIP)
- aerial imagery, and
- Irrigated Areas layers from SJRWMD and SWFWMD.

Substantial spatial data processing was completed to develop Florida's ALG and ILG to model current and projected agricultural water demands. The annual refinement to the ALG is based on the historical sources listed above plus those in **Table 1**, below.

Cropland Data Layer Crop Classification

The 2024 CDL was used to update crop types for instances in which the dominant CDL crop represented at least 40% of the area of an ALG field area (the threshold established based on detailed review of > 500 example fields). This CDL crop update occurred only for selected agronomic (field crops) and grazing land crop types. The goal of this process is to efficiently update crop types and to replace non-specific crop names like "FieldCrops" or "Cropland_Pastureland". The following dominant CDL crop types list was utilized for updating ALG crop types to ensure that uncommon or unusual CDL crops are not incorrectly used for ALG crop classification: Corn, Cotton, Dry Beans, Grass_Pasture, Oats, Peanuts, Rye, or Soybeans. This process resulted in over 3,700 features (about 210,000 acres) having a revised crop type using the 2024 CDL crops (most commonly updated to Peanuts, Corn or Cotton).

Removal of Agricultural Lands

Changes to non-agricultural lands (removed features from the ALG) were identified from a combination of stakeholder feedback, aerial imagery reviews, and parcel and land use data reviews. The net change in total agricultural lands was about 190,000 acres of decline. The two land use changes that contributed to the largest agricultural acreage declines over the last five years are residential and solar field conversions. Lands converted to residential use accounted for an estimated 19,000 acres of ALG features to be removed, followed by solar panel fields with an estimated 9,000 acres of ALG features. These two land use changes have been the dominant reasons for declines in agricultural lands in the last five years.

B. ILG: Refinement of the Irrigated Lands Geodatabase

The Irrigated Lands Geodatabase (ILG) was updated to 2024 conditions based on manual review and evaluation using 2024/2025 aerial imagery, new or modified Water Use Permits

(WUPs), 2024 CDL, FDACS field staff spatial data input, FDACS Division of Plant Industry (DPI) citrus layer, USGS field verification, and WMD-provided spatial data on irrigated area changes. All these datasets were used to target manual review of ILG features compared to aerial imagery and ancillary datasets. Updates were made to field geometry, crop type, irrigation system, and irrigation status (fallow or irrigated). **Table 1** provides the spatial data layers used to refine and update the 2024 ILG.

Table 1. FSAID Data Layers for Spatial Data Refinements

Data Source	Description
Aerial Imagery (2024-2025)	Arial Imagery used for manual evaluation of crop type and irrigation status
DEP Statewide Land Cover (2025)	Statewide land cover data used to identify new agricultural areas and non-agricultural areas to be removed from the ALG and ILG.
Water Use Permits (WUP; recent new and revised were reviewed)	WUPs typically provide information on crop type and irrigation system; any new or modified WUPs from 2024 or more recent were manually reviewed.
FDACS Office of Agricultural Water Policy (OAWP) field staff spatial data	Near real-time comments in spatial data identifying ILG and ALG edits based on field visits or aerial reviews or producer input.
Stakeholder input	Insights from industry, planning staff, or other stakeholders.
FDACS BMP enrollment data	Spatial coverage of properties enrolled in FDACS BMPs.
USDA Cropland Data Layer (CDL; 2024)	The CDL is a gridded dataset (30-meter resolution) that classifies crop type based on satellite data and ground-truth data from the Farm Service Agency (FSA) field reports at the Common Land Unit (CLU) scale. The dataset is updated annually based on satellite data collected from April to September.
U.S. Geological Survey irrigated areas field verification (USGS; 2025)	USGS field verification in NWFWMD
FDACS Division of Plant Industry (DPI) active citrus layer; 2026	Statewide dataset of citrus areas, with attributes indicating survey date and classification that describes active production or abandonment
WMD water use data; 2024 annual water use totals	Adjusted irrigated coverage based on WMD water use data for permits with 0 or low (< 3in/yr) water use.
County Property Appraiser Data	Parcel data was used to identify areas in the ALG that overlap with non-agriculture parcels.

Updates to the ILG were reviewed with personnel at each WMD. Draft ILG shapefiles were provided to all WMDs in February of 2026, followed by meetings with the FSAID team staff in each WMD to collaborate on spatial data refinements. In some WMDs, staff provided GIS data to support recommended changes. In other WMDs, comments were provided via email and were researched as part of continued ILG updates. In all cases, input was acknowledged and addressed.

Field verification was completed by USGS in 2025 in parts of the SWFWMD (Hardee, Hillsborough, Manatee, Pinellas, and Polk Counties). This field verification involved reviews of agricultural lands from publicly accessible roads to identify irrigation status, irrigation system, and crop type. The USGS spatial data updates were reviewed manually to edit the ILG where irrigated features in the ILG were missing or should be changed to not irrigated, where crop types were different, or where boundary adjustments were needed.

In Brevard County, a significant amount of irrigated acreage was added in the County for base year 2024 as a result of coordination with the SJRWMD. A review of recent years metered data supported the addition of irrigated acres there. The comparison of permit level irrigated acre totals to water volume totals at permit level was completed statewide to more systematically identify areas in which irrigated area should be added (water volume relative to area is high) or permits in which irrigated area should be fallowed (water volume relative to area is low).

DPI's latest citrus dataset[4] was used statewide to review irrigated citrus features in the ILG. This was done by reviewing imagery at locations of irrigated citrus from the ILG that were inactive or missing in the DPI citrus layer. About 90,000 acres of citrus lands were converted to fallow citrus through those reviews. **Table 2** provides a summary of the total acreage in the current ILG and ALG. **Table 3** provides the irrigated cropland acres by primary crop statewide. **Appendix C** provides detailed tables by WMD and county, as well as estimates for split WMD counties.

Table 2. Summary of ALG and ILG for 2024 baseline

WMD	ALG fields	ALG area	ILG fields	ILG area
	Parcels	Acres	Parcels	Acres
NWFWMD	30,902	713,877	977	54,886
SFWMD	36,637	2,875,607	6,660	946,281
SJRWMD	32,747	1,131,621	3,974	124,312
SRWMD	27,056	791,737	2,415	156,632
SWFWMD	38,325	1,757,114	7,003	252,688
Total FSAID	**165,667**	**7,269,956**	**21,029**	**1,534,799**

[4] As of March 5, 2026.

Table 3. 2024 Florida Irrigated Cropland Acreage by Primary Crop

Primary Crop	2024 Acres	Share of total
Citrus	259,948	17%
Field Crops	172,985	11%
Fruit (Non-citrus)	39,302	3%
Greenhouse/Nursery	56,386	4%
Hay	147,107	10%
Potatoes	28,813	2%
Sod	60,310	4%
Sugarcane	570,345	37%
Vegetables (Fresh Market)	199,604	13%
Total	**1,534,799**	**100%**

C. Projections of Future Irrigated Areas

The following sections describe how changes in irrigated areas in Florida counties are estimated and spatially distributed.

Trend Analysis from Historical FSAID Spatial Data

Long-term projections of irrigated agricultural lands were developed using historical, county totals of irrigated lands for each Florida county based on recent annual updates to the FSAID data. The ILG acreage from 2015 to 2024 was used to develop a trend analysis for each county; **Appendix A** provides graphs of historical and projected irrigated acreage for each of Florida's 67 counties. This methodology is an improvement to the original approach in FSAID[5], which relied on long-term USDA Ag Census data as there was no reliable long-term record of ground-truthed and annually-updated irrigated areas at the time. The FSAID ILG's consistent annual updates have created a robust recent time series, enabling credible analysis of market and land-use trends.

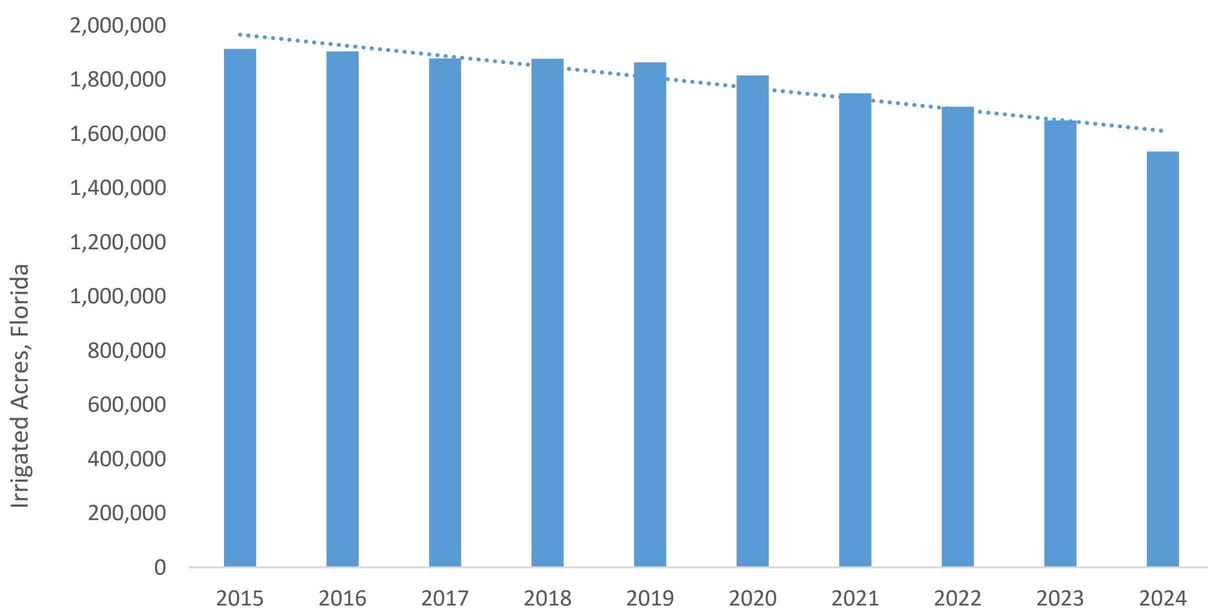
Regression procedures were used to forecast county-specific trends in irrigated area based on statistical fit. The functional form of each regression was selected based on best-fit criteria from logarithmic, linear, exponential, and power forms. The projected irrigated area changes were reviewed with FDACS and WMD personnel to evaluate the direction and amounts of irrigated acreage changes. In some counties, trend type was selected manually based on stakeholder input or reasonableness of the projected future acreage. For trend

[5] Prior to availability of yearly time series of irrigated areas.

projections in SRWMD counties, the 2019 to 2024 portion of the historical ILG time series was used for trend-fitting in order to avoid having long-term trends being influenced by the major 2015 to 2019 acreage increases that have since plateaued in SRWMD.

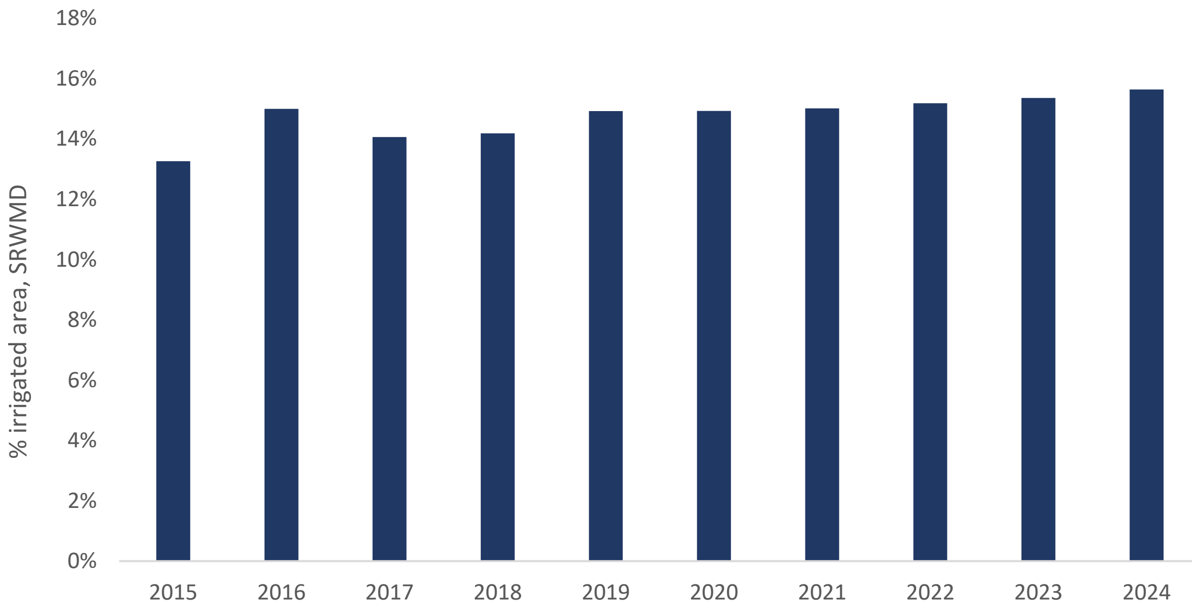
Acreage projections were adjusted for Glades County to accommodate expected losses in irrigated area due to surface water projects. Additionally, Glades County projections were adjusted to align with Seminole lands projections for the Brighton Reservation (SFWMD, personal communication); this was determined from coordination with SFWMD. Previously projected declines in Palm Beach County no longer appear in the projection period because the planned SFWMD surface water project (A-2 EAA Reservoir) is now reflected in the 2024 ILG base year. Osceola County irrigated acreage trends were adjusted to align with planned irrigated area increases of the North Ranch Sector Plan. Counties having total acreage change by 2050 of 500 acres or less (based on best-fit trend functions) were manually set to not change irrigated acreage over the projection period. The annually updated, historical irrigated areas from FSAID are shown in **Figure 1**.

Figure 1. Statewide Irrigated Land, acres - Florida



To illustrate the increasing share of irrigation on agricultural lands in WMDs with recent irrigated area expansion (example: SRWMD) see **Figure 2**. Note the share of land irrigated increased from 13% to 16% from 2015 to 2024, during which over 36,000 irrigated acres were added in the WMD. It is also notable that irrigated acreage increases in SRWMD have moderated in the last six years. From 2015 to 2019 in SRWMD, about 31,000 irrigated acres were added (about 7,800 acres/year), while from 2020 to 2024 only about 5,000 irrigated acres were added (about 1,200 acres/year).

Figure 2. SRWMD Trend in % irrigated land 2015 to 2024



Spatial Distribution of Projected Irrigated Area Changes

The county-level acreage increases or decreases in irrigated area were spatially distributed in the projections ILG using numerous decision rules for selecting ALG fields to become irrigated or ILG fields to become not irrigated. In counties with projected increases in irrigated acreage, R routines were used to select non-irrigated ALG fields to become irrigated until sufficient acreage is added in each 5-year projection period. To constrain where new irrigated area could be added, the following conditions were applied. Any ALG field that met one of these conditions was deemed ineligible for irrigation in future periods:

- Overlaps Florida Natural Areas Inventory (FNAI)
- NRCS Land Capability Classification > 5 (indicates lower quality soils)
- Overlaps a SFWMD planned surface water project.

To determine which ALG fields transition to irrigation, the routine evaluates them in three stages: fields overlapping an agricultural WUP, fields located within half the county-average distance to roads, and unpermitted fields with above-average road distance. Within each stage, fields are ranked from lowest to highest based on their development suitability index (FL2070, 2024).

Similarly, in counties with projected irrigated acreage declines, the routine first identifies fields within urban boundaries using U.S. Census data. These field boundaries are then sorted lowest to highest based on the development suitability index (FL2070, 2024).

Afterwards, fields beyond the urban boundaries within the county are identified and sorted lowest to highest with the development suitability index (FL2070, 2024).

Acreage increases in Osceola County were adjusted manually to account for the additional irrigated acres specified in the North Ranch Sector Plan. For counties with a projected decrease in irrigated area, those decreases were required to occur in non-Everglades Agricultural Area (EAA) regions, as the EAA is assumed to remain stable.

In Glades County, acreage projections were adjusted manually to add some irrigated areas to align with Seminole lands projections for the Brighton Reservation property; this increased irrigated acreage is through 2030. In Glades County, roughly 3,300 acres of irrigated land were manually removed to reflect the SFWMD surface-water project (Lake Hicpochee Hydrologic Enhancement – FEB expansion anticipated in 2025; the FSAID base year for this iteration is 2024). Subsequent FSAID updates will likely capture the FEB expansion within the ILG base-year conditions.

Projected agricultural acreage and irrigated acreage through 2050 by county are provided in **Table A-1** in the **Appendix A**. **Figure 3** illustrates the changes in irrigated areas from 2024 to 2050 by county; the majority of counties with large percent increases in irrigated area are in the northern portion of the state. Resulting irrigated acreage projections by WMD are provided in **Table 4.**

Table 4. Projected Irrigated Acreage by WMD

WMD	2024	2025	2030	2035	2040	2045	2050	2024-2050	2024-2050
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Change	% Change
NWFWMD	54,886	55,131	56,140	57,167	58,228	59,305	60,362	5,476	10%
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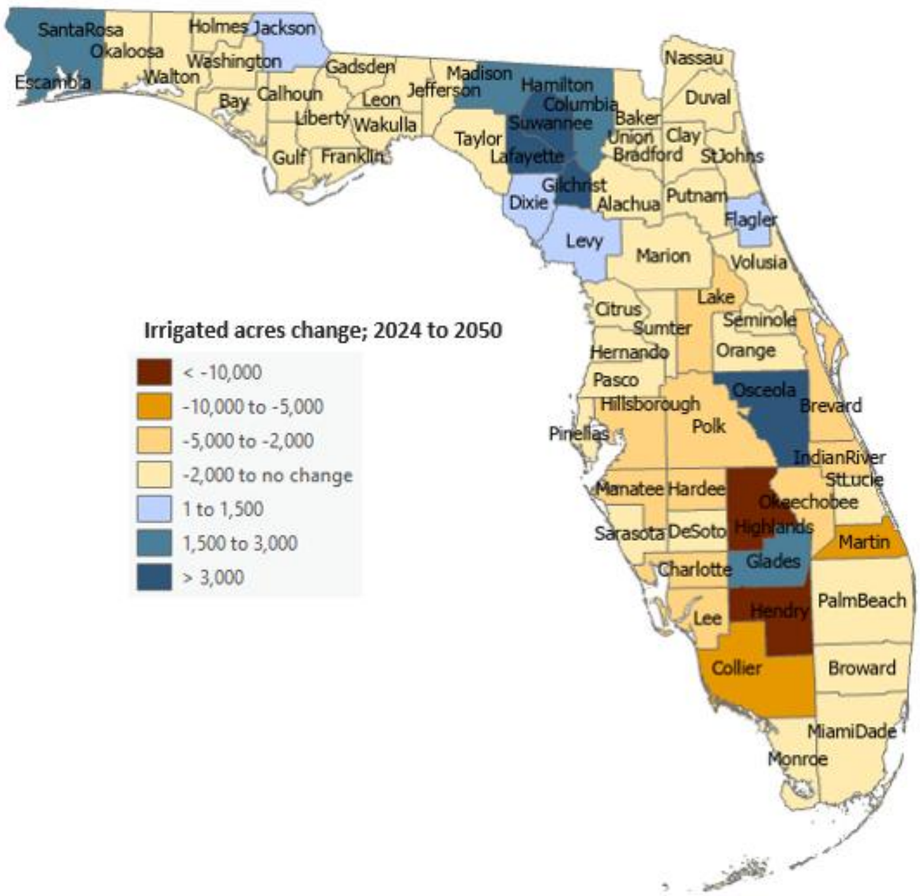
Total	**1,534,799**	**1,534,931**	**1,522,572**	**1,510,686**	**1,498,777**	**1,486,337**	**1,473,004**	**(61,795)**	**-4%**

Figure 3. County-level projected change in irrigated area: 2024 to 2050



D. Estimated Water Use

As required by Florida Statute, observations of irrigation water use are the basis for the FSAID estimates of spatially distributed statewide irrigation demand. Metered and reported water use data is collected each year from the WMDs. Historical metered and reported water use data extends from 2007 to 2024, and were used to develop an econometric model to estimate irrigation water demand. The model specification is estimated using Ordinary Least Squares regression analysis to generate coefficients from the actual water use for each field-level variable. Variables include agronomic variables (crop choice, location, climate), engineering or physical factors (irrigation equipment, field size), and economic or behavioral factors (crop prices); the dependent variable is actual water use, derived from metered or reported water use data (hereafter, "metered data").

The model was initially developed based on published literature reflecting national trends in agricultural irrigation. Each year it is refined based on feedback from WMDs, producers, and academics[6]. In the FSAID XIII model, approximately 99,000 field-scale observations (from 2007-2024) are included in the dataset used to generate model coefficients. The R^2, or statistical "fit", of the model output to actual data is 0.78. **Appendix E** provides further detail on the model inputs, a detailed example of the model, and discussion of specific elements of the model including price, costs, and soils data.

i. Metered Data Records

The existing dataset of metered data records across WMDs includes 17 years of permit-level water use from years 2007-2024. Input data was thoroughly evaluated for outliers, infeasible estimates based on irrigated area, and statistical heterogeneity. Multiple thresholds for inclusion in the dataset were tested, including multiple standard deviations from the mean by crop by WMD, 10th and 90th percentile by crop by WMD, and hard upper bounds (e.g.; 100 inches/year). Repeated statistical testing determined that the 25th and 90th percentile thresholds had values most representative of typical irrigation practice. These thresholds were used to cull data for input to the water demand model.

Table 5 provides a summary by crop of metered data records, which includes field-level observations for each year from 2007-2024. The total acreage of metered data in the input dataset greatly exceeds the current ILG, which represents only current, baseline irrigated area. This means that with the accumulation of historical data over the years there is large sample of training data for the model to utilize, improving the model fit to the historical data. **Appendix E** provides additional detail on screening of input data and distribution by WMD.

[6] See de Bodisco, C. (2007); Livanis, G., et al (2006); Moss, C. (1998); Schoengold, K., et al (2006); Chalfant, James A. (1984); Edwards, B. et al (1996).

Table 5. Metered Data Records Summary by Primary Crop

Primary Crop	Acres	Sample size, n
Citrus	3,695,200	35,924
Field Crops	714,699	8,427
Fruit (Non-citrus)	113,439	7,611
Greenhouse/Nursery	163,852	12,753
Hay	781,563	4,312
Potatoes	188,591	2,322
Sod	344,398	3,098
Sugarcane	1,199,251	4,390
Vegetables (Fresh Market)	1,381,112	20,202
Total	**8,582,105**	**99,039**

For context, **Table 6** provides statewide average inches/year by crop, as calculated by the Agricultural Field Scale Irrigation Requirements Simulation Model (AFSIRS) for FSAID I, metered or reported data for the previous FSAID XII, and the current FSAID XIII (metered) dataset. The AFSIRS model is a crop water requirements irrigation model that uses detailed crop, soil, daily weather, and irrigation management parameters to estimate irrigation requirements; it is used by some WMDs to support water use permitting.

Table 6. Statewide Average Inches/Year by Crop

Primary Crop	FSAID I AFSIRS results	FSAID XII Metered or Reported Usage Input	FSAID XIII Metered or Reported Usage Input
Citrus	14.4	11.5	11.5
Field Crops	10.2	11.1	11.1
Fruit (Non-citrus)	16.6	28.0	28.4
Greenhouse/Nursery	48.6	29.0	29.0
Hay	15.1	10.2	10.4
Potatoes	12.5	13.7	13.8
Sod	37.5	12.8	13.4
Sugarcane	24.6	17.1	17.4
Vegetables (Fresh Market)	11.9	17.6	17.6
Total	**19.5**	**13.7**	**13.8**

ii. Current Water Use Estimates

The resulting current water use estimates reflect a 7% decrease in overall irrigated acreage over the prior year (FSAID XII) and a 5% decrease in overall water use as measured in Millions of Gallons per Day (MGD); see **Table 7** for the current FSAID XIII values. Current baseline year 2024 irrigation water demand and the projected water demand for periods 2025-2050 were modeled using the average of rainfall and ET from 2005-2024.

Table 7. Estimated Statewide Water Use, 2024

Primary Crop	Acres	MGD	Inches/Year
Citrus	259,948	215	11.1
Field Crops	172,985	145	11.3
Fruit (Non-citrus)	39,302	84	28.8
Greenhouse/Nursery	56,386	134	32.0
Hay	147,107	112	10.2
Potatoes	28,813	31	14.4
Sod	60,310	61	13.5
Sugarcane	570,345	638	15.0
Vegetables (Fresh Market)	199,604	256	17.2
Total	**1,534,799**	**1,675**	**14.7**

Source: SFWMD and TBG Work Product *EAA area of
450,813 acres is held constant for sugarcane at 478 MGD.

E. Projected Water Use Methodology

Projected water use for the period from 2024-2050 is estimated by simulating future conditions using coefficients from the econometric model and substituting forecast future values for each explanatory variable. Since location and climate-related variables are either fixed or long-term averages, the simulation is driven mainly by price and cost forecasts and future land area, which are discussed in turn.

i. Price Simulation

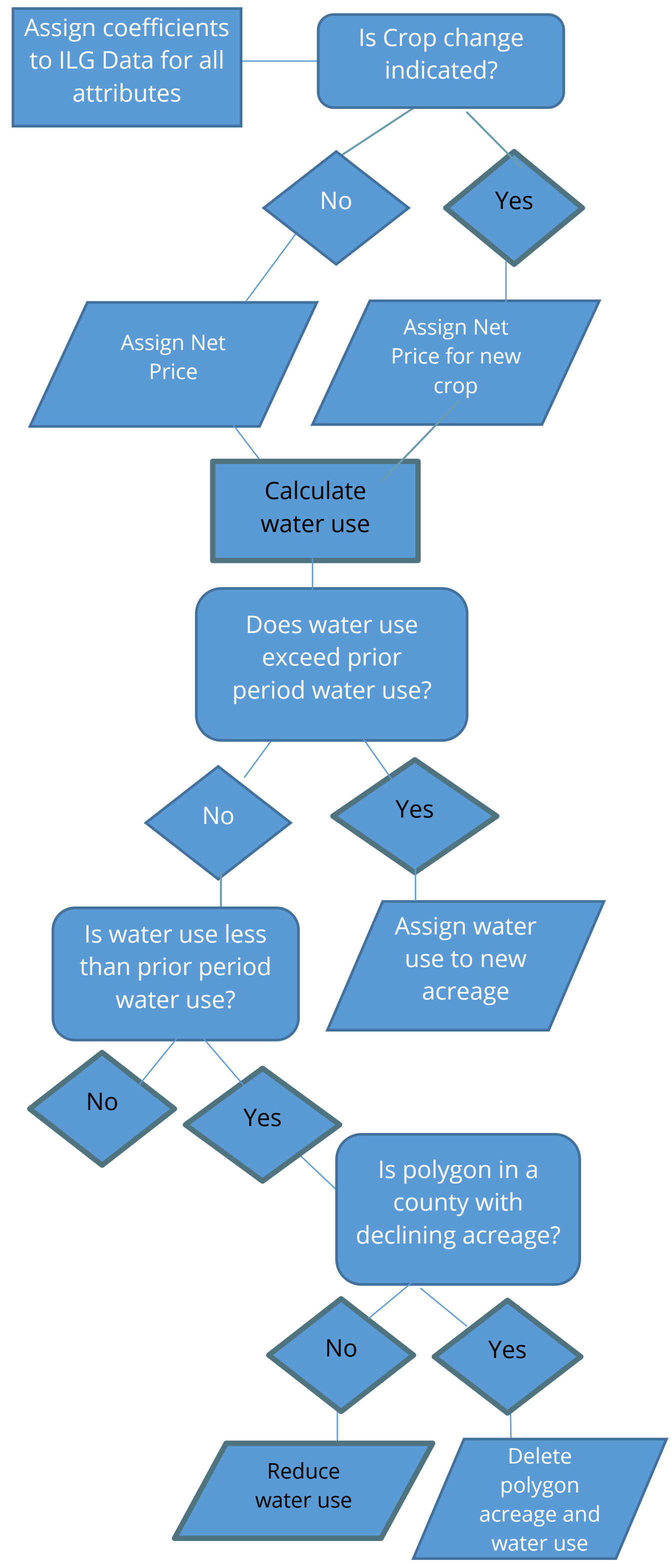
Future water use estimates were simulated by updating each explanatory variable in the model, and using the regression equation to estimate future water use. Each variable was estimated as follows:

1. Prices and costs were forecast in five-year increments from 2025 to 2050 using the 10-year crop price forecasts from USDA Food and Agricultural Policy Research Institute (FAPRI), extended with crop specific growth trends.
2. The irrigated acreage changes were used to identify irrigated acreage for each five-year interval, as described in **Section C: Projections of Future Irrigated and**

Agricultural Land Area. The net revenue variable was calculated by applying updated net revenue values to forecasted acreage.

3. Evapotranspiration (ET) and rainfall variables were updated by calculating mean historical values for an average year (2005-2024), assigned at the farm level.
4. Estimated coefficients from the regression model were applied to forecast variables to simulate projected water use. The change in total water use was estimated at the field level, and applied to the acreage increase or decrease in each county.

Figure 4. Spatial Distribution of Water Use Process



ii. Spatial Distribution of Future Water Use

Spatial distribution of water use was applied according to the process outlined in **Figure 4**. Future water use changes that exceed water applied to current acreage were allocated across fields that were added to the ILG in future periods.

In some counties, agricultural acreage might not be sufficient to absorb the projected irrigated acreage after the constraints were applied, and if so, the acreage would be capped once the available land identified in the ALG was used. Conversely, if a county indicated fewer irrigated acres in future, the algorithm identified fields to remove from the ILG, with accordant water use. Crops were assigned based on the indicated crop mix from modeling results - i.e. the “excess” water from crops (crops that show higher water use for increased acreage). The primary irrigation system used in the county for the crop was assigned. Rainfall and ET were assigned in the same manner as the rest of the ILG.

iii. Sensitivity Analysis

Sensitivity analysis was conducted to compare the impacts of truncating outliers through several approaches as detailed in **Appendix E**. A variety of scenarios affecting possible acreage and water demand results are summarized in **Appendix E** as well.

Water Use Projection Results

B. Average Year Estimates

The resulting statewide water use estimates for each five-year period are provided in **Table 8** by crop, and

Statewide	2024	2025	2030	2035	2040	2045	2050
Primary Crop	**Avg MGD**	**Avg MGD**	**Avg MGD**	**Avg MGD**	**Avg MGD**	**Avg MGD**	**Avg MGD**
Citrus	215	217	214	210	203	197	189
Field Crops	145	144	148	152	151	150	150
Fruit (Non-citrus)	84	84	82	80	79	77	75
Greenhouse/Nursery	134	153	173	169	166	167	167
Hay	112	107	100	99	100	100	101
Potatoes	31	31	31	30	30	29	28
Sod	61	61	60	59	59	58	57
Sugarcane	638	638	629	625	623	619	618
Vegetables (Fresh Market)	256	257	254	251	248	245	240
Total	**1,675**	**1,691**	**1,690**	**1,674**	**1,658**	**1,642**	**1,625**

Table 9 by WMD. The total decrease in statewide irrigated area of 61,795 acres over the period through 2050 is accompanied by a net decrease in irrigation volume of 50 MGD for an average year. The effects are unevenly distributed by WMD, with an 11% increase in irrigation demand expected in SRWMD and NWFWMD by 2050, and decreases in other WMD. Detailed breakdowns of county-level acreage by crop and WMD are included in **Appendix C**. **Figure 5** illustrates the percent change in irrigation water demand by county from 2024 to 2050.

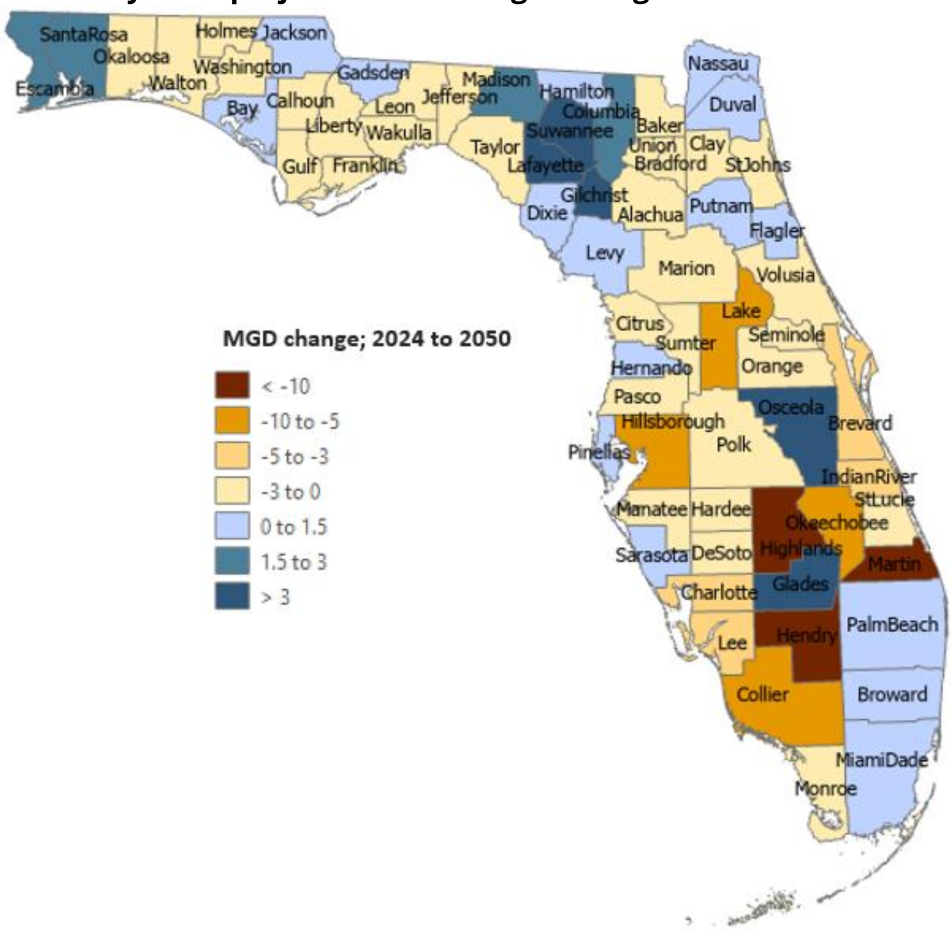
Table 8. Water Use Estimates by Primary Crop Average Year

Statewide	**2024**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Primary Crop	**Avg MGD**	**Avg MGD**	**Avg MGD**	**Avg MGD**	**Avg MGD**	**Avg MGD**	**Avg MGD**
Citrus	215	217	214	210	203	197	189
Field Crops	145	144	148	152	151	150	150
Fruit (Non-citrus)	84	84	82	80	79	77	75
Greenhouse/Nursery	134	153	173	169	166	167	167
Hay	112	107	100	99	100	100	101
Potatoes	31	31	31	30	30	29	28
Sod	61	61	60	59	59	58	57
Sugarcane	638	638	629	625	623	619	618
Vegetables (Fresh Market)	256	257	254	251	248	245	240
Total	**1,675**	**1,691**	**1,690**	**1,674**	**1,658**	**1,642**	**1,625**

Table 9. Water Use Estimates by WMD, Average Year

WMD	2024	2025	2030	2035	2040	2045	2050
	Avg MGD	Avg MGD	Avg MGD	Avg MGD	Avg MGD	Avg MGD	Avg MGD
NWFWMD	44	44	45	46	47	48	49
SFWMD	1,071	1,085	1,088	1,077	1,067	1,057	1,046
SJRWMD	141	142	138	134	131	128	124
SRWMD	159	160	163	167	170	173	176
SWFWMD	259	261	256	249	243	236	229
Total	**1,675**	**1,691**	**1,690**	**1,674**	**1,658**	**1,642**	**1,625**

Figure 5. County-level projections of change in irrigation demand: 2024 to 2050



C. Dry Year Estimates

Dry year estimates were calculated using crop and WMD-specific ratios of average irrigation water use to 1-in-10 use. The FSAID dry year estimates represent the irrigation demand that would be expected in 1 out of 10 years. Statewide, the overall average ratio is 1.34, but this varies widely by WMD and crop. The WMDs with the highest ratios are NWFWMD and SJRWMD. Crops show a larger range in the ratios. Greenhouse/Nursery (1.13) show the smallest variation compared to the average year, while Citrus shows the highest ratio (1.5). **Appendix E** provides the ratios by crop and WMD and a more detailed description of how the average-to-dry ratios were developed. **Table 10** provides Dry Year Estimates by WMD, and **Table 11** shows Dry Year Estimates by Primary Crop.

Table 10. Water Use Estimates by WMD, Dry Year (1-in-10)

WMD	2024	2025	2030	2035	2040	2045	2050	2050
	Dry MGD	Dry MGD	Dry MGD	Dry MGD	Dry MGD	Dry MGD	Dry MGD	Dry/Avg Year Ratio
NWFWMD	61	61	63	64	66	67	68	1.44
SFWMD	1,425	1,439	1,438	1,424	1,411	1,397	1,384	1.27
SJRWMD	198	199	194	189	184	180	175	1.41
SRWMD	204	204	209	214	218	222	226	1.33
SWFWMD	357	360	352	343	335	325	316	1.30
Total	**2,245**	**2,263**	**2,257**	**2,235**	**2,213**	**2,192**	**2,168**	**1.34**

Table 11. Water Use Estimates by Primary Crop, Dry Year (1-in-10)

Primary Crop	2024	2025	2030	2035	2040	2045	2050	2050
	Dry MGD	Dry MGD	Dry MGD	Dry MGD	Dry MGD	Dry MGD	Dry MGD	Dry/ Avg Year Ratio
Citrus	317	320	316	310	299	291	280	1.50
Field Crops	190	189	193	199	197	196	196	1.35
Fruit (Non-citrus)	107	107	105	102	101	98	95	1.31
Greenhouse/ Nursery	150	171	192	188	185	185	186	1.13
Hay	160	153	145	142	144	144	145	1.46
Potatoes	45	45	45	44	44	43	42	1.45
Sod	74	74	73	72	72	71	70	1.22
Sugarcane	881	881	868	863	860	855	853	1.38
Vegetables (Fresh Market)	322	324	320	316	313	309	303	1.28
Total	**2,245**	**2,263**	**2,257**	**2,235**	**2,213**	**2,192**	**2,168**	**1.34**

D. Frost and Freeze Protection Estimates

Irrigation for freeze protection is used on a variety of cold-sensitive crops in Florida. While freeze protection contributes only around 5% of the total statewide irrigation demand, these withdrawals happen over brief periods, thus impacts can be significant. Frost protection water use in FSAID is limited to the major crops commonly requiring freeze protection: strawberries, blueberries, peaches, citrus, and ferns. Freeze-related irrigation events were estimated to occur on days with minimum temperature at or below freezing for fields in the ILG where crop type matched one of those listed above.

The USGS gridded ET data (from GOES platform) from 1996 to 2024 were used for estimating the average number of annual freeze events at ILG fields with a crop type that would be freeze protected. The dataset includes minimum temperature at 2km grid resolution, which was used to count the annual number of freeze events at the locations of ILG fields which would likely be freeze protected. The annual freeze events at ILG locations were then averaged at the county-level for the 25-year period. The average number of freeze events for a county was combined with information on crop type and irrigation system to calculate annual average amounts of freeze protection water use. To calculate the amounts of freeze-protection water, the following irrigation intensities were used: 0.07 inches/hour for micro-spray irrigated citrus, 0.2 inches/hour for blueberries, strawberries, or peaches, and 0.3 inches/hour for ferns. A 14-hour freeze event duration was used. Frost/freeze water demand for future projections of the ILG varies from the current frost/freeze demands due to the additions or deletions of ILG polygons classified as Non-Citrus Fruit (which would include strawberry, blueberries, and peaches) and Citrus. It was assumed that all additional acres of Non-Citrus Fruit and Citrus in the ILG projection periods would be irrigated for freeze protection.

The average annual frost protection demand for the current ILG was about 43 MGD on an average annual daily flow (AADF) basis. This declined by about 10 MGD from the prior year FSAID estimates due to the substantial reductions in irrigated citrus in the base year ILG. Freeze protection irrigation demand decreases to about 39 MGD by 2050 due to declines in irrigated areas with crop types that would be freeze protected. **Table 12** summarizes freeze protection estimates at the WMD level.

Table 12. Estimated Freeze Protection Estimates by Year

WMD	2024	2025	2030	2035	2040	2045	2050
	MGD	MGD	MGD	MGD	MGD	MGD	MGD
NWFWMD	0.0	0.2	0.2	0.2	0.3	0.3	0.3
SFWMD	6.3	11.9	11.8	11.7	11.5	11.2	11.0
SJRWMD	8.7	4.2	4.0	3.8	3.6	3.4	3.2
SRWMD	1.2	1.4	1.4	1.5	1.6	1.7	1.7
SWFWMD	26.3	26.7	25.9	25.0	24.1	23.4	22.5
Total	**42.6**	**44.3**	**43.3**	**42.2**	**41.1**	**40.0**	**38.7**

In **Appendix D, Table D-1** provides a breakdown by Crop by WMD for freeze protection estimates, and **Table D-2** provides the county-level breakdown.

E. Conservation Estimates: Irrigation Efficiency Improvements

Under Florida Statute 570.93, "projected future water demands must incorporate appropriate potential water conservation factors". For purposes of incorporating potential water conservation factors, estimates of improvements in irrigation efficiency that can reasonably be expected over the planning period have been developed.

Two main datasets were explored for the purpose of estimating future irrigation efficiency improvements: Mobile Irrigation Labs (MIL) actual water savings (AWS) data and the USDA's Farm and Ranch Irrigation Surveys (FRIS), now known as the Irrigation and Water Management (IWM) Survey. The documented actual water savings through the MIL program are based largely on improvements in irrigation system distribution uniformity. The data available for MIL-based irrigation improvements from scheduling changes and sensor-based automation and other management improvements were determined to be of insufficient length to develop long-term future projections in conservation.

Data reflecting changes in farmers' use of irrigation water over the past 45 years is available from the USDA's IWM Survey. Using long-term trends avoids the uncertainty of estimating at the field level exactly what type of management change would be made and how many farms or fields would be expected to make that change. The IWM estimates show that over the entire time period for which data is available (1978-2024), the average farmer in Florida has decreased the amount of water used by 6,000 gallons/acre/year (which declines to about 3,800 gallons/acre/year for the projection period of 2025-2050).

Some of the efficiency improvements will be due to irrigation system changes that have already been mostly implemented in many areas of the state (primarily a shift from gravity systems to drip and micro-spray systems); therefore, remaining improvements are likely to come from management changes through better scheduling and/or sensor-based automation. Evaluation of the IWM data for the period from 2003-2024 shows approximately 5,800 gallons/acre/year in improvement, which is likely more representative of future improvements to irrigation efficiency on newly irrigated land and for fields irrigated with drip or microsprinkler systems. This is reduced to 3,700 gallons/acre/year for the projection period of 2025-2050. These annual rates of efficiency gain will remain until new data are available from and Ag Census IWM survey (about 2028 expected) or another method is developed to predict future efficiency gains. Two exponential trends from the IWM dataset were used to estimate future irrigation efficiency improvement. The trend from 1978-2024 is used for currently irrigated fields that are not drip or microsprinkler irrigated, and the more conservative trend from 2003-2024 is used for newly irrigated fields or those irrigated with drip or microsprinkler. **Appendix E** provides more detail on the calculations used to derive the estimates and the supporting literature.

The resulting estimate of total irrigation efficiency improvements is about 119 MGD by 2050, or about 7% of total irrigation demand. **Table 13** provides a summary of estimated efficiency improvements by WMD. It should be noted that estimated efficiency improvements are based on average year demands, and would not likely be achieved in dry years.

Table 13. Cumulative Water Savings from Estimated Efficiency Improvements

WMD	2025	2030	2035	2040	2045	2050
	MGD	MGD	MGD	MGD	MGD	MGD
NWFWMD	0.4	1.9	3.2	3.9	4.4	4.8
SFWMD	5.2	28.8	39.3	46.1	51.4	56.1
SJRWMD	1.3	6.5	10.1	12.8	15.0	16.7
SRWMD	1.6	8.8	15.5	21.7	27.1	29.0
SWFWMD	1.2	5.8	8.3	10.1	11.4	12.3
Total	**9.7**	**51.8**	**76.5**	**94.6**	**109.3**	**119.0**

Detailed efficiency improvements estimates are provided in **Appendix D** by Crop by WMD (**Tables D-3 through D-7)**, and by county (**Table D-8)**.

F. Livestock and Aquaculture Water Use

Livestock demands were determined using animal inventories from USDA Ag Census data and the typically utilized per animal daily water use. The most current Ag Census (2022) was used to define the numbers of cattle, cows, poultry, horses, and other livestock. Livestock inventories from the Ag Census have remained relatively stable in Florida for the last five censuses (2002, 2007, 2012, 2017, and 2022). The inclusion of updated Ag Census data for livestock inventories did not result in major changes in total livestock water demand estimates.

For purposes of estimating the future water use, stable livestock inventories and water use are assumed in the coming decades. This is based on stable livestock inventories in recent decades. Total statewide livestock demand for current conditions is estimated at 32.1 MGD, which is the same from the previous year FSAID estimates.

County-level water withdrawals for aquaculture were compiled using USGS 2015 water use data. Additionally, CUPs for several counties were found to have available metered data for aquaculture withdrawals, and these were used in conjunction with the USGS county-level aquaculture withdrawals to produce statewide aquaculture water demands. The maximum county-level sums of CUP-reported water use and USGS aquaculture water use was used. For counties with zero water use from the combination of USGS county-level aquaculture withdrawals and CUP data, aquaculture water demands may still occur if aquaculture features are present in the spatial dataset. The average statewide water demand per unit area for aquaculture features was used to estimate aquaculture water demand for features in counties with no other county total for aquaculture. Current aquaculture water use for 2024 is estimated to be 20.5 MGD. Future aquaculture demands are held constant for the planning period through 2050. Previous FSAID reports had projected increases in Miami-Dade to accommodate a large aquaculture operation there. These increases have already been observed in 2024 water use, so aquaculture demands are also held constant in Miami-Dade County through 2050.

Spatial distribution of county-level livestock and aquaculture water use at the sub-county level was achieved using ALG features with CROP2024 of Livestock or Aquaculture or Crop of Improved Pastures. While there are several crop types in the ALG that might have grazing livestock present, only improved pastures are included in the livestock layer for the purposes of spatially distributing the county totals of livestock water use. This provides sufficient spatial disaggregation of water demands, while reducing the size and complexity of the livestock/aquaculture spatial dataset.

The statewide livestock and aquaculture inventory and water use is summarized in **Table 14**, and the total livestock and aquaculture water demands by WMD are presented in **Table 15**. A table of the county totals for livestock and aquaculture water demand are provided in **Appendix D**, **Table D-9**.

Table 14. Statewide Livestock and Aquaculture Totals for Current and Projected Periods

Animal group	Estimated Number of Animals	Water Use per Animal (gpd/head)	Total Demand (mgd)
Dairy Cows	71,827	150	10.77
Beef Cattle	1,567,071	12	18.80
Poultry, chickens	14,856,526	0.09	1.33
Equine	83,063	12	1.00
Goats	53,755	2	0.11
Hogs	12,739	2	0.03
Sheep	24,285	2	0.05
Aquaculture	NA	NA	20.55

Animal group	Estimated Number of Animals	Water Use per Animal (gpd/head)	Total Demand (mgd)
Statewide Livestock and Aquaculture Total Demand	**NA**	**NA**	**52.64**

Table 15. Livestock and Aquaculture Total Water Use by WMD, MGD

WMD	Livestock Water Use (mgd)	Aquaculture Water Use (mgd)
NWFWMD	1.6	4.8
SFWMD	11.4	7.3
SJRWMD	3.9	1.7
SRWMD	9.1	0.4
SWFWMD	6.1	6.3
Total	**32.1**	**20.5**

FSAID Applications and Use

While FSAID was originally developed to support regional water supply planning by the WMDs, it has evolved to support of variety of applications including: FDACS BMP enrollment support, estimating nutrient load impacts of cost-share projects (FDACS and DEP), hurricane loss impact estimates (University of Florida), studies of biofuels potential (Oak Ridge National Lab), Cropland Data Layer algorithm improvements (USDA), and the Florida Wildlife Corridor (analysis of potential payments for ecosystem services). **Table 16** summarizes how the WMDs utilize FSAID for regional water supply planning.

Table 16. FSAID applications in water supply planning

WMD	FSAID application
NWFWMD	Acreage and water demand projections used directly from FSAID
SFWMD	Acreage projections used with District-developed water demands from AFSIRS modeled on those acres with FSAID growth rates
SJRWMD	Acreage and water demand projections used directly from FSAID
SRWMD	Acreage and water demand projections used directly from FSAID
SWFWMD	Acreage projections used, with water use projections based on District historical water use and FSAID growth rates

FSAID Online Interface and Geodatabase

An online user interface has been developed to allow easier access to the agricultural acreage and water demand data. It is available at:
https://datavisual.balmoralgroup.us/FDACS-FSAID13

In addition to the web-based interface, the complete FSAID XIII geodatabase has been made available. This contains shapefiles of water demand to facilitate further analysis and application of spatial water demand data. All appropriate metadata has been provided in the geodatabase. The FSAID XIII geodatabase includes:

- The projections ILG: 2024 to 2050 irrigated acreage, crop type, average year and dry year water demand, conservation estimates, and freeze protection estimates (based on average 2007-2024 rainfall and ET)
- The 2024 ILG: includes only the base year 2024 irrigated areas and water demands (based on 2024 actual rainfall and ET)
- The ALG, which includes both irrigated and non-irrigated agricultural areas
- Livestock and Aquaculture water demand estimates
- Climate Factors: links the 2024 ILG with attributes for rainfall and ET (both for 2024 and 2005-2024 average), and soils (mukey and land capability classification)

Conclusions and Discussion

Summary

Overall agricultural water demand in Florida is anticipated to decrease by about 3% through 2050; irrigated lands also decrease moderately through 2050 (4% decrease in irrigated area from 2024 to 2050: about 62,000 acres). These estimates are based on historical changes in irrigated lands and observed water use data that is the basis of the FSAID model

A number of factors will influence the agricultural irrigation patterns of Florida farmers over the next 25 years. As of writing this report, there are especially challenging economic conditions facing producers throughout the Country: low prices and high input costs. Low prices driven by global competition and oversupply in some commodities, and high prices resulting from Middle East conflicts that has dramatically increased fuel and fertilizer costs. There are potential trade policy adjustments that could benefit Florida producers and there could be long-term financial support for citrus replanting that could influence future citrus acreage. Four alternative future scenarios were modeled to represent a range of uncertainties in Florida’s agricultural water use. These scenarios include: 1) western U.S. to eastern U.S. agricultural migration, 2) trade adjustments that might improve prices for Florida berry and vegetable producers, 3) potential citrus greening solutions, and 4) increased land use change to non-agricultural uses. These are described in Appendix E. The potential changes in agricultural irrigation demands in Florida range from a 44 MGD increase to a 10 MGD decrease relative the FSAID 2050 projections.

The FSAID model incorporates historical patterns and trends in water use across agricultural operations, through actual water use records, as well as behavior that is forward-looking (based on projections of prices and costs and trends developed on recent irrigated areas by county), through spatial allocation of future water demand. As urbanization encroaches on rural lands, and as western U.S. irrigation migrates toward Florida, lands that traditionally were not irrigated, or irrigated for small portions of the year, could increasingly be irrigated at a greater rate.

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