Appendix A3

Agricultural Economic Analysis: SWAP Methodology and Modeling Results

A3.1 Introduction

The potential effects on agricultural production and associated agricultural economic effects in California's Central Valley were estimated using the Statewide Agricultural Production (SWAP) model, which is a regional economic model of agricultural production in California's Central Valley. This appendix describes the following information.

- Methods used to estimate the direct agricultural economic effects of reductions in Sacramento/Delta supply in the Central Valley (Section A3.2, *SWAP Model Description*).
- Details of the SWAP modeling results that are analyzed for effects in Section 7.4, *Agriculture and Forest Resources*, and Chapter 8, *Economic Analysis and Other Considerations* (Section A3.3, *SWAP Modeling Results*).

A3.1.1 SWAP Model and Geographic Regions

Most of the irrigated agriculture in the study area is located on the valley floor portion of the Sacramento/Delta and the San Joaquin Valley. Reductions in Sacramento/Delta supply[1] could affect agricultural production in these regions. Growers' responses to changes in water supply are estimated using the SWAP model.

The valley floor portions of the below regions are within the geographic scope of the SWAP model.

- The **Sacramento/Delta region** is made up of the Sacramento River watershed, Delta eastside tributaries, and Delta regions.
- The **San Joaquin Valley region**, for the purposes of this analysis, consists of a majority of the San Joaquin River and Tulare Lake Hydrologic Regions.[2]

A3.1.2 Overview of Agricultural Water Supply Analysis

The flow scenarios would be expected to affect agricultural production in the study area. The process for determining the effects requires linking several analytical models. The models are connected by using model results from one model as input to another, requiring proper mapping from one to the other. The following paragraphs provide a description of the model flows and connections leading to analysis of impacts for agricultural water.

[1] *Sacramento/Delta supply* refers to surface water supply that originates in or is diverted from surface waterbodies in the Sacramento River watershed, Delta eastside tributaries, and Delta regions (this area is referred to as *Sacramento/Delta*).

[2] GIS data describing the San Joaquin River and Tulare Lake Hydrologic Regions can be found at https://gis.data.ca.gov/datasets/2a572a181e094020bdaeb5203162de15_0.

The Sacramento Water Allocation Model (SacWAM) described in Chapter 6, *Changes in Hydrology and Water Supply*, provides detailed output of monthly quantities of Sacramento/Delta surface water delivered for agricultural, municipal, and refuge uses for the entire 94-year simulation, which is based on water year 1923 to water year 2015 hydrologic conditions. Monthly output values for the time series are combined into annual averages for use in the agricultural supply analyses.[3]

Estimating effects on agricultural production and crop revenue within the Central Valley involves using the output from SacWAM as input to SWAP. Within the Sacramento/Delta watershed, the surface water deliveries estimated by SacWAM were used directly in the agricultural analysis. In contrast, the quantity of Sacramento/Delta water supply that is exported to the San Joaquin Valley, San Francisco Bay Area, Central Coast, and Southern California regions was estimated within SacWAM, but the output is in aggregate form that requires additional data processing before it can be used in the agricultural analyses. The volume of export deliveries is estimated by SacWAM based on SWP and CVP contracts, but the mapping of deliveries to the individual regions and smaller subareas within each of the receiving regions relies on a separate process based on a more detailed evaluation of SWP and CVP contracts. This more detailed mapping of water supply to subregions includes further refinement in assigning water to agriculture, which allows changes in agricultural water deliveries and their effects on crop acreage and crop mix to be fully considered.

Most of the irrigated agriculture in the study area is located on the valley floor portion of the Sacramento/Delta and the San Joaquin Valley. For these areas, growers' responses to changes in water supply are estimated using the SWAP model. SWAP divides the Central Valley into 27 production regions, with 10 in the Sacramento/Delta and the remainder in the San Joaquin Valley.

The SWAP model has default limits on the amount of groundwater available in each SWAP production region; however, in the Sacramento/Delta geographic area, groundwater pumping limits from SacWAM were used to replace the SWAP default limits. Similarly, SWAP has default local surface water supplies for each SWAP region, but SacWAM local supplies were used instead in the Sacramento/Delta. Lastly, SWAP utilizes default crop water requirements (i.e., irrigation needs per acre) for each crop and SWAP region, which were replaced by crop water requirements utilized by SacWAM within the Sacramento/Delta. This was done to maintain consistency between SacWAM and SWAP.

The SWAP model was run for the Central Valley for baseline and for each of the five percent unimpaired flow scenarios (referred to as the 35, 45, 55, 65, and 75 scenarios and discussed further below). The output that was generated for each of the six model runs includes cropping acreage by category of crop, total revenue, net revenue (profit), and amount of irrigation water used. The output details were generated for each SWAP region which, when combined geographically, provide totals for (1) the Sacramento River valley floor, Delta eastside tributaries, and Delta regions[4]; and (2) the San Joaquin Valley region.

[3] The SacWAM hydrologic period can be further divided by water year type to allow targeted examination of impacts during drought years. The "dry year" analysis considers only a subset of the SacWAM output that are associated with dry or critically dry water year types.

[4] The Sacramento River valley floor, Delta eastside tributaries, and Delta regions are also referred to as the *Sacramento/Delta*.

A3.1.3 Baseline Conditions

In this analysis, *baseline conditions* refer to the surface water and groundwater supplies that are estimated to occur in the absence of the modeled flow scenarios. The baseline water supplies are used in SWAP to estimate the agricultural output under baseline conditions.

A3.1.4 Flow Scenarios

The SWAP model estimated agricultural economic effects for five modeled flow scenarios. The SacWAM results are in increments of 10, from 35 percent to 75 percent of unimpaired flow and are referred to by the numbered flow scenarios (e.g., the 35 scenario). Additional information and SacWAM model results are provided in Appendix A1, *Sacramento Water Allocation Model Methods and Results*.

The analyses presented in this appendix compare the agricultural economic effects estimated by the SWAP model for the modeled flow scenarios to the baseline conditions. The change in agricultural production or crop revenue from the baseline condition represents the estimated direct agricultural economic effect associated with each flow scenario. Table A3-1 identifies the SWAP model runs completed for the scenarios. As shown, SWAP was applied to the five scenarios using both *no replacement groundwater pumping* and *maximum replacement groundwater pumping* conditions (see *Available Groundwater Supplies* in Section A3.2.1.3, *SWAP Model Inputs*).

Table A3-1. SWAP Model Runs

Flow Scenario	Groundwater Replacement Pumping
Baseline	None to maximum
35	None to maximum
45	None to maximum
55	None to maximum
65	None to maximum
75	None to maximum

For a description of groundwater replacement pumping see Section A3.2.1.3, *Water Supply Inputs.*

"None" for Groundwater Replacement Pumping means: each SWAP production region is limited to the SWAP model estimated pumping levels for average water years under baseline conditions.

"Maximum" for Groundwater Replacement Pumping means: regional groundwater limits for the Sacramento Valley are set at the highest estimated annual pumping levels as applied in SacWAM. For the SWAP production regions not covered by SacWAM, default SWAP groundwater limits representing 2014 estimated groundwater pumping capacities were applied.

A3.2 SWAP Model Description

This section describes the SWAP model and associated inputs applied in the study. SWAP version 6.1 was used in this analysis.

The SWAP model was developed by the University of California at Davis (UC Davis) and the California Department of Water Resources (DWR) (Reclamation 2012). The model is an extension of the Central Valley Production Model (CVPM) developed in the early 1990s to assess the economic effects of the Central Valley Project Improvement Act (CVPIA) (Reclamation 2017). SWAP has been

applied to numerous policy analyses and impact studies over the last two decades (Medellín-Azuara et al. 2016).

Baseline conditions and the flow scenarios were modeled in SacWAM to provide surface water supply inputs by water year type. Available resources and agricultural production data were organized by production regions. Model constraints were applied to limit the use of resources and address agricultural production conditions that are external to the SWAP model optimization process. The SWAP model uses a number of inputs describing irrigated agricultural production, model constraints, and a calibration routine to generate production cost curves that reproduce an observed cropping pattern from a selected year. Water supply conditions associated with the baseline condition and flow scenarios were then used along with the production cost curves to estimate the changes in crop acres, gross revenues, and net income. The SWAP model assumes that farmers select the crops, water supplies, and other inputs to maximize profit subject to resource constraints, technical production relationships, and market conditions (Reclamation 2012).

A3.2.1 SWAP Model Structure

The following sections provide a description of the structure of the SWAP model, including the positive mathematical programming (PMP) calibration process, agricultural production regions, and constraints.

A3.2.1.1 Positive Mathematical Programming Calibration

PMP is integral to the structure of the SWAP model. PMP is a multi-stage approach to calibrate production inputs to match a base dataset (Howitt 1995), which reflects agricultural production in 2010 in SWAP model version 6.1. PMP incorporates information on the marginal production conditions that agricultural producers face, which allows the model to reproduce the 2010 observed regional crop water and land use. It accomplishes this through estimation of marginal land costs. The first stage of the PMP calibration uses a linear program to obtain the values for resource and calibration constraints. The second stage of PMP develops the parameters of a constant elasticity of substitution (CES) production function. In the third stage, a PMP cost function is parameterized.

SWAP assumes that farmers face competitive markets in which no single farmer can influence crop prices but that an aggregate change in production can affect crop price. This competitive market is simulated by maximizing farm profits subject to the following characteristics of production, market conditions, and available resources (Reclamation 2012). The following characteristics are considered inputs to SWAP.

- SWAP applies CES production functions for every crop in every region. CES has four inputs: land, labor, water, and other supplies. CES production functions allow for limited substitution among inputs, which allows the model to select optimal levels of both total output and input use, and consequently input use intensity (Beattie and Taylor 1985). For example, farmers may substitute labor for water by managing an irrigation system more intensively. Parameters are calculated using a combination of prior information (i.e., externally generated estimates) and the method of PMP (Howitt 1995).
- Marginal land cost functions are estimated using PMP. Additional land brought into production is assumed to be of lower productivity and thus requires a higher cost to cultivate. The PMP functions capture the increasing cost of bringing additional land into the production of a

particular crop within a region by using acreage response elasticities that relate changes in acreage to changes in expected returns and other information.

- Production costs include groundwater pumping cost, which varies with depth to groundwater and energy cost.
- The SWAP model can be specified with downward-sloping California statewide crop demand functions. The demand curve represents willingness-to-pay for a given level of crop production. With all other factors constant, as production of a crop increases, the price of that crop is expected to fall. The extent of the price change depends on the elasticity of demand or, equivalently, the price flexibility. The latter refers to the percent change in crop price due to a percent change in production. Alternatively, the SWAP model can be specified with fixed crop prices. To be conservative, this analysis applies fixed crop prices that do not vary with the level of output.
- Crop production is subject to resource constraints on land, labor, water, and other input availability by region.
- Crop production is subject to agronomic and economic constraints on perennial crop acreage changes, dairy herd and livestock silage requirements, deficit irrigation, and other legal and physical constraints.

The model chooses the optimal values of land, water, labor, and other inputs to maximize profits, subject to availability of inputs, the estimated crop production costs, and constraints. *Profit* is *revenue* minus *costs* where revenue is *price* multiplied by *yield per acre* times *total acres*, calculated for each crop in each production region. Costs include both directly calculated input costs and costs described by the PMP marginal land cost functions.

The SWAP model incorporates Project water supplies (CVP and SWP), other local surface water supplies, and groundwater. As conditions change within a SWAP production region (e.g., the quantity of available surface water declines or groundwater pumping limits are imposed), the model optimizes production by adjusting the cropping pattern, water sources and quantities used, and other inputs. It also fallows land if doing so represents the most cost-effective response to resource and market conditions.

The base SWAP model can be modified for specialized studies to incorporate or specify additional production regions, or to apply assumptions regarding deficit irrigation or groundwater supply. In the following sections, modifications to production regions, inputs, and constraints are indicated explicitly.

A3.2.1.2 SWAP Agricultural Production Regions

The SWAP model applied in this study is made up of 27 production regions: 10 in the Sacramento/Delta (the Sacramento River valley floor, Delta eastside tributaries, and Delta regions), and 17 in the San Joaquin Valley. The production region boundaries correspond to single units or groups of DWR's Detailed Analysis Units (DAUs) (DWR n.d.[a]) with similar climate and water supply (e.g., depth to groundwater) conditions.

Boundary Definitions

The SWAP production region boundaries were defined using SWAP model default boundaries and SacWAM Water Budget Areas (WBAs). SWAP model default production region boundaries were

used in the Delta and San Joaquin Valley. Many of the default SWAP production region boundaries in the Sacramento Valley were modified to align with SacWAM WBAs. SacWAM uses WBAs to define the spatial extent of agricultural demand units in the Sacramento Valley. In many cases, the WBAs align closely with the DAUs, and changes to the production region boundaries were minor. For example, the boundary for SWAP production Region 9 was not modified, as the boundary for WBA 50 is consistent with DAU boundaries. Other production region boundaries in the Sacramento Valley were modified somewhat, and WBAs were aggregated in a way that limited the changes to the original SWAP production region boundaries. Table A3-2 provides a summary of the SWAP production regions and the corresponding SacWAM WBAs. Examples of water users in each production region are provided in Table A3-3.

Table A3-2. SWAP Production Regions and SacWAM Water Budget Areas

SWAP Production Region	SacWAM Water Budget Area
1*	2, 3
2*	4, 5, 6
3A*	8N, 8S
3B*	7N, 7S
4*	9, 18, 19
5*	10, 11, 12, 13, 14, 15N, 15S, 16, 17N, 17S
6*	20, 21, 25
7*	22, 23, 24, 26N, 26S
8*	60N, 60S
9	50
10–21C	SWAP production regions that are outside the spatial extent of SacWAM WBAs.

SWAP production Regions 9 through 21C were unchanged for the analysis because they coincided with the existing SacWAM WBA boundaries or were outside of the spatial extent of SacWAM.
*SWAP production region were modified

Table A3-3. SWAP Production Regions and Example Water Users

SWAP Production Region	Water User Examples
1	CVP users: Anderson Cottonwood, Clear Creek, Bella Vista
2	CVP users: Corning Canal, Kirkwood, Tehama, Sacramento River miscellaneous users
3A	CVP users: Glenn-Colusa ID, Colusa Basin Drain MWC
3B	Tehama Colusa Canal Service Area. CVP users: Orland Artois WD, most of County of Colusa, Davis, Dunnigan, Glide, Kanawha, La Grande, Westside WD
4	CVP users: Recl. Dist. 1004, Recl. Dist. 108, Sutter MWC
5	Most Feather River region riparian and appropriative users
6	Yolo, Solano Counties. CVP users: Conaway Ranch, Sacramento River miscellaneous users
7	Sacramento County north of American River. CVP users: Natomas Central MWC
8	Sacramento County south of American River, San Joaquin County
9	Direct diverters within Delta regions. CVP users: Banta-Carbona, West Side, Plainview

SWAP Production Region	Water User Examples
10	Delta Mendota Canal. CVP users: Panoche, Pacheco, Del Puerto, Hospital, Sunflower, West Stanislaus, Mustang, Orestimba, Patterson, Foothill, San Luis WD, Broadview, Eagle Field
11	Stanislaus River water rights: Modesto ID, Oakdale ID, South San Joaquin ID
12	Turlock ID
13	Merced ID CVP users: Madera ID, Chowchilla WD, Gravely Ford
14A	CVP users: Westlands WD
14B	Southwest Corner of Kings County
15A	Tulare V. CVP users: Fresno Slough, James, Tranquility, Traction Ranch, Laguna
15B	Dudley Ridge WD and Devils Den (Castaic Lake)
16	Eastern Fresno County. CVP users: Friant-Kern Canal, Fresno ID, Garfield WD, International WD
17	CVP users: Friant-Kern Canals, Hills Valley, Tri Valley, Orange Cove
18	County of Fresno, Pixley ID, portion of Rag Gulch, Ducor, County of Tulare, Kaweah Delta Water Conservation District
19A	SWP service area, including Belridge WSD, Berrenda Mesa WD
19B	SWP service area, including Semitropic WSD
20	CVP users: Friant-Kern Canal, Shafter-Wasco, Southern San Joaquin Municipal Utility District
21A	SWP users and CVP users served by Cross Valley Canal and Friant-Kern Canal
21B	Portions of Wheeler Ridge-Maricopa WSD, Arvin-Edison WSD
21C	SWP service area: Wheeler Ridge-Maricopa WSD

CVP = Central Valley Project; IC = Irrigation Company; ID = Irrigation District; MWC = Mutual Water Company; Recl. Dist = Reclamation District; SWAP = Statewide Agricultural Production Model; SWP = State Water Project; WD = Water District; WSD = Water Storage District

A3.2.1.3 SWAP Model Inputs

This section describes the water supply and other inputs to the SWAP model. Water supply inputs are the primary factors influencing the estimated potential changes in Central Valley agricultural production resulting from the flow scenarios. Other inputs describing crop water requirements, agricultural production costs, and crop prices are also presented. Changes applied to default SWAP values are described.

Water Supply Inputs

This section describes the water supply inputs for agricultural production for each SWAP model run. Water supply sources for irrigation generally include surface water and groundwater. The annual volume of water supply available to each SWAP production region is used in the model as a resource limit. That is, crops can be irrigated up to the point at which the available water supply from all sources is exhausted. During SWAP's optimization process, where available and profitable to do so, SWAP may choose to utilize more of one water supply source as a substitute for a water supply source that has diminished due to hydrologic conditions, policy, or other factors.

Surface Water Inputs

Surface water inputs include the following.

- Types, or sources, of water that could be available.
- Type of water year, where surface water supplies represent *average* and *dry* hydrologic conditions.
- Amount of water available under each flow scenario.

Description of Surface Water Types

SWAP includes five types of surface water: CVP (CVP1), Central Valley Project Settlement and Exchange (CVPS), Friant Class 2 (CL2), SWP, and local supplies (LOC). Summarized below by SWAP production region are the surface water supply inputs used for the various surface water types modeled. These are initial condition values used by the model. During each SWAP model run, the volume of surface water and groundwater used within a production region may be equal to or less than the initial condition values.

Description of Water Year Types

For this analysis, average surface water deliveries for average and dry water years from SacWAM were applied in SWAP. Surface water deliveries during the average water year were calculated as the average of all years over the 1923–2015 SacWAM simulation period. Dry year deliveries were estimated as the average of dry and critical classified years as classified by the Sacramento Valley 40-30-30 Water Year Hydrological Index (Sacramento Index) over the 1923–2015 simulation period.

Available Surface Water Supply

A primary input for the SWAP model is output from SacWAM, a surface water model for the Sacramento Valley (described in Appendix A1, *Sacramento Water Allocation Model Methods and Results*). SacWAM provides estimates of Sacramento/Delta surface water supply for agricultural uses in the Sacramento/Delta watershed and other regions that receive Sacramento/Delta water supplies, including the San Joaquin Valley. SWAP is used to estimate how the changes in surface water supply affect agricultural output, production costs, and crop revenues in the affected areas.

The SacWAM results were postprocessed for use in the SWAP model runs. In the Sacramento Valley, annual agricultural surface water supply deliveries to each SacWAM WBA were obtained by subtracting groundwater deliveries from SacWAM surface water supply deliveries for each model year from 1923 through 2015. SWAP water supply inputs represent water supply available at the field and therefore exclude conveyance losses (e.g., spills and losses from water delivery canals). Operational and lateral losses were removed from the estimated SacWAM surface water deliveries for all crops except rice, which does not have operational spills and lateral losses. In addition, only the irrigation season surface water deliveries for rice were included in the water supply inputs for SWAP. SacWAM estimates surface water deliveries to rice crops in the winter for field flooding, but these deliveries are not included in the SWAP water supply inputs because they are not used to meet the evapotranspiration requirements of the crop. After these adjustments to the SacWAM results were made for each WBA, they were aggregated to the SWAP production regions. Because SacWAM does not allocate Delta exports to individual contractors or SWAP production regions, Delta exports were apportioned to individual agricultural contractors by multiplying their share of the total

contracted CVP and SWP supplies by the total supply available during each year. The water supplies to individual contractors were then allocated to the appropriate SWAP production region. Table A3-4 provides the total of the surface water supply inputs used in the SWAP runs for baseline conditions and the flow scenarios for average and dry years for the Sacramento Valley.

Table A3-4. Total Surface Water Supply for Agriculture in the SWAP Zones of the Sacramento/Delta, Average and Dry Water Year Types, SWAP Model Inputs for Baseline and Flow Scenario Runs (thousand acre-feet per year)

SWAP Water Year Type	Baseline	35	45	55	65	75
Average year	4,858	4,690	4,598	4,389	4,008	3,448
Dry year	4,649	4,289	4,129	3,788	3,403	2,917

In the San Joaquin Valley region, a combination of sources was used to estimate surface water supply inputs for the SWAP model runs. In the areas that receive Sacramento/Delta supply (SWAP production Regions 10. 14A, 14B, 15A, 15B, 19A, 19B, 21A, 21C), SacWAM estimates for Sacramento/Delta supply were included as SWP and CVP inputs. In the San Joaquin Valley area that does not receive Sacramento/Delta supply (SWAP production Regions 13, 16, 17, 18, 20, and 21B), default CVP and SWP water supplies obtained from an analysis completed by the U.S. Bureau of Reclamation (Reclamation)[5] were used as surface water supply inputs for the SWAP model runs. Default local surface water volumes in the SWAP model were used for all SWAP production regions outside the Sacramento Valley. SWP Article 21 supplies and CVP Section 215 supplies,[6] which are primarily available outside the irrigation season, were not included as a surface water supply source for irrigation. However, Article 21 and Section 215 water supplies are often utilized by agencies for groundwater recharge that is subsequently recovered through groundwater pumping and utilized for irrigation. These activities were assumed to be incorporated in the groundwater availability for each SWAP region. Table A3-5 provides the total of the surface water supply inputs used in the SWAP runs for baseline conditions and the flow scenarios for average and dry years for the San Joaquin Valley region.

Table A3-5. Total Surface Water Supply for Agriculture in the SWAP Zones of the San Joaquin Valley Region, Average and Dry Water Year Types, SWAP Model Inputs for Baseline and Flow Scenario Runs (thousand acre-feet per year)

SWAP Water Year Type	Baseline	35	45	55	65	75
Average year	8,466	8,421	8,302	8,083	7,638	7,267
Dry year	7,596	7,528	7,348	7,061	6,736	6,373

In the San Joaquin Valley region, some of the flow scenarios could result in water supply shortages to the San Joaquin River Exchange Contractors. Under these conditions, Exchange Contractors could make a call on surface water supplies available to water contractors in the Friant Division. A post-processing routine was developed to reallocate Friant Division surface water supplies to the Exchange Contractors. Friant Division contractors receive surface water supplies with two

[5] Data provided by the U.S. Bureau of Reclamation, October 14, 2017.

[6] SWP Article 21 supplies and CVP Section 215 supplies are surplus water supplies that cannot be stored in Project facilities and are available on an intermittent, interruptible basis.

priorities—Class 1 and Class 2. Class 2 supplies are reduced prior to Class 1 during times of shortage. In this analysis, surface water supplies were reduced to individual Friant Division contractors in proportion to their contract volumes beginning with Class 2 deliveries until the delivery deficit to the Exchange Contractors was eliminated.

Available Groundwater Supplies

It is uncertain how all water users may respond to reduced Sacramento/Delta water supply regarding groundwater pumping. For this reason, two bookends related to reduced Sacramento/Delta surface water supplies are evaluated: maximum replacement groundwater pumping and no replacement groundwater pumping. Under no replacement groundwater pumping, it was assumed that groundwater would not be available to replace reductions in surface water availability beyond current use under the baseline condition. As such, each SWAP production region is limited to the SWAP model estimated pumping levels for average water years under baseline conditions. Under maximum replacement groundwater pumping, it was assumed that growers could use groundwater in addition to local water supplies to offset some or all Sacramento/Delta supply reductions, and regional groundwater limits for the Sacramento Valley are set at the highest estimated annual pumping levels as estimated by SacWAM. For the SWAP production regions not covered by SacWAM (Regions 9 through 21C), default SWAP groundwater limits representing 2014 estimated groundwater pumping capacities are applied. Importantly, this is not a directive that farmers and ranchers should or would replace Sacramento/Delta reductions with groundwater pumping, especially in light of requirements to achieve sustainability in basins subject to the Sustainable Groundwater Management Act, but a good faith attempt to capture the potential maximum impacts on the groundwater basin from replacement pumping. The likely response would be somewhere in between, meaning that water users would likely increase groundwater pumping to replace some amount of the reduced Sacramento/Delta surface water supplies, but not at volumes sufficient to replace all of the reduced surface water supplies.

A3.2.1.4 Other Model Inputs

Other inputs to the SWAP model and data sources are listed in Table A3-6 and discussed in the following sections. Three model inputs were modified from the standard inputs, as described under *Modified SWAP Model Inputs* below, and all other model inputs used standard SWAP model default values.

Table A3-6. SWAP Model Input, Data Sources, and Modifications

SWAP Model Input	Data Source	Modified from Standard SWAP Default	Notes
Crop groups		Yes—corn silage added as a separate crop from standard corn*	
Applied water requirements	DWR (2010), SacWAM	Yes—SacWAM output used rather than standard DWR estimates for the Sacramento/Delta*	Average crop irrigation water requirements in acre-feet per acre
Crop acres	DWR Land Use Survey	Yes—modified to address changes to the	Base year 2010

SWAP Model Input	Data Source	Modified from Standard SWAP Default	Notes
		SWAP production region boundaries*	
Crop prices	County Agricultural Commissioner Reports	No	By proxy crop[a] using 2010–2012 average prices
Crop yields	University of California Cooperative Extension Crop Budgets	No	By proxy crop[a] for various years (most recent available)
Production costs	University of California Cooperative Extension Crop Budgets	No	By proxy crop[a] for various years (most recent available)
Surface water costs	Reclamation, DWR, individual districts	No	By SWAP production region
Groundwater costs	SWAP Model Documentation (Reclamation 2012), Central Valley Ground-Surface Water Model (Reclamation 1990)	No	Total cost per acre-foot includes fixed, O&M, and energy cost
Elasticities	Green et al. 2006	No	California estimates

DWR = California Department of Water Resources; SacWAM = Sacramento Water Allocation Model; SWAP = Statewide Agricultural Production; O&M = operations and maintenance

[a] The proxy crop is the crop type that was used to represent the crop production input requirements and output for each SWAP crop group. Corn silage was added as a crop group.

*See next section for details.

Modified SWAP Model Inputs

Three standard SWAP model inputs were modified for this analysis:

- SWAP crop groups
- Applied water requirements
- SWAP crop acres

SWAP Crop Groups

The SWAP base model originally included 20 crop groups that represent the wide variety of crops produced in the Central Valley. Table A3-7 summarizes the crop groups and the types of crops included in each group.

Corn is one of the original crop categories represented in the SWAP model, and it typically is modeled using grain corn production. However, because of the importance of corn silage production to the dairy industry, for this study, corn silage was added as a crop in SWAP and modeled for this analysis. Isolating corn silage from other corn enabled inclusion of a constraint in the SWAP model that limits the allowed reduction in corn silage acres. The corn silage constraint is one of the SWAP model inputs discussed in the *Modified SWAP Model Constraints, Corn Silage Constraint* section.

Table A3-7. SWAP Model Crop Groupings

SWAP Crop Group	Proxy Crop[a]	Other Crops
Alfalfa	Alfalfa hay	
Almonds and Pistachios	Almonds	Pistachios
Corn	Grain corn	
Corn Silage	Corn silage	
Cotton	Pima cotton	Upland cotton
Cucurbits	Summer squash	Melons, cucumbers, pumpkins
Dry Beans	Dry beans	Lima beans
Fresh Tomatoes	Fresh tomatoes	
Grain	Wheat	Oats, sorghum, barley
Onions and Garlic	Dry onions	Fresh onions, garlic
Other Deciduous	Walnuts	Peaches, plums, apples
Other Field	Sudan grass hay	Other silage
Other Truck	Broccoli	Carrots, peppers, lettuce, other vegetables
Pasture	Irrigated pasture	
Potatoes	White potatoes	
Processing Tomatoes	Processing tomatoes	
Rice	Rice	
Safflower	Safflower	
Sugar Beets	Sugar beets	
Subtropical	Oranges	Lemons, misc. Citrus, olives
Vine	Wine grapes	Table grapes, raisins

Source: Reclamation 2012.

[a] The proxy crop is the crop type that was used to represent the crop production input requirements and output for each SWAP crop group. Corn silage was added as a crop group.

Applied Water Requirements

The applied water requirement is the volume of water needed to irrigate an acre of a particular crop optimally within a given SWAP production region in an average year. The default SWAP model relies on a fixed set of crop applied water requirements representing 2010 climate conditions developed by DWR (DWR n.d.[b]) that are organized by crop group at the DAU level and then weighted by crop acres. Figure A3-1 provides a display of the SWAP domain extent with existing crop acreage by crop type.

This analysis applies the default SWAP applied water requirements for the San Joaquin Valley but uses adjusted applied water requirements for the Sacramento/Delta derived from SacWAM output for 2010, the calibration year for SWAP.

SacWAM estimates applied crop water requirements using daily time step climate inputs for temperature, precipitation, humidity, and wind speed. The climate data were used to calculate reference evapotranspiration using the Penman-Monteith Equation. Crop-specific coefficients were then applied to the reference evapotranspiration estimates to develop region- and crop-specific evapotranspiration estimates. SacWAM then applied irrigation efficiency values to account for irrigation technology, tailwater losses, operational spills, lateral losses, and reuse to develop per-acre crop water demands.

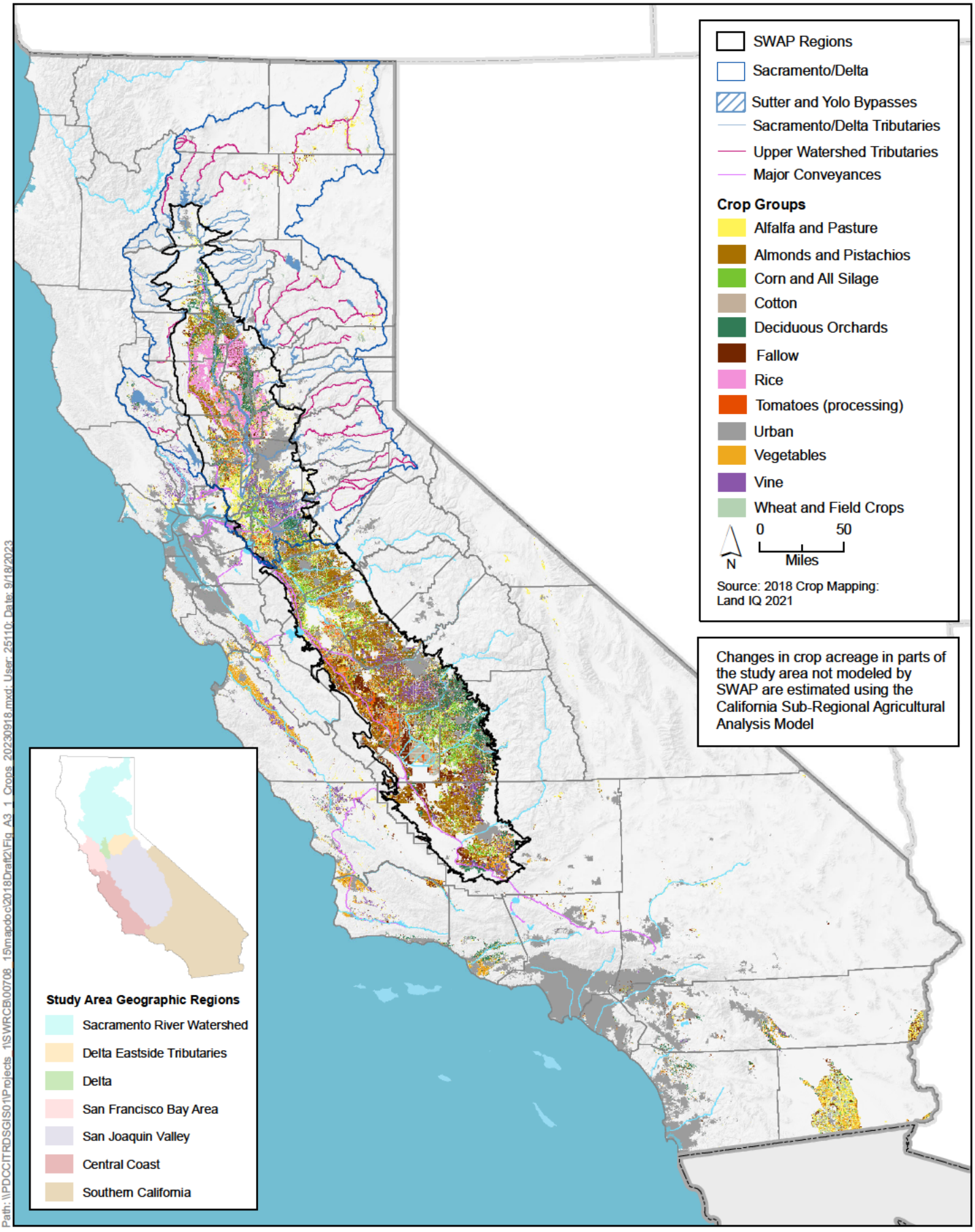

Figure A3-1
Crops and Statewide Agricultural Production (SWAP) Regions in the Study Area

In this analysis, the default SWAP applied water requirements in the Sacramento Valley were changed from the original DWR estimates to those developed in SacWAM to make the irrigation water requirements and water deliveries consistent between the two models. Applied water values in SWAP represent the on-field application of irrigation water and therefore do not include distribution system losses such as spills and losses from water delivery canals. As a result, the spill and loss components of the irrigation efficiency factors applied in SacWAM were removed from the applied water requirement estimates prior to their use in SWAP. This ensures that the applied water requirement estimates from SacWAM are estimated at the field, which is consistent with SWAP.

Table A3-8 provides the adjusted applied water requirements by crop used in the analysis for the SWAP production regions in the Sacramento/Delta. Table A3-9 provides the default SWAP applied water estimates used in the analysis for the San Joaquin Valley SWAP production regions.

Table A3-8. Adjusted Sacramento/Delta Applied Water Requirement by SWAP Production Region and Crop Group (acre-feet per acre)

	SWAP Production Region									
Crop Group	1	2	3A	3B	4	5	6	7	8	9 [a]
Alfalfa	3.5	3.9	4.4	4.5	4.1	3.8	3.9	4.1	3.7	5.1
Almonds and Pistachios	4.2	4.8	4.7	4.7	4.8	4.2	4.2	4.3	3.9	3.7
Corn	3.2	3.0	3.0	3.0	2.7	2.8	2.6	2.8	2.6	2.8
Corn Silage	3.2	3.0	3.0	3.0	2.7	2.8	2.6	2.8	2.6	2.8
Cotton	NA	NA	3.1	3.1	3.3	2.6	2.5	NA	NA	0.0
Cucurbits	2.0	1.9	2.1	2.2	2.3	2.1	1.9	1.9	1.7	1.7
Dry Beans	NA	2.5	2.5	2.4	2.6	2.5	2.3	2.4	2.0	2.4
Fresh Tomatoes	NA	NA	NA	NA	3.0	NA	2.8	2.8	2.3	2.5
Grain	0.1	0.8	0.7	0.7	0.8	0.7	0.8	0.7	0.7	1.1
Onions and Garlic	NA	NA	4.0	4.3	3.9	3.9	4.1	3.9	3.3	2.7
Other Deciduous	3.8	4.4	4.7	4.5	4.7	4.2	4.3	4.1	3.8	3.8
Other Field	2.3	2.3	2.2	2.2	2.4	2.4	2.2	2.3	2.1	2.7
Other Truck	2.0	2.1	2.1	2.0	2.0	2.1	2.0	2.0	1.7	2.4
Pasture	3.4	3.6	4.2	4.1	3.6	3.5	3.4	3.6	3.1	5.5
Potatoes	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.2
Processing Tomatoes	NA	NA	2.8	2.9	3.0	2.8	2.8	2.8	2.3	2.9
Rice	NA	4.3	4.3	4.4	4.6	4.5	4.3	4.1	4.2	5.2
Safflower	2.1	2.1	2.0	2.0	2.1	2.0	2.0	2.0	1.8	1.0
Sugar Beets	NA	3.9	4.3	4.1	4.3	4.0	3.8	3.8	3.5	0.0
Subtropical	3.7	3.6	4.6	4.1	NA	3.4	3.8	3.9	3.2	3.6
Vine	2.6	2.7	2.6	2.8	NA	3.0	2.8	2.5	2.2	1.3

Source: SacWAM output.

These data are inputs to the SWAP model.

[a] Default applied crop water requirements were used in SWAP Region 9 (the Delta).

Table A3-9. San Joaquin Valley Applied Water Requirements by SWAP Production Region and Crop Group (acre-feet per acre)

	SWAP Production Region																
Crop Group	10	11	12	13	14A	14B	15A	15B	16	17	18	19A	19B	20	21A	21B	21C
Alfalfa	4.9	4.8	4.4	4.3	4.0	4.3	4.8	3.9	4.8	4.8	5.1	4.7	5.1	5.5	4.9	5.3	4.3
Almonds and Pistachios	3.6	3.4	3.2	3.3	3.7	4.0	3.6	4.1	3.4	3.5	3.9	4.6	4.6	4.1	4.3	4.3	4.3
Corn	2.7	2.7	2.5	2.6	2.4	2.5	2.8	NA	2.6	3.0	3.2	3.3	3.5	3.6	3.3	3.4	3.3
Corn Silage	2.7	2.7	2.5	2.6	2.4	2.5	2.8	NA	2.6	3.0	3.2	3.3	3.5	3.6	3.3	3.4	3.3
Cotton	2.9	NA	NA	3.1	2.8	2.8	3.2	3.0	3.1	3.3	3.0	3.0	3.1	3.1	3.2	3.2	2.9
Cucurbits	1.8	1.8	1.6	1.5	1.7	1.8	1.9	1.9	NA	1.8	2.0	2.2	NA	NA	2.2	2.2	2.2
Dry Beans	2.5	2.3	2.2	2.2	2.1	NA	2.6	NA	NA	2.7	3.1	NA	NA	3.4	3.2	3.2	NA
Fresh Tomatoes	2.0	2.3	1.6	1.6	1.7	NA	2.0	NA	NA	NA	1.9	2.1	2.5	2.6	2.0	2.2	NA
Grain	1.0	0.8	1.0	1.0	1.2	1.4	1.4	1.3	1.2	1.2	1.6	1.7	2.2	1.8	1.8	1.7	1.7
Onions and Garlic	3.2	1.9	NA	2.9	2.7	2.9	3.3	NA	NA	3.4	3.5	3.4	3.7	3.7	3.5	3.4	3.3
Other Deciduous	3.7	3.7	3.5	3.5	4.2	3.8	3.9	3.8	3.7	3.7	3.9	3.7	3.6	3.6	3.9	3.5	3.5
Other Field	2.8	2.9	2.4	2.5	2.3	2.4	2.6	NA	NA	2.6	2.8	NA	3.0	3.1	2.7	2.8	NA
Other Truck	1.5	1.8	1.1	1.1	1.2	1.2	1.2	NA	1.2	1.2	1.3	1.4	1.7	1.6	1.4	1.3	1.3
Pasture	4.3	4.1	4.4	4.3	4.2	5.3	4.6	NA	4.8	4.9	5.0	NA	5.1	5.4	5.0	5.1	NA
Potatoes	1.5	NA	NA	1.2	NA	NA	NA	NA	NA	NA	1.6	NA	NA	2.3	1.7	1.7	1.7
Processing Tomatoes	2.6	3.0	NA	2.5	2.1	NA	2.6	NA	NA	2.5	2.6	3.0	3.2	3.2	2.9	2.9	NA
Rice	5.4	5.4	NA	5.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Safflower	2.0	1.4	NA	2.1	2.1	2.2	2.4	NA	NA	NA	NA	2.6	NA	NA	2.5	2.5	2.5
Sugar Beets	NA	NA	NA	1.6	NA	NA	NA	NA	NA	NA	NA	NA	2.8	NA	NA	NA	NA
Subtropical	2.7	3.3	2.8	2.7	3.3	3.5	3.0	3.2	2.8	2.8	3.3	3.5	3.4	3.6	NA	3.5	3.5
Vine	2.4	2.0	2.2	2.4	2.4	NA	2.5	2.6	2.3	2.5	2.7	3.0	3.0	2.9	2.7	2.8	2.8

Source: DWR n.d.(b).

These data are inputs to the SWAP model.

Table A3-10 provides the baseline condition total applied water requirements by crop group for the Sacramento/Delta and San Joaquin Valley. The crop groups requiring the highest applied water requirement differ within these two SWAP analysis regions. As evidenced within the table, rice has the largest water demand at nearly 2.6 MAF in the Sacramento/Delta, and almonds and pistachios have the largest total water requirement at 3.4 MAF.

Table A3-10. Baseline Condition Total Applied Water Requirements by Crop Group and SWAP Analysis Region

	Sacramento/Delta		San Joaquin Valley	
Crop Group	Applied Water Requirements (AF)	Percent of Total (%)	Applied Water Requirements (AF)	Percent of Total (%)
Alfalfa	784,742	9.6	2,370,919	16.0
Almonds and Pistachios	755,411	9.3	3,364,263	22.7
Corn	372,792	4.6	339,095	2.3
Corn Silage	158,577	1.9	1,318,753	8.9
Cotton	10,156	0.1	861,196	5.8
Cucurbits	85,762	1.1	93,516	0.6
Dry Beans	71,385	0.9	126,940	0.9
Fresh Tomatoes	19,707	0.2	49,697	0.3
Grain	113,596	1.4	359,563	2.4
Onions and Garlic	16,661	0.2	166,986	1.1
Other Deciduous	1,378,029	16.9	1,158,942	7.8
Other Field	157,046	1.9	1,367,551	9.2
Other Truck	50,277	0.6	260,064	1.8
Pasture	794,683	9.8	507,264	3.4
Potatoes	7,056	0.1	24,215	0.2
Processing Tomatoes	281,987	3.5	487,061	3.3
Rice	2,598,097	31.9	54,388	0.4
Safflower	42,315	0.5	23,612	0.2
Sugar Beets	0	0.0	1,316	0.0
Subtropical	145,770	1.8	747,099	5.0
Vine	288,397	3.5	1,143,954	7.7
Total	8,132,446	100	14,826,394	100

AF = acre-feet
The table values were estimated by multiplying the applied water requirements for each crop group and production region by the baseline crop acres.

SWAP Crop Acres

The irrigated land area within each production region is limited to the observed total acres in 2010 (the base year of the model) within SWAP. Because this study changed the SWAP production region boundaries in the Sacramento Valley (see Section A3.2.1.2, *SWAP Agricultural Production Regions*), it was necessary to revise the baseline year (2010) crop acres within those regions. DWR land use survey data for 2010 were apportioned to the revised SWAP production regions using a spreadsheet tool developed for CalSim 3.0 that relates land use by DAU to the WBAs used by SacWAM (DWR and Reclamation 2017). As shown in Table A3-11, the total crop acres in the original SWAP regions

correspond well with the total crop acres in the revised SWAP regions. In total, approximately 16,000 more crop acres are included in the revised SWAP production regions. Within each production region, the differences can be large, however, due to the changes in the SWAP production region boundaries. The largest differences occur in Regions 3A, 3B, and 4, which had the largest boundary changes. Figure A3-2 shows the SWAP production region boundaries within the study area.

Table A3-11. Comparison of Total Crop Acres by Original and Modified SWAP Production Regions (acres)

SWAP Production Region	Original SWAP Model[a]	Modified SWAP Model[b]	Difference
1	19,300	19,455	155
2	173,993	144,544	-29,449
3A	269,226	302,709	33,483
3B	104,701	206,329	101,628
4	263,844	150,074	-113,770
5	353,206	363,065	9,859
6	253,698	259,863	6,165
7	98,702	111,549	12,847
8	308,434	303,598	-4,836
Total	1,845,104	1,861,185	16,081

[a] Original SWAP model crop acres are based on DWR n.d.(b).

[b] Revised SWAP model crop acres are an input to the SWAP model and are based on DWR land use survey data (2010) apportioned to the revised SWAP production regions using a spreadsheet tool developed for CalSim 3.0 that relates land use by Detailed Analysis Unit to the Water Budget Areas used by SacWAM (DWR and Reclamation 2017).

Due to the PMP calibration process, which is inherent to the model structure, SWAP replicates the observed cropping pattern for a selected year. The SWAP model applied in this analysis uses 2010 as the baseline year. This is the most recent land use survey data available from DWR (DWR n.d.[b]). In addition, 2010 was a relatively average water year, making it a suitable selection for calibration purposes because SWAP constrains the crop acres within each production region to the total acres observed during the baseline year. However, as noted in Section A3.3.1, *SWAP Modeling Approach*, cropping patterns have changed somewhat since 2010, with more plantings changed to permanent crops (e.g., almonds and pistachios).

Table A3-12 provides a summary of the SWAP baseline condition crop acres (DWR n.d.[b]) for the Sacramento Valley, Delta, and Delta Eastside Tributaries and the San Joaquin Valley analysis regions. Almonds and pistachios are the largest crop group, representing more than 15 percent of the total irrigated area. Other deciduous tree crops and rice represent 9.1 percent and 8.3 percent of the total acres, respectively. Combined, permanent crops were grown on nearly 37 percent of the irrigated acres during the baseline year.[7]

[7] Permanent crop categories include almonds and pistachios, other deciduous, subtropical, and vine.

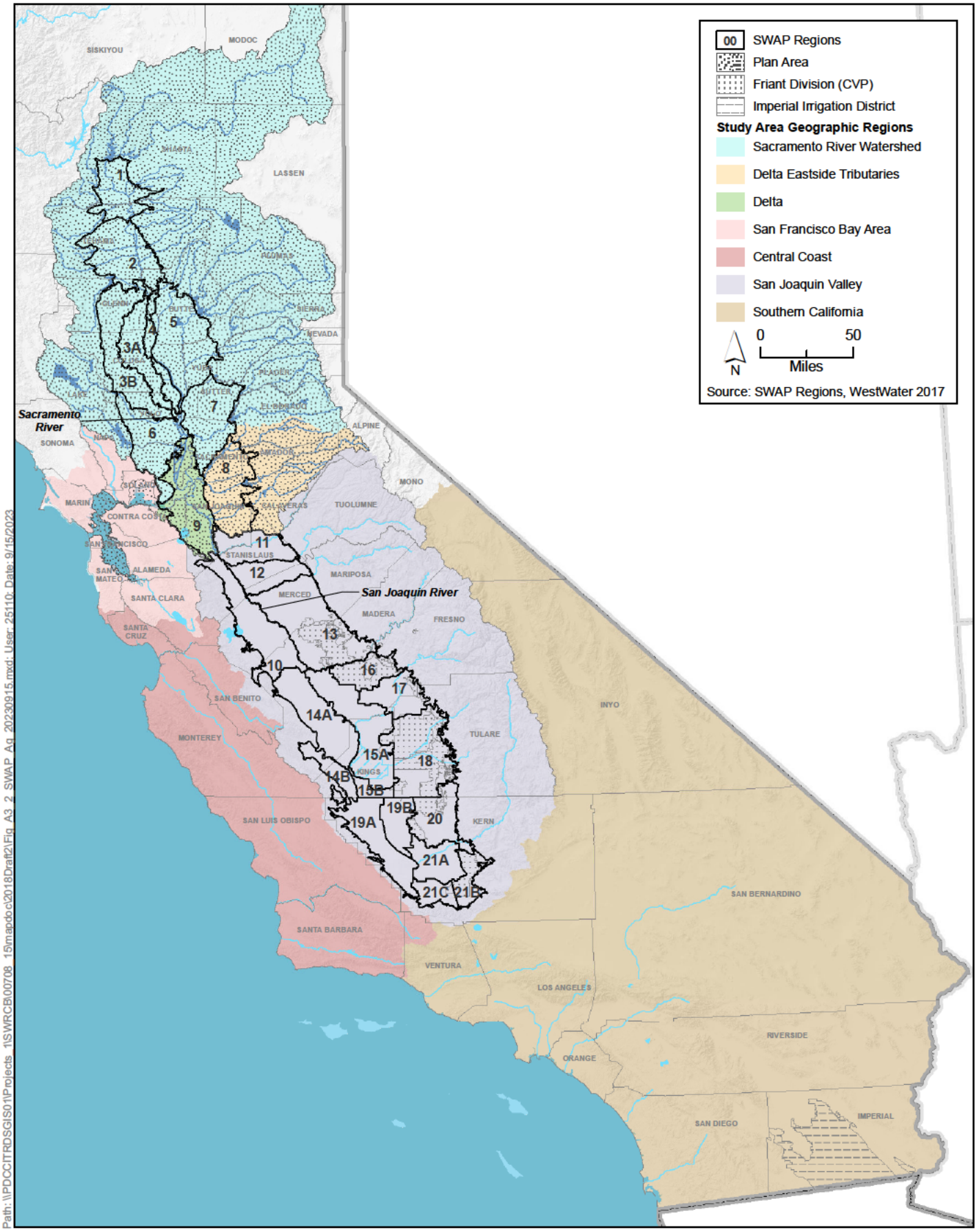

Figure A3-2
Statewide Agricultural Production (SWAP) Regions in the Study Area

Table A3-12. Baseline Condition SWAP Crop Acres

Crop Group	Sacramento/Delta	San Joaquin Valley	Total	Percent of Total (%)
Alfalfa	180,721	490,631	671,352	9.6
Almonds and Pistachios	167,663	907,528	1,075,191	15.3
Corn	133,968	109,676	243,643	3.5
Corn Silage	57,961	460,621	518,582	7.4
Cotton	3,311	283,000	286,311	4.1
Cucurbits	41,489	53,112	94,601	1.3
Dry Beans	29,708	49,491	79,199	1.1
Fresh Tomatoes	7,886	27,295	35,181	0.5
Grain	142,677	253,717	396,394	5.6
Onions and Garlic	4,310	56,512	60,822	0.9
Other Deciduous	328,771	312,191	640,962	9.1
Other Field	67,127	510,140	577,267	8.2
Other Truck	23,211	215,681	238,892	3.4
Pasture	198,583	117,016	315,599	4.5
Potatoes	2,182	14,000	16,182	0.2
Processing Tomatoes	101,806	202,533	304,339	4.3
Rice	562,364	9,978	572,342	8.1
Safflower	30,245	10,314	40,559	0.6
Sugar Beets	0	600	600	0.0
Subtropical	40,219	233,901	274,120	3.9
Vine	134,616	451,491	586,107	8.3
Total	2,258,817	4,769,428	7,028,245	

Source: DWR 2010.
These data are inputs to the SWAP model.***

Unmodified SWAP Model Inputs

Crop Prices

Agricultural producers make crop planting decisions based in part on expected future crop prices. To simulate this, SWAP uses a 3-year (2010–2012) average of county-level crop prices as reported by the County Agricultural Commissioners (USDA 2011).

Crop Yields

Crop yield inputs are obtained from University of California Cooperative Extension (UCCE) production cost budgets prepared by UC Davis and Extension Researchers (Reclamation 2012). Yields for each SWAP region are based on the most recent crop cost study available in the closest region. Crop yields for each crop group are based on best management practices whereby agricultural producers are assumed to use production inputs in a manner that achieves high crop yields. The best management practices are consistent with the production costs used in SWAP; as a result, SWAP yields are somewhat higher than estimated by calculating county averages.

Crop Cost of Production Budgets

The SWAP model uses inputs for land, labor, and other supply costs of production. These costs are obtained from the same UCCE crop budgets used to estimate crop yields (Reclamation 2012).

Land costs are derived from the respective UCCE crop budget and include land-related cash overhead plus rent and land capital recovery costs.

The labor cost category in the SWAP model comprises three components: machine labor, non-machine labor, and a premium on machine labor. Labor wages per hour differ for machine and non-machine labor and, as such, are reported separately in the UCCE budgets. Both machine and non-machine labor costs include overhead to the farmer of federal and state payroll taxes, workers' compensation, and a small percentage for other benefits, which varies by budget. Additionally, a premium (typically around 20 percent) is added to machine labor costs to account for equipment set-up, moving, maintenance, breaks, and field repair (Reclamation 2012). The sum of these components, reported on a per-acre basis, is used as input data into the SWAP model.

The supply cost category In the SWAP model Ides fertilizers, herbicIdes, insecticides, fungicides, rodenticides, seed, fuel, and custom costs. Additionally, machinery, establishment costs, buildings, and irrigation system capital recovery costs are included. Each sub-category of supply costs is broken down in detail in the respective crop budget. For example, safflower in the Sacramento Valley requires pre-plant nitrogen as aqua ammonia at 100 pounds per acre in fertilizer costs. Application of Roundup in February and Treflan in March account for herbicide costs. The sum of these individual components, on a per-acre basis, is used as base supply input cost data in the SWAP model.

Surface Water Costs

CVP and SWP water costs have two components: a project charge and a district charge. The sum of these components is the SWAP production region–specific cost of the water source. The project charge is the price per acre-foot (AF) paid by the contractor to the CVP or SWP. This charge does not apply to local surface water. CVP charges are obtained by Reclamation's CVP water rate manuals. DWR charges are calculated for each of its contractors, who are obligated to repay costs regardless of water delivered (DWR 2013).

The district charge is the additional amount that individual districts use to recover their costs of delivering water to farms. This charge is also applied to local surface water costs. This district charge is composed of a water charge and a land assessment. Districts' rate structures vary substantially, but the SWAP model is defined over larger regions and uses average or typical values within each SWAP production region.

Groundwater Costs

The SWAP model assigns a unit cost that accounts for the cost to lift 1 AF of water by 1 foot. The unit cost includes the estimated power cost based on 70 percent pump efficiency and the amortized capital cost of well construction. The base electricity price applied in SWAP is 22.2 cents per kilowatt-hour and is derived from Pacific Gas and Electric Company published rates for agricultural customers (Reclamation 2012). The base electricity price is adjusted to represent the 2030 price based on a forecast developed by DWR (Reclamation 2012). In the SWAP model, groundwater costs are affected by the applied pumping lift within each analysis region. In the Sacramento/Delta, groundwater pumping lifts range from approximately 54 to 143 feet, and pumping costs range from

$46/AF to $98/AF. In the San Joaquin Valley, groundwater pumping lifts range from 54 to 363 feet, and pumping costs range from $46/AF to $224/AF.[8]

This analysis applies the default pumping lifts in the SWAP model that were provided by the Central Valley Groundwater-Surface Water Model. Pumping lifts and therefore unit groundwater costs were assumed to be constant within each region and do not vary with the groundwater pumping volumes estimated by SWAP and thus do not differ between the no replacement groundwater pumping and maximum replacement groundwater pumping. As noted in Section A3.3.1, *SWAP Modeling Approach*, however, lifts and pumping costs may in fact increase in response to increases in quantities pumped.

Elasticities

SWAP uses a number of economic response parameters obtained from economic literature, called *elasticities*, to estimate rates of change in variables (Green et al. 2016). An elasticity is the percent change in a variable per unit of percent change in another variable or parameter. Acreage response elasticity is one component of supply response. It is the percent change in acreage of a crop from a 1 percent change in that crop's price. The SWAP model contains both long-run and short-run estimates, and the analyst decides which of the elasticities to use. Long-run acreage response elasticities are used for this analysis to estimate the economic effects associated with long-term changes in agricultural water supply associated with the flow scenarios.

A3.2.1.5 SWAP Model Constraints

Constraints are applied in the SWAP model to limit the levels of model-estimated variables such as crop acres. Agricultural producers' production decisions can better reflect resource availability (e.g., land, labor, water), agronomic factors (e.g., perennial crop life, crop rotational requirements, deficit irrigation), and external economic factors affecting crop production decisions (e.g., silage production for dairies) by adjusting or adding constraints in the SWAP model. Three constraints that limit changes in SWAP model-estimated variables were modified for this analysis:

- Corn silage
- Deficit irrigation
- Permanent crops

Corn Silage Constraint

Corn silage represents an important feed input to the California dairy industry. Unlike dry feed such as alfalfa hay that can be imported from other areas, corn silage has a high water content and is feasible to transport only relatively short distances. Further, there are limited substitutes for corn silage in dairy feeding programs. As a result, corn silage production in California is relatively resilient to changes in surface water availability. This is supported by production statistics from the recent drought during which the acres planted to corn silage remained relatively constant (CDFA 2019).

SWAP does not explicitly account for the contribution of corn silage to dairy production because it does not account for the crop's contribution to the value of dairy production; therefore, the model

[8] Groundwater costs were estimated using depth to groundwater, power price, and pump efficiency inputs to the SWAP model.

may overestimate reductions in corn silage production with declines in water supply availability. To prevent this from occurring, a constraint was included in SWAP to limit the reduction in corn silage acreage in each corn silage-producing region to no more than 30 percent of baseline acres. Baseline corn silage acres for each SWAP production region was developed using harvested acres reported in County Agricultural Commissioner reports (see Table A3-6). The county-level data were allocated to the individual SWAP production regions using the geographic information system (GIS)-calculated intersection of the irrigated acres by SWAP production region and county.

Deficit Irrigation

To achieve maximum crop yields, the full water volumes shown in Tables A3-8 and A3-9 must be applied within the SWAP model; however, SWAP allows for deficit irrigation. Deficit irrigation allows the model to apply less water to certain crops when water supply is constrained, which results in a yield reduction. SWAP will select the use of deficit irrigation for crop acres only if it represents a profit-maximizing response to a water supply shortage or to high water costs. The default SWAP model structure allows for a maximum deficit irrigation level of 85 percent of applied water requirements (15 percent maximum allowed crop stress) for all crops. In this analysis, the allowed deficit irrigation levels were modified for certain crops based on a review of published literature regarding crop tolerance for deficit irrigation. In other words, deficit irrigation was adjusted in the model based on agronomic understanding and practice. Table A3-13 provides a summary of the literature review for each of the SWAP crop groups.

Table A3-13. Ability of Crop Groups Used in SWAP to Accommodate Deficit Irrigation and Literature Reviewed

Crop Group	Tolerance for Deficit Irrigation	Notes and (Reference[s])
Alfalfa	High	Summer drydown has less effect on yield than spring. Plant tolerates stress very well (Orloff et al. 2015a; IID 1994).
Almond and Pistachio	High	Critical life-cycle periods require water; 15% reduction with no yield loss has been demonstrated. Must use caution in successive years (Schackel 2008).
Other Deciduous (plums)	High	Critical life-cycle periods require water; 10–20% reduction with minor yield loss has been demonstrated (Fulton et al. 2015).
Subtropical	High	Must be properly managed, critical life-cycle periods. One study showed 25% reduction in applied water with no yield loss (Faber 2015).
Vine	High	Current practice for high-quality grapes, but additional stress may affect yield (Prichard n.d.).
Sugar Beets	Medium	Yield reduction with reduced irrigation (Carter et al. 1980).
Cucurbits	Medium	Yield reduction with reduced irrigation (Kemble and Sanders n.d.).
Dry Bean	Medium	Critical life-cycle periods require irrigation (Emam et al. 2010).
Fresh Tomatoes	Medium	Yield reduction with reduced irrigation (Celebi 2014).
Grain (wheat)	Medium	Yield reduction with reduced irrigation (Akram 2011).
Onion and Garlic	Medium	Yield reduction with reduced irrigation (Kemble and Sanders n.d.).

Crop Group	Tolerance for Deficit Irrigation	Notes and (Reference[s])
Other Truck	Medium	Yield reduction with reduced irrigation (Kemble and Sanders n.d.).
Pasture	Medium	Yield (i.e., grazing ability) reduction with reduced irrigation (Orloff et al. 2015b).
Processing Tomatoes	Medium	Yield reduction with reduced irrigation (Hansen et al. n.d.).
Safflower	Medium	Yield reduction with reduced irrigation (Esendal et al. 2008).
Other Field	Medium	Yield reduction with reduced irrigation (Akram 2011).
Corn	Low	Difficult to manage with current irrigation systems. Critical life-cycle periods require irrigation (Lundy 2015).
Cotton	Low	Critical life-cycle periods require irrigation (Hutmacher Et al. n.d.).
Rice	Low	Difficult to manage with current irrigation systems. Critical life-cycle periods require irrigation (UCCE 2009).

Based on the literature review results, deficit irrigation was not allowed for rice, cotton, and corn because it is not agronomically feasible. For other crops, the maximum deficit level was set from 15 to 30 percent. Table A3-14 provides a summary of the maximum crop deficit levels applied in this analysis. Deficit irrigation can be a long-term management strategy to enhance the quality of some crops such as wine grapes. However, for most crops, it represents a short-term strategy for dealing with limited water supply conditions. In this analysis, deficit irrigation is allowed only during the dry year SWAP runs.

Table A3-14. Maximum Allowed Irrigation Deficit by Crop

Crop	Maximum Allowed Deficit (% Reduction from Applied Water Requirement)
Alfalfa	30
Almonds and Pistachios	25
Corn	0
Corn Silage	0
Cotton	0
Cucurbits	15
Dry Beans	15
Fresh Tomatoes	15
Grain	15
Onions and Garlic	15
Other Deciduous	25
Other Field	15
Other Truck	15
Pasture	15
Potatoes	15
Processing Tomatoes	15
Rice	0

Crop	Maximum Allowed Deficit (% Reduction from Applied Water Requirement)
Safflower	15
Sugar Beets	15
Subtropical	25
Vine	25

Permanent Crop Constraint

Trees and vines are classified as permanent crops. The optimization routine in SWAP selects the crop mix that maximizes the net returns to producer and consumer surplus. When the availability of production inputs such as water are changed, the optimal crop mix may change, including the acres planted to permanent crops. Due to the high costs of establishing permanent crops, agricultural producers rarely remove young trees and vines due to reductions in water supply. In the default SWAP model, changes in the acreage of permanent crops are determined by the estimated stand life of the crop (in years) and the analysis horizon beyond the 2010 calibration period (in years). The stand life of permanent crops varies between 25 and 30 years. SWAP constrains the retirement of permanent crops to the proportion of the analysis horizon and the crop life such that, if the analysis horizon exceeds the average stand life, SWAP allows for full retirement of the crop. For this analysis, the optimal crop mix for each scenario under average water supply conditions was estimated first using the default permanent crop constraint followed by the dry year water conditions. For the dry years, permanent crop plantings are required to be at least 95 percent of the permanent crop plantings estimated for the average water year. This minimizes unreasonably large changes in permanent crop acres across water year types while allowing for some replacement of older trees and vines.

A3.3 SWAP Modeling Results

SWAP provides numerous outputs, including information on changes in net income, changes in output, irrigated acreage, crop mix, and water use. Primary SWAP model outputs include irrigated crop acreage, crop mix, and estimated changes in gross and net revenues associated with the flow scenarios (also referred to as *crop revenue* and *profit*). Analysis of the impacts of the modeled changes in crop acreage and crop mix is provided in Section 7.4, *Agriculture and Forest Resources*. The effects of the modeled changes in gross and net revenues, or crop revenue and profit, are analyzed in Chapter 8, *Economic Analysis and Other Considerations*.

SWAP results are presented for baseline (or existing) conditions and the flow scenarios for the two groundwater pumping levels. Results are aggregated to two geographic regions: Sacramento/Delta and the San Joaquin Valley. Estimated revenues are indexed to July 2022 dollars using the Bureau of Economic Analysis Implicit Price Deflator (BEA 2022).

A3.3.1 SWAP Modeling Approach

SWAP is an optimization model that makes the best (i.e., most profitable) adjustments to water supply and other changes (Reclamation 2012). Constraints can be imposed to simulate restrictions on how much adjustment is possible or how fast an adjustment can realistically occur. Nevertheless,

an optimization model can over-adjust and minimize costs associated with detrimental changes or, similarly, maximize benefits associated with positive changes. To account for this possibility, this analysis evaluates multiple flow scenarios within a range of groundwater pumping that is intended to bookend the range of possible effects.

SWAP does not explicitly account for the dynamic nature of agricultural production; it provides a point-in-time comparison between two conditions, which is consistent with the customary approach to conducting economic and environmental impact analyses.

SWAP accounts for risk and variability in two ways. First, the calibration procedure for SWAP is designed to reproduce an observed crop mix, so to the extent that crop mix incorporates risk spreading and risk aversion, the calibrated SWAP model baseline condition also will incorporate risk spreading and aversion. Second, variability in water delivery, prices, yields, or other parameters can be evaluated by running the model over a sequence of conditions or over a set of conditions that characterize a distribution, such as a set of water year conditions, as was done in the current analysis by evaluating two water year conditions.

In many of the SWAP model production regions, groundwater and local surface water supplies are alternative sources of water that could be used to replace reduced CVP and SWP supplies. The cost and availability of groundwater, therefore, has an important effect on how SWAP responds to changes in surface water deliveries. SWAP is not a groundwater model and, therefore, does not estimate changes in pumping lifts and unit pumping cost. As a result, unit pumping costs are not varied in this analysis.

Since the 2010 baseline year, the cropping patterns of the Sacramento River, San Joaquin River, and Delta areas have changed (Congressional Research Service 2015). In particular, there are more tree crops, such as almonds. The higher plantings to permanent crops have "hardened" irrigation water demand, potentially making growers more susceptible to economic losses during reductions in water supply. The SWAP model allows for some efficiency improvements and deficit irrigation to respond to reduced water supply. However, it does not capture the full set of options that agricultural producers may pursue to address reduced water supplies, such as groundwater banking, use of recycled water, and water purchases.

Two water year types representing average and dry conditions were applied in this analysis to capture the range of economic effects from the flow scenarios. Output from the average water year indicates the long-term crop and water management decisions that agricultural producers make to maximize profits. Output from the dry water year shows how those crop and water management decisions respond to lower surface water availability. For example, in the dry year, agricultural producers may respond to the reduced availability of surface water by deficit irrigating crops or fallowing those crops that are less profitable.

A3.3.2 Effects on Groundwater Pumping

The flow scenarios result in reductions in Sacramento/Delta surface water available to agricultural producers relative to baseline conditions. As surface water supplies are reduced, SWAP will choose to pump more groundwater if available, shift to less water-intensive crops, deficit irrigate if allowed, or fallow land. As previously described, two groundwater conditions are applied: no replacement groundwater pumping and maximum replacement groundwater pumping. Under the no replacement groundwater pumping condition, groundwater pumping within each SWAP production region is limited to the SWAP model estimated groundwater pumping volume under baseline

conditions for the average year. Under the maximum replacement groundwater pumping condition, it was assumed that growers could use groundwater in addition to local water supplies to offset some or all Sacramento/Delta surface water supply reduction. Importantly, this is not a directive that farmers and ranchers should or would replace Sacramento/Delta reductions with groundwater pumping, especially in light of requirements to achieve sustainability in basins subject to the Sustainable Groundwater Management Act, but a good faith attempt to capture the potential maximum impacts on the groundwater basin from replacement pumping. Table A3-15 shows the SWAP model annual groundwater pumping for the Sacramento and San Joaquin Valleys by flow scenario under the two groundwater conditions for the average year. Table A3-16 shows the same information for the dry year. As the tables indicate, the no replacement groundwater pumping condition results are virtually unchanged regardless of flow scenario, whereas groundwater pumping increases for each flow scenario for the maximum replacement groundwater pumping condition.

A3.3.3 Effects on Crop Acreage

As described previously, the flow scenarios result in reductions in Sacramento/Delta surface water available to agricultural producers relative to baseline conditions. SWAP estimates the cropping pattern that maximizes economic value subject to available resources, including water. As surface water supplies are reduced, SWAP will choose to pump more groundwater if available, shift to less water-intensive crops, deficit irrigate if allowed, or fallow land. Within a particular SWAP production region, crops that are the least profitable per unit of applied water are assumed to be fallowed before other crops. This section provides crop acres estimated by SWAP for the existing conditions and flow scenarios for the Sacramento/Delta and the San Joaquin Valley regions by water year type and groundwater condition (Tables A3-15 through A3-64).

Table A3-15. Volume of Groundwater Pumped by SWAP Region, Flow Scenario, and Groundwater Condition in Average Year (acre-feet)

SWAP Region	No Replacement Groundwater Pumping						Maximum Replacement Groundwater Pumping					
	Existing	35	45	55	65	75	Existing	35	45	55	65	75
V01	0	0	0	0	0	0	0	0	0	0	0	6,099
V02	411,377	411,377	411,377	411,377	411,377	411,377	411,377	419,871	427,360	437,670	455,292	474,532
V03A	150,746	150,746	150,746	150,746	150,746	150,746	150,746	198,238	215,125	261,107	319,200	319,200
V03B	601,755	601,755	601,755	601,755	601,755	601,755	601,755	617,505	630,172	656,276	690,300	690,300
V04	150,100	150,100	150,100	150,100	150,100	150,100	150,100	150,100	150,100	150,100	150,100	150,100
V05	524,116	524,116	524,116	524,116	524,116	524,116	524,116	526,958	535,533	563,299	647,122	785,369
V06	436,001	436,001	436,001	436,001	436,001	436,001	436,001	478,814	499,458	531,595	568,042	613,476
V07	108,275	108,275	108,275	108,275	108,275	108,275	108,275	115,509	124,771	143,498	175,885	220,934
V08	660,692	660,692	660,692	660,692	660,692	660,692	660,692	671,298	674,676	684,995	695,814	703,436
V09	90,987	90,987	90,987	90,987	90,987	90,987	90,987	91,480	92,890	96,606	105,815	108,908
Sac/Delta	3,134,049	3,134,049	3,134,049	3,134,049	3,134,049	3,134,049	3,134,049	3,269,773	3,350,087	3,525,147	3,807,570	4,072,354
V10	759,739	759,739	759,739	759,739	759,739	740,986	759,739	761,314	762,868	776,390	773,426	740,986
V11	115,169	115,169	115,169	115,169	115,169	115,169	115,169	115,169	115,169	115,169	115,169	115,169
V12	210,615	210,615	210,615	210,615	210,615	210,615	210,615	210,615	210,615	210,615	210,615	210,615
V13	793,021	792,712	793,021	793,021	793,021	793,021	793,021	792,712	793,592	794,870	811,717	852,862
V14A	246,316	246,316	246,316	246,316	246,316	246,316	246,316	254,943	288,154	373,326	591,008	672,638
V14B	109,047	109,047	109,047	109,047	109,047	109,047	109,047	109,353	109,978	110,719	111,375	112,213
V15A	1,226,054	1,226,054	1,226,054	1,226,054	1,226,054	1,226,054	1,226,054	1,229,449	1,237,117	1,248,868	1,267,885	1,285,648
V15B	34,133	34,133	34,133	34,133	34,133	34,133	34,133	36,172	40,266	45,138	49,516	55,092
V16	0	0	0	0	0	0	0	0	0	0	0	0
V17	284,365	284,365	284,365	284,365	284,365	284,365	284,365	284,365	284,365	284,365	284,365	284,365
V18	1,348,248	1,347,757	1,348,248	1,348,248	1,348,248	1,348,248	1,348,248	1,347,757	1,349,152	1,351,175	1,377,859	1,461,448
V19A	186,887	186,887	186,887	186,887	186,887	186,887	186,887	197,883	220,360	247,004	270,603	272,600
V19B	411,695	411,695	411,695	411,695	411,695	411,695	411,695	416,299	425,708	436,863	446,742	459,360
V20	268,418	268,418	268,418	268,418	268,418	268,418	268,418	269,679	272,612	276,144	282,965	301,875
V21A	336,697	336,697	336,697	336,697	336,697	336,697	336,697	341,300	350,709	361,862	371,741	384,358
V21B	148,347	148,347	148,347	148,347	148,347	148,347	148,347	149,869	154,290	159,734	178,162	227,262
V21C	119,001	119,001	119,001	119,001	119,001	119,001	119,001	122,588	129,920	138,611	146,309	156,142
San Joaquin Valley	6,597,751	6,596,951	6,597,751	6,597,751	6,597,751	6,578,998	6,597,751	6,639,467	6,744,876	6,930,854	7,289,458	7,592,634

Table A3-16. Volume of Groundwater Pumped by SWAP Region, Flow Scenario, and Groundwater Condition, Dry Year (acre-feet)

SWAP Region	No Replacement Groundwater Pumping						Maximum Replacement Groundwater Pumping					
	Existing	35	45	55	65	75	Existing	35	45	55	65	75
V01	0	0	0	0	0	0	0	0	0	0	0	6,099
V02	411,377	411,377	411,377	411,377	411,377	411,377	411,377	419,871	427,360	437,670	455,292	474,532
V03A	150,746	150,746	150,746	150,746	150,746	150,746	150,746	198,238	215,125	261,107	319,200	319,200
V03B	601,755	601,755	601,755	601,755	601,755	601,755	601,755	617,505	630,172	656,276	690,300	690,300
V04	150,100	150,100	150,100	150,100	150,100	150,100	150,100	150,100	150,100	150,100	150,100	150,100
V05	524,116	524,116	524,116	524,116	524,116	524,116	524,116	526,958	535,533	563,299	647,122	785,369
V06	436,001	436,001	436,001	436,001	436,001	436,001	436,001	478,814	499,458	531,595	568,042	613,476
V07	108,275	108,275	108,275	108,275	108,275	108,275	108,275	115,509	124,771	143,498	175,885	220,934
V08	660,692	660,692	660,692	660,692	660,692	660,692	660,692	671,298	674,676	684,995	695,814	703,436
V09	90,987	90,987	90,987	90,987	90,987	90,987	90,987	91,480	92,890	96,606	105,815	108,908
Sac/Delta	3,134,049	3,134,049	3,134,049	3,134,049	3,134,049	3,134,049	3,134,049	3,269,773	3,350,087	3,525,147	3,807,570	4,072,354
V10	759,739	759,739	759,739	759,739	759,739	740,986	759,739	761,314	762,868	776,390	773,426	740,986
V11	115,169	115,169	115,169	115,169	115,169	115,169	115,169	115,169	115,169	115,169	115,169	115,169
V12	210,615	210,615	210,615	210,615	210,615	210,615	210,615	210,615	210,615	210,615	210,615	210,615
V13	793,021	792,712	793,021	793,021	793,021	793,021	793,021	792,712	793,592	794,870	811,717	852,862
V14A	246,316	246,316	246,316	246,316	246,316	246,316	246,316	254,943	288,154	373,326	591,008	672,638
V14B	109,047	109,047	109,047	109,047	109,047	109,047	109,047	109,353	109,978	110,719	111,375	112,213
V15A	1,226,054	1,226,054	1,226,054	1,226,054	1,226,054	1,226,054	1,226,054	1,229,449	1,237,117	1,248,868	1,267,885	1,285,648
V15B	34,133	34,133	34,133	34,133	34,133	34,133	34,133	36,172	40,266	45,138	49,516	55,092
V16	0	0	0	0	0	0	0	0	0	0	0	0
V17	284,365	284,365	284,365	284,365	284,365	284,365	284,365	284,365	284,365	284,365	284,365	284,365
V18	1,348,248	1,347,757	1,348,248	1,348,248	1,348,248	1,348,248	1,348,248	1,347,757	1,349,152	1,351,175	1,377,859	1,461,448
V19A	186,887	186,887	186,887	186,887	186,887	186,887	186,887	197,883	220,360	247,004	270,603	272,600
V19B	411,695	411,695	411,695	411,695	411,695	411,695	411,695	416,299	425,708	436,863	446,742	459,360
V20	268,418	268,418	268,418	268,418	268,418	268,418	268,418	269,679	272,612	276,144	282,965	301,875
V21A	336,697	336,697	336,697	336,697	336,697	336,697	336,697	341,300	350,709	361,862	371,741	384,358
V21B	148,347	148,347	148,347	148,347	148,347	148,347	148,347	149,869	154,290	159,734	178,162	227,262
V21C	119,001	119,001	119,001	119,001	119,001	119,001	119,001	122,588	129,920	138,611	146,309	156,142
San Joaquin Valley	6,597,751	6,596,951	6,597,751	6,597,751	6,597,751	6,578,998	6,597,751	6,639,467	6,744,876	6,930,854	7,289,458	7,592,634

Sacramento/Delta Crop Acres

Table A3-17. Sacramento/Delta Crop Acres – Average Year Without Groundwater Replacement, Existing Conditions (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.7	0.0	53.8	0.5	0.6	27.1	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	12.4	9.0	6.0	0.2	1.0	8.1	1.5	0.0	5.7	0.4	21.0	5.8	0.2	4.7	0.0	10.1	214.3	2.0	0.0	0.1	0.1
V03B	18.6	88.0	10.8	0.4	1.5	5.8	0.9	0.0	14.1	1.6	11.7	5.0	1.2	9.1	0.0	13.9	10.7	0.7	0.0	7.6	4.8
V04	3.1	3.2	8.7	0.2	0.3	11.0	8.6	0.1	7.8	0.0	20.9	6.0	0.1	1.2	0.0	6.5	70.3	2.0	0.0	0.0	0.0
V05	1.4	28.3	2.7	0.1	0.5	3.1	3.9	0.0	5.1	0.0	101.3	2.3	0.5	19.9	0.0	1.6	185.0	0.9	0.0	6.6	0.0
V06	55.7	8.2	16.9	0.0	0.0	5.1	3.9	1.3	36.6	1.1	23.8	23.6	2.8	26.9	0.0	28.6	17.5	4.7	0.0	0.9	2.3
V07	4.2	0.1	2.0	0.6	0.0	0.2	0.3	0.0	8.2	0.0	10.4	0.9	0.6	21.0	0.0	0.4	61.6	0.3	0.0	0.4	0.2
V08	18.3	3.5	18.0	17.3	0.0	1.9	3.8	2.5	15.3	0.7	65.0	3.6	4.5	28.4	0.0	14.6	3.0	0.3	0.0	0.9	102.0
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-18. Sacramento/Delta Crop Acres – Average Year Without Groundwater Replacement, 35 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.8	25.5	1.4	0.0	0.0	0.9	0.7	0.0	8.2	0.0	53.6	0.5	0.6	25.5	0.0	0.0	0.9	0.1	0.0	21.9	0.0
V03A	12.1	8.9	6.0	0.2	1.0	8.1	1.6	0.0	6.2	0.4	20.9	5.9	0.2	2.7	0.0	10.1	211.1	2.1	0.0	0.1	0.1
V03B	18.5	87.6	10.8	0.4	1.5	5.8	0.9	0.0	14.3	1.6	11.7	5.0	1.2	8.9	0.0	13.9	10.6	0.7	0.0	7.6	4.8
V04	3.0	3.1	8.7	0.2	0.3	11.1	8.7	0.1	10.1	0.0	20.8	6.1	0.2	1.0	0.0	6.4	67.7	2.1	0.0	0.0	0.0
V05	1.4	28.2	2.8	0.1	0.5	3.1	3.9	0.0	5.5	0.0	101.2	2.3	0.5	19.9	0.0	1.6	184.2	0.9	0.0	6.6	0.0
V06	53.6	7.8	16.5	0.0	0.0	5.1	3.8	1.3	40.3	1.1	23.6	23.5	2.8	23.2	0.0	28.2	16.4	4.7	0.0	0.9	2.3
V07	4.1	0.1	2.0	0.6	0.0	0.2	0.4	0.0	8.7	0.0	10.3	0.9	0.6	20.2	0.0	0.4	60.4	0.3	0.0	0.4	0.2
V08	18.1	3.4	18.0	17.3	0.0	1.9	4.1	2.5	16.2	0.7	64.9	3.6	4.6	27.6	0.0	14.6	2.9	0.3	0.0	0.9	102.0
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.5	0.5	18.2	18.5	12.0	49.4	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-19. Sacramento/Delta Crop Acres – Average Year Without Groundwater Replacement, 45 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.8	25.4	1.4	0.0	0.0	0.9	0.6	0.0	8.2	0.0	53.5	0.5	0.6	24.0	0.0	0.0	0.9	0.1	0.0	21.8	0.0
V03A	12.0	8.8	6.0	0.2	1.0	8.1	1.5	0.0	6.2	0.4	20.9	5.9	0.2	0.0	0.0	10.0	210.0	2.1	0.0	0.1	0.1
V03B	18.2	87.0	10.7	0.4	1.5	5.8	0.9	0.0	14.3	1.6	11.7	5.0	1.2	8.0	0.0	13.7	10.5	0.7	0.0	7.6	4.7
V04	2.9	3.1	8.6	0.2	0.3	11.1	8.5	0.1	10.1	0.0	20.7	6.1	0.2	0.7	0.0	6.2	66.5	2.1	0.0	0.0	0.0
V05	1.3	28.1	2.7	0.1	0.5	3.1	3.9	0.0	5.5	0.0	101.1	2.3	0.5	19.6	0.0	1.6	182.8	0.9	0.0	6.6	0.0
V06	53.0	7.7	16.3	0.0	0.0	5.0	3.6	1.3	40.1	1.1	23.6	23.3	2.7	19.0	0.0	28.0	16.0	4.7	0.0	0.9	2.3
V07	4.1	0.1	1.9	0.6	0.0	0.2	0.3	0.0	8.7	0.0	10.3	0.9	0.6	19.1	0.0	0.4	59.3	0.3	0.0	0.4	0.2
V08	18.0	3.4	18.0	17.3	0.0	1.9	4.1	2.5	16.2	0.7	64.9	3.6	4.6	27.4	0.0	14.6	2.9	0.3	0.0	0.9	102.0
V09	65.1	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.7	0.5	18.2	18.5	12.0	49.2	2.2	26.0	4.4	18.9	0.0	0.9	25.2

Table A3-20. Sacramento/Delta Crop Acres – Average Year Without Groundwater Replacement, 55 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.7	25.2	1.4	0.0	0.0	0.9	0.6	0.0	8.1	0.0	53.5	0.5	0.6	21.5	0.0	0.0	0.9	0.1	0.0	21.8	0.0
V03A	11.0	8.5	5.6	0.2	1.0	8.0	1.3	0.0	6.1	0.4	20.8	5.7	0.2	0.0	0.0	9.7	201.3	2.0	0.0	0.1	0.1
V03B	18.0	86.5	10.6	0.4	1.5	5.7	0.8	0.0	14.2	1.6	11.7	4.9	1.2	2.7	0.0	13.6	10.4	0.7	0.0	7.6	4.7
V04	2.7	3.0	7.9	0.2	0.3	11.0	8.0	0.1	10.0	0.0	20.6	5.8	0.1	0.0	0.0	5.8	61.9	1.9	0.0	0.0	0.0
V05	1.3	27.9	2.6	0.1	0.5	3.1	3.8	0.0	5.4	0.0	100.8	2.2	0.5	18.1	0.0	1.5	178.4	0.9	0.0	6.6	0.0
V06	52.8	7.7	16.2	0.0	0.0	5.0	3.6	1.3	40.1	1.1	23.6	23.3	2.7	9.9	0.0	27.9	15.9	4.7	0.0	0.9	2.3
V07	4.0	0.1	1.9	0.6	0.0	0.2	0.3	0.0	8.6	0.0	10.3	0.9	0.6	15.8	0.0	0.4	57.8	0.3	0.0	0.4	0.2
V08	18.0	3.4	17.9	17.2	0.0	1.9	4.0	2.5	16.2	0.7	64.8	3.6	4.6	26.8	0.0	14.5	2.8	0.3	0.0	0.9	101.9
V09	64.9	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.8	0.5	18.2	18.5	12.0	48.7	2.2	26.0	4.4	18.9	0.0	0.9	25.2

Table A3-21. Sacramento/Delta Crop Acres – Average Year Without Groundwater Replacement, 65 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.7	25.1	1.4	0.0	0.0	0.9	0.6	0.0	8.1	0.0	53.4	0.5	0.6	16.8	0.0	0.0	0.9	0.1	0.0	21.7	0.0
V03A	9.2	8.1	5.2	0.2	1.0	8.0	0.0	0.0	6.1	0.4	20.7	5.5	0.2	0.0	0.0	9.3	189.4	1.9	0.0	0.1	0.1
V03B	12.5	80.5	9.3	0.4	1.5	5.6	0.0	0.0	13.9	1.6	11.6	4.6	1.2	0.0	0.0	12.6	8.9	0.6	0.0	7.4	4.5
V04	2.5	2.9	7.2	0.2	0.3	10.9	7.5	0.1	9.9	0.0	20.6	5.7	0.1	0.0	0.0	5.3	55.3	1.8	0.0	0.0	0.0
V05	1.2	27.6	2.5	0.0	0.5	3.1	3.6	0.0	5.4	0.0	100.5	2.2	0.5	3.1	0.0	1.4	172.0	0.8	0.0	6.5	0.0
V06	52.4	7.6	16.1	0.0	0.0	5.0	3.5	1.2	40.0	1.1	23.6	23.2	2.7	0.0	0.0	27.8	15.8	4.6	0.0	0.9	2.2
V07	3.9	0.1	1.8	0.6	0.0	0.2	0.3	0.0	8.6	0.0	10.3	0.9	0.6	7.4	0.0	0.4	57.2	0.3	0.0	0.4	0.2
V08	17.9	3.4	17.7	17.1	0.0	1.9	3.8	2.5	16.1	0.7	64.8	3.6	4.6	25.6	0.0	14.4	2.8	0.3	0.0	0.9	101.8
V09	64.6	2.0	67.1	39.0	0.0	5.1	5.1	4.0	33.7	0.5	18.2	18.5	12.0	47.7	2.2	25.9	4.3	18.9	0.0	0.9	25.2

Table A3-22. Sacramento/Delta Crop Acres – Average Year Without Groundwater Replacement, 75 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.5	0.0	3.1	0.4	0.5	11.0	0.0	0.0	0.0	0.0	0.0	0.7	0.2
V02	2.7	25.1	1.3	0.0	0.0	0.9	0.6	0.0	8.1	0.0	53.4	0.5	0.6	11.5	0.0	0.0	0.9	0.1	0.0	21.7	0.0
V03A	0.0	7.5	4.2	0.1	1.0	7.9	0.0	0.0	6.0	0.4	20.6	5.2	0.2	0.0	0.0	8.8	159.5	1.7	0.0	0.1	0.1
V03B	8.5	79.9	9.1	0.3	1.5	5.6	0.0	0.0	13.8	1.6	11.5	4.6	1.2	0.0	0.0	12.5	8.7	0.6	0.0	7.4	4.4
V04	2.3	2.9	6.2	0.2	0.3	10.9	7.0	0.1	9.8	0.0	20.5	5.6	0.1	0.0	0.0	5.0	35.1	1.7	0.0	0.0	0.0
V05	1.1	27.1	1.7	0.0	0.4	3.0	3.1	0.0	5.2	0.0	99.9	2.0	0.5	0.0	0.0	0.0	146.2	0.7	0.0	6.4	0.0
V06	48.9	7.0	14.5	0.0	0.0	5.0	0.0	1.2	39.4	1.1	23.4	22.5	2.7	0.0	0.0	27.0	13.0	4.2	0.0	0.9	2.2
V07	3.7	0.1	1.7	0.5	0.0	0.2	0.2	0.0	8.5	0.0	10.2	0.9	0.6	0.0	0.0	0.4	52.9	0.3	0.0	0.4	0.2
V08	17.8	3.4	17.6	17.0	0.0	1.9	3.6	2.5	16.1	0.7	64.7	3.6	4.5	24.1	0.0	14.4	2.7	0.3	0.0	0.9	101.7
V09	64.5	2.0	67.0	39.0	0.0	5.1	5.1	4.0	33.7	0.5	18.2	18.4	12.0	47.4	2.2	25.9	4.3	18.9	0.0	0.9	25.2

Table A3-23. Sacramento/Delta Crop Acres – Average Year with Maximum Groundwater Replacement, Existing Conditions (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.7	0.0	53.8	0.5	0.6	27.1	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	12.4	9.0	6.0	0.2	1.0	8.1	1.5	0.0	5.7	0.4	21.0	5.8	0.2	4.7	0.0	10.1	214.3	2.0	0.0	0.1	0.1
V03B	18.6	88.0	10.8	0.4	1.5	5.8	0.9	0.0	14.1	1.6	11.7	5.0	1.2	9.1	0.0	13.9	10.7	0.7	0.0	7.6	4.8
V04	3.1	3.2	8.7	0.2	0.3	11.0	8.6	0.1	7.8	0.0	20.9	6.0	0.1	1.2	0.0	6.5	70.3	2.0	0.0	0.0	0.0
V05	1.4	28.3	2.7	0.1	0.5	3.1	3.9	0.0	5.1	0.0	101.3	2.3	0.5	19.9	0.0	1.6	185.0	0.9	0.0	6.6	0.0
V06	55.7	8.2	16.9	0.0	0.0	5.1	3.9	1.3	36.6	1.1	23.8	23.6	2.8	26.9	0.0	28.6	17.5	4.7	0.0	0.9	2.3
V07	4.2	0.1	2.0	0.6	0.0	0.2	0.3	0.0	8.2	0.0	10.4	0.9	0.6	21.0	0.0	0.4	61.6	0.3	0.0	0.4	0.2
V08	18.3	3.5	18.0	17.3	0.0	1.9	3.8	2.5	15.3	0.7	65.0	3.6	4.5	28.4	0.0	14.6	3.0	0.3	0.0	0.9	102.0
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-24. Sacramento/Delta Crop Acres – Average Year with Maximum Groundwater Replacement, 35 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.7	0.0	53.8	0.5	0.6	27.1	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	12.4	9.0	6.0	0.2	1.0	8.1	1.5	0.0	5.7	0.4	21.0	5.8	0.2	4.7	0.0	10.1	214.3	2.0	0.0	0.1	0.1
V03B	18.6	88.0	10.8	0.4	1.5	5.8	0.9	0.0	14.1	1.6	11.7	5.0	1.2	9.1	0.0	13.9	10.7	0.7	0.0	7.6	4.8
V04	3.0	3.1	8.7	0.2	0.3	11.1	8.7	0.1	10.1	0.0	20.8	6.1	0.2	1.0	0.0	6.4	67.7	2.1	0.0	0.0	0.0
V05	1.4	28.3	2.7	0.1	0.5	3.1	3.9	0.0	5.1	0.0	101.3	2.3	0.5	19.9	0.0	1.6	185.0	0.9	0.0	6.6	0.0
V06	55.7	8.2	16.9	0.0	0.0	5.1	3.9	1.3	36.6	1.1	23.8	23.6	2.8	26.9	0.0	28.6	17.5	4.7	0.0	0.9	2.3
V07	4.2	0.1	2.0	0.6	0.0	0.2	0.3	0.0	8.2	0.0	10.4	0.9	0.6	21.0	0.0	0.4	61.6	0.3	0.0	0.4	0.2
V08	18.3	3.5	18.0	17.3	0.0	1.9	3.8	2.5	15.3	0.7	65.0	3.6	4.5	28.4	0.0	14.6	3.0	0.3	0.0	0.9	102.0
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-25. Sacramento/Delta Crop Acres – Average Year with Maximum Groundwater Replacement, 45 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.7	0.0	53.8	0.5	0.6	27.1	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	12.4	9.0	6.0	0.2	1.0	8.1	1.5	0.0	5.7	0.4	21.0	5.8	0.2	4.7	0.0	10.1	214.3	2.0	0.0	0.1	0.1
V03B	18.6	88.0	10.8	0.4	1.5	5.8	0.9	0.0	14.1	1.6	11.7	5.0	1.2	9.1	0.0	13.9	10.7	0.7	0.0	7.6	4.8
V04	2.9	3.1	8.6	0.2	0.3	11.1	8.5	0.1	10.1	0.0	20.7	6.1	0.2	0.7	0.0	6.2	66.5	2.1	0.0	0.0	0.0
V05	1.4	28.3	2.7	0.1	0.5	3.1	3.9	0.0	5.1	0.0	101.3	2.3	0.5	19.9	0.0	1.6	185.0	0.9	0.0	6.6	0.0
V06	55.7	8.2	16.9	0.0	0.0	5.1	3.9	1.3	36.6	1.1	23.8	23.6	2.8	26.9	0.0	28.6	17.5	4.7	0.0	0.9	2.3
V07	4.2	0.1	2.0	0.6	0.0	0.2	0.3	0.0	8.2	0.0	10.4	0.9	0.6	21.0	0.0	0.4	61.6	0.3	0.0	0.4	0.2
V08	18.3	3.5	18.0	17.3	0.0	1.9	3.8	2.5	15.3	0.7	65.0	3.6	4.5	28.4	0.0	14.6	3.0	0.3	0.0	0.9	102.0
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-26. Sacramento/Delta Crop Acres – Average Year with Maximum Groundwater Replacement, 55 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.7	0.0	53.8	0.5	0.6	27.1	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	12.4	9.0	6.0	0.2	1.0	8.1	1.5	0.0	5.7	0.4	21.0	5.8	0.2	4.7	0.0	10.1	214.3	2.0	0.0	0.1	0.1
V03B	18.6	88.0	10.8	0.4	1.5	5.8	0.9	0.0	14.1	1.6	11.7	5.0	1.2	9.1	0.0	13.9	10.7	0.7	0.0	7.6	4.8
V04	2.7	3.0	7.9	0.2	0.3	11.0	8.0	0.1	10.0	0.0	20.6	5.8	0.1	0.0	0.0	5.8	61.9	1.9	0.0	0.0	0.0
V05	1.4	28.3	2.7	0.1	0.5	3.1	3.9	0.0	5.1	0.0	101.3	2.3	0.5	19.9	0.0	1.6	185.0	0.9	0.0	6.6	0.0
V06	55.7	8.2	16.9	0.0	0.0	5.1	3.9	1.3	36.6	1.1	23.8	23.6	2.8	26.9	0.0	28.6	17.5	4.7	0.0	0.9	2.3
V07	4.2	0.1	2.0	0.6	0.0	0.2	0.3	0.0	8.2	0.0	10.4	0.9	0.6	21.0	0.0	0.4	61.6	0.3	0.0	0.4	0.2
V08	18.3	3.5	18.0	17.3	0.0	1.9	3.8	2.5	15.3	0.7	65.0	3.6	4.5	28.4	0.0	14.6	3.0	0.3	0.0	0.9	102.0
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-27. Sacramento/Delta Crop Acres – Average Year with Maximum Groundwater Replacement, 65 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.7	0.0	53.8	0.5	0.6	27.1	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	12.3	9.0	6.1	0.2	1.0	8.1	1.6	0.0	6.2	0.4	21.0	5.9	0.2	4.6	0.0	10.2	213.6	2.1	0.0	0.1	0.1
V03B	18.0	86.5	10.6	0.4	1.5	5.7	0.8	0.0	14.2	1.6	11.7	4.9	1.2	4.4	0.0	13.6	10.4	0.7	0.0	7.6	4.7
V04	2.5	2.9	7.2	0.2	0.3	10.9	7.5	0.1	9.9	0.0	20.6	5.7	0.1	0.0	0.0	5.3	55.3	1.8	0.0	0.0	0.0
V05	1.4	28.3	2.7	0.1	0.5	3.1	3.9	0.0	5.1	0.0	101.3	2.3	0.5	19.9	0.0	1.6	185.0	0.9	0.0	6.6	0.0
V06	55.7	8.2	16.9	0.0	0.0	5.1	3.9	1.3	36.6	1.1	23.8	23.6	2.8	26.9	0.0	28.6	17.5	4.7	0.0	0.9	2.3
V07	4.2	0.1	2.0	0.6	0.0	0.2	0.3	0.0	8.2	0.0	10.4	0.9	0.6	21.0	0.0	0.4	61.6	0.3	0.0	0.4	0.2
V08	18.3	3.5	18.0	17.3	0.0	1.9	3.8	2.5	15.3	0.7	65.0	3.6	4.5	28.4	0.0	14.6	3.0	0.3	0.0	0.9	102.0
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-28. Sacramento/Delta Crop Acres – Average Year with Maximum Groundwater Replacement, 75 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.7	0.0	53.8	0.5	0.6	27.1	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	9.0	8.1	5.1	0.2	1.0	8.0	0.0	0.0	6.1	0.4	20.7	5.4	0.2	0.0	0.0	9.3	188.7	1.9	0.0	0.1	0.1
V03B	17.8	86.0	10.5	0.4	1.5	5.7	0.8	0.0	14.2	1.6	11.7	4.9	1.2	0.0	0.0	13.6	10.3	0.6	0.0	7.5	4.7
V04	2.3	2.9	6.2	0.2	0.3	10.9	7.0	0.1	9.8	0.0	20.5	5.6	0.1	0.0	0.0	5.0	35.1	1.7	0.0	0.0	0.0
V05	1.4	28.3	2.7	0.1	0.5	3.1	3.9	0.0	5.1	0.0	101.3	2.3	0.5	19.9	0.0	1.6	185.0	0.9	0.0	6.6	0.0
V06	55.7	8.2	16.9	0.0	0.0	5.1	3.9	1.3	36.6	1.1	23.8	23.6	2.8	26.9	0.0	28.6	17.5	4.7	0.0	0.9	2.3
V07	4.2	0.1	2.0	0.6	0.0	0.2	0.3	0.0	8.2	0.0	10.4	0.9	0.6	21.0	0.0	0.4	61.6	0.3	0.0	0.4	0.2
V08	18.3	3.5	18.0	17.3	0.0	1.9	3.8	2.5	15.3	0.7	65.0	3.6	4.5	28.4	0.0	14.6	3.0	0.3	0.0	0.9	102.0
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-29. Sacramento/Delta Crop Acres – Dry Year Without Groundwater Replacement, Existing Conditions (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.3	0.0	3.1	0.4	0.5	12.6	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.7	0.0	53.8	0.5	0.6	27.1	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	12.4	9.0	6.0	0.2	1.0	8.1	1.5	0.0	5.7	0.4	21.0	5.8	0.2	4.7	0.0	10.1	214.3	2.0	0.0	0.1	0.1
V03B	18.2	86.8	10.6	0.4	1.5	5.8	0.9	0.0	14.3	1.6	11.7	5.0	1.2	7.7	0.0	13.7	10.5	0.7	0.0	7.6	4.7
V04	3.1	3.2	8.7	0.2	0.3	11.0	8.6	0.1	7.7	0.0	20.9	6.0	0.1	1.2	0.0	6.5	70.4	2.0	0.0	0.0	0.0
V05	1.4	28.3	2.8	0.1	0.5	3.1	3.9	0.0	5.4	0.0	101.3	2.3	0.5	20.0	0.0	1.6	184.6	0.9	0.0	6.6	0.0
V06	54.3	7.9	16.8	0.0	0.0	5.1	3.9	1.3	40.5	1.1	23.7	23.7	2.8	25.1	0.0	28.4	16.7	4.8	0.0	0.9	2.3
V07	4.1	0.1	1.9	0.6	0.0	0.2	0.4	0.0	8.7	0.0	10.3	0.9	0.6	20.0	0.0	0.4	59.5	0.3	0.0	0.4	0.2
V08	17.8	3.4	17.6	17.1	0.0	1.9	3.7	2.5	16.1	0.7	64.7	3.6	4.5	25.1	0.0	14.4	2.7	0.3	0.0	0.9	101.8
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-30. Sacramento/Delta Crop Acres – Dry Year Without Groundwater Replacement, 35 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.3	0.0	3.1	0.4	0.5	12.6	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.8	0.0	53.8	0.5	0.6	27.0	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	11.3	8.6	5.6	0.2	1.0	8.1	1.4	0.0	6.1	0.4	20.8	5.7	0.2	0.0	0.0	9.8	201.8	2.0	0.0	0.1	0.1
V03B	18.0	86.4	10.5	0.4	1.5	5.7	0.8	0.0	14.2	1.6	11.7	4.9	1.2	0.2	0.0	13.6	10.4	0.6	0.0	7.5	4.7
V04	2.8	3.0	8.0	0.2	0.3	11.0	8.1	0.1	10.0	0.0	20.6	5.9	0.1	0.0	0.0	5.8	62.0	2.0	0.0	0.0	0.0
V05	1.4	28.3	2.8	0.1	0.5	3.1	3.9	0.0	5.4	0.0	101.3	2.3	0.5	20.0	0.0	1.6	184.5	0.9	0.0	6.6	0.0
V06	53.1	7.7	16.3	0.0	0.0	5.0	3.7	1.3	40.1	1.1	23.6	23.4	2.7	21.0	0.0	28.0	16.1	4.7	0.0	0.9	2.3
V07	4.1	0.1	1.9	0.6	0.0	0.2	0.3	0.0	8.6	0.0	10.3	0.9	0.6	18.4	0.0	0.4	57.6	0.3	0.0	0.4	0.2
V08	17.7	3.4	17.5	17.0	0.0	1.9	3.4	2.5	16.0	0.7	64.7	3.5	4.5	23.5	0.0	14.3	2.7	0.3	0.0	0.9	101.7
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-31. Sacramento/Delta Crop Acres – Dry Year Without Groundwater Replacement, 45 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.3	0.0	3.1	0.4	0.5	12.6	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.9	0.0	53.8	0.5	0.6	27.0	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	10.8	8.4	5.4	0.2	1.0	8.0	1.1	0.0	6.1	0.4	20.8	5.6	0.2	0.0	0.0	9.6	195.2	1.9	0.0	0.1	0.1
V03B	17.6	85.6	10.4	0.4	1.5	5.7	0.8	0.0	14.2	1.6	11.6	4.9	1.2	0.0	0.0	13.5	10.2	0.6	0.0	7.5	4.7
V04	2.7	3.0	7.5	0.2	0.3	11.0	7.8	0.1	9.9	0.0	20.6	5.8	0.1	0.0	0.0	5.5	58.1	1.9	0.0	0.0	0.0
V05	1.4	28.3	2.8	0.1	0.5	3.1	3.9	0.0	5.5	0.0	101.3	2.3	0.5	20.1	0.0	1.6	184.2	0.9	0.0	6.6	0.0
V06	52.7	7.6	16.1	0.0	0.0	5.0	3.6	1.3	40.1	1.1	23.6	23.3	2.7	16.4	0.0	27.9	15.8	4.6	0.0	0.9	2.3
V07	4.0	0.1	1.8	0.6	0.0	0.2	0.3	0.0	8.6	0.0	10.3	0.9	0.6	16.0	0.0	0.4	56.1	0.3	0.0	0.4	0.2
V08	17.7	3.4	17.4	17.0	0.0	1.9	3.4	2.5	16.0	0.7	64.7	3.5	4.5	23.2	0.0	14.3	2.7	0.3	0.0	0.9	101.6
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-32. Sacramento/Delta Crop Acres – Dry Year Without Groundwater Replacement, 55 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	8.0	0.0	53.8	0.5	0.6	26.9	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	9.3	8.0	4.7	0.2	1.0	8.0	0.0	0.0	6.0	0.4	20.7	5.4	0.2	0.0	0.0	9.2	175.7	1.8	0.0	0.1	0.1
V03B	16.9	84.2	10.0	0.4	1.5	5.7	0.7	0.0	14.1	1.6	11.6	4.8	1.2	0.0	0.0	13.2	9.8	0.6	0.0	7.5	4.6
V04	2.5	2.9	6.5	0.2	0.3	10.9	7.4	0.1	9.8	0.0	20.6	5.7	0.1	0.0	0.0	5.1	44.9	1.8	0.0	0.0	0.0
V05	1.3	28.1	2.7	0.1	0.5	3.1	3.9	0.0	5.5	0.0	101.0	2.3	0.5	19.2	0.0	1.6	180.2	0.9	0.0	6.6	0.0
V06	52.6	7.6	16.1	0.0	0.0	5.0	3.6	1.3	40.0	1.1	23.6	23.2	2.7	9.0	0.0	27.9	15.8	4.6	0.0	0.9	2.3
V07	4.0	0.1	1.8	0.6	0.0	0.2	0.3	0.0	8.6	0.0	10.3	0.9	0.6	10.2	0.0	0.4	55.2	0.3	0.0	0.4	0.2
V08	17.7	3.4	17.4	16.9	0.0	1.9	3.3	2.5	16.0	0.7	64.7	3.5	4.5	22.4	0.0	14.3	2.6	0.3	0.0	0.9	101.6
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.5	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-33. Sacramento/Delta Crop Acres – Dry Year Without Groundwater Replacement, 65 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.8	1.4	0.0	0.0	0.9	0.7	0.0	8.1	0.0	53.7	0.5	0.6	26.9	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	7.3	7.9	4.1	0.1	1.0	7.9	0.0	0.0	6.0	0.4	20.7	5.3	0.2	0.0	0.0	9.0	153.2	1.8	0.0	0.1	0.1
V03B	16.4	83.4	9.8	0.4	1.5	5.7	0.7	0.0	14.0	1.6	11.6	4.7	1.2	0.0	0.0	13.1	9.6	0.6	0.0	7.5	4.6
V04	2.5	2.9	6.2	0.2	0.3	10.9	7.3	0.1	9.8	0.0	20.6	5.6	0.1	0.0	0.0	5.0	32.1	1.8	0.0	0.0	0.0
V05	1.3	27.8	2.5	0.0	0.5	3.1	3.7	0.0	5.4	0.0	100.6	2.2	0.5	16.0	0.0	1.5	171.2	0.9	0.0	6.5	0.0
V06	52.2	7.6	15.9	0.0	0.0	5.0	3.4	1.2	39.9	1.1	23.6	23.1	2.7	0.0	0.0	27.8	15.5	4.6	0.0	0.9	2.2
V07	3.9	0.1	1.7	0.6	0.0	0.2	0.3	0.0	8.6	0.0	10.3	0.9	0.6	0.0	0.0	0.4	54.1	0.3	0.0	0.4	0.2
V08	17.6	3.4	17.3	16.9	0.0	1.9	3.1	2.5	16.0	0.7	64.6	3.5	4.5	20.2	0.0	14.2	2.6	0.3	0.0	0.9	101.6
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.5	0.5	18.2	18.5	12.0	49.4	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-34. Sacramento/Delta Crop Acres – Dry Year Without Groundwater Replacement, 75 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.5	0.0	3.1	0.4	0.5	11.4	0.0	0.0	0.0	0.0	0.0	0.7	0.2
V02	2.9	25.8	1.4	0.0	0.0	0.9	0.7	0.0	8.2	0.0	53.7	0.5	0.6	26.8	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	0.9	7.8	3.6	0.1	1.0	7.9	0.0	0.0	6.0	0.4	20.6	5.3	0.2	0.0	0.0	9.0	123.7	1.8	0.0	0.1	0.1
V03B	16.3	83.3	9.8	0.4	1.5	5.7	0.7	0.0	14.0	1.6	11.6	4.7	1.2	0.0	0.0	13.1	9.5	0.6	0.0	7.4	4.6
V04	2.5	2.9	6.2	0.2	0.3	10.9	7.3	0.1	9.8	0.0	20.6	5.6	0.1	0.0	0.0	5.0	24.1	1.8	0.0	0.0	0.0
V05	1.2	27.4	1.8	0.0	0.4	3.0	3.4	0.0	5.3	0.0	100.2	2.1	0.5	0.0	0.0	1.2	148.5	0.8	0.0	6.5	0.0
V06	50.7	7.3	15.1	0.0	0.0	5.0	2.1	1.2	39.6	1.1	23.5	22.8	2.7	0.0	0.0	27.4	14.2	4.4	0.0	0.9	2.2
V07	3.8	0.1	1.4	0.5	0.0	0.2	0.2	0.0	8.5	0.0	10.2	0.9	0.6	0.0	0.0	0.4	43.4	0.3	0.0	0.4	0.2
V08	17.6	3.4	17.3	16.9	0.0	1.9	3.0	2.5	16.0	0.7	64.6	3.5	4.5	17.9	0.0	14.2	2.6	0.3	0.0	0.9	101.5
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.5	0.5	18.2	18.5	12.0	49.4	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-35. Sacramento/Delta Crop Acres – Dry Year with Maximum Groundwater Replacement, Existing Conditions (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.3	0.0	3.1	0.4	0.5	12.6	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.7	0.0	53.8	0.5	0.6	27.1	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	12.4	9.0	6.0	0.2	1.0	8.1	1.5	0.0	5.7	0.4	21.0	5.8	0.2	4.7	0.0	10.1	214.3	2.0	0.0	0.1	0.1
V03B	18.6	88.0	10.8	0.4	1.5	5.8	0.9	0.0	14.1	1.6	11.7	5.0	1.2	9.1	0.0	13.9	10.7	0.7	0.0	7.6	4.8
V04	3.1	3.2	8.7	0.2	0.3	11.0	8.6	0.1	7.7	0.0	20.9	6.0	0.1	1.2	0.0	6.5	70.4	2.0	0.0	0.0	0.0
V05	1.4	28.3	2.7	0.1	0.5	3.1	3.9	0.0	5.1	0.0	101.3	2.3	0.5	19.9	0.0	1.6	185.0	0.9	0.0	6.6	0.0
V06	55.7	8.2	16.9	0.0	0.0	5.1	3.9	1.3	36.6	1.1	23.8	23.6	2.8	26.9	0.0	28.6	17.5	4.7	0.0	0.9	2.3
V07	4.2	0.1	2.0	0.6	0.0	0.2	0.3	0.0	8.2	0.0	10.4	0.9	0.6	21.0	0.0	0.4	61.6	0.3	0.0	0.4	0.2
V08	18.3	3.5	18.0	17.3	0.0	1.9	3.8	2.5	15.3	0.7	65.0	3.6	4.5	28.4	0.0	14.6	3.0	0.3	0.0	0.9	102.0
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-36. Sacramento/Delta Crop Acres – Dry Year with Maximum Groundwater Replacement, 35 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.3	0.0	3.1	0.4	0.5	12.6	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.7	0.0	53.8	0.5	0.6	27.1	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	12.4	9.0	6.0	0.2	1.0	8.1	1.5	0.0	5.7	0.4	21.0	5.8	0.2	4.7	0.0	10.1	214.3	2.0	0.0	0.1	0.1
V03B	18.5	87.8	10.8	0.4	1.5	5.8	0.9	0.0	14.3	1.6	11.7	5.0	1.2	9.0	0.0	13.9	10.7	0.7	0.0	7.6	4.8
V04	2.8	3.0	8.0	0.2	0.3	11.0	8.1	0.1	10.0	0.0	20.6	5.9	0.1	0.0	0.0	5.8	62.0	2.0	0.0	0.0	0.0
V05	1.4	28.3	2.7	0.1	0.5	3.1	3.9	0.0	5.1	0.0	101.3	2.3	0.5	19.9	0.0	1.6	185.0	0.9	0.0	6.6	0.0
V06	55.7	8.2	16.9	0.0	0.0	5.1	3.9	1.3	36.6	1.1	23.8	23.6	2.8	26.9	0.0	28.6	17.5	4.7	0.0	0.9	2.3
V07	4.2	0.1	2.0	0.6	0.0	0.2	0.3	0.0	8.2	0.0	10.4	0.9	0.6	21.0	0.0	0.4	61.6	0.3	0.0	0.4	0.2
V08	18.3	3.5	18.0	17.3	0.0	1.9	3.8	2.5	15.3	0.7	65.0	3.6	4.5	28.4	0.0	14.6	3.0	0.3	0.0	0.9	102.0
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-37. Sacramento/Delta Crop Acres – Dry Year with Maximum Groundwater Replacement, 45 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.3	0.0	3.1	0.4	0.5	12.6	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.7	0.0	53.8	0.5	0.6	27.1	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	12.4	9.0	6.0	0.2	1.0	8.1	1.5	0.0	5.7	0.4	21.0	5.8	0.2	4.7	0.0	10.1	214.3	2.0	0.0	0.1	0.1
V03B	18.3	87.3	10.7	0.4	1.5	5.8	0.9	0.0	14.3	1.6	11.7	5.0	1.2	8.5	0.0	13.8	10.6	0.7	0.0	7.6	4.7
V04	2.7	3.0	7.5	0.2	0.3	11.0	7.8	0.1	9.9	0.0	20.6	5.8	0.1	0.0	0.0	5.5	58.1	1.9	0.0	0.0	0.0
V05	1.4	28.3	2.7	0.1	0.5	3.1	3.9	0.0	5.1	0.0	101.3	2.3	0.5	19.9	0.0	1.6	185.0	0.9	0.0	6.6	0.0
V06	55.7	8.2	16.9	0.0	0.0	5.1	3.9	1.3	36.6	1.1	23.8	23.6	2.8	26.9	0.0	28.6	17.5	4.7	0.0	0.9	2.3
V07	4.2	0.1	2.0	0.6	0.0	0.2	0.3	0.0	8.2	0.0	10.4	0.9	0.6	21.0	0.0	0.4	61.6	0.3	0.0	0.4	0.2
V08	18.3	3.5	18.0	17.3	0.0	1.9	3.8	2.5	15.3	0.7	65.0	3.6	4.5	28.4	0.0	14.6	3.0	0.3	0.0	0.9	102.0
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-38. Sacramento/Delta Crop Acres – Dry Year with Maximum Groundwater Replacement, 55 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.7	0.0	53.8	0.5	0.6	27.1	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	11.6	8.7	5.8	0.2	1.0	8.1	1.5	0.0	6.2	0.4	20.9	5.8	0.2	0.0	0.0	9.9	205.8	2.0	0.0	0.1	0.1
V03B	18.0	86.4	10.5	0.4	1.5	5.7	0.8	0.0	14.2	1.6	11.7	4.9	1.2	5.7	0.0	13.6	10.4	0.6	0.0	7.6	4.7
V04	2.5	2.9	6.5	0.2	0.3	10.9	7.4	0.1	9.8	0.0	20.6	5.7	0.1	0.0	0.0	5.1	44.9	1.8	0.0	0.0	0.0
V05	1.4	28.3	2.7	0.1	0.5	3.1	3.9	0.0	5.1	0.0	101.3	2.3	0.5	19.9	0.0	1.6	185.0	0.9	0.0	6.6	0.0
V06	55.7	8.2	16.9	0.0	0.0	5.1	3.9	1.3	36.6	1.1	23.8	23.6	2.8	26.9	0.0	28.6	17.5	4.7	0.0	0.9	2.3
V07	4.2	0.1	2.0	0.6	0.0	0.2	0.3	0.0	8.2	0.0	10.4	0.9	0.6	21.0	0.0	0.4	61.6	0.3	0.0	0.4	0.2
V08	18.3	3.5	18.0	17.3	0.0	1.9	3.8	2.5	15.3	0.7	65.0	3.6	4.5	28.4	0.0	14.6	3.0	0.3	0.0	0.9	102.0
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-39. Sacramento/Delta Crop Acres – Dry Year with Maximum Groundwater Replacement, 65 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.7	0.0	53.8	0.5	0.6	27.1	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	10.2	8.2	5.1	0.2	1.0	8.0	0.0	0.0	6.1	0.4	20.7	5.5	0.2	0.0	0.0	9.4	187.9	1.9	0.0	0.1	0.1
V03B	17.9	86.3	10.5	0.4	1.5	5.7	0.8	0.0	14.2	1.6	11.7	4.9	1.2	0.0	0.0	13.6	10.4	0.6	0.0	7.5	4.7
V04	2.5	2.9	6.2	0.2	0.3	10.9	7.3	0.1	9.8	0.0	20.6	5.6	0.1	0.0	0.0	5.0	32.1	1.8	0.0	0.0	0.0
V05	1.4	28.3	2.7	0.1	0.5	3.1	3.9	0.0	5.1	0.0	101.3	2.3	0.5	19.9	0.0	1.6	185.0	0.9	0.0	6.6	0.0
V06	55.7	8.2	16.9	0.0	0.0	5.1	3.9	1.3	36.6	1.1	23.8	23.6	2.8	26.9	0.0	28.6	17.5	4.7	0.0	0.9	2.3
V07	4.2	0.1	2.0	0.6	0.0	0.2	0.3	0.0	8.2	0.0	10.4	0.9	0.6	21.0	0.0	0.4	61.6	0.3	0.0	0.4	0.2
V08	18.3	3.5	18.0	17.3	0.0	1.9	3.8	2.5	15.3	0.7	65.0	3.6	4.5	28.4	0.0	14.6	3.0	0.3	0.0	0.9	102.0
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table A3-40. Sacramento/Delta Crop Acres – Dry Year with Maximum Groundwater Replacement, 75 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.7	0.0	53.8	0.5	0.6	27.1	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	7.7	7.9	4.2	0.1	1.0	7.9	0.0	0.0	6.0	0.4	20.7	5.3	0.2	0.0	0.0	9.0	157.2	1.8	0.0	0.1	0.1
V03B	17.9	86.3	10.5	0.4	1.5	5.7	0.8	0.0	14.2	1.6	11.7	4.9	1.2	0.0	0.0	13.6	10.3	0.6	0.0	7.5	4.7
V04	2.5	2.9	6.2	0.2	0.3	10.9	7.3	0.1	9.8	0.0	20.6	5.6	0.1	0.0	0.0	5.0	24.1	1.8	0.0	0.0	0.0
V05	1.4	28.3	2.7	0.1	0.5	3.1	3.9	0.0	5.1	0.0	101.3	2.3	0.5	19.9	0.0	1.6	185.0	0.9	0.0	6.6	0.0
V06	55.7	8.2	16.9	0.0	0.0	5.1	3.9	1.3	36.6	1.1	23.8	23.6	2.8	26.9	0.0	28.6	17.5	4.7	0.0	0.9	2.3
V07	4.2	0.1	2.0	0.6	0.0	0.2	0.3	0.0	8.2	0.0	10.4	0.9	0.6	21.0	0.0	0.4	61.6	0.3	0.0	0.4	0.2
V08	18.3	3.5	18.0	17.3	0.0	1.9	3.8	2.5	15.3	0.7	65.0	3.6	4.5	28.4	0.0	14.6	3.0	0.3	0.0	0.9	102.0
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

San Joaquin Valley Crop Acres

Table A3-41. San Joaquin Valley Crop Acres – Average Year Without Groundwater Replacement, Existing Conditions (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.5	51.8	3.9	36.2	48.7	20.2	27.6	14.7	4.6	3.7	22.1	95.9	17.4	15.5	0.1	49.2	3.2	1.7	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.9	165.3	8.9	66.4	14.5	1.5	0.1	5.2	20.2	0.1	20.9	46.3	24.7	21.9	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	13.0	102.6	1.6	6.4	42.4	22.7	5.8	3.5	67.6	21.5	7.1	19.5	22.9	0.0	0.0	75.6	0.0	0.9	0.0	2.9	13.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.1	9.6	37.8	81.9	3.2	15.8	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.4	12.0	0.0	0.0	1.5	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.9	58.4	15.6	152.6	28.4	0.7	6.5	0.2	26.9	0.3	50.7	147.1	5.7	2.1	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.6	68.6	0.4	0.0	1.9	0.3	0.0	0.2	14.0	0.5	9.8	0.0	5.0	0.0	0.0	0.3	0.0	0.2	0.0	2.1	2.1
V19B	39.7	45.2	2.0	19.9	19.8	0.0	0.0	0.2	13.7	0.9	1.3	7.5	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.6	82.8	5.1	0.0	2.9	0.0	1.3	0.1	9.9	0.6	7.2	2.4	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.7
V21A	54.4	13.2	48.8	0.0	19.7	0.4	1.3	0.2	15.2	2.3	0.6	8.0	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.9	10.1	0.9	0.0	1.8	1.4	0.1	0.1	6.5	2.7	7.4	3.2	13.2	0.0	10.8	1.4	0.0	0.2	0.0	13.2	31.3
V21C	3.5	6.5	1.0	0.0	5.5	0.8	0.0	0.0	2.3	3.4	5.0	0.0	5.2	0.0	1.4	0.0	0.0	0.4	0.0	15.6	11.4

Table A3-42. San Joaquin Valley Crop Acres – Average Year Without Groundwater Replacement, 35 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.2	51.8	3.9	36.3	48.7	20.2	27.7	14.7	4.7	3.7	22.1	96.1	17.5	15.2	0.1	49.3	3.1	1.7	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.9	165.3	8.9	66.4	14.5	1.5	0.1	5.2	20.2	0.1	20.9	46.3	24.7	21.9	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	12.9	102.5	1.6	6.3	42.4	22.6	5.8	3.5	67.5	21.5	7.1	19.3	22.9	0.0	0.0	75.4	0.0	0.7	0.0	2.9	13.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.2	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.4	9.6	37.8	82.0	3.2	15.2	0.0	43.7	0.0	4.6	0.0	0.5	58.3
V15B	0.3	11.7	0.0	0.0	1.4	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.9	58.4	15.6	152.6	28.4	0.7	6.5	0.2	26.9	0.3	50.7	147.1	5.7	2.1	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.4	67.4	0.0	0.0	1.8	0.3	0.0	0.2	12.9	0.5	9.7	0.0	4.9	0.0	0.0	0.3	0.0	0.0	0.0	2.1	2.0
V19B	39.3	45.2	1.9	19.6	19.7	0.0	0.0	0.2	13.6	0.9	1.3	7.4	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.6	82.8	5.0	0.0	2.9	0.0	1.3	0.1	9.9	0.6	7.2	2.3	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.7
V21A	54.0	13.2	48.2	0.0	19.6	0.4	1.3	0.2	15.1	2.3	0.6	7.9	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.8	10.0	0.8	0.0	1.8	1.4	0.1	0.1	6.4	2.7	7.4	3.1	13.1	0.0	10.8	1.4	0.0	0.2	0.0	13.2	31.2
V21C	3.4	6.5	0.9	0.0	5.4	0.8	0.0	0.0	2.2	3.4	5.0	0.0	5.2	0.0	1.4	0.0	0.0	0.1	0.0	15.6	11.3

Table A3-43. San Joaquin Valley Crop Acres – Average Year Without Groundwater Replacement, 45 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	75.9	51.7	3.9	36.3	48.7	20.3	27.9	14.7	4.8	3.7	22.1	96.2	17.6	14.9	0.1	49.3	3.1	1.8	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.9	165.3	8.9	66.5	14.5	1.5	0.1	5.2	20.2	0.1	20.9	46.4	24.8	21.7	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	11.6	101.6	1.3	5.6	41.4	22.3	4.9	3.5	66.2	21.3	7.0	15.4	22.8	0.0	0.0	74.1	0.0	0.0	0.0	2.8	13.1
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	79.9	59.0	7.2	60.5	92.1	0.3	2.9	0.8	53.3	9.6	37.8	81.7	3.2	14.3	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.0	11.3	0.0	0.0	1.2	0.4	0.0	0.0	2.3	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.7	58.3	15.6	152.7	28.5	0.7	6.5	0.2	27.0	0.3	50.7	147.3	5.7	2.0	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.0	65.9	0.0	0.0	1.7	0.3	0.0	0.2	5.5	0.4	9.6	0.0	4.8	0.0	0.0	0.3	0.0	0.0	0.0	2.0	2.0
V19B	38.5	45.0	1.7	18.9	19.6	0.0	0.0	0.2	13.4	0.9	1.3	7.1	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.4	82.7	4.7	0.0	2.8	0.0	1.3	0.1	9.9	0.6	7.2	2.3	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.6
V21A	53.3	13.1	46.9	0.0	19.5	0.4	1.3	0.2	15.0	2.3	0.6	7.8	6.0	0.0	1.0	9.9	0.0	1.1	0.0	0.0	5.1
V21B	0.7	10.0	0.6	0.0	1.7	1.4	0.1	0.1	6.2	2.6	7.4	2.8	13.1	0.0	10.8	1.4	0.0	0.0	0.0	13.1	31.0
V21C	2.9	6.4	0.0	0.0	5.3	0.8	0.0	0.0	2.1	3.3	5.0	0.0	5.1	0.0	1.4	0.0	0.0	0.0	0.0	15.5	11.2

Table A3-44. San Joaquin Valley Crop Acres – Average Year Without Groundwater Replacement, 55 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	75.8	51.7	3.9	36.4	48.7	20.3	27.9	14.8	4.8	3.7	22.1	96.3	17.6	14.8	0.1	49.4	3.1	1.8	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.8	165.3	8.9	66.6	14.5	1.5	0.1	5.2	20.4	0.1	20.9	46.5	24.9	21.3	0.1	13.6	1.8	0.3	0.3	5.2	76.4
V14A	5.0	100.8	0.0	4.5	40.6	22.0	0.0	3.5	65.0	21.2	7.0	0.0	22.8	0.0	0.0	72.9	0.0	0.0	0.0	2.8	12.9
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.3	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	79.7	59.0	7.2	60.3	92.0	0.3	2.9	0.8	53.2	9.6	37.7	81.4	3.2	12.5	0.0	43.6	0.0	4.5	0.0	0.5	58.2
V15B	0.0	11.0	0.0	0.0	0.9	0.3	0.0	0.0	0.7	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.7	58.3	15.6	152.5	28.4	0.7	6.5	0.2	27.0	0.3	50.7	147.1	5.7	1.9	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.0	63.0	0.0	0.0	0.9	0.2	0.0	0.2	0.0	0.3	9.4	0.0	4.6	0.0	0.0	0.2	0.0	0.0	0.0	2.0	1.9
V19B	37.7	44.9	1.2	18.0	19.5	0.0	0.0	0.2	13.2	0.9	1.3	6.7	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.4
V20	15.2	82.6	4.3	0.0	2.8	0.0	1.3	0.1	9.8	0.6	7.2	2.2	7.2	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.5
V21A	52.4	13.1	45.3	0.0	19.4	0.4	1.2	0.2	14.8	2.3	0.6	7.6	6.0	0.0	1.0	9.9	0.0	0.9	0.0	0.0	5.1
V21B	0.6	9.9	0.0	0.0	1.7	1.4	0.1	0.1	6.1	2.6	7.3	2.3	13.0	0.0	10.7	1.4	0.0	0.0	0.0	13.1	30.9
V21C	1.2	6.3	0.0	0.0	5.2	0.7	0.0	0.0	1.9	3.2	4.9	0.0	5.1	0.0	1.4	0.0	0.0	0.0	0.0	15.4	11.1

Table A3-45. San Joaquin Valley Crop Acres – Average Year Without Groundwater Replacement, 65 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	75.8	51.7	3.9	36.4	48.7	20.3	27.9	14.8	4.8	3.7	22.1	96.3	17.6	14.8	0.1	49.4	3.1	1.8	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.3	164.8	8.9	66.4	14.4	1.5	0.1	5.2	20.5	0.1	20.9	46.3	25.0	18.5	0.1	13.6	1.7	0.3	0.3	5.2	76.3
V14A	0.0	95.9	0.0	4.5	0.0	19.9	0.0	3.5	44.1	20.3	6.8	0.0	22.6	0.0	0.0	57.2	0.0	0.0	0.0	2.5	11.9
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.2	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	79.5	59.0	7.2	60.2	92.0	0.3	2.9	0.8	53.2	9.6	37.7	81.2	3.2	8.7	0.0	43.6	0.0	4.5	0.0	0.5	58.1
V15B	0.0	10.8	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	87.8	58.2	15.4	150.9	28.3	0.7	6.4	0.2	26.8	0.3	50.6	145.4	5.7	0.0	0.2	0.8	0.0	0.0	0.0	101.1	44.8
V19A	0.0	59.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	9.3	0.0	4.4	0.0	0.0	0.2	0.0	0.0	0.0	2.0	1.7
V19B	37.3	44.9	0.0	17.4	19.5	0.0	0.0	0.2	13.1	0.9	1.3	6.4	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.4
V20	14.9	82.5	3.0	0.0	2.8	0.0	1.3	0.1	9.8	0.6	7.2	2.1	7.2	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.5
V21A	51.9	13.1	44.1	0.0	19.3	0.4	1.2	0.2	14.8	2.3	0.6	7.5	6.0	0.0	1.0	9.9	0.0	0.0	0.0	0.0	5.1
V21B	0.0	9.7	0.0	0.0	1.6	1.3	0.0	0.1	4.3	2.4	7.3	0.0	12.8	0.0	10.7	1.3	0.0	0.0	0.0	12.9	30.2
V21C	0.0	6.2	0.0	0.0	5.0	0.7	0.0	0.0	1.5	3.1	4.9	0.0	5.0	0.0	1.4	0.0	0.0	0.0	0.0	15.3	11.0

Table A3-46. San Joaquin Valley Crop Acres – Average Year Without Groundwater Replacement, 75 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.5	51.8	3.9	36.2	48.7	20.2	27.6	14.7	4.6	3.7	22.1	95.9	17.4	15.5	0.1	49.2	3.2	1.7	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.1	164.5	8.8	66.1	14.4	1.5	0.1	5.2	20.5	0.1	20.9	46.1	24.9	9.6	0.1	13.5	1.7	0.3	0.3	5.2	76.3
V14A	0.0	95.1	0.0	4.5	0.0	19.5	0.0	3.5	0.1	20.2	6.8	0.0	22.5	0.0	0.0	45.2	0.0	0.0	0.0	2.4	11.8
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.1	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	79.5	59.0	7.2	60.2	91.9	0.3	2.8	0.8	53.2	9.6	37.7	81.2	3.2	4.8	0.0	43.6	0.0	4.5	0.0	0.5	58.1
V15B	0.0	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	83.5	57.8	14.1	143.1	27.9	0.7	5.7	0.2	26.1	0.3	50.4	136.9	5.6	0.0	0.2	0.8	0.0	0.0	0.0	100.6	44.3
V19A	0.0	52.7	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	9.2	0.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	1.9	1.5
V19B	36.4	44.8	0.0	16.0	19.4	0.0	0.0	0.2	12.8	0.9	1.3	5.8	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.4
V20	14.3	82.4	0.0	0.0	2.8	0.0	1.3	0.1	9.7	0.6	7.2	1.1	7.2	0.0	0.4	0.5	0.0	0.0	0.0	27.7	39.4
V21A	51.1	13.0	41.8	0.0	19.3	0.4	1.2	0.2	14.6	2.2	0.6	7.3	6.0	0.0	1.0	9.9	0.0	0.0	0.0	0.0	5.0
V21B	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	7.0	0.0	11.7	0.0	10.3	0.0	0.0	0.0	0.0	12.3	26.3
V21C	0.0	6.0	0.0	0.0	4.1	0.6	0.0	0.0	0.0	2.6	4.9	0.0	4.9	0.0	1.4	0.0	0.0	0.0	0.0	15.1	10.6

Table A3-47. San Joaquin Valley Crop Acres – Average Year with Maximum Groundwater Replacement, Existing Conditions (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.5	51.8	3.9	36.2	48.7	20.2	27.6	14.7	4.6	3.7	22.1	95.9	17.4	15.5	0.1	49.2	3.2	1.7	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.9	165.3	8.9	66.4	14.5	1.5	0.1	5.2	20.2	0.1	20.9	46.3	24.7	21.9	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	13.0	102.6	1.6	6.4	42.4	22.7	5.8	3.5	67.6	21.5	7.1	19.5	22.9	0.0	0.0	75.6	0.0	0.9	0.0	2.9	13.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.1	9.6	37.8	81.9	3.2	15.8	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.4	12.0	0.0	0.0	1.5	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.9	58.4	15.6	152.6	28.4	0.7	6.5	0.2	26.9	0.3	50.7	147.1	5.7	2.1	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.6	68.6	0.4	0.0	1.9	0.3	0.0	0.2	14.0	0.5	9.8	0.0	5.0	0.0	0.0	0.3	0.0	0.2	0.0	2.1	2.1
V19B	39.7	45.2	2.0	19.9	19.8	0.0	0.0	0.2	13.7	0.9	1.3	7.5	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.6	82.8	5.1	0.0	2.9	0.0	1.3	0.1	9.9	0.6	7.2	2.4	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.7
V21A	54.4	13.2	48.8	0.0	19.7	0.4	1.3	0.2	15.2	2.3	0.6	8.0	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.9	10.1	0.9	0.0	1.8	1.4	0.1	0.1	6.5	2.7	7.4	3.2	13.2	0.0	10.8	1.4	0.0	0.2	0.0	13.2	31.3
V21C	3.5	6.5	1.0	0.0	5.5	0.8	0.0	0.0	2.3	3.4	5.0	0.0	5.2	0.0	1.4	0.0	0.0	0.4	0.0	15.6	11.4

Table A3-48. San Joaquin Valley Crop Acres – Average Year with Maximum Groundwater Replacement, 35 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.5	51.8	3.9	36.2	48.7	20.2	27.6	14.7	4.6	3.7	22.1	95.9	17.4	15.5	0.1	49.2	3.2	1.7	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.9	165.3	8.9	66.4	14.5	1.5	0.1	5.2	20.2	0.1	20.9	46.3	24.7	21.9	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	13.0	102.6	1.6	6.4	42.4	22.7	5.8	3.5	67.6	21.5	7.1	19.5	22.9	0.0	0.0	75.6	0.0	0.9	0.0	2.9	13.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.1	9.6	37.8	81.9	3.2	15.8	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.4	12.0	0.0	0.0	1.5	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.9	58.4	15.6	152.6	28.4	0.7	6.5	0.2	26.9	0.3	50.7	147.1	5.7	2.1	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.6	68.6	0.4	0.0	1.9	0.3	0.0	0.2	14.0	0.5	9.8	0.0	5.0	0.0	0.0	0.3	0.0	0.2	0.0	2.1	2.1
V19B	39.7	45.2	2.0	19.9	19.8	0.0	0.0	0.2	13.7	0.9	1.3	7.5	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.6	82.8	5.1	0.0	2.9	0.0	1.3	0.1	9.9	0.6	7.2	2.4	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.7
V21A	54.4	13.2	48.8	0.0	19.7	0.4	1.3	0.2	15.2	2.3	0.6	8.0	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.9	10.1	0.9	0.0	1.8	1.4	0.1	0.1	6.5	2.7	7.4	3.2	13.2	0.0	10.8	1.4	0.0	0.2	0.0	13.2	31.3
V21C	3.5	6.5	1.0	0.0	5.5	0.8	0.0	0.0	2.3	3.4	5.0	0.0	5.2	0.0	1.4	0.0	0.0	0.4	0.0	15.6	11.4

Table A3-49. San Joaquin Valley Crop Acres – Average Year with Maximum Groundwater Replacement, 45 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.5	51.8	3.9	36.2	48.7	20.2	27.6	14.7	4.6	3.7	22.1	95.9	17.4	15.5	0.1	49.2	3.2	1.7	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.9	165.3	8.9	66.4	14.5	1.5	0.1	5.2	20.2	0.1	20.9	46.3	24.7	21.9	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	13.0	102.6	1.6	6.4	42.4	22.7	5.8	3.5	67.6	21.5	7.1	19.5	22.9	0.0	0.0	75.6	0.0	0.9	0.0	2.9	13.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.1	9.6	37.8	81.9	3.2	15.8	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.4	12.0	0.0	0.0	1.5	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.9	58.4	15.6	152.6	28.4	0.7	6.5	0.2	26.9	0.3	50.7	147.1	5.7	2.1	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.6	68.6	0.4	0.0	1.9	0.3	0.0	0.2	14.0	0.5	9.8	0.0	5.0	0.0	0.0	0.3	0.0	0.2	0.0	2.1	2.1
V19B	39.7	45.2	2.0	19.9	19.8	0.0	0.0	0.2	13.7	0.9	1.3	7.5	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.6	82.8	5.1	0.0	2.9	0.0	1.3	0.1	9.9	0.6	7.2	2.4	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.7
V21A	54.4	13.2	48.8	0.0	19.7	0.4	1.3	0.2	15.2	2.3	0.6	8.0	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.9	10.1	0.9	0.0	1.8	1.4	0.1	0.1	6.5	2.7	7.4	3.2	13.2	0.0	10.8	1.4	0.0	0.2	0.0	13.2	31.3
V21C	3.5	6.5	1.0	0.0	5.5	0.8	0.0	0.0	2.3	3.4	5.0	0.0	5.2	0.0	1.4	0.0	0.0	0.4	0.0	15.6	11.4

Table A3-50. San Joaquin Valley Crop Acres – Average Year with Maximum Groundwater Replacement, 55 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.5	51.8	3.9	36.2	48.7	20.2	27.6	14.7	4.6	3.7	22.1	95.9	17.4	15.5	0.1	49.2	3.2	1.7	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.9	165.3	8.9	66.4	14.5	1.5	0.1	5.2	20.2	0.1	20.9	46.3	24.7	21.9	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	13.0	102.6	1.6	6.4	42.4	22.7	5.8	3.5	67.6	21.5	7.1	19.5	22.9	0.0	0.0	75.6	0.0	0.9	0.0	2.9	13.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.1	9.6	37.8	81.9	3.2	15.8	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.4	12.0	0.0	0.0	1.5	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.9	58.4	15.6	152.6	28.4	0.7	6.5	0.2	26.9	0.3	50.7	147.1	5.7	2.1	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.6	68.6	0.4	0.0	1.9	0.3	0.0	0.2	14.0	0.5	9.8	0.0	5.0	0.0	0.0	0.3	0.0	0.2	0.0	2.1	2.1
V19B	39.7	45.2	2.0	19.9	19.8	0.0	0.0	0.2	13.7	0.9	1.3	7.5	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.6	82.8	5.1	0.0	2.9	0.0	1.3	0.1	9.9	0.6	7.2	2.4	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.7
V21A	54.4	13.2	48.8	0.0	19.7	0.4	1.3	0.2	15.2	2.3	0.6	8.0	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.9	10.1	0.9	0.0	1.8	1.4	0.1	0.1	6.5	2.7	7.4	3.2	13.2	0.0	10.8	1.4	0.0	0.2	0.0	13.2	31.3
V21C	3.5	6.5	1.0	0.0	5.5	0.8	0.0	0.0	2.3	3.4	5.0	0.0	5.2	0.0	1.4	0.0	0.0	0.4	0.0	15.6	11.4

Table A3-51. San Joaquin Valley Crop Acres – Average Year with Maximum Groundwater Replacement, 65 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.5	51.8	3.9	36.2	48.7	20.2	27.6	14.7	4.6	3.7	22.1	95.9	17.4	15.5	0.1	49.2	3.2	1.7	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.9	165.3	8.9	66.4	14.5	1.5	0.1	5.2	20.2	0.1	20.9	46.3	24.7	21.9	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	13.0	102.6	1.6	6.4	42.4	22.7	5.8	3.5	67.6	21.5	7.1	19.5	22.9	0.0	0.0	75.6	0.0	0.9	0.0	2.9	13.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.1	9.6	37.8	81.9	3.2	15.8	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.4	12.0	0.0	0.0	1.5	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.9	58.4	15.6	152.6	28.4	0.7	6.5	0.2	26.9	0.3	50.7	147.1	5.7	2.1	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.6	68.6	0.4	0.0	1.9	0.3	0.0	0.2	14.0	0.5	9.8	0.0	5.0	0.0	0.0	0.3	0.0	0.2	0.0	2.1	2.1
V19B	39.7	45.2	2.0	19.9	19.8	0.0	0.0	0.2	13.7	0.9	1.3	7.5	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.6	82.8	5.1	0.0	2.9	0.0	1.3	0.1	9.9	0.6	7.2	2.4	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.7
V21A	54.4	13.2	48.8	0.0	19.7	0.4	1.3	0.2	15.2	2.3	0.6	8.0	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.9	10.1	0.9	0.0	1.8	1.4	0.1	0.1	6.5	2.7	7.4	3.2	13.2	0.0	10.8	1.4	0.0	0.2	0.0	13.2	31.3
V21C	3.5	6.5	1.0	0.0	5.5	0.8	0.0	0.0	2.3	3.4	5.0	0.0	5.2	0.0	1.4	0.0	0.0	0.4	0.0	15.6	11.4

Table A3-52. San Joaquin Valley Crop Acres – Average Year with Maximum Groundwater Replacement, 75 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.5	51.8	3.9	36.2	48.7	20.2	27.6	14.7	4.6	3.7	22.1	95.9	17.4	15.5	0.1	49.2	3.2	1.7	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.9	165.3	8.9	66.4	14.5	1.5	0.1	5.2	20.2	0.1	20.9	46.3	24.7	21.9	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	13.0	102.6	1.6	6.4	42.4	22.7	5.8	3.5	67.6	21.5	7.1	19.5	22.9	0.0	0.0	75.6	0.0	0.9	0.0	2.9	13.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.1	9.6	37.8	81.9	3.2	15.8	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.4	12.0	0.0	0.0	1.5	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.9	58.4	15.6	152.6	28.4	0.7	6.5	0.2	26.9	0.3	50.7	147.1	5.7	2.1	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.0	66.0	0.0	0.0	1.7	0.3	0.0	0.2	8.4	0.4	9.6	0.0	4.8	0.0	0.0	0.3	0.0	0.0	0.0	2.0	2.0
V19B	39.7	45.2	2.0	19.9	19.8	0.0	0.0	0.2	13.7	0.9	1.3	7.5	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.6	82.8	5.1	0.0	2.9	0.0	1.3	0.1	9.9	0.6	7.2	2.4	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.7
V21A	54.4	13.2	48.8	0.0	19.7	0.4	1.3	0.2	15.2	2.3	0.6	8.0	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.9	10.1	0.9	0.0	1.8	1.4	0.1	0.1	6.5	2.7	7.4	3.2	13.2	0.0	10.8	1.4	0.0	0.2	0.0	13.2	31.3
V21C	3.5	6.5	1.0	0.0	5.5	0.8	0.0	0.0	2.3	3.4	5.0	0.0	5.2	0.0	1.4	0.0	0.0	0.4	0.0	15.6	11.4

Table A3-53. San Joaquin Valley Crop Acres – Dry Year Without Groundwater Replacement, Existing Conditions (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	75.8	51.7	3.9	36.4	48.7	20.3	27.9	14.8	4.8	3.7	22.1	96.3	17.6	14.8	0.1	49.4	3.1	1.8	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.8	165.3	8.9	66.5	14.5	1.5	0.1	5.2	20.3	0.1	20.9	46.5	24.8	21.5	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	7.0	100.6	0.0	4.5	40.2	22.0	0.0	3.5	64.7	21.1	7.0	0.0	22.8	0.0	0.0	72.6	0.0	0.0	0.0	2.8	12.9
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.1	9.6	37.8	81.8	3.2	15.9	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.4	11.9	0.0	0.0	1.5	0.4	0.0	0.0	2.7	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.6	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.0	0.0	2.0	0.0	0.0	0.0	46.8	76.1
V18	87.9	58.2	15.3	150.8	28.3	0.7	6.4	0.2	26.8	0.3	50.6	145.6	5.7	0.0	0.2	0.8	0.0	0.0	0.0	101.1	44.8
V19A	0.3	67.1	0.0	0.0	1.8	0.3	0.0	0.2	12.6	0.5	9.7	0.0	4.9	0.0	0.0	0.3	0.0	0.0	0.0	2.1	2.0
V19B	39.7	45.2	2.0	19.8	19.7	0.0	0.0	0.2	13.7	0.9	1.3	7.5	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.4	82.7	4.6	0.0	2.8	0.0	1.3	0.1	9.9	0.6	7.2	2.3	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.6
V21A	54.1	13.2	48.1	0.0	19.6	0.4	1.3	0.2	15.1	2.3	0.6	8.0	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.0	9.7	0.0	0.0	1.5	1.3	0.0	0.1	4.9	2.4	7.3	0.0	12.8	0.0	10.7	1.3	0.0	0.0	0.0	12.9	30.3
V21C	3.0	6.4	0.0	0.0	5.3	0.8	0.0	0.0	2.1	3.3	5.0	0.0	5.1	0.0	1.4	0.0	0.0	0.0	0.0	15.5	11.2

Table A3-54. San Joaquin Valley Crop Acres – Dry Year Without Groundwater Replacement, 35 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	75.8	51.7	3.9	36.4	48.7	20.3	27.9	14.8	4.8	3.7	22.1	96.3	17.6	14.8	0.1	49.4	3.1	1.8	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.8	165.3	8.9	66.5	14.5	1.5	0.1	5.2	20.3	0.1	20.9	46.5	24.8	21.5	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	4.4	100.6	0.0	4.5	40.2	22.0	0.0	3.5	64.7	21.1	7.0	0.0	22.8	0.0	0.0	72.5	0.0	0.0	0.0	2.8	12.9
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.3	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.1	9.6	37.8	81.8	3.2	15.9	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.4	11.8	0.0	0.0	1.4	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.6	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.0	0.0	2.0	0.0	0.0	0.0	46.8	76.1
V18	87.8	58.2	15.3	150.8	28.3	0.7	6.4	0.2	26.8	0.3	50.6	145.6	5.7	0.0	0.2	0.8	0.0	0.0	0.0	101.1	44.8
V19A	0.0	66.5	0.0	0.0	1.7	0.3	0.0	0.2	11.4	0.4	9.6	0.0	4.8	0.0	0.0	0.3	0.0	0.0	0.0	2.1	2.0
V19B	39.4	45.2	1.9	19.5	19.7	0.0	0.0	0.2	13.6	0.9	1.3	7.4	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.4	82.7	4.5	0.0	2.8	0.0	1.3	0.1	9.9	0.6	7.2	2.3	7.2	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.6
V21A	53.9	13.1	47.7	0.0	19.6	0.4	1.3	0.2	15.1	2.3	0.6	7.9	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.0	9.7	0.0	0.0	1.5	1.3	0.0	0.1	4.4	2.4	7.3	0.0	12.8	0.0	10.7	1.3	0.0	0.0	0.0	12.9	30.2
V21C	2.7	6.3	0.0	0.0	5.2	0.8	0.0	0.0	2.0	3.2	4.9	0.0	5.1	0.0	1.4	0.0	0.0	0.0	0.0	15.4	11.2

Table A3-55. San Joaquin Valley Crop Acres – Dry Year Without Groundwater Replacement, 45 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	75.8	51.7	3.9	36.4	48.7	20.3	27.9	14.8	4.8	3.7	22.1	96.3	17.6	14.8	0.1	49.4	3.1	1.8	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.8	165.3	8.9	66.5	14.5	1.5	0.1	5.2	20.3	0.1	20.9	46.5	24.9	21.5	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	0.0	99.1	0.0	4.5	37.5	21.4	0.0	3.5	61.9	20.9	6.9	0.0	22.7	0.0	0.0	69.8	0.0	0.0	0.0	2.7	12.6
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.2	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.2	9.6	37.8	81.9	3.2	15.8	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.3	11.6	0.0	0.0	1.3	0.4	0.0	0.0	2.5	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.6	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.0	0.0	2.0	0.0	0.0	0.0	46.8	76.1
V18	87.8	58.2	15.3	150.7	28.3	0.7	6.4	0.2	26.8	0.3	50.6	145.5	5.7	0.0	0.2	0.8	0.0	0.0	0.0	101.1	44.8
V19A	0.0	65.9	0.0	0.0	1.6	0.3	0.0	0.2	1.4	0.4	9.6	0.0	4.8	0.0	0.0	0.3	0.0	0.0	0.0	2.0	2.0
V19B	39.1	45.1	1.8	19.1	19.6	0.0	0.0	0.2	13.5	0.9	1.3	7.3	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.3	82.6	4.2	0.0	2.8	0.0	1.3	0.1	9.9	0.6	7.2	2.3	7.2	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.6
V21A	53.5	13.1	47.0	0.0	19.5	0.4	1.3	0.2	15.0	2.3	0.6	7.8	6.0	0.0	1.0	10.0	0.0	1.1	0.0	0.0	5.1
V21B	0.0	9.6	0.0	0.0	1.4	1.3	0.0	0.1	1.7	2.4	7.2	0.0	12.7	0.0	10.6	1.3	0.0	0.0	0.0	12.9	30.1
V21C	1.3	6.3	0.0	0.0	5.1	0.7	0.0	0.0	1.9	3.2	4.9	0.0	5.1	0.0	1.4	0.0	0.0	0.0	0.0	15.4	11.1

Table A3-56. San Joaquin Valley Crop Acres – Dry Year Without Groundwater Replacement, 55 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	75.8	51.7	3.9	36.4	48.7	20.3	27.9	14.8	4.8	3.7	22.1	96.3	17.6	14.8	0.1	49.4	3.1	1.8	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.8	165.3	8.9	66.5	14.5	1.5	0.1	5.2	20.4	0.1	20.9	46.5	24.9	21.5	0.1	13.6	1.8	0.3	0.3	5.2	76.4
V14A	0.0	97.1	0.0	4.5	12.4	20.5	0.0	3.5	55.5	20.5	6.8	0.0	22.6	0.0	0.0	64.0	0.0	0.0	0.0	2.6	12.2
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.2	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.3	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.2	9.6	37.8	81.9	3.2	15.7	0.0	43.7	0.0	4.6	0.0	0.5	58.3
V15B	0.0	11.4	0.0	0.0	1.0	0.3	0.0	0.0	2.2	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.6	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.0	0.0	2.0	0.0	0.0	0.0	46.8	76.1
V18	87.5	58.2	15.2	150.1	28.3	0.7	6.4	0.2	26.8	0.3	50.6	145.0	5.7	0.0	0.2	0.8	0.0	0.0	0.0	101.1	44.8
V19A	0.0	64.7	0.0	0.0	1.3	0.2	0.0	0.2	0.0	0.4	9.5	0.0	4.7	0.0	0.0	0.3	0.0	0.0	0.0	2.0	1.9
V19B	38.7	45.0	1.7	18.8	19.6	0.0	0.0	0.2	13.4	0.9	1.3	7.1	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.1	82.6	3.2	0.0	2.8	0.0	1.3	0.1	9.8	0.6	7.2	2.2	7.2	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.5
V21A	53.2	13.1	46.3	0.0	19.5	0.4	1.3	0.2	15.0	2.3	0.6	7.8	6.0	0.0	1.0	9.9	0.0	1.1	0.0	0.0	5.1
V21B	0.0	9.5	0.0	0.0	1.1	1.2	0.0	0.1	0.0	2.2	7.2	0.0	12.6	0.0	10.6	1.3	0.0	0.0	0.0	12.8	29.8
V21C	0.0	6.3	0.0	0.0	5.0	0.7	0.0	0.0	1.7	3.1	4.9	0.0	5.1	0.0	1.4	0.0	0.0	0.0	0.0	15.4	11.0

Table A3-57. San Joaquin Valley Crop Acres – Dry Year Without Groundwater Replacement, 65 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	75.8	51.7	3.9	36.4	48.7	20.3	27.9	14.8	4.8	3.7	22.1	96.3	17.6	14.8	0.1	49.4	3.1	1.8	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.7	165.3	8.9	66.5	14.5	1.5	0.1	5.2	20.4	0.1	20.9	46.5	24.9	21.3	0.1	13.6	1.7	0.3	0.3	5.2	76.4
V14A	0.0	95.8	0.0	4.5	0.0	19.7	0.0	3.5	6.3	20.3	6.8	0.0	22.5	0.0	0.0	54.2	0.0	0.0	0.0	2.5	11.9
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.1	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.3	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.3	9.6	37.8	82.0	3.2	15.6	0.0	43.8	0.0	4.6	0.0	0.5	58.3
V15B	0.0	11.3	0.0	0.0	0.1	0.3	0.0	0.0	2.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.6	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.0	0.0	2.0	0.0	0.0	0.0	46.8	76.1
V18	86.7	58.1	15.0	148.4	28.2	0.7	6.3	0.2	26.6	0.3	50.5	143.5	5.7	0.0	0.2	0.8	0.0	0.0	0.0	101.0	44.7
V19A	0.0	64.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.3	9.5	0.0	4.6	0.0	0.0	0.2	0.0	0.0	0.0	2.0	1.9
V19B	38.5	45.0	1.5	18.5	19.6	0.0	0.0	0.2	13.4	0.9	1.3	7.1	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	14.8	82.5	0.0	0.0	2.8	0.0	1.3	0.1	9.7	0.6	7.2	2.0	7.2	0.0	0.4	0.5	0.0	0.0	0.0	27.7	39.4
V21A	53.0	13.1	45.8	0.0	19.4	0.4	1.3	0.2	14.9	2.3	0.6	7.7	6.0	0.0	1.0	9.9	0.0	1.0	0.0	0.0	5.1
V21B	0.0	9.4	0.0	0.0	0.0	1.1	0.0	0.1	0.0	2.0	7.2	0.0	12.5	0.0	10.6	1.2	0.0	0.0	0.0	12.8	29.5
V21C	0.0	6.2	0.0	0.0	4.8	0.7	0.0	0.0	1.0	3.1	4.9	0.0	5.0	0.0	1.4	0.0	0.0	0.0	0.0	15.3	11.0

Table A3-58. San Joaquin Valley Crop Acres – Dry Year Without Groundwater Replacement, 75 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	75.8	51.7	3.9	36.4	48.7	20.3	27.9	14.8	4.8	3.7	22.1	96.3	17.6	14.8	0.1	49.4	3.1	1.8	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.6	165.2	8.9	66.5	14.5	1.5	0.1	5.2	20.6	0.1	20.9	46.6	25.0	20.9	0.1	13.6	1.7	0.3	0.3	5.2	76.4
V14A	0.0	95.3	0.0	4.5	0.0	19.4	0.0	3.5	0.1	20.2	6.8	0.0	22.5	0.0	0.0	15.6	0.0	0.0	0.0	2.4	11.8
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.1	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.1	59.1	7.2	60.6	92.2	0.3	2.9	0.8	53.4	9.6	37.8	81.9	3.2	15.3	0.0	43.7	0.0	4.6	0.0	0.5	58.3
V15B	0.0	11.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.6	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.0	0.0	2.0	0.0	0.0	0.0	46.8	76.1
V18	84.9	57.9	14.2	143.8	27.9	0.7	5.9	0.2	26.3	0.3	50.4	139.6	5.7	0.0	0.2	0.8	0.0	0.0	0.0	100.7	44.4
V19A	0.0	61.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	9.3	0.0	4.4	0.0	0.0	0.2	0.0	0.0	0.0	2.0	1.8
V19B	38.3	45.0	1.3	18.1	19.5	0.0	0.0	0.2	13.3	0.9	1.3	7.0	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	12.9	82.0	0.0	0.0	2.8	0.0	1.2	0.1	9.4	0.6	7.1	0.0	7.2	0.0	0.4	0.5	0.0	0.0	0.0	27.6	39.1
V21A	52.7	13.1	45.1	0.0	19.4	0.4	1.3	0.2	14.9	2.3	0.6	7.7	6.0	0.0	1.0	9.9	0.0	1.0	0.0	0.0	5.1
V21B	0.0	9.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	7.1	0.0	12.1	0.0	10.4	1.0	0.0	0.0	0.0	12.6	28.5
V21C	0.0	6.2	0.0	0.0	4.6	0.7	0.0	0.0	0.0	3.0	4.9	0.0	5.0	0.0	1.4	0.0	0.0	0.0	0.0	15.2	10.9

Table A3-59. San Joaquin Valley Crop Acres – Dry Year with Maximum Groundwater Replacement, Existing Conditions (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.5	51.8	3.9	36.2	48.7	20.2	27.6	14.7	4.6	3.7	22.1	95.9	17.4	15.5	0.1	49.2	3.2	1.7	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.9	165.3	8.9	66.4	14.5	1.5	0.1	5.2	20.2	0.1	20.9	46.3	24.7	21.9	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	13.0	102.6	1.6	6.4	42.4	22.7	5.8	3.5	67.6	21.5	7.1	19.5	22.9	0.0	0.0	75.6	0.0	0.9	0.0	2.9	13.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.1	9.6	37.8	81.8	3.2	15.9	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.4	12.0	0.0	0.0	1.5	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.9	58.4	15.6	152.6	28.4	0.7	6.5	0.2	26.9	0.3	50.7	147.1	5.7	2.2	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.6	68.6	0.4	0.0	1.9	0.3	0.0	0.2	14.0	0.5	9.8	0.0	5.0	0.0	0.0	0.3	0.0	0.2	0.0	2.1	2.1
V19B	39.8	45.2	2.0	19.9	19.8	0.0	0.0	0.2	13.7	0.9	1.3	7.5	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.7	82.8	5.0	0.0	2.9	0.0	1.3	0.1	10.0	0.6	7.2	2.4	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.7
V21A	54.5	13.2	48.7	0.0	19.7	0.4	1.3	0.2	15.2	2.3	0.6	8.0	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.9	10.1	0.9	0.0	1.8	1.4	0.1	0.1	6.5	2.7	7.4	3.2	13.2	0.0	10.8	1.4	0.0	0.2	0.0	13.2	31.3
V21C	3.5	6.5	1.0	0.0	5.5	0.8	0.0	0.0	2.3	3.4	5.0	0.0	5.2	0.0	1.4	0.0	0.0	0.4	0.0	15.6	11.4

Table A3-60. San Joaquin Valley Crop Acres – Dry Year with Maximum Groundwater Replacement, 35 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.5	51.8	3.9	36.2	48.7	20.2	27.6	14.7	4.6	3.7	22.1	95.9	17.4	15.5	0.1	49.2	3.2	1.7	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.9	165.3	8.9	66.4	14.5	1.5	0.1	5.2	20.2	0.1	20.9	46.3	24.7	21.9	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	13.0	102.6	1.6	6.4	42.4	22.7	5.8	3.5	67.6	21.5	7.1	19.5	22.9	0.0	0.0	75.6	0.0	0.9	0.0	2.9	13.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.1	9.6	37.8	81.8	3.2	15.9	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.4	12.0	0.0	0.0	1.5	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.9	58.4	15.6	152.6	28.4	0.7	6.5	0.2	26.9	0.3	50.7	147.1	5.7	2.2	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.6	68.6	0.4	0.0	1.9	0.3	0.0	0.2	14.0	0.5	9.8	0.0	5.0	0.0	0.0	0.3	0.0	0.2	0.0	2.1	2.1
V19B	39.8	45.2	2.0	19.9	19.8	0.0	0.0	0.2	13.7	0.9	1.3	7.5	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.7	82.8	5.0	0.0	2.9	0.0	1.3	0.1	10.0	0.6	7.2	2.4	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.7
V21A	54.5	13.2	48.7	0.0	19.7	0.4	1.3	0.2	15.2	2.3	0.6	8.0	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.9	10.1	0.9	0.0	1.8	1.4	0.1	0.1	6.5	2.7	7.4	3.2	13.2	0.0	10.8	1.4	0.0	0.2	0.0	13.2	31.3
V21C	3.5	6.5	1.0	0.0	5.5	0.8	0.0	0.0	2.3	3.4	5.0	0.0	5.2	0.0	1.4	0.0	0.0	0.4	0.0	15.6	11.4

Table A3-61. San Joaquin Valley Crop Acres – Dry Year with Maximum Groundwater Replacement, 45 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.5	51.8	3.9	36.2	48.7	20.2	27.6	14.7	4.6	3.7	22.1	95.9	17.4	15.5	0.1	49.2	3.2	1.7	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.9	165.3	8.9	66.4	14.5	1.5	0.1	5.2	20.2	0.1	20.9	46.3	24.7	21.9	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	13.0	102.6	1.6	6.4	42.4	22.7	5.8	3.5	67.6	21.5	7.1	19.5	22.9	0.0	0.0	75.6	0.0	0.9	0.0	2.9	13.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.1	9.6	37.8	81.8	3.2	15.9	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.4	12.0	0.0	0.0	1.5	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.9	58.4	15.6	152.6	28.4	0.7	6.5	0.2	26.9	0.3	50.7	147.1	5.7	2.2	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.6	68.3	0.3	0.0	1.9	0.3	0.0	0.2	13.8	0.5	9.8	0.0	5.0	0.0	0.0	0.3	0.0	0.0	0.0	2.1	2.1
V19B	39.8	45.2	2.0	19.9	19.8	0.0	0.0	0.2	13.7	0.9	1.3	7.5	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.7	82.8	5.0	0.0	2.9	0.0	1.3	0.1	10.0	0.6	7.2	2.4	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.7
V21A	54.5	13.2	48.7	0.0	19.7	0.4	1.3	0.2	15.2	2.3	0.6	8.0	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.9	10.1	0.9	0.0	1.8	1.4	0.1	0.1	6.5	2.7	7.4	3.2	13.2	0.0	10.8	1.4	0.0	0.2	0.0	13.2	31.3
V21C	3.5	6.5	1.0	0.0	5.5	0.8	0.0	0.0	2.3	3.4	5.0	0.0	5.2	0.0	1.4	0.0	0.0	0.4	0.0	15.6	11.4

Table A3-62. San Joaquin Valley Crop Acres – Dry Year with Maximum Groundwater Replacement, 55 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.5	51.8	3.9	36.2	48.7	20.2	27.6	14.7	4.6	3.7	22.1	95.9	17.4	15.5	0.1	49.2	3.2	1.7	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.9	165.3	8.9	66.4	14.5	1.5	0.1	5.2	20.2	0.1	20.9	46.3	24.7	21.9	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	13.0	102.6	1.6	6.4	42.4	22.7	5.8	3.5	67.6	21.5	7.1	19.5	22.9	0.0	0.0	75.6	0.0	0.9	0.0	2.9	13.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.1	9.6	37.8	81.8	3.2	15.9	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.4	12.0	0.0	0.0	1.5	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.9	58.4	15.6	152.6	28.4	0.7	6.5	0.2	26.9	0.3	50.7	147.1	5.7	2.2	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.5	67.7	0.0	0.0	1.8	0.3	0.0	0.2	13.3	0.5	9.7	0.0	4.9	0.0	0.0	0.3	0.0	0.0	0.0	2.1	2.1
V19B	39.8	45.2	2.0	19.9	19.8	0.0	0.0	0.2	13.7	0.9	1.3	7.5	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.7	82.8	5.0	0.0	2.9	0.0	1.3	0.1	10.0	0.6	7.2	2.4	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.7
V21A	54.5	13.2	48.7	0.0	19.7	0.4	1.3	0.2	15.2	2.3	0.6	8.0	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.9	10.1	0.9	0.0	1.8	1.4	0.1	0.1	6.5	2.7	7.4	3.2	13.2	0.0	10.8	1.4	0.0	0.2	0.0	13.2	31.3
V21C	3.5	6.5	1.0	0.0	5.5	0.8	0.0	0.0	2.3	3.4	5.0	0.0	5.2	0.0	1.4	0.0	0.0	0.4	0.0	15.6	11.4

Table A3-63. San Joaquin Valley Crop Acres – Dry Year with Maximum Groundwater Replacement, 65 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.5	51.8	3.9	36.2	48.7	20.2	27.6	14.7	4.6	3.7	22.1	95.9	17.4	15.5	0.1	49.2	3.2	1.7	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.9	165.3	8.9	66.4	14.5	1.5	0.1	5.2	20.2	0.1	20.9	46.3	24.7	21.9	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	13.0	102.6	1.6	6.4	42.4	22.7	5.8	3.5	67.6	21.5	7.1	19.5	22.9	0.0	0.0	75.6	0.0	0.9	0.0	2.9	13.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.1	9.6	37.8	81.8	3.2	15.9	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.4	12.0	0.0	0.0	1.5	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.9	58.4	15.6	152.6	28.4	0.7	6.5	0.2	26.9	0.3	50.7	147.1	5.7	2.2	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.4	67.2	0.0	0.0	1.8	0.3	0.0	0.2	12.7	0.5	9.7	0.0	4.9	0.0	0.0	0.3	0.0	0.0	0.0	2.1	2.0
V19B	39.8	45.2	2.0	19.9	19.8	0.0	0.0	0.2	13.7	0.9	1.3	7.5	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.7	82.8	5.0	0.0	2.9	0.0	1.3	0.1	10.0	0.6	7.2	2.4	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.7
V21A	54.5	13.2	48.7	0.0	19.7	0.4	1.3	0.2	15.2	2.3	0.6	8.0	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.9	10.1	0.9	0.0	1.8	1.4	0.1	0.1	6.5	2.7	7.4	3.2	13.2	0.0	10.8	1.4	0.0	0.2	0.0	13.2	31.3
V21C	3.5	6.5	1.0	0.0	5.5	0.8	0.0	0.0	2.3	3.4	5.0	0.0	5.2	0.0	1.4	0.0	0.0	0.4	0.0	15.6	11.4

Table A3-64. San Joaquin Valley Crop Acres – Dry Year with Maximum Groundwater Replacement, 75 Scenario (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.5	51.8	3.9	36.2	48.7	20.2	27.6	14.7	4.6	3.7	22.1	95.9	17.4	15.5	0.1	49.2	3.2	1.7	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.9	165.3	8.9	66.4	14.5	1.5	0.1	5.2	20.2	0.1	20.9	46.3	24.7	21.9	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	13.0	102.6	1.6	6.4	42.4	22.7	5.8	3.5	67.6	21.5	7.1	19.5	22.9	0.0	0.0	75.6	0.0	0.9	0.0	2.9	13.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.1	9.6	37.8	81.8	3.2	15.9	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.4	12.0	0.0	0.0	1.5	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.9	58.4	15.6	152.6	28.4	0.7	6.5	0.2	26.9	0.3	50.7	147.1	5.7	2.2	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.0	66.6	0.0	0.0	1.7	0.3	0.0	0.2	11.7	0.4	9.6	0.0	4.8	0.0	0.0	0.3	0.0	0.0	0.0	2.1	2.0
V19B	39.8	45.2	2.0	19.9	19.8	0.0	0.0	0.2	13.7	0.9	1.3	7.5	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.7	82.8	5.0	0.0	2.9	0.0	1.3	0.1	10.0	0.6	7.2	2.4	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.7
V21A	54.5	13.2	48.7	0.0	19.7	0.4	1.3	0.2	15.2	2.3	0.6	8.0	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.9	10.1	0.9	0.0	1.8	1.4	0.1	0.1	6.5	2.7	7.4	3.2	13.2	0.0	10.8	1.4	0.0	0.2	0.0	13.2	31.3
V21C	3.5	6.5	1.0	0.0	5.5	0.8	0.0	0.0	2.3	3.4	5.0	0.0	5.2	0.0	1.4	0.0	0.0	0.4	0.0	15.6	11.4

A3.3.4 Effects on Gross Revenues

The changes in the cropping pattern described in Section A3.3.3, *Effects on Crop Acreage*, result in reduced agricultural crop revenues and profit in the SWAP analysis. Crop revenues represent the revenues that farming operations accrue from the sale of crops. SWAP calculates as the product of *crop acres*, *crop yields*, and *crop prices*.[9] This section provides the SWAP model estimated gross revenues for each SWAP production region in the Sacramento/Delta (Tables A3-65 through A3-88) and San Joaquin Valley region (Tables A3-89 through A3-112) by flow scenario, year type, and groundwater condition. SWAP output is reported in 2010 dollars. The gross revenues reported in the tables below are adjusted from 2010 dollars to 2022 dollars using the Implicit Price Deflator (BEA 2022).

Sacramento/Delta Gross Revenues

Table A3-65. Sacramento/Delta Gross Revenues – Average Year Without Groundwater Replacement, Existing Conditions ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.6	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	6.0	150.1	2.5	0.1	0.0	10.8	1.1	0.0	7.2	0.0	507.9	0.8	3.5	24.9	0.0	0.0	2.5	0.1	0.0	384.9	0.2
V03A	25.7	48.0	10.9	0.4	3.3	102.3	2.1	0.0	5.3	2.8	190.0	9.5	1.0	4.4	0.0	37.4	574.1	2.0	0.0	2.0	0.7
V03B	38.6	467.0	19.5	0.8	4.9	72.9	1.2	0.0	13.3	12.6	106.0	8.2	7.0	8.5	0.0	51.4	28.6	0.6	0.0	133.3	28.0
V04	6.5	18.1	14.1	0.4	0.9	139.6	13.5	0.9	7.3	0.0	190.2	9.8	0.8	1.4	0.0	25.3	185.2	1.9	0.0	0.0	0.0
V05	2.9	177.6	4.5	0.1	1.5	39.1	6.1	0.0	4.8	0.2	923.2	3.7	2.8	18.3	0.0	5.5	492.9	0.8	0.0	115.7	0.2
V06	115.0	40.6	27.8	0.0	0.0	63.9	5.2	11.7	34.1	8.5	199.8	38.7	15.9	24.9	0.0	110.0	44.1	4.3	0.0	15.6	14.8
V07	8.8	0.7	3.2	1.1	0.0	2.9	0.5	0.2	7.7	0.1	83.2	1.5	3.7	19.3	0.0	1.4	149.5	0.3	0.0	7.8	1.7
V08	41.6	19.9	30.6	31.2	0.0	24.5	5.2	23.1	14.6	5.4	568.9	5.9	26.2	26.2	0.0	52.7	7.7	0.3	0.0	16.1	715.5
V09	140.1	10.5	111.4	70.5	0.0	64.3	5.8	35.6	30.8	2.7	151.6	30.3	69.2	45.5	27.5	100.0	10.7	17.6	0.0	15.4	168.5

Table A3-66. Sacramento/Delta Gross Revenues – Average Year Without Groundwater Replacement, 35 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.6	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	5.9	147.9	2.5	0.1	0.0	10.9	1.1	0.0	7.7	0.0	506.3	0.8	3.5	23.5	0.0	0.0	2.4	0.1	0.0	383.1	0.2
V03A	24.8	46.8	10.8	0.4	3.3	102.5	2.2	0.0	5.9	2.8	189.0	9.6	1.0	2.5	0.0	37.1	560.3	2.0	0.0	2.0	0.7
V03B	37.9	462.4	19.4	0.8	4.9	72.9	1.2	0.0	13.5	12.5	105.8	8.2	7.0	8.1	0.0	51.1	28.2	0.6	0.0	132.9	27.8
V04	6.2	17.5	14.1	0.4	0.9	140.3	13.5	0.9	9.4	0.0	189.1	10.0	0.9	0.8	0.0	21.3	176.1	2.0	0.0	0.0	0.0
V05	2.9	177.4	4.6	0.1	1.5	39.4	6.2	0.0	5.2	0.2	922.7	3.8	2.9	18.4	0.0	5.6	490.8	0.9	0.0	115.8	0.2
V06	109.3	38.2	26.8	0.0	0.0	63.7	5.0	11.5	37.2	8.4	197.7	38.2	15.8	21.1	0.0	107.5	40.9	4.3	0.0	15.3	14.5
V07	8.7	0.7	3.2	1.1	0.0	3.0	0.5	0.2	8.2	0.1	83.0	1.6	3.7	18.6	0.0	1.4	146.7	0.3	0.0	7.7	1.7
V08	41.0	19.7	30.5	31.2	0.0	24.6	4.7	23.2	15.4	5.4	567.7	5.9	26.3	25.2	0.0	52.7	6.6	0.3	0.0	16.0	715.8
V09	140.0	10.5	111.4	70.5	0.0	64.3	5.8	35.6	30.9	2.7	151.6	30.3	69.2	45.4	27.5	100.0	10.7	17.7	0.0	15.4	168.5

[9] Crop Revenue = $\sum_n \sum_i$(Crop Acres$_{ni}$ x Crop Yield$_{ni}$ x Crop Price$_{ni}$); where *n* is the SWAP agricultural production regions and *i* is the 20 crop groups in the SWAP model.

Table A3-67. Sacramento/Delta Gross Revenues – Average Year Without Groundwater Replacement, 45 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.6	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	5.8	146.8	2.4	0.1	0.0	10.8	1.0	0.0	7.7	0.0	505.6	0.8	3.5	22.0	0.0	0.0	2.4	0.1	0.0	382.0	0.2
V03A	24.6	46.5	10.7	0.4	3.3	102.4	2.1	0.0	5.8	2.8	188.8	9.5	1.0	0.0	0.0	37.0	557.4	2.0	0.0	2.0	0.7
V03B	37.4	458.3	19.1	0.7	4.8	72.5	1.2	0.0	13.4	12.5	105.5	8.1	7.0	7.3	0.0	50.6	27.9	0.6	0.0	132.2	27.6
V04	6.0	17.3	13.8	0.4	0.9	139.5	13.3	0.9	9.4	0.0	188.5	9.8	0.9	0.5	0.0	20.3	173.1	1.9	0.0	0.0	0.0
V05	2.8	176.9	4.5	0.1	1.5	39.2	6.1	0.0	5.1	0.2	921.7	3.8	2.8	18.0	0.0	5.5	487.1	0.9	0.0	115.5	0.2
V06	108.0	37.6	26.4	0.0	0.0	63.6	4.8	11.5	37.1	8.4	197.4	37.9	15.7	17.3	0.0	106.8	40.1	4.2	0.0	15.3	14.5
V07	8.5	0.7	3.1	1.1	0.0	3.0	0.5	0.2	8.2	0.1	82.8	1.5	3.7	17.5	0.0	1.4	144.0	0.3	0.0	7.7	1.7
V08	40.9	19.7	30.3	31.1	0.0	24.6	4.6	23.1	15.4	5.4	567.5	5.9	26.3	25.0	0.0	52.6	6.5	0.3	0.0	16.0	715.4
V09	139.8	10.5	111.5	70.5	0.0	64.4	5.8	35.7	31.0	2.7	151.6	30.3	69.2	45.2	27.5	100.0	10.6	17.7	0.0	15.4	168.6

Table A3-68. Sacramento/Delta Gross Revenues – Average Year Without Groundwater Replacement, 55 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.6	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	5.7	146.0	2.4	0.1	0.0	10.8	1.0	0.0	7.6	0.0	505.0	0.8	3.5	19.8	0.0	0.0	2.3	0.1	0.0	381.1	0.2
V03A	22.7	44.7	10.1	0.3	3.2	101.4	1.8	0.0	5.8	2.8	187.8	9.2	1.0	0.0	0.0	35.6	534.4	1.9	0.0	1.9	0.6
V03B	36.9	455.6	19.0	0.7	4.8	72.4	1.2	0.0	13.4	12.4	105.4	8.0	7.0	2.5	0.0	50.2	27.6	0.6	0.0	131.9	27.5
V04	5.6	16.8	12.8	0.3	0.9	138.3	12.5	0.9	9.2	0.0	187.6	9.5	0.8	0.0	0.0	17.1	161.0	1.8	0.0	0.0	0.0
V05	2.8	175.4	4.4	0.1	1.5	38.9	6.0	0.0	5.1	0.2	918.8	3.7	2.8	16.7	0.0	5.3	475.6	0.8	0.0	114.8	0.1
V06	107.7	37.4	26.3	0.0	0.0	63.5	4.7	11.4	37.0	8.3	197.3	37.9	15.7	9.1	0.0	106.6	39.8	4.2	0.0	15.2	14.5
V07	8.3	0.7	3.0	1.0	0.0	2.9	0.4	0.2	8.2	0.1	82.5	1.5	3.7	14.5	0.0	1.4	140.2	0.3	0.0	7.6	1.7
V08	40.5	19.6	30.0	30.8	0.0	24.5	4.4	23.0	15.3	5.4	566.6	5.9	26.2	24.4	0.0	52.1	6.4	0.3	0.0	15.9	713.7
V09	139.4	10.5	111.4	70.5	0.0	64.4	5.8	35.7	31.1	2.7	151.6	30.3	69.2	44.7	27.5	100.0	10.6	17.8	0.0	15.4	168.7

Table A3-69. Sacramento/Delta Gross Revenues – Average Year Without Groundwater Replacement, 65 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.6	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	5.6	145.4	2.4	0.1	0.0	10.8	1.0	0.0	7.6	0.0	504.6	0.8	3.5	15.5	0.0	0.0	2.3	0.1	0.0	380.5	0.2
V03A	18.8	42.5	9.3	0.3	3.2	100.6	0.0	0.0	5.7	2.7	187.0	8.9	1.0	0.0	0.0	34.2	502.7	1.8	0.0	1.9	0.6
V03B	25.7	424.1	16.7	0.6	4.6	71.0	0.0	0.0	13.0	12.2	104.3	7.5	6.7	0.0	0.0	46.4	23.7	0.6	0.0	129.0	26.0
V04	5.2	16.4	11.6	0.3	0.8	137.5	11.6	0.9	9.2	0.0	187.1	9.2	0.8	0.0	0.0	14.5	144.0	1.7	0.0	0.0	0.0
V05	2.6	173.6	4.1	0.1	1.4	38.6	5.7	0.0	5.0	0.2	915.7	3.5	2.8	2.9	0.0	4.9	458.4	0.8	0.0	113.9	0.1
V06	107.0	37.1	26.1	0.0	0.0	63.5	4.6	11.4	37.0	8.3	197.2	37.7	15.7	0.0	0.0	106.3	39.4	4.2	0.0	15.2	14.4
V07	8.3	0.7	3.0	1.0	0.0	2.9	0.4	0.2	8.1	0.1	82.5	1.5	3.7	6.8	0.0	1.4	138.8	0.3	0.0	7.6	1.7
V08	40.2	19.5	29.7	30.6	0.0	24.5	4.0	22.9	15.2	5.4	565.5	5.8	26.1	23.3	0.0	51.8	6.0	0.3	0.0	15.9	711.9
V09	138.7	10.5	110.9	70.2	0.0	64.4	5.7	35.6	31.1	2.7	151.4	30.2	69.1	43.8	27.5	99.7	10.5	17.7	0.0	15.4	168.6

Table A3-70. Sacramento/Delta Gross Revenues – Average Year Without Groundwater Replacement, 75 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.4	0.0	24.9	0.6	3.0	10.2	0.0	0.0	0.0	0.0	0.0	13.0	0.9
V02	5.6	145.3	2.3	0.1	0.0	10.8	1.0	0.0	7.6	0.0	504.5	0.8	3.5	10.6	0.0	0.0	2.3	0.1	0.0	380.4	0.2
V03A	0.0	39.5	7.6	0.3	3.1	99.8	0.0	0.0	5.6	2.7	186.2	8.5	0.9	0.0	0.0	32.2	423.4	1.7	0.0	1.9	0.6
V03B	17.4	421.0	16.4	0.6	4.6	70.9	0.0	0.0	13.0	12.2	104.2	7.4	6.7	0.0	0.0	46.0	23.1	0.5	0.0	128.8	25.8
V04	4.7	16.2	10.0	0.3	0.8	137.1	10.9	0.9	9.1	0.0	186.8	9.1	0.8	0.0	0.0	12.4	91.4	1.6	0.0	0.0	0.0
V05	2.3	170.2	2.8	0.1	1.4	38.0	4.9	0.0	4.9	0.2	910.1	3.3	2.7	0.0	0.0	0.0	389.5	0.7	0.0	112.4	0.1
V06	99.8	34.0	23.6	0.0	0.0	62.9	0.0	11.2	36.4	8.3	196.1	36.5	15.4	0.0	0.0	103.2	32.4	3.8	0.0	15.0	14.2
V07	7.8	0.7	2.7	1.0	0.0	2.9	0.3	0.2	8.1	0.1	82.1	1.4	3.6	0.0	0.0	1.3	128.5	0.3	0.0	7.5	1.7
V08	40.0	19.4	29.5	30.4	0.0	24.4	3.6	22.9	15.2	5.3	565.1	5.8	26.0	21.9	0.0	51.5	5.7	0.3	0.0	15.8	711.2
V09	138.5	10.5	110.8	70.2	0.0	64.3	5.7	35.6	31.0	2.7	151.4	30.1	69.0	43.5	27.5	99.6	10.4	17.7	0.0	15.4	168.6

Table A3-71. Sacramento/Delta Gross Revenues – Average Year with Maximum Groundwater Replacement, Existing Conditions ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.6	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	6.0	150.1	2.5	0.1	0.0	10.8	1.1	0.0	7.2	0.0	507.9	0.8	3.5	24.9	0.0	0.0	2.5	0.1	0.0	384.9	0.2
V03A	25.7	48.0	10.9	0.4	3.3	102.3	2.1	0.0	5.3	2.8	190.0	9.5	1.0	4.4	0.0	37.4	574.1	2.0	0.0	2.0	0.7
V03B	38.6	467.0	19.5	0.8	4.9	72.9	1.2	0.0	13.3	12.6	106.0	8.2	7.0	8.5	0.0	51.4	28.6	0.6	0.0	133.3	28.0
V04	6.5	18.1	14.1	0.4	0.9	139.6	13.5	0.9	7.3	0.0	190.2	9.8	0.8	1.4	0.0	25.3	185.2	1.9	0.0	0.0	0.0
V05	2.9	177.6	4.5	0.1	1.5	39.1	6.1	0.0	4.8	0.2	923.2	3.7	2.8	18.3	0.0	5.5	492.9	0.8	0.0	115.7	0.2
V06	115.0	40.6	27.8	0.0	0.0	63.9	5.2	11.7	34.1	8.5	199.8	38.7	15.9	24.9	0.0	110.0	44.1	4.3	0.0	15.6	14.8
V07	8.8	0.7	3.2	1.1	0.0	2.9	0.5	0.2	7.7	0.1	83.2	1.5	3.7	19.3	0.0	1.4	149.5	0.3	0.0	7.8	1.7
V08	41.6	19.9	30.6	31.2	0.0	24.5	5.2	23.1	14.6	5.4	568.9	5.9	26.2	26.2	0.0	52.7	7.7	0.3	0.0	16.1	715.5
V09	140.1	10.5	111.4	70.5	0.0	64.3	5.8	35.6	30.8	2.7	151.6	30.3	69.2	45.5	27.5	100.0	10.7	17.6	0.0	15.4	168.5

Table A3-72. Sacramento/Delta Gross Revenues – Average Year with Maximum Groundwater Replacement, 35 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.6	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	6.0	150.1	2.5	0.1	0.0	10.8	1.1	0.0	7.2	0.0	507.9	0.8	3.5	24.9	0.0	0.0	2.5	0.1	0.0	384.9	0.2
V03A	25.7	48.0	10.9	0.4	3.3	102.3	2.1	0.0	5.3	2.8	190.0	9.5	1.0	4.4	0.0	37.4	574.1	2.0	0.0	2.0	0.7
V03B	38.6	467.0	19.5	0.8	4.9	72.9	1.2	0.0	13.3	12.6	106.0	8.2	7.0	8.5	0.0	51.4	28.6	0.6	0.0	133.3	28.0
V04	6.2	17.5	14.1	0.4	0.9	140.3	13.5	0.9	9.4	0.0	189.1	10.0	0.9	0.8	0.0	21.3	176.1	2.0	0.0	0.0	0.0
V05	2.9	177.6	4.5	0.1	1.5	39.1	6.1	0.0	4.8	0.2	923.2	3.7	2.8	18.3	0.0	5.5	492.9	0.8	0.0	115.7	0.2
V06	115.0	40.6	27.8	0.0	0.0	63.9	5.2	11.7	34.1	8.5	199.8	38.7	15.9	24.9	0.0	110.0	44.1	4.3	0.0	15.6	14.8
V07	8.8	0.7	3.2	1.1	0.0	2.9	0.5	0.2	7.7	0.1	83.2	1.5	3.7	19.3	0.0	1.4	149.5	0.3	0.0	7.8	1.7
V08	41.6	19.9	30.6	31.2	0.0	24.5	5.2	23.1	14.6	5.4	568.9	5.9	26.2	26.2	0.0	52.7	7.7	0.3	0.0	16.1	715.5
V09	140.1	10.5	111.4	70.5	0.0	64.3	5.8	35.6	30.8	2.7	151.6	30.3	69.2	45.5	27.5	100.0	10.7	17.6	0.0	15.4	168.5

Table A3-73. Sacramento/Delta Gross Revenues – Average Year with Maximum Groundwater Replacement, 45 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.6	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	6.0	150.1	2.5	0.1	0.0	10.8	1.1	0.0	7.2	0.0	507.9	0.8	3.5	24.9	0.0	0.0	2.5	0.1	0.0	384.9	0.2
V03A	25.7	48.0	10.9	0.4	3.3	102.3	2.1	0.0	5.3	2.8	190.0	9.5	1.0	4.4	0.0	37.4	574.1	2.0	0.0	2.0	0.7
V03B	38.6	467.0	19.5	0.8	4.9	72.9	1.2	0.0	13.3	12.6	106.0	8.2	7.0	8.5	0.0	51.4	28.6	0.6	0.0	133.3	28.0
V04	6.0	17.3	13.8	0.4	0.9	139.5	13.3	0.9	9.4	0.0	188.5	9.8	0.9	0.5	0.0	20.3	173.1	1.9	0.0	0.0	0.0
V05	2.9	177.6	4.5	0.1	1.5	39.1	6.1	0.0	4.8	0.2	923.2	3.7	2.8	18.3	0.0	5.5	492.9	0.8	0.0	115.7	0.2
V06	115.0	40.6	27.8	0.0	0.0	63.9	5.2	11.7	34.1	8.5	199.8	38.7	15.9	24.9	0.0	110.0	44.1	4.3	0.0	15.6	14.8
V07	8.8	0.7	3.2	1.1	0.0	2.9	0.5	0.2	7.7	0.1	83.2	1.5	3.7	19.3	0.0	1.4	149.5	0.3	0.0	7.8	1.7
V08	41.6	19.9	30.6	31.2	0.0	24.5	5.2	23.1	14.6	5.4	568.9	5.9	26.2	26.2	0.0	52.7	7.7	0.3	0.0	16.1	715.5
V09	140.1	10.5	111.4	70.5	0.0	64.3	5.8	35.6	30.8	2.7	151.6	30.3	69.2	45.5	27.5	100.0	10.7	17.6	0.0	15.4	168.5

Table A3-74. Sacramento/Delta Gross Revenues – Average Year with Maximum Groundwater Replacement, 55 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.6	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	6.0	150.1	2.5	0.1	0.0	10.8	1.1	0.0	7.2	0.0	507.9	0.8	3.5	24.9	0.0	0.0	2.5	0.1	0.0	384.9	0.2
V03A	25.7	48.0	10.9	0.4	3.3	102.3	2.1	0.0	5.3	2.8	190.0	9.5	1.0	4.4	0.0	37.4	574.1	2.0	0.0	2.0	0.7
V03B	38.6	467.0	19.5	0.8	4.9	72.9	1.2	0.0	13.3	12.6	106.0	8.2	7.0	8.5	0.0	51.4	28.6	0.6	0.0	133.3	28.0
V04	5.6	16.8	12.8	0.3	0.9	138.3	12.5	0.9	9.2	0.0	187.6	9.5	0.8	0.0	0.0	17.1	161.0	1.8	0.0	0.0	0.0
V05	2.9	177.6	4.5	0.1	1.5	39.1	6.1	0.0	4.8	0.2	923.2	3.7	2.8	18.3	0.0	5.5	492.9	0.8	0.0	115.7	0.2
V06	115.0	40.6	27.8	0.0	0.0	63.9	5.2	11.7	34.1	8.5	199.8	38.7	15.9	24.9	0.0	110.0	44.1	4.3	0.0	15.6	14.8
V07	8.8	0.7	3.2	1.1	0.0	2.9	0.5	0.2	7.7	0.1	83.2	1.5	3.7	19.3	0.0	1.4	149.5	0.3	0.0	7.8	1.7
V08	41.6	19.9	30.6	31.2	0.0	24.5	5.2	23.1	14.6	5.4	568.9	5.9	26.2	26.2	0.0	52.7	7.7	0.3	0.0	16.1	715.5
V09	140.1	10.5	111.4	70.5	0.0	64.3	5.8	35.6	30.8	2.7	151.6	30.3	69.2	45.5	27.5	100.0	10.7	17.6	0.0	15.4	168.5

Table A3-75. Sacramento/Delta Gross Revenues – Average Year with Maximum Groundwater Replacement, 65 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.6	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	6.0	150.1	2.5	0.1	0.0	10.8	1.1	0.0	7.2	0.0	507.9	0.8	3.5	24.9	0.0	0.0	2.5	0.1	0.0	384.9	0.2
V03A	25.5	47.7	11.0	0.4	3.3	103.0	2.2	0.0	5.8	2.8	189.8	9.7	1.0	4.2	0.0	37.7	571.0	2.1	0.0	2.0	0.7
V03B	37.0	455.6	19.0	0.7	4.8	72.4	1.2	0.0	13.4	12.4	105.4	8.0	7.0	4.0	0.0	50.2	27.6	0.6	0.0	131.9	27.5
V04	5.2	16.4	11.6	0.3	0.8	137.5	11.6	0.9	9.2	0.0	187.1	9.2	0.8	0.0	0.0	14.5	144.0	1.7	0.0	0.0	0.0
V05	2.9	177.6	4.5	0.1	1.5	39.1	6.1	0.0	4.8	0.2	923.2	3.7	2.8	18.3	0.0	5.5	492.9	0.8	0.0	115.7	0.2
V06	115.0	40.6	27.8	0.0	0.0	63.9	5.2	11.7	34.1	8.5	199.8	38.7	15.9	24.9	0.0	110.0	44.1	4.3	0.0	15.6	14.8
V07	8.8	0.7	3.2	1.1	0.0	2.9	0.5	0.2	7.7	0.1	83.2	1.5	3.7	19.3	0.0	1.4	149.5	0.3	0.0	7.8	1.7
V08	41.6	19.9	30.6	31.2	0.0	24.5	5.2	23.1	14.6	5.4	568.9	5.9	26.2	26.2	0.0	52.7	7.7	0.3	0.0	16.1	715.5
V09	140.1	10.5	111.4	70.5	0.0	64.3	5.8	35.6	30.8	2.7	151.6	30.3	69.2	45.5	27.5	100.0	10.7	17.6	0.0	15.4	168.5

Table A3-76. Sacramento/Delta Gross Revenues – Average Year with Maximum Groundwater Replacement, 75 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.6	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	6.0	150.1	2.5	0.1	0.0	10.8	1.1	0.0	7.2	0.0	507.9	0.8	3.5	24.9	0.0	0.0	2.5	0.1	0.0	384.9	0.2
V03A	18.5	42.4	9.2	0.3	3.2	100.5	0.0	0.0	5.7	2.7	186.9	8.9	1.0	0.0	0.0	34.1	500.8	1.8	0.0	1.9	0.6
V03B	36.5	452.9	18.8	0.7	4.8	72.2	1.1	0.0	13.3	12.4	105.2	8.0	6.9	0.0	0.0	49.9	27.3	0.6	0.0	131.6	27.3
V04	4.7	16.2	10.0	0.3	0.8	137.1	10.9	0.9	9.1	0.0	186.8	9.1	0.8	0.0	0.0	12.4	91.4	1.6	0.0	0.0	0.0
V05	2.9	177.6	4.5	0.1	1.5	39.1	6.1	0.0	4.8	0.2	923.2	3.7	2.8	18.3	0.0	5.5	492.9	0.8	0.0	115.7	0.2
V06	115.0	40.6	27.8	0.0	0.0	63.9	5.2	11.7	34.1	8.5	199.8	38.7	15.9	24.9	0.0	110.0	44.1	4.3	0.0	15.6	14.8
V07	8.8	0.7	3.2	1.1	0.0	2.9	0.5	0.2	7.7	0.1	83.2	1.5	3.7	19.3	0.0	1.4	149.5	0.3	0.0	7.8	1.7
V08	41.6	19.9	30.6	31.2	0.0	24.5	5.2	23.1	14.6	5.4	568.9	5.9	26.2	26.2	0.0	52.7	7.7	0.3	0.0	16.1	715.5
V09	140.1	10.5	111.4	70.5	0.0	64.3	5.8	35.6	30.8	2.7	151.6	30.3	69.2	45.5	27.5	100.0	10.7	17.6	0.0	15.4	168.5

Table A3-77. Sacramento/Delta Gross Revenues – Dry Year Without Groundwater Replacement, Existing Conditions ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.2	0.0	25.1	0.6	3.0	11.7	0.0	0.0	0.0	0.0	0.0	13.3	0.9
V02	6.0	149.7	2.5	0.1	0.0	10.8	1.1	0.0	7.2	0.0	507.6	0.8	3.5	24.7	0.0	0.0	2.5	0.1	0.0	384.5	0.2
V03A	25.7	48.0	10.9	0.4	3.3	102.3	2.1	0.0	5.3	2.8	190.0	9.5	1.0	4.4	0.0	37.4	574.1	2.0	0.0	2.0	0.7
V03B	36.2	450.6	19.2	0.7	4.8	72.2	1.2	0.0	13.3	12.4	105.2	8.0	6.9	6.2	0.0	49.8	28.0	0.6	0.0	131.6	27.3
V04	6.5	18.1	14.1	0.4	0.9	139.6	13.5	0.9	7.2	0.0	190.3	9.8	0.8	1.4	0.0	25.4	185.4	1.9	0.0	0.0	0.0
V05	2.8	176.1	4.6	0.1	1.5	39.0	6.0	0.0	5.0	0.2	919.7	3.7	2.8	17.7	0.0	5.5	493.6	0.8	0.0	115.1	0.2
V06	110.8	38.8	27.6	0.0	0.0	64.0	5.2	11.6	37.5	8.4	198.4	38.6	15.9	22.3	0.0	108.6	42.3	4.4	0.0	15.4	14.7
V07	8.0	0.7	3.1	1.1	0.0	2.9	0.5	0.2	8.1	0.1	81.7	1.5	3.6	17.3	0.0	1.4	145.2	0.3	0.0	7.6	1.7
V08	39.5	19.3	29.9	30.8	0.0	24.4	3.7	22.8	15.1	5.3	564.5	5.7	26.0	20.2	0.0	50.9	5.9	0.3	0.0	15.8	710.1
V09	139.6	10.5	111.8	70.7	0.0	64.3	5.7	35.6	30.7	2.7	151.6	30.2	69.1	44.9	27.5	99.8	10.7	17.6	0.0	15.4	168.4

Table A3-78. Sacramento/Delta Gross Revenues – Dry Year Without Groundwater Replacement, 35 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.2	0.0	25.1	0.6	3.0	11.7	0.0	0.0	0.0	0.0	0.0	13.3	0.9
V02	6.0	149.1	2.5	0.1	0.0	10.8	1.1	0.0	7.3	0.0	507.1	0.8	3.5	24.4	0.0	0.0	2.5	0.1	0.0	383.8	0.2
V03A	20.5	42.0	10.2	0.3	3.2	99.8	1.7	0.0	5.6	2.7	185.8	8.8	1.0	0.0	0.0	33.6	540.6	1.8	0.0	1.9	0.6
V03B	35.2	444.1	19.1	0.7	4.8	71.9	1.1	0.0	13.2	12.4	105.0	7.9	6.9	0.2	0.0	49.0	27.8	0.6	0.0	130.9	27.0
V04	5.2	16.2	13.0	0.3	0.9	136.6	11.5	0.9	9.1	0.0	186.4	9.1	0.8	0.0	0.0	17.3	163.5	1.7	0.0	0.0	0.0
V05	2.8	175.8	4.6	0.1	1.5	39.0	6.0	0.0	5.0	0.2	918.9	3.7	2.8	17.6	0.0	5.4	493.4	0.8	0.0	115.0	0.2
V06	104.2	36.3	26.7	0.0	0.0	63.3	4.4	11.4	36.7	8.3	196.7	37.2	15.6	16.9	0.0	104.9	40.6	4.1	0.0	15.2	14.4
V07	7.7	0.7	3.0	1.0	0.0	2.9	0.4	0.2	8.0	0.1	81.2	1.5	3.6	15.9	0.0	1.3	140.6	0.3	0.0	7.5	1.6
V08	38.9	19.1	29.6	30.6	0.0	24.3	3.3	22.7	15.0	5.3	563.4	5.7	25.8	18.9	0.0	50.3	5.6	0.3	0.0	15.8	708.1
V09	139.6	10.5	111.8	70.7	0.0	64.3	5.7	35.6	30.7	2.7	151.6	30.2	69.1	44.9	27.5	99.8	10.7	17.6	0.0	15.4	168.4

Table A3-79. Sacramento/Delta Gross Revenues – Dry Year Without Groundwater Replacement, 45 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.2	0.0	25.1	0.6	3.0	11.7	0.0	0.0	0.0	0.0	0.0	13.3	0.9
V02	5.9	148.6	2.5	0.1	0.0	10.8	1.1	0.0	7.3	0.0	506.6	0.8	3.5	24.2	0.0	0.0	2.5	0.1	0.0	383.2	0.2
V03A	18.5	39.9	9.8	0.3	3.2	98.7	1.4	0.0	5.6	2.7	184.6	8.5	0.9	0.0	0.0	32.9	522.8	1.8	0.0	1.9	0.6
V03B	33.5	433.2	18.8	0.7	4.8	71.4	1.0	0.0	13.1	12.3	104.5	7.7	6.8	0.0	0.0	47.8	27.3	0.6	0.0	129.7	26.5
V04	4.8	15.7	12.2	0.3	0.9	135.4	11.0	0.9	8.9	0.0	185.5	8.7	0.8	0.0	0.0	15.5	153.3	1.6	0.0	0.0	0.0
V05	2.8	175.2	4.6	0.1	1.5	39.0	6.0	0.0	5.1	0.2	917.5	3.7	2.8	17.6	0.0	5.4	492.8	0.8	0.0	114.8	0.2
V06	102.4	35.6	26.5	0.0	0.0	63.1	4.2	11.3	36.5	8.3	196.3	36.8	15.5	13.2	0.0	103.9	40.1	4.0	0.0	15.1	14.3
V07	7.6	0.7	2.9	1.0	0.0	2.9	0.4	0.2	8.0	0.1	80.9	1.5	3.6	13.9	0.0	1.3	136.9	0.3	0.0	7.4	1.6
V08	38.9	19.1	29.6	30.6	0.0	24.3	3.2	22.7	15.0	5.3	563.3	5.6	25.8	18.7	0.0	50.2	5.5	0.3	0.0	15.7	707.9
V09	139.5	10.5	111.8	70.7	0.0	64.3	5.7	35.6	30.7	2.7	151.5	30.2	69.1	44.8	27.5	99.8	10.7	17.6	0.0	15.4	168.4

Table A3-80. Sacramento/Delta Gross Revenues – Dry Year Without Groundwater Replacement, 55 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.6	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	5.9	147.8	2.5	0.1	0.0	10.8	1.1	0.0	7.4	0.0	505.9	0.8	3.5	23.8	0.0	0.0	2.5	0.1	0.0	382.3	0.2
V03A	15.9	36.3	8.5	0.3	3.2	97.1	0.0	0.0	5.4	2.7	182.8	8.3	0.9	0.0	0.0	31.6	470.6	1.7	0.0	1.8	0.6
V03B	30.5	414.9	18.2	0.7	4.7	70.5	0.9	0.0	12.9	12.2	103.8	7.4	6.7	0.0	0.0	45.8	26.3	0.6	0.0	127.9	25.7
V04	4.2	15.2	10.6	0.3	0.8	134.1	10.5	0.9	8.8	0.0	184.5	8.5	0.8	0.0	0.0	13.1	118.5	1.5	0.0	0.0	0.0
V05	2.7	171.9	4.4	0.1	1.5	38.6	5.9	0.0	5.0	0.2	910.5	3.6	2.8	16.8	0.0	5.3	482.0	0.8	0.0	113.3	0.2
V06	102.0	35.4	26.4	0.0	0.0	63.0	4.2	11.3	36.4	8.3	196.2	36.7	15.5	7.2	0.0	103.7	39.9	4.0	0.0	15.1	14.3
V07	7.6	0.7	2.9	1.0	0.0	2.9	0.4	0.2	8.0	0.1	80.7	1.4	3.6	8.9	0.0	1.3	134.6	0.3	0.0	7.4	1.6
V08	38.7	19.0	29.5	30.5	0.0	24.3	3.0	22.7	15.0	5.3	563.0	5.6	25.8	18.1	0.0	50.0	5.4	0.3	0.0	15.7	707.3
V09	139.3	10.5	111.8	70.7	0.0	64.3	5.7	35.6	30.8	2.7	151.5	30.2	69.0	44.7	27.5	99.7	10.7	17.6	0.0	15.4	168.4

Table A3-81. Sacramento/Delta Gross Revenues – Dry Year Without Groundwater Replacement, 65 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.0	0.6	3.0	11.3	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	5.8	146.7	2.5	0.1	0.0	10.8	1.0	0.0	7.5	0.0	504.9	0.8	3.5	23.4	0.0	0.0	2.5	0.1	0.0	381.1	0.2
V03A	12.6	34.7	7.4	0.3	3.1	96.8	0.0	0.0	5.4	2.7	182.0	8.1	0.9	0.0	0.0	31.0	410.2	1.6	0.0	1.8	0.5
V03B	28.3	403.3	17.7	0.7	4.7	70.0	0.9	0.0	12.8	12.1	103.4	7.2	6.6	0.0	0.0	44.9	25.6	0.6	0.0	126.8	25.2
V04	4.2	15.1	10.1	0.3	0.8	133.9	10.4	0.8	8.8	0.0	184.4	8.4	0.8	0.0	0.0	12.7	84.6	1.5	0.0	0.0	0.0
V05	2.5	167.2	4.1	0.1	1.4	38.2	5.6	0.0	5.0	0.2	900.7	3.5	2.7	14.1	0.0	4.9	457.9	0.8	0.0	111.1	0.1
V06	99.9	34.6	26.1	0.0	0.0	62.8	4.1	11.2	36.2	8.3	195.8	36.3	15.4	0.0	0.0	102.6	39.3	3.9	0.0	15.0	14.2
V07	7.5	0.6	2.8	1.0	0.0	2.9	0.4	0.2	8.0	0.1	80.5	1.4	3.6	0.0	0.0	1.3	132.0	0.3	0.0	7.3	1.6
V08	38.4	19.0	29.4	30.5	0.0	24.2	2.7	22.6	14.9	5.3	562.4	5.6	25.7	16.2	0.0	49.7	5.3	0.3	0.0	15.7	706.3
V09	139.1	10.5	111.8	70.7	0.0	64.3	5.7	35.6	30.8	2.7	151.5	30.1	69.0	44.5	27.5	99.7	10.7	17.6	0.0	15.4	168.4

Table A3-82. Sacramento/Delta Gross Revenues – Dry Year Without Groundwater Replacement, 75 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.9	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.4	0.0	24.5	0.6	2.9	9.9	0.0	0.0	0.0	0.0	0.0	12.7	0.8
V02	5.7	144.6	2.5	0.1	0.0	10.8	1.0	0.0	7.6	0.0	503.1	0.8	3.5	23.3	0.0	0.0	2.5	0.1	0.0	378.9	0.2
V03A	1.6	34.2	6.5	0.3	3.1	96.7	0.0	0.0	5.4	2.7	181.8	8.1	0.9	0.0	0.0	30.8	331.2	1.6	0.0	1.8	0.5
V03B	28.1	402.1	17.7	0.7	4.7	69.9	0.9	0.0	12.8	12.1	103.3	7.2	6.6	0.0	0.0	44.9	25.5	0.5	0.0	126.7	25.1
V04	4.2	15.1	10.1	0.3	0.8	133.9	10.4	0.8	8.8	0.0	184.4	8.4	0.8	0.0	0.0	12.7	63.6	1.5	0.0	0.0	0.0
V05	2.4	162.2	3.0	0.1	1.4	37.8	5.2	0.0	4.9	0.2	893.6	3.3	2.6	0.0	0.0	4.1	397.2	0.7	0.0	109.7	0.1
V06	92.5	31.8	24.8	0.0	0.0	62.1	2.5	11.0	35.4	8.2	194.3	34.9	15.1	0.0	0.0	98.9	35.9	3.7	0.0	14.8	13.9
V07	7.2	0.6	2.3	1.0	0.0	2.9	0.3	0.2	7.9	0.1	79.9	1.4	3.5	0.0	0.0	1.2	106.0	0.3	0.0	7.2	1.6
V08	38.3	18.9	29.3	30.4	0.0	24.2	2.5	22.6	14.9	5.3	562.1	5.6	25.7	14.4	0.0	49.5	5.2	0.3	0.0	15.7	705.8
V09	139.0	10.5	111.8	70.7	0.0	64.3	5.7	35.6	30.8	2.7	151.5	30.1	69.0	44.4	27.5	99.6	10.7	17.6	0.0	15.4	168.4

Table A3-83. Sacramento/Delta Gross Revenues – Dry Year with Maximum Groundwater Replacement, Existing Conditions ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.2	0.0	25.1	0.6	3.0	11.7	0.0	0.0	0.0	0.0	0.0	13.3	0.9
V02	6.0	150.0	2.5	0.1	0.0	10.8	1.1	0.0	7.2	0.0	507.8	0.8	3.5	24.8	0.0	0.0	2.5	0.1	0.0	384.7	0.2
V03A	25.7	48.0	10.9	0.4	3.3	102.3	2.1	0.0	5.3	2.8	190.0	9.5	1.0	4.4	0.0	37.4	574.1	2.0	0.0	2.0	0.7
V03B	38.6	467.0	19.5	0.8	4.9	72.9	1.2	0.0	13.3	12.6	106.0	8.2	7.0	8.5	0.0	51.4	28.6	0.6	0.0	133.3	28.0
V04	6.5	18.1	14.1	0.4	0.9	139.6	13.5	0.9	7.2	0.0	190.3	9.8	0.8	1.4	0.0	25.4	185.4	1.9	0.0	0.0	0.0
V05	2.9	177.5	4.5	0.1	1.5	39.1	6.1	0.0	4.8	0.2	922.7	3.7	2.8	18.2	0.0	5.5	494.7	0.8	0.0	115.6	0.2
V06	115.0	40.6	27.8	0.0	0.0	63.9	5.2	11.7	34.1	8.5	199.8	38.7	15.9	24.9	0.0	110.0	44.1	4.3	0.0	15.6	14.8
V07	8.8	0.7	3.2	1.1	0.0	2.9	0.5	0.2	7.7	0.1	83.1	1.5	3.7	19.1	0.0	1.4	150.2	0.3	0.0	7.8	1.7
V08	41.6	19.9	30.6	31.2	0.0	24.5	5.2	23.1	14.6	5.4	568.9	5.9	26.2	26.2	0.0	52.7	7.7	0.3	0.0	16.1	715.5
V09	139.6	10.5	111.8	70.7	0.0	64.3	5.7	35.6	30.7	2.7	151.6	30.2	69.1	44.9	27.5	99.8	10.7	17.6	0.0	15.4	168.4

Table A3-84. Sacramento/Delta Gross Revenues – Dry Year with Maximum Groundwater Replacement, 35 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.2	0.0	25.1	0.6	3.0	11.7	0.0	0.0	0.0	0.0	0.0	13.3	0.9
V02	6.0	150.0	2.5	0.1	0.0	10.8	1.1	0.0	7.2	0.0	507.8	0.8	3.5	24.8	0.0	0.0	2.5	0.1	0.0	384.7	0.2
V03A	25.7	48.0	10.9	0.4	3.3	102.3	2.1	0.0	5.3	2.8	190.0	9.5	1.0	4.4	0.0	37.4	574.1	2.0	0.0	2.0	0.7
V03B	38.2	464.3	19.6	0.8	4.9	73.0	1.2	0.0	13.5	12.5	105.9	8.2	7.0	8.2	0.0	51.3	28.5	0.7	0.0	133.1	27.9
V04	5.2	16.2	13.0	0.3	0.9	136.6	11.5	0.9	9.1	0.0	186.4	9.1	0.8	0.0	0.0	17.3	163.5	1.7	0.0	0.0	0.0
V05	2.9	177.5	4.5	0.1	1.5	39.1	6.1	0.0	4.8	0.2	922.7	3.7	2.8	18.2	0.0	5.5	494.7	0.8	0.0	115.6	0.2
V06	115.0	40.6	27.8	0.0	0.0	63.9	5.2	11.7	34.1	8.5	199.8	38.7	15.9	24.9	0.0	110.0	44.1	4.3	0.0	15.6	14.8
V07	8.8	0.7	3.2	1.1	0.0	2.9	0.5	0.2	7.7	0.1	83.1	1.5	3.7	19.1	0.0	1.4	150.2	0.3	0.0	7.8	1.7
V08	41.6	19.9	30.6	31.2	0.0	24.5	5.2	23.1	14.6	5.4	568.9	5.9	26.2	26.2	0.0	52.7	7.7	0.3	0.0	16.1	715.5
V09	139.6	10.5	111.8	70.7	0.0	64.3	5.7	35.6	30.7	2.7	151.6	30.2	69.1	44.9	27.5	99.8	10.7	17.6	0.0	15.4	168.4

Table A3-85. Sacramento/Delta Gross Revenues – Dry Year with Maximum Groundwater Replacement, 45 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.2	0.0	25.1	0.6	3.0	11.7	0.0	0.0	0.0	0.0	0.0	13.3	0.9
V02	6.0	150.0	2.5	0.1	0.0	10.8	1.1	0.0	7.2	0.0	507.8	0.8	3.5	24.8	0.0	0.0	2.5	0.1	0.0	384.7	0.2
V03A	25.7	48.0	10.9	0.4	3.3	102.3	2.1	0.0	5.3	2.8	190.0	9.5	1.0	4.4	0.0	37.4	574.1	2.0	0.0	2.0	0.7
V03B	37.1	456.7	19.4	0.8	4.9	72.6	1.2	0.0	13.4	12.5	105.5	8.1	7.0	7.0	0.0	50.4	28.3	0.6	0.0	132.2	27.6
V04	4.8	15.7	12.2	0.3	0.9	135.4	11.0	0.9	8.9	0.0	185.5	8.7	0.8	0.0	0.0	15.5	153.3	1.6	0.0	0.0	0.0
V05	2.9	177.5	4.5	0.1	1.5	39.1	6.1	0.0	4.8	0.2	922.7	3.7	2.8	18.2	0.0	5.5	494.7	0.8	0.0	115.6	0.2
V06	115.0	40.6	27.8	0.0	0.0	63.9	5.2	11.7	34.1	8.5	199.8	38.7	15.9	24.9	0.0	110.0	44.1	4.3	0.0	15.6	14.8
V07	8.8	0.7	3.2	1.1	0.0	2.9	0.5	0.2	7.7	0.1	83.1	1.5	3.7	19.1	0.0	1.4	150.2	0.3	0.0	7.8	1.7
V08	41.6	19.9	30.6	31.2	0.0	24.5	5.2	23.1	14.6	5.4	568.9	5.9	26.2	26.2	0.0	52.7	7.7	0.3	0.0	16.1	715.5
V09	139.6	10.5	111.8	70.7	0.0	64.3	5.7	35.6	30.7	2.7	151.6	30.2	69.1	44.9	27.5	99.8	10.7	17.6	0.0	15.4	168.4

Table A3-86. Sacramento/Delta Gross Revenues – Dry Year with Maximum Groundwater Replacement, 55 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.6	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	6.0	150.0	2.5	0.1	0.0	10.8	1.1	0.0	7.2	0.0	507.8	0.8	3.5	24.8	0.0	0.0	2.5	0.1	0.0	384.7	0.2
V03A	21.9	43.5	10.5	0.3	3.3	100.6	1.8	0.0	5.7	2.8	186.8	9.0	1.0	0.0	0.0	34.7	551.2	1.9	0.0	1.9	0.6
V03B	35.4	445.1	19.1	0.7	4.8	72.0	1.1	0.0	13.3	12.4	105.0	7.9	6.9	4.6	0.0	49.1	27.8	0.6	0.0	131.0	27.0
V04	4.2	15.2	10.6	0.3	0.8	134.1	10.5	0.9	8.8	0.0	184.5	8.5	0.8	0.0	0.0	13.1	118.5	1.5	0.0	0.0	0.0
V05	2.9	177.5	4.5	0.1	1.5	39.1	6.1	0.0	4.8	0.2	922.7	3.7	2.8	18.2	0.0	5.5	494.7	0.8	0.0	115.6	0.2
V06	115.0	40.6	27.8	0.0	0.0	63.9	5.2	11.7	34.1	8.5	199.8	38.7	15.9	24.9	0.0	110.0	44.1	4.3	0.0	15.6	14.8
V07	8.8	0.7	3.2	1.1	0.0	2.9	0.5	0.2	7.7	0.1	83.1	1.5	3.7	19.1	0.0	1.4	150.2	0.3	0.0	7.8	1.7
V08	41.6	19.9	30.6	31.2	0.0	24.5	5.2	23.1	14.6	5.4	568.9	5.9	26.2	26.2	0.0	52.7	7.7	0.3	0.0	16.1	715.5
V09	139.6	10.5	111.8	70.7	0.0	64.3	5.7	35.6	30.7	2.7	151.6	30.2	69.1	44.9	27.5	99.8	10.7	17.6	0.0	15.4	168.4

Table A3-87. Sacramento/Delta Gross Revenues – Dry Year with Maximum Groundwater Replacement, 65 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.6	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	6.0	150.0	2.5	0.1	0.0	10.8	1.1	0.0	7.2	0.0	507.8	0.8	3.5	24.8	0.0	0.0	2.5	0.1	0.0	384.7	0.2
V03A	17.6	38.2	9.3	0.3	3.2	97.8	0.0	0.0	5.5	2.7	183.7	8.4	0.9	0.0	0.0	32.3	503.3	1.7	0.0	1.8	0.6
V03B	35.1	443.5	19.0	0.7	4.8	71.9	1.1	0.0	13.2	12.4	104.9	7.9	6.9	0.0	0.0	49.0	27.7	0.6	0.0	130.8	27.0
V04	4.2	15.1	10.1	0.3	0.8	133.9	10.4	0.8	8.8	0.0	184.4	8.4	0.8	0.0	0.0	12.7	84.6	1.5	0.0	0.0	0.0
V05	2.9	177.5	4.5	0.1	1.5	39.1	6.1	0.0	4.8	0.2	922.7	3.7	2.8	18.2	0.0	5.5	494.7	0.8	0.0	115.6	0.2
V06	115.0	40.6	27.8	0.0	0.0	63.9	5.2	11.7	34.1	8.5	199.8	38.7	15.9	24.9	0.0	110.0	44.1	4.3	0.0	15.6	14.8
V07	8.8	0.7	3.2	1.1	0.0	2.9	0.5	0.2	7.7	0.1	83.1	1.5	3.7	19.1	0.0	1.4	150.2	0.3	0.0	7.8	1.7
V08	41.6	19.9	30.6	31.2	0.0	24.5	5.2	23.1	14.6	5.4	568.9	5.9	26.2	26.2	0.0	52.7	7.7	0.3	0.0	16.1	715.5
V09	139.6	10.5	111.8	70.7	0.0	64.3	5.7	35.6	30.7	2.7	151.6	30.2	69.1	44.9	27.5	99.8	10.7	17.6	0.0	15.4	168.4

Table A3-88. Sacramento/Delta Gross Revenues – Dry Year with Maximum Groundwater Replacement, 75 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.6	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	6.0	150.0	2.5	0.1	0.0	10.8	1.1	0.0	7.2	0.0	507.8	0.8	3.5	24.8	0.0	0.0	2.5	0.1	0.0	384.7	0.2
V03A	13.2	34.9	7.5	0.3	3.1	96.8	0.0	0.0	5.4	2.7	182.1	8.1	0.9	0.0	0.0	31.1	421.2	1.6	0.0	1.8	0.5
V03B	35.0	442.5	19.0	0.7	4.8	71.8	1.1	0.0	13.2	12.4	104.9	7.8	6.9	0.0	0.0	48.8	27.7	0.6	0.0	130.7	26.9
V04	4.2	15.1	10.1	0.3	0.8	133.9	10.4	0.8	8.8	0.0	184.4	8.4	0.8	0.0	0.0	12.7	63.6	1.5	0.0	0.0	0.0
V05	2.9	177.5	4.5	0.1	1.5	39.1	6.1	0.0	4.8	0.2	922.7	3.7	2.8	18.2	0.0	5.5	494.7	0.8	0.0	115.6	0.2
V06	115.0	40.6	27.8	0.0	0.0	63.9	5.2	11.7	34.1	8.5	199.8	38.7	15.9	24.9	0.0	110.0	44.1	4.3	0.0	15.6	14.8
V07	8.8	0.7	3.2	1.1	0.0	2.9	0.5	0.2	7.7	0.1	83.1	1.5	3.7	19.1	0.0	1.4	150.2	0.3	0.0	7.8	1.7
V08	41.6	19.9	30.6	31.2	0.0	24.5	5.2	23.1	14.6	5.4	568.9	5.9	26.2	26.2	0.0	52.7	7.7	0.3	0.0	16.1	715.5
V09	139.6	10.5	111.8	70.7	0.0	64.3	5.7	35.6	30.7	2.7	151.6	30.2	69.1	44.9	27.5	99.8	10.7	17.6	0.0	15.4	168.4

San Joaquin Valley Gross Revenues

Table A3-89. San Joaquin Valley Gross Revenues – Average Year Without Groundwater Replacement, Existing Conditions ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	221.1	273.9	7.8	65.3	156.1	250.2	38.0	181.7	6.2	30.9	228.6	157.2	100.5	15.7	1.3	197.1	8.0	1.7	0.0	12.2	45.3
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	188.0	899.8	18.6	119.4	46.8	18.6	0.2	48.5	27.6	0.7	232.4	75.6	142.4	20.0	1.3	53.9	4.7	0.3	1.1	90.9	776.9
V14A	35.9	764.2	3.4	11.3	136.8	280.3	8.6	59.1	97.7	153.1	78.8	31.5	199.4	0.0	0.0	316.2	0.0	0.6	0.0	50.5	93.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.4	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	227.7	451.5	15.0	108.9	298.3	3.7	4.9	13.5	75.5	68.4	423.3	133.4	23.7	14.5	0.0	183.3	0.0	4.2	0.0	9.2	410.6
V15B	1.1	94.8	0.0	0.0	4.9	5.0	0.0	0.0	3.8	0.0	36.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.9
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	255.6	464.6	32.1	273.8	93.0	8.6	11.5	3.4	38.0	2.1	574.8	239.6	34.5	2.0	1.4	3.4	0.0	0.0	0.0	1,968.9	316.9
V19A	1.6	522.0	0.8	0.0	5.9	3.7	0.0	2.1	19.0	2.8	103.6	0.0	30.2	0.0	0.0	1.5	0.0	0.2	0.0	42.7	15.9
V19B	110.7	344.1	4.1	35.5	62.0	0.0	0.0	2.1	18.6	4.9	13.7	12.2	7.2	0.0	0.0	4.6	0.0	0.0	1.1	6.1	34.0
V20	44.4	646.2	10.3	0.0	9.0	0.0	2.9	1.1	13.5	3.3	78.8	3.8	43.9	0.0	2.7	2.5	0.0	0.0	0.0	553.1	279.0
V21A	152.0	100.3	99.7	0.0	61.9	5.0	2.8	2.1	20.6	12.8	6.3	13.0	36.5	0.0	6.8	51.1	0.0	1.1	0.0	0.0	38.7
V21B	2.4	76.7	1.8	0.0	5.6	17.3	0.2	1.1	8.8	15.0	78.3	5.2	79.7	0.0	73.7	7.1	0.0	0.2	0.0	268.7	237.6
V21C	9.6	49.4	2.0	0.0	17.2	9.8	0.0	0.0	3.1	18.9	52.9	0.0	31.5	0.0	9.5	0.0	0.0	0.3	0.0	317.8	86.5

Table A3-90. San Joaquin Valley Gross Revenues – Average Year Without Groundwater Replacement, 35 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	220.2	273.6	7.8	65.5	156.1	250.9	38.2	181.8	6.3	30.9	228.6	157.5	101.0	15.4	1.3	197.3	7.9	1.7	0.0	12.2	45.3
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	188.0	899.8	18.6	119.4	46.8	18.6	0.2	48.5	27.6	0.7	232.4	75.6	142.4	20.0	1.3	53.9	4.7	0.3	1.1	90.9	776.9
V14A	35.7	762.2	3.3	11.3	136.2	279.3	8.5	59.1	97.3	152.8	78.7	31.2	199.3	0.0	0.0	314.8	0.0	0.4	0.0	50.3	93.2
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.3	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	227.0	451.4	15.0	109.0	298.2	3.7	4.9	13.5	75.9	68.4	423.1	133.6	23.7	13.9	0.0	183.4	0.0	4.2	0.0	9.2	410.7
V15B	0.9	92.6	0.0	0.0	4.6	4.8	0.0	0.0	3.8	0.0	35.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.6
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	255.6	464.6	32.1	273.8	93.0	8.6	11.5	3.4	38.0	2.1	574.8	239.6	34.5	2.0	1.4	3.4	0.0	0.0	0.0	1,968.9	316.9
V19A	1.1	512.6	0.0	0.0	5.6	3.5	0.0	2.1	17.5	2.6	102.6	0.0	29.7	0.0	0.0	1.5	0.0	0.0	0.0	42.1	15.5
V19B	109.6	343.6	3.9	34.9	61.9	0.0	0.0	2.1	18.4	4.9	13.7	11.9	7.2	0.0	0.0	4.5	0.0	0.0	1.1	6.1	33.9
V20	44.2	645.9	10.1	0.0	9.0	0.0	2.8	1.1	13.5	3.3	78.8	3.8	43.9	0.0	2.7	2.5	0.0	0.0	0.0	553.0	278.8
V21A	150.9	100.2	98.5	0.0	61.7	4.9	2.8	2.1	20.5	12.7	6.3	12.9	36.5	0.0	6.8	51.0	0.0	1.1	0.0	0.0	38.7
V21B	2.4	76.4	1.7	0.0	5.6	17.2	0.2	1.1	8.7	14.9	78.2	5.0	79.5	0.0	73.6	7.1	0.0	0.2	0.0	268.2	236.9
V21C	9.4	49.1	1.9	0.0	17.0	9.7	0.0	0.0	3.0	18.7	52.8	0.0	31.3	0.0	9.5	0.0	0.0	0.1	0.0	316.6	85.9

Table A3-91. San Joaquin Valley Gross Revenues – Average Year Without Groundwater Replacement, 45 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	219.4	273.4	7.8	65.6	156.2	251.6	38.4	182.0	6.4	30.9	228.5	157.7	101.5	15.1	1.3	197.6	7.9	1.7	0.0	12.2	45.4
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	187.8	899.8	18.6	119.4	46.8	18.6	0.2	48.6	27.7	0.7	232.4	75.7	142.6	19.9	1.3	53.9	4.7	0.3	1.1	90.9	777.0
V14A	32.1	754.5	2.6	10.0	133.2	275.1	7.2	59.0	95.3	151.4	78.1	24.8	198.7	0.0	0.0	309.0	0.0	0.0	0.0	49.4	91.9
V14B	0.3	47.3	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.1	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	226.3	451.1	15.0	108.7	297.8	3.7	4.8	13.5	75.8	68.3	423.0	133.1	23.7	13.1	0.0	183.1	0.0	4.1	0.0	9.2	410.4
V15B	0.0	89.7	0.0	0.0	4.0	4.4	0.0	0.0	3.3	0.0	35.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	9.0
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	255.1	464.5	32.1	273.8	93.0	8.7	11.6	3.4	38.2	2.1	574.7	239.8	34.6	1.8	1.4	3.4	0.0	0.0	0.0	1,968.9	317.0
V19A	0.0	501.2	0.0	0.0	5.2	3.2	0.0	2.0	7.4	2.4	101.6	0.0	29.0	0.0	0.0	1.4	0.0	0.0	0.0	41.6	15.0
V19B	107.4	342.8	3.5	33.6	61.5	0.0	0.0	2.1	18.1	4.9	13.7	11.4	7.2	0.0	0.0	4.5	0.0	0.0	1.1	6.1	33.8
V20	43.6	645.3	9.6	0.0	8.9	0.0	2.8	1.1	13.4	3.3	78.7	3.7	43.8	0.0	2.7	2.5	0.0	0.0	0.0	552.6	278.4
V21A	148.8	99.9	96.0	0.0	61.3	4.9	2.8	2.1	20.3	12.7	6.3	12.7	36.4	0.0	6.8	50.8	0.0	1.0	0.0	0.0	38.6
V21B	2.1	75.9	1.3	0.0	5.5	16.9	0.2	1.1	8.4	14.6	77.9	4.5	79.1	0.0	73.4	7.0	0.0	0.0	0.0	267.2	235.4
V21C	8.1	48.5	0.0	0.0	16.6	9.4	0.0	0.0	2.8	18.1	52.5	0.0	31.0	0.0	9.5	0.0	0.0	0.0	0.0	314.7	85.0

Table A3-92. San Joaquin Valley Gross Revenues – Average Year Without Groundwater Replacement, 55 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	219.0	273.3	7.8	65.6	156.2	251.9	38.5	182.0	6.4	30.9	228.5	157.9	101.7	14.9	1.3	197.8	7.8	1.7	0.0	12.3	45.4
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	187.5	899.6	18.6	119.6	46.8	18.7	0.2	48.7	27.9	0.7	232.4	75.9	143.2	19.6	1.3	54.0	4.7	0.3	1.1	91.0	777.2
V14A	13.8	749.1	0.0	8.0	130.7	271.8	0.0	58.9	93.7	150.5	77.7	0.0	198.3	0.0	0.0	304.2	0.0	0.0	0.0	48.7	90.9
V14B	0.3	47.3	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.6	4.4	25.8	74.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	225.6	450.8	14.9	108.3	297.4	3.7	4.8	13.5	75.7	68.2	422.8	132.7	23.7	11.4	0.0	182.8	0.0	4.1	0.0	9.2	410.0
V15B	0.0	87.2	0.0	0.0	2.8	3.9	0.0	0.0	1.0	0.0	34.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	8.5
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	254.9	464.4	32.1	273.5	92.9	8.7	11.5	3.4	38.1	2.1	574.6	239.6	34.6	1.8	1.4	3.4	0.0	0.0	0.0	1,968.6	316.9
V19A	0.0	479.1	0.0	0.0	2.8	2.4	0.0	2.0	0.0	1.5	100.0	0.0	27.9	0.0	0.0	1.2	0.0	0.0	0.0	40.7	14.2
V19B	105.2	342.0	2.4	32.1	61.3	0.0	0.0	2.1	17.8	4.9	13.7	10.8	7.2	0.0	0.0	4.5	0.0	0.0	1.1	6.1	33.7
V20	43.1	644.8	8.7	0.0	8.9	0.0	2.8	1.1	13.3	3.2	78.7	3.5	43.8	0.0	2.7	2.5	0.0	0.0	0.0	552.2	278.0
V21A	146.4	99.6	92.7	0.0	61.0	4.9	2.7	2.1	20.1	12.6	6.3	12.4	36.3	0.0	6.8	50.6	0.0	0.8	0.0	0.0	38.5
V21B	1.7	75.5	0.0	0.0	5.4	16.7	0.2	1.0	8.2	14.4	77.7	3.7	78.8	0.0	73.3	7.0	0.0	0.0	0.0	266.5	234.4
V21C	3.4	48.1	0.0	0.0	16.2	9.2	0.0	0.0	2.6	17.8	52.3	0.0	30.7	0.0	9.4	0.0	0.0	0.0	0.0	313.6	84.3

Table A3-93. San Joaquin Valley Gross Revenues – Average Year Without Groundwater Replacement, 65 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	219.0	273.3	7.8	65.6	156.2	251.9	38.5	182.0	6.4	30.9	228.5	157.9	101.7	14.9	1.3	197.8	7.8	1.7	0.0	12.3	45.4
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	186.1	897.0	18.6	119.3	46.7	18.7	0.2	48.7	28.1	0.7	232.2	75.6	143.7	17.0	1.3	53.9	4.6	0.3	1.1	90.9	777.0
V14A	0.0	712.1	0.0	8.0	0.1	245.4	0.0	58.5	63.5	144.7	75.4	0.0	196.2	0.0	0.0	238.9	0.0	0.0	0.0	43.0	83.8
V14B	0.3	47.2	0.1	0.8	7.6	6.2	0.0	0.0	7.5	52.5	4.4	25.7	74.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	225.2	450.6	14.9	108.1	297.2	3.7	4.8	13.5	75.6	68.2	422.7	132.4	23.7	8.0	0.0	182.7	0.0	4.1	0.0	9.2	409.8
V15B	0.0	85.7	0.0	0.0	0.0	3.6	0.0	0.0	0.0	0.0	34.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	8.1
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	252.3	463.5	31.6	270.7	92.6	8.6	11.3	3.4	37.9	2.1	573.9	236.9	34.5	0.0	1.4	3.4	0.0	0.0	0.0	1,965.8	316.0
V19A	0.0	448.6	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	98.5	0.0	26.7	0.0	0.0	0.8	0.0	0.0	0.0	39.8	13.1
V19B	103.9	341.7	0.0	31.1	61.1	0.0	0.0	2.1	17.7	4.8	13.7	10.4	7.2	0.0	0.0	4.5	0.0	0.0	1.1	6.1	33.7
V20	42.4	644.2	6.2	0.0	8.9	0.0	2.7	1.1	13.3	3.2	78.7	3.3	43.7	0.0	2.7	2.5	0.0	0.0	0.0	551.9	277.6
V21A	144.9	99.5	90.1	0.0	60.8	4.9	2.7	2.1	20.0	12.5	6.3	12.2	36.2	0.0	6.8	50.5	0.0	0.0	0.0	0.0	38.4
V21B	0.0	73.5	0.0	0.0	4.9	15.7	0.0	1.0	5.8	13.4	76.9	0.0	77.3	0.0	72.6	6.6	0.0	0.0	0.0	263.4	229.3
V21C	0.0	47.5	0.0	0.0	15.7	8.9	0.0	0.0	2.0	17.2	52.0	0.0	30.5	0.0	9.4	0.0	0.0	0.0	0.0	312.1	83.4

Table A3-94. San Joaquin Valley Gross Revenues – Average Year Without Groundwater Replacement, 75 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	221.1	273.9	7.8	65.3	156.1	250.2	38.0	181.7	6.2	30.9	228.6	157.2	100.5	15.7	1.3	197.1	8.0	1.7	0.0	12.2	45.3
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	185.5	895.4	18.5	118.9	46.6	18.7	0.2	48.7	28.1	0.7	232.1	75.2	143.5	8.8	1.3	53.7	4.5	0.3	1.1	90.8	776.7
V14A	0.0	706.7	0.0	8.0	0.1	240.5	0.0	58.4	0.1	143.9	75.2	0.0	196.0	0.0	0.0	188.6	0.0	0.0	0.0	42.0	82.6
V14B	0.3	47.0	0.1	0.8	7.6	6.1	0.0	0.0	7.4	52.3	4.4	25.4	74.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	225.2	450.6	14.9	108.1	297.1	3.7	4.8	13.5	75.6	68.2	422.7	132.4	23.7	4.4	0.0	182.6	0.0	4.1	0.0	9.2	409.8
V15B	0.0	78.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	4.6
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	240.1	460.1	28.9	256.7	91.0	8.4	10.1	3.4	36.9	2.1	571.4	223.0	34.2	0.0	1.4	3.3	0.0	0.0	0.0	1,955.3	312.4
V19A	0.0	401.1	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	97.2	0.0	25.3	0.0	0.0	0.0	0.0	0.0	0.0	39.1	11.6
V19B	101.4	341.1	0.0	28.5	60.9	0.0	0.0	2.1	17.4	4.8	13.7	9.3	7.1	0.0	0.0	4.5	0.0	0.0	1.0	6.0	33.6
V20	40.4	642.8	0.0	0.0	8.8	0.0	2.7	1.0	13.1	3.2	78.6	1.8	43.6	0.0	2.7	2.5	0.0	0.0	0.0	551.0	276.7
V21A	142.6	99.3	85.4	0.0	60.5	4.8	2.6	2.1	19.9	12.5	6.3	11.9	36.2	0.0	6.8	50.4	0.0	0.0	0.0	0.0	38.3
V21B	0.0	61.3	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	73.7	0.0	70.5	0.0	70.3	0.0	0.0	0.0	0.0	251.0	199.9
V21C	0.0	45.6	0.0	0.0	12.9	7.7	0.0	0.0	0.0	14.6	51.4	0.0	29.6	0.0	9.3	0.0	0.0	0.0	0.0	307.8	80.7

Table A3-95. San Joaquin Valley Gross Revenues – Average Year with Maximum Groundwater Replacement, Existing Conditions ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	221.1	273.9	7.8	65.3	156.1	250.2	38.0	181.7	6.2	30.9	228.6	157.2	100.5	15.7	1.3	197.1	8.0	1.7	0.0	12.2	45.3
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	188.0	899.8	18.6	119.4	46.8	18.6	0.2	48.5	27.6	0.7	232.4	75.6	142.4	20.0	1.3	53.9	4.7	0.3	1.1	90.9	776.9
V14A	35.9	764.2	3.4	11.3	136.8	280.3	8.6	59.1	97.7	153.1	78.8	31.5	199.4	0.0	0.0	316.2	0.0	0.6	0.0	50.5	93.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.4	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	227.7	451.5	15.0	108.9	298.3	3.7	4.9	13.5	75.5	68.4	423.3	133.4	23.7	14.5	0.0	183.3	0.0	4.2	0.0	9.2	410.6
V15B	1.1	94.8	0.0	0.0	4.9	5.0	0.0	0.0	3.8	0.0	36.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.9
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	255.6	464.6	32.1	273.8	93.0	8.6	11.5	3.4	38.0	2.1	574.8	239.6	34.5	2.0	1.4	3.4	0.0	0.0	0.0	1,968.9	316.9
V19A	1.6	522.0	0.8	0.0	5.9	3.7	0.0	2.1	19.0	2.8	103.6	0.0	30.2	0.0	0.0	1.5	0.0	0.2	0.0	42.7	15.9
V19B	110.7	344.1	4.1	35.5	62.0	0.0	0.0	2.1	18.6	4.9	13.7	12.2	7.2	0.0	0.0	4.6	0.0	0.0	1.1	6.1	34.0
V20	44.4	646.2	10.3	0.0	9.0	0.0	2.9	1.1	13.5	3.3	78.8	3.8	43.9	0.0	2.7	2.5	0.0	0.0	0.0	553.1	279.0
V21A	152.0	100.3	99.7	0.0	61.9	5.0	2.8	2.1	20.6	12.8	6.3	13.0	36.5	0.0	6.8	51.1	0.0	1.1	0.0	0.0	38.7
V21B	2.4	76.7	1.8	0.0	5.6	17.3	0.2	1.1	8.8	15.0	78.3	5.2	79.7	0.0	73.7	7.1	0.0	0.2	0.0	268.7	237.6
V21C	9.6	49.4	2.0	0.0	17.2	9.8	0.0	0.0	3.1	18.9	52.9	0.0	31.5	0.0	9.5	0.0	0.0	0.3	0.0	317.8	86.5

Table A3-96. San Joaquin Valley Gross Revenues – Average Year with Maximum Groundwater Replacement, 35 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	221.1	273.9	7.8	65.3	156.1	250.2	38.0	181.7	6.2	30.9	228.6	157.2	100.5	15.7	1.3	197.1	8.0	1.7	0.0	12.2	45.3
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	188.0	899.8	18.6	119.4	46.8	18.6	0.2	48.5	27.6	0.7	232.4	75.6	142.4	20.0	1.3	53.9	4.7	0.3	1.1	90.9	776.9
V14A	35.9	764.2	3.4	11.3	136.8	280.3	8.6	59.1	97.7	153.1	78.8	31.5	199.4	0.0	0.0	316.2	0.0	0.6	0.0	50.5	93.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.4	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	227.7	451.5	15.0	108.9	298.3	3.7	4.9	13.5	75.5	68.4	423.3	133.4	23.7	14.5	0.0	183.3	0.0	4.2	0.0	9.2	410.6
V15B	1.1	94.8	0.0	0.0	4.9	5.0	0.0	0.0	3.8	0.0	36.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.9
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	255.6	464.6	32.1	273.8	93.0	8.6	11.5	3.4	38.0	2.1	574.8	239.6	34.5	2.0	1.4	3.4	0.0	0.0	0.0	1,968.9	316.9
V19A	1.6	522.0	0.8	0.0	5.9	3.7	0.0	2.1	19.0	2.8	103.6	0.0	30.2	0.0	0.0	1.5	0.0	0.2	0.0	42.7	15.9
V19B	110.7	344.1	4.1	35.5	62.0	0.0	0.0	2.1	18.6	4.9	13.7	12.2	7.2	0.0	0.0	4.6	0.0	0.0	1.1	6.1	34.0
V20	44.4	646.2	10.3	0.0	9.0	0.0	2.9	1.1	13.5	3.3	78.8	3.8	43.9	0.0	2.7	2.5	0.0	0.0	0.0	553.1	279.0
V21A	152.0	100.3	99.7	0.0	61.9	5.0	2.8	2.1	20.6	12.8	6.3	13.0	36.5	0.0	6.8	51.1	0.0	1.1	0.0	0.0	38.7
V21B	2.4	76.7	1.8	0.0	5.6	17.3	0.2	1.1	8.8	15.0	78.3	5.2	79.7	0.0	73.7	7.1	0.0	0.2	0.0	268.7	237.6
V21C	9.6	49.4	2.0	0.0	17.2	9.8	0.0	0.0	3.1	18.9	52.9	0.0	31.5	0.0	9.5	0.0	0.0	0.3	0.0	317.8	86.5

Table A3-97. San Joaquin Valley Gross Revenues – Average Year with Maximum Groundwater Replacement, 45 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	221.1	273.9	7.8	65.3	156.1	250.2	38.0	181.7	6.2	30.9	228.6	157.2	100.5	15.7	1.3	197.1	8.0	1.7	0.0	12.2	45.3
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	188.0	899.8	18.6	119.4	46.8	18.6	0.2	48.5	27.6	0.7	232.4	75.6	142.4	20.0	1.3	53.9	4.7	0.3	1.1	90.9	776.9
V14A	35.9	764.2	3.4	11.3	136.8	280.3	8.6	59.1	97.7	153.1	78.8	31.5	199.4	0.0	0.0	316.2	0.0	0.6	0.0	50.5	93.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.4	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	227.7	451.5	15.0	108.9	298.3	3.7	4.9	13.5	75.5	68.4	423.3	133.4	23.7	14.5	0.0	183.3	0.0	4.2	0.0	9.2	410.6
V15B	1.1	94.8	0.0	0.0	4.9	5.0	0.0	0.0	3.8	0.0	36.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.9
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	255.6	464.6	32.1	273.8	93.0	8.6	11.5	3.4	38.0	2.1	574.8	239.6	34.5	2.0	1.4	3.4	0.0	0.0	0.0	1,968.9	316.9
V19A	1.6	522.0	0.8	0.0	5.9	3.7	0.0	2.1	19.0	2.8	103.6	0.0	30.2	0.0	0.0	1.5	0.0	0.2	0.0	42.7	15.9
V19B	110.7	344.1	4.1	35.5	62.0	0.0	0.0	2.1	18.6	4.9	13.7	12.2	7.2	0.0	0.0	4.6	0.0	0.0	1.1	6.1	34.0
V20	44.4	646.2	10.3	0.0	9.0	0.0	2.9	1.1	13.5	3.3	78.8	3.8	43.9	0.0	2.7	2.5	0.0	0.0	0.0	553.1	279.0
V21A	152.0	100.3	99.7	0.0	61.9	5.0	2.8	2.1	20.6	12.8	6.3	13.0	36.5	0.0	6.8	51.1	0.0	1.1	0.0	0.0	38.7
V21B	2.4	76.7	1.8	0.0	5.6	17.3	0.2	1.1	8.8	15.0	78.3	5.2	79.7	0.0	73.7	7.1	0.0	0.2	0.0	268.7	237.6
V21C	9.6	49.4	2.0	0.0	17.2	9.8	0.0	0.0	3.1	18.9	52.9	0.0	31.5	0.0	9.5	0.0	0.0	0.3	0.0	317.8	86.5

Table A3-98. San Joaquin Valley Gross Revenues – Average Year with Maximum Groundwater Replacement, 55 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	221.1	273.9	7.8	65.3	156.1	250.2	38.0	181.7	6.2	30.9	228.6	157.2	100.5	15.7	1.3	197.1	8.0	1.7	0.0	12.2	45.3
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	188.0	899.8	18.6	119.4	46.8	18.6	0.2	48.5	27.6	0.7	232.4	75.6	142.4	20.0	1.3	53.9	4.7	0.3	1.1	90.9	776.9
V14A	35.9	764.2	3.4	11.3	136.8	280.3	8.6	59.1	97.7	153.1	78.8	31.5	199.4	0.0	0.0	316.2	0.0	0.6	0.0	50.5	93.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.4	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	227.7	451.5	15.0	108.9	298.3	3.7	4.9	13.5	75.5	68.4	423.3	133.4	23.7	14.5	0.0	183.3	0.0	4.2	0.0	9.2	410.6
V15B	1.1	94.8	0.0	0.0	4.9	5.0	0.0	0.0	3.8	0.0	36.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.9
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	255.6	464.6	32.1	273.8	93.0	8.6	11.5	3.4	38.0	2.1	574.8	239.6	34.5	2.0	1.4	3.4	0.0	0.0	0.0	1,968.9	316.9
V19A	1.6	522.0	0.8	0.0	5.9	3.7	0.0	2.1	19.0	2.8	103.6	0.0	30.2	0.0	0.0	1.5	0.0	0.2	0.0	42.7	15.9
V19B	110.7	344.1	4.1	35.5	62.0	0.0	0.0	2.1	18.6	4.9	13.7	12.2	7.2	0.0	0.0	4.6	0.0	0.0	1.1	6.1	34.0
V20	44.4	646.2	10.3	0.0	9.0	0.0	2.9	1.1	13.5	3.3	78.8	3.8	43.9	0.0	2.7	2.5	0.0	0.0	0.0	553.1	279.0
V21A	152.0	100.3	99.7	0.0	61.9	5.0	2.8	2.1	20.6	12.8	6.3	13.0	36.5	0.0	6.8	51.1	0.0	1.1	0.0	0.0	38.7
V21B	2.4	76.7	1.8	0.0	5.6	17.3	0.2	1.1	8.8	15.0	78.3	5.2	79.7	0.0	73.7	7.1	0.0	0.2	0.0	268.7	237.6
V21C	9.6	49.4	2.0	0.0	17.2	9.8	0.0	0.0	3.1	18.9	52.9	0.0	31.5	0.0	9.5	0.0	0.0	0.3	0.0	317.8	86.5

Table A3-99. San Joaquin Valley Gross Revenues – Average Year with Maximum Groundwater Replacement, 65 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	221.1	273.9	7.8	65.3	156.1	250.2	38.0	181.7	6.2	30.9	228.6	157.2	100.5	15.7	1.3	197.1	8.0	1.7	0.0	12.2	45.3
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	188.0	899.8	18.6	119.4	46.8	18.6	0.2	48.5	27.6	0.7	232.4	75.6	142.4	20.0	1.3	53.9	4.7	0.3	1.1	90.9	776.9
V14A	35.9	764.2	3.4	11.3	136.8	280.3	8.6	59.1	97.7	153.1	78.8	31.5	199.4	0.0	0.0	316.2	0.0	0.6	0.0	50.5	93.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.4	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	227.7	451.5	15.0	108.9	298.3	3.7	4.9	13.5	75.5	68.4	423.3	133.4	23.7	14.5	0.0	183.3	0.0	4.2	0.0	9.2	410.6
V15B	1.1	94.8	0.0	0.0	4.9	5.0	0.0	0.0	3.8	0.0	36.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.9
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	255.6	464.6	32.1	273.8	93.0	8.6	11.5	3.4	38.0	2.1	574.8	239.6	34.5	2.0	1.4	3.4	0.0	0.0	0.0	1,968.9	316.9
V19A	1.6	522.0	0.8	0.0	5.9	3.7	0.0	2.1	19.0	2.8	103.6	0.0	30.2	0.0	0.0	1.5	0.0	0.2	0.0	42.7	15.9
V19B	110.7	344.1	4.1	35.5	62.0	0.0	0.0	2.1	18.6	4.9	13.7	12.2	7.2	0.0	0.0	4.6	0.0	0.0	1.1	6.1	34.0
V20	44.4	646.2	10.3	0.0	9.0	0.0	2.9	1.1	13.5	3.3	78.8	3.8	43.9	0.0	2.7	2.5	0.0	0.0	0.0	553.1	279.0
V21A	152.0	100.3	99.7	0.0	61.9	5.0	2.8	2.1	20.6	12.8	6.3	13.0	36.5	0.0	6.8	51.1	0.0	1.1	0.0	0.0	38.7
V21B	2.4	76.7	1.8	0.0	5.6	17.3	0.2	1.1	8.8	15.0	78.3	5.2	79.7	0.0	73.7	7.1	0.0	0.2	0.0	268.7	237.6
V21C	9.6	49.4	2.0	0.0	17.2	9.8	0.0	0.0	3.1	18.9	52.9	0.0	31.5	0.0	9.5	0.0	0.0	0.3	0.0	317.8	86.5

Table A3-100. San Joaquin Valley Gross Revenues – Average Year with Maximum Groundwater Replacement, 75 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	221.1	273.9	7.8	65.3	156.1	250.2	38.0	181.7	6.2	30.9	228.6	157.2	100.5	15.7	1.3	197.1	8.0	1.7	0.0	12.2	45.3
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	188.0	899.8	18.6	119.4	46.8	18.6	0.2	48.5	27.6	0.7	232.4	75.6	142.4	20.0	1.3	53.9	4.7	0.3	1.1	90.9	776.9
V14A	35.9	764.2	3.4	11.3	136.8	280.3	8.6	59.1	97.7	153.1	78.8	31.5	199.4	0.0	0.0	316.2	0.0	0.6	0.0	50.5	93.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.4	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	227.7	451.5	15.0	108.9	298.3	3.7	4.9	13.5	75.5	68.4	423.3	133.4	23.7	14.5	0.0	183.3	0.0	4.2	0.0	9.2	410.6
V15B	1.1	94.8	0.0	0.0	4.9	5.0	0.0	0.0	3.8	0.0	36.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.9
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	255.6	464.6	32.1	273.8	93.0	8.6	11.5	3.4	38.0	2.1	574.8	239.6	34.5	2.0	1.4	3.4	0.0	0.0	0.0	1,968.9	316.9
V19A	0.0	501.9	0.0	0.0	5.2	3.2	0.0	2.0	11.4	2.4	101.6	0.0	29.1	0.0	0.0	1.4	0.0	0.0	0.0	41.6	15.0
V19B	110.7	344.1	4.1	35.5	62.0	0.0	0.0	2.1	18.6	4.9	13.7	12.2	7.2	0.0	0.0	4.6	0.0	0.0	1.1	6.1	34.0
V20	44.4	646.2	10.3	0.0	9.0	0.0	2.9	1.1	13.5	3.3	78.8	3.8	43.9	0.0	2.7	2.5	0.0	0.0	0.0	553.1	279.0
V21A	152.0	100.3	99.7	0.0	61.9	5.0	2.8	2.1	20.6	12.8	6.3	13.0	36.5	0.0	6.8	51.1	0.0	1.1	0.0	0.0	38.7
V21B	2.4	76.7	1.8	0.0	5.6	17.3	0.2	1.1	8.8	15.0	78.3	5.2	79.7	0.0	73.7	7.1	0.0	0.2	0.0	268.7	237.6
V21C	9.6	49.4	2.0	0.0	17.2	9.8	0.0	0.0	3.1	18.9	52.9	0.0	31.5	0.0	9.5	0.0	0.0	0.3	0.0	317.8	86.5

Table A3-101. San Joaquin Valley Gross Revenues – Dry Year Without Groundwater Replacement, Existing Conditions ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	219.0	273.3	7.8	65.6	156.2	251.9	38.5	182.0	6.4	30.9	228.5	157.9	101.7	14.9	1.3	197.8	7.8	1.7	0.0	12.3	45.4
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	184.7	891.0	18.7	120.0	46.9	18.5	0.2	48.4	27.7	0.7	231.9	74.3	142.4	18.2	1.3	53.3	4.7	0.3	1.1	90.5	775.5
V14A	15.6	723.9	0.0	8.1	130.4	258.9	0.0	58.6	86.9	146.7	76.3	0.0	196.7	0.0	0.0	283.7	0.0	0.0	0.0	46.4	87.2
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.2	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	225.8	450.8	15.1	109.5	299.2	3.7	4.8	13.5	75.2	68.3	422.8	132.1	23.6	13.6	0.0	182.5	0.0	4.1	0.0	9.2	409.6
V15B	1.0	91.6	0.0	0.0	4.8	4.9	0.0	0.0	3.8	0.0	35.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.5
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.5	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.3	51.0	10.2	0.0	8.4	0.0	0.0	0.0	865.9	537.5
V18	243.3	460.2	31.8	272.1	92.8	8.5	10.8	3.4	37.1	2.1	571.5	227.0	34.3	0.0	1.4	3.3	0.0	0.0	0.0	1,955.0	312.7
V19A	0.8	489.0	0.0	0.0	5.5	3.3	0.0	2.0	15.8	2.4	100.6	0.0	28.6	0.0	0.0	1.4	0.0	0.0	0.0	41.2	14.8
V19B	104.9	341.4	4.1	35.7	62.4	0.0	0.0	2.1	17.8	4.9	13.7	11.2	7.2	0.0	0.0	4.5	0.0	0.0	1.1	6.1	33.7
V20	40.1	639.7	9.5	0.0	9.0	0.0	2.7	1.0	12.9	3.2	78.4	3.3	43.4	0.0	2.7	2.5	0.0	0.0	0.0	549.5	274.9
V21A	145.3	99.5	99.5	0.0	62.0	4.9	2.7	2.1	20.0	12.6	6.3	12.4	36.3	0.0	6.8	50.5	0.0	1.0	0.0	0.0	38.4
V21B	0.0	69.6	0.0	0.0	4.8	15.1	0.0	1.0	6.3	13.0	75.0	0.0	75.5	0.0	71.6	6.4	0.0	0.0	0.0	256.0	217.5
V21C	7.2	47.6	0.0	0.0	16.7	9.2	0.0	0.0	2.6	17.5	52.1	0.0	30.5	0.0	9.4	0.0	0.0	0.0	0.0	312.0	83.5

Table A3-102. San Joaquin Valley Gross Revenues – Dry Year Without Groundwater Replacement, 35 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	219.0	273.3	7.8	65.6	156.2	251.9	38.5	182.0	6.4	30.9	228.5	157.9	101.7	14.9	1.3	197.8	7.8	1.7	0.0	12.3	45.4
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	184.7	890.9	18.7	120.0	46.9	18.5	0.2	48.4	27.7	0.7	231.9	74.3	142.4	18.2	1.3	53.3	4.7	0.3	1.1	90.5	775.5
V14A	9.9	723.2	0.0	8.1	130.2	258.5	0.0	58.6	86.8	146.6	76.2	0.0	196.7	0.0	0.0	283.1	0.0	0.0	0.0	46.3	87.1
V14B	0.3	47.3	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.6	4.4	25.9	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	225.8	450.8	15.1	109.5	299.2	3.7	4.8	13.5	75.2	68.3	422.8	132.1	23.6	13.6	0.0	182.5	0.0	4.1	0.0	9.2	409.6
V15B	0.9	89.9	0.0	0.0	4.7	4.8	0.0	0.0	3.7	0.0	35.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	9.2
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.5	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.3	51.0	10.2	0.0	8.4	0.0	0.0	0.0	865.9	537.5
V18	243.2	460.1	31.8	272.1	92.8	8.5	10.8	3.4	37.1	2.1	571.5	226.9	34.3	0.0	1.4	3.3	0.0	0.0	0.0	1,955.0	312.7
V19A	0.0	477.0	0.0	0.0	5.3	3.1	0.0	2.0	14.3	2.3	99.5	0.0	28.2	0.0	0.0	1.3	0.0	0.0	0.0	40.7	14.4
V19B	103.3	340.6	4.0	35.3	62.2	0.0	0.0	2.1	17.6	4.8	13.7	11.0	7.1	0.0	0.0	4.5	0.0	0.0	1.1	6.1	33.7
V20	39.8	639.4	9.2	0.0	9.0	0.0	2.6	1.0	12.9	3.2	78.4	3.3	43.4	0.0	2.7	2.5	0.0	0.0	0.0	549.3	274.6
V21A	143.6	99.3	98.6	0.0	61.9	4.9	2.7	2.1	19.9	12.5	6.3	12.2	36.2	0.0	6.8	50.4	0.0	0.9	0.0	0.0	38.4
V21B	0.0	69.0	0.0	0.0	4.7	15.0	0.0	1.0	5.6	12.8	74.8	0.0	75.3	0.0	71.5	6.4	0.0	0.0	0.0	255.1	216.0
V21C	6.2	46.9	0.0	0.0	16.4	8.9	0.0	0.0	2.5	17.0	51.8	0.0	30.2	0.0	9.3	0.0	0.0	0.0	0.0	309.9	82.4

Table A3-103. San Joaquin Valley Gross Revenues – Dry Year Without Groundwater Replacement, 45 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	219.0	273.3	7.8	65.6	156.2	251.9	38.5	182.0	6.4	30.9	228.5	157.9	101.7	14.9	1.3	197.8	7.8	1.7	0.0	12.3	45.4
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	184.6	890.6	18.7	120.0	46.9	18.5	0.2	48.4	27.7	0.7	231.8	74.3	142.4	18.2	1.3	53.3	4.7	0.3	1.1	90.5	775.4
V14A	0.0	694.6	0.0	8.1	121.7	248.7	0.0	58.3	83.1	142.3	74.5	0.0	194.9	0.0	0.0	271.7	0.0	0.0	0.0	43.3	82.6
V14B	0.3	47.2	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.5	4.4	25.5	74.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	225.1	450.5	15.1	109.5	299.2	3.7	4.8	13.5	75.2	68.2	422.7	131.8	23.6	13.4	0.0	182.3	0.0	4.1	0.0	9.2	409.4
V15B	0.7	86.5	0.0	0.0	4.3	4.6	0.0	0.0	3.5	0.0	34.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	8.9
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.5	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.3	51.0	10.2	0.0	8.4	0.0	0.0	0.0	865.9	537.5
V18	242.9	460.0	31.7	271.9	92.8	8.5	10.7	3.4	37.1	2.1	571.4	226.5	34.3	0.0	1.4	3.3	0.0	0.0	0.0	1,954.5	312.5
V19A	0.0	465.7	0.0	0.0	5.0	3.0	0.0	2.0	1.8	2.2	98.6	0.0	28.0	0.0	0.0	1.3	0.0	0.0	0.0	40.2	14.0
V19B	100.8	339.4	3.7	34.6	62.0	0.0	0.0	2.1	17.2	4.8	13.6	10.7	7.1	0.0	0.0	4.5	0.0	0.0	1.0	6.0	33.5
V20	39.3	638.7	8.8	0.0	9.0	0.0	2.6	1.0	12.8	3.2	78.4	3.3	43.3	0.0	2.7	2.5	0.0	0.0	0.0	548.9	274.2
V21A	141.0	98.9	97.2	0.0	61.7	4.8	2.6	2.1	19.7	12.4	6.3	11.9	36.1	0.0	6.8	50.2	0.0	0.9	0.0	0.0	38.2
V21B	0.0	68.4	0.0	0.0	4.5	14.8	0.0	1.0	2.1	12.6	74.5	0.0	75.1	0.0	71.4	6.3	0.0	0.0	0.0	254.1	214.3
V21C	3.0	46.1	0.0	0.0	16.1	8.6	0.0	0.0	2.3	16.5	51.4	0.0	29.8	0.0	9.3	0.0	0.0	0.0	0.0	307.6	81.2

Table A3-104. San Joaquin Valley Gross Revenues – Dry Year Without Groundwater Replacement, 55 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	219.0	273.3	7.8	65.6	156.2	251.9	38.5	182.0	6.4	30.9	228.5	157.9	101.7	14.9	1.3	197.8	7.8	1.7	0.0	12.3	45.4
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	184.3	889.8	18.7	120.0	46.9	18.5	0.2	48.4	27.7	0.7	231.8	74.2	142.4	18.1	1.3	53.3	4.7	0.3	1.1	90.5	775.3
V14A	0.0	657.6	0.0	8.1	40.1	238.2	0.0	57.9	74.4	140.0	72.4	0.0	193.2	0.0	0.0	249.1	0.0	0.0	0.0	39.4	76.5
V14B	0.3	47.1	0.1	0.8	7.7	6.1	0.0	0.0	7.4	52.4	4.4	25.2	74.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	224.2	450.1	15.1	109.5	299.2	3.7	4.8	13.5	75.2	68.2	422.5	131.4	23.6	13.0	0.0	182.0	0.0	4.1	0.0	9.2	409.0
V15B	0.0	84.0	0.0	0.0	3.1	4.2	0.0	0.0	3.1	0.0	34.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	8.5
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.5	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.3	51.0	10.2	0.0	8.4	0.0	0.0	0.0	865.9	537.5
V18	240.9	459.3	31.6	270.9	92.7	8.5	10.6	3.4	36.9	2.1	570.9	224.4	34.2	0.0	1.4	3.3	0.0	0.0	0.0	1,952.3	311.8
V19A	0.0	445.0	0.0	0.0	4.0	2.8	0.0	2.0	0.0	2.0	96.9	0.0	27.5	0.0	0.0	1.2	0.0	0.0	0.0	39.4	13.4
V19B	98.6	338.4	3.5	33.9	61.9	0.0	0.0	2.1	16.9	4.8	13.6	10.5	7.1	0.0	0.0	4.4	0.0	0.0	1.0	6.0	33.4
V20	38.4	637.4	6.7	0.0	8.9	0.0	2.6	1.0	12.7	3.2	78.3	3.2	43.2	0.0	2.7	2.5	0.0	0.0	0.0	548.1	273.4
V21A	138.8	98.6	95.8	0.0	61.5	4.8	2.6	2.1	19.5	12.4	6.3	11.7	36.0	0.0	6.8	50.0	0.0	0.9	0.0	0.0	38.1
V21B	0.0	66.4	0.0	0.0	3.5	14.1	0.0	1.0	0.0	11.9	73.7	0.0	74.4	0.0	71.1	6.2	0.0	0.0	0.0	250.8	210.2
V21C	0.0	45.5	0.0	0.0	15.8	8.5	0.0	0.0	2.2	16.2	51.2	0.0	29.5	0.0	9.2	0.0	0.0	0.0	0.0	305.9	80.2

Table A3-105. San Joaquin Valley Gross Revenues – Dry Year Without Groundwater Replacement, 65 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	219.0	273.3	7.8	65.6	156.2	251.9	38.5	182.0	6.4	30.9	228.5	157.9	101.7	14.9	1.3	197.8	7.8	1.7	0.0	12.3	45.4
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	183.2	886.9	18.7	120.1	46.9	18.5	0.2	48.4	27.7	0.7	231.6	73.8	142.4	18.0	1.3	53.1	4.7	0.3	1.1	90.4	774.8
V14A	0.0	633.2	0.0	8.1	0.1	229.1	0.0	57.8	8.5	138.4	71.1	0.0	192.6	0.0	0.0	211.0	0.0	0.0	0.0	37.9	74.2
V14B	0.3	47.1	0.1	0.8	7.7	6.1	0.0	0.0	7.4	52.4	4.4	25.0	74.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	223.0	449.6	15.1	109.6	299.2	3.7	4.8	13.5	75.2	68.1	422.2	130.8	23.6	12.9	0.0	181.7	0.0	4.0	0.0	9.2	408.5
V15B	0.0	83.5	0.0	0.0	0.4	4.1	0.0	0.0	2.8	0.0	34.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	8.4
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.5	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.3	51.0	10.2	0.0	8.4	0.0	0.0	0.0	865.9	537.5
V18	235.0	457.2	31.0	267.8	92.3	8.4	10.4	3.4	36.4	2.1	569.3	220.2	34.0	0.0	1.4	3.3	0.0	0.0	0.0	1,945.7	309.8
V19A	0.0	431.0	0.0	0.0	0.0	2.5	0.0	1.9	0.0	1.7	95.8	0.0	27.2	0.0	0.0	1.2	0.0	0.0	0.0	38.9	13.2
V19B	97.1	337.7	3.2	33.3	61.8	0.0	0.0	2.1	16.7	4.7	13.6	10.3	7.1	0.0	0.0	4.4	0.0	0.0	1.0	6.0	33.4
V20	36.5	635.0	0.0	0.0	8.9	0.0	2.5	1.0	12.5	3.1	78.1	2.9	43.0	0.0	2.7	2.4	0.0	0.0	0.0	546.7	271.8
V21A	137.3	98.5	94.7	0.0	61.4	4.8	2.6	2.1	19.4	12.3	6.3	11.6	35.9	0.0	6.8	49.9	0.0	0.8	0.0	0.0	38.1
V21B	0.0	64.5	0.0	0.0	0.0	13.2	0.0	1.0	0.0	10.8	72.8	0.0	73.6	0.0	70.9	6.0	0.0	0.0	0.0	247.8	207.9
V21C	0.0	44.7	0.0	0.0	15.3	8.2	0.0	0.0	1.2	15.9	50.8	0.0	29.1	0.0	9.2	0.0	0.0	0.0	0.0	303.3	78.8

Table A3-106. San Joaquin Valley Gross Revenues – Dry Year Without Groundwater Replacement, 75 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	219.0	273.3	7.8	65.6	156.2	251.9	38.5	182.0	6.4	30.9	228.5	157.9	101.7	14.9	1.3	197.8	7.8	1.7	0.0	12.3	45.4
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	180.9	881.0	18.7	120.1	46.9	18.5	0.2	48.4	27.8	0.7	231.2	73.0	142.4	17.6	1.3	52.8	4.6	0.3	1.1	90.1	773.8
V14A	0.0	624.0	0.0	8.1	0.1	225.0	0.0	57.8	0.1	137.8	70.7	0.0	192.5	0.0	0.0	60.6	0.0	0.0	0.0	37.2	73.4
V14B	0.3	47.0	0.1	0.8	7.7	6.1	0.0	0.0	7.4	52.3	4.4	24.8	74.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	221.4	449.0	15.1	109.4	299.0	3.7	4.7	13.5	75.0	68.0	421.8	129.9	23.6	12.6	0.0	181.1	0.0	4.0	0.0	9.2	407.8
V15B	0.0	82.2	0.0	0.0	0.0	3.7	0.0	0.0	0.0	0.0	33.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	8.1
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.5	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.3	51.0	10.2	0.0	8.4	0.0	0.0	0.0	865.9	537.5
V18	221.6	452.9	29.4	259.5	91.4	8.3	9.9	3.4	35.7	2.1	566.2	214.2	33.7	0.0	1.3	3.2	0.0	0.0	0.0	1,931.9	305.4
V19A	0.0	406.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	93.6	0.0	25.9	0.0	0.0	0.8	0.0	0.0	0.0	37.8	12.3
V19B	95.6	337.0	2.7	32.7	61.7	0.0	0.0	2.1	16.5	4.7	13.6	10.2	7.1	0.0	0.0	4.4	0.0	0.0	1.0	6.0	33.3
V20	30.2	626.2	0.0	0.0	8.7	0.0	2.3	1.0	11.9	3.0	77.5	0.0	42.2	0.0	2.7	2.4	0.0	0.0	0.0	541.6	266.1
V21A	135.6	98.2	93.4	0.0	61.3	4.8	2.6	2.1	19.2	12.3	6.3	11.5	35.9	0.0	6.8	49.7	0.0	0.8	0.0	0.0	38.0
V21B	0.0	61.6	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	71.8	0.0	71.4	0.0	70.1	5.1	0.0	0.0	0.0	244.3	200.8
V21C	0.0	43.6	0.0	0.0	14.4	8.0	0.0	0.0	0.0	15.3	50.4	0.0	28.9	0.0	9.1	0.0	0.0	0.0	0.0	300.5	77.2

Table A3-107. San Joaquin Valley Gross Revenues – Dry Year with Maximum Groundwater Replacement, Existing Conditions ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	221.1	273.9	7.8	65.3	156.1	250.2	38.0	181.7	6.2	30.9	228.6	157.2	100.5	15.7	1.3	197.1	8.0	1.7	0.0	12.2	45.3
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	187.2	897.8	18.6	119.8	46.9	18.6	0.2	48.5	27.6	0.7	232.3	75.2	142.3	19.6	1.3	53.7	4.8	0.3	1.1	90.8	776.6
V14A	35.8	764.2	3.4	11.5	137.6	280.3	8.5	59.1	97.7	153.1	78.8	31.3	199.4	0.0	0.0	316.2	0.0	0.6	0.0	50.5	93.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.4	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	225.8	450.8	15.1	109.5	299.2	3.7	4.8	13.5	75.2	68.3	422.8	132.1	23.6	13.6	0.0	182.5	0.0	4.1	0.0	9.2	409.6
V15B	1.1	94.7	0.0	0.0	4.9	4.9	0.0	0.0	3.8	0.0	36.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.8
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	253.1	463.7	32.3	275.4	93.2	8.6	11.4	3.4	37.8	2.1	574.2	236.8	34.5	1.8	1.4	3.4	0.0	0.0	0.0	1,966.3	316.1
V19A	1.6	520.0	0.8	0.0	6.0	3.7	0.0	2.1	18.7	2.7	103.4	0.0	30.1	0.0	0.0	1.5	0.0	0.1	0.0	42.6	15.8
V19B	105.7	341.8	4.1	35.9	62.4	0.0	0.0	2.1	17.9	4.9	13.7	11.4	7.2	0.0	0.0	4.5	0.0	0.0	1.1	6.1	33.8
V20	41.8	642.3	10.4	0.0	9.0	0.0	2.7	1.1	13.2	3.2	78.6	3.5	43.6	0.0	2.7	2.5	0.0	0.0	0.0	551.0	276.5
V21A	147.9	99.9	100.8	0.0	62.2	4.9	2.8	2.1	20.3	12.7	6.3	12.6	36.4	0.0	6.8	50.8	0.0	1.0	0.0	0.0	38.6
V21B	2.4	76.4	1.8	0.0	5.7	17.2	0.2	1.1	8.6	14.9	78.2	5.0	79.4	0.0	73.6	7.1	0.0	0.2	0.0	268.1	236.6
V21C	9.6	49.4	2.0	0.0	17.3	9.8	0.0	0.0	3.1	18.9	52.9	0.0	31.5	0.0	9.5	0.0	0.0	0.3	0.0	317.8	86.5

Table A3-108. San Joaquin Valley Gross Revenues – Dry Year with Maximum Groundwater Replacement, 35 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	221.1	273.9	7.8	65.3	156.1	250.2	38.0	181.7	6.2	30.9	228.6	157.2	100.5	15.7	1.3	197.1	8.0	1.7	0.0	12.2	45.3
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	187.2	897.8	18.6	119.8	46.9	18.6	0.2	48.5	27.6	0.7	232.3	75.2	142.3	19.6	1.3	53.7	4.8	0.3	1.1	90.8	776.6
V14A	35.8	764.2	3.4	11.5	137.6	280.3	8.5	59.1	97.7	153.1	78.8	31.3	199.4	0.0	0.0	316.2	0.0	0.6	0.0	50.5	93.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.4	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	225.8	450.8	15.1	109.5	299.2	3.7	4.8	13.5	75.2	68.3	422.8	132.1	23.6	13.6	0.0	182.5	0.0	4.1	0.0	9.2	409.6
V15B	1.1	94.7	0.0	0.0	4.9	4.9	0.0	0.0	3.8	0.0	36.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.8
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	253.1	463.7	32.3	275.4	93.2	8.6	11.4	3.4	37.8	2.1	574.2	236.8	34.5	1.8	1.4	3.4	0.0	0.0	0.0	1,966.3	316.1
V19A	1.6	520.0	0.8	0.0	6.0	3.7	0.0	2.1	18.7	2.7	103.4	0.0	30.1	0.0	0.0	1.5	0.0	0.1	0.0	42.6	15.8
V19B	105.7	341.8	4.1	35.9	62.4	0.0	0.0	2.1	17.9	4.9	13.7	11.4	7.2	0.0	0.0	4.5	0.0	0.0	1.1	6.1	33.8
V20	41.8	642.3	10.4	0.0	9.0	0.0	2.7	1.1	13.2	3.2	78.6	3.5	43.6	0.0	2.7	2.5	0.0	0.0	0.0	551.0	276.5
V21A	147.9	99.9	100.8	0.0	62.2	4.9	2.8	2.1	20.3	12.7	6.3	12.6	36.4	0.0	6.8	50.8	0.0	1.0	0.0	0.0	38.6
V21B	2.4	76.4	1.8	0.0	5.7	17.2	0.2	1.1	8.6	14.9	78.2	5.0	79.4	0.0	73.6	7.1	0.0	0.2	0.0	268.1	236.6
V21C	9.6	49.4	2.0	0.0	17.3	9.8	0.0	0.0	3.1	18.9	52.9	0.0	31.5	0.0	9.5	0.0	0.0	0.3	0.0	317.8	86.5

Table A3-109. San Joaquin Valley Gross Revenues – Dry Year with Maximum Groundwater Replacement, 45 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	221.1	273.9	7.8	65.3	156.1	250.2	38.0	181.7	6.2	30.9	228.6	157.2	100.5	15.7	1.3	197.1	8.0	1.7	0.0	12.2	45.3
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	187.2	897.8	18.6	119.8	46.9	18.6	0.2	48.5	27.6	0.7	232.3	75.2	142.3	19.6	1.3	53.7	4.8	0.3	1.1	90.8	776.6
V14A	35.8	764.2	3.4	11.5	137.6	280.3	8.5	59.1	97.7	153.1	78.8	31.3	199.4	0.0	0.0	316.2	0.0	0.6	0.0	50.5	93.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.4	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	225.8	450.8	15.1	109.5	299.2	3.7	4.8	13.5	75.2	68.3	422.8	132.1	23.6	13.6	0.0	182.5	0.0	4.1	0.0	9.2	409.6
V15B	1.1	94.7	0.0	0.0	4.9	4.9	0.0	0.0	3.8	0.0	36.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.8
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	253.1	463.7	32.3	275.4	93.2	8.6	11.4	3.4	37.8	2.1	574.2	236.8	34.5	1.8	1.4	3.4	0.0	0.0	0.0	1,966.3	316.1
V19A	1.4	512.8	0.6	0.0	5.9	3.6	0.0	2.1	17.9	2.7	102.7	0.0	29.8	0.0	0.0	1.5	0.0	0.0	0.0	42.3	15.6
V19B	105.7	341.8	4.1	35.9	62.4	0.0	0.0	2.1	17.9	4.9	13.7	11.4	7.2	0.0	0.0	4.5	0.0	0.0	1.1	6.1	33.8
V20	41.8	642.3	10.4	0.0	9.0	0.0	2.7	1.1	13.2	3.2	78.6	3.5	43.6	0.0	2.7	2.5	0.0	0.0	0.0	551.0	276.5
V21A	147.9	99.9	100.8	0.0	62.2	4.9	2.8	2.1	20.3	12.7	6.3	12.6	36.4	0.0	6.8	50.8	0.0	1.0	0.0	0.0	38.6
V21B	2.4	76.4	1.8	0.0	5.7	17.2	0.2	1.1	8.6	14.9	78.2	5.0	79.4	0.0	73.6	7.1	0.0	0.2	0.0	268.1	236.6
V21C	9.6	49.4	2.0	0.0	17.3	9.8	0.0	0.0	3.1	18.9	52.9	0.0	31.5	0.0	9.5	0.0	0.0	0.3	0.0	317.8	86.5

Table A3-110. San Joaquin Valley Gross Revenues – Dry Year with Maximum Groundwater Replacement, 55 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	221.1	273.9	7.8	65.3	156.1	250.2	38.0	181.7	6.2	30.9	228.6	157.2	100.5	15.7	1.3	197.1	8.0	1.7	0.0	12.2	45.3
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	187.2	897.8	18.6	119.8	46.9	18.6	0.2	48.5	27.6	0.7	232.3	75.2	142.3	19.6	1.3	53.7	4.8	0.3	1.1	90.8	776.6
V14A	35.8	764.2	3.4	11.5	137.6	280.3	8.5	59.1	97.7	153.1	78.8	31.3	199.4	0.0	0.0	316.2	0.0	0.6	0.0	50.5	93.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.4	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	225.8	450.8	15.1	109.5	299.2	3.7	4.8	13.5	75.2	68.3	422.8	132.1	23.6	13.6	0.0	182.5	0.0	4.1	0.0	9.2	409.6
V15B	1.1	94.7	0.0	0.0	4.9	4.9	0.0	0.0	3.8	0.0	36.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.8
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	253.1	463.7	32.3	275.4	93.2	8.6	11.4	3.4	37.8	2.1	574.2	236.8	34.5	1.8	1.4	3.4	0.0	0.0	0.0	1,966.3	316.1
V19A	1.2	501.4	0.0	0.0	5.7	3.4	0.0	2.1	16.7	2.5	101.7	0.0	29.2	0.0	0.0	1.4	0.0	0.0	0.0	41.7	15.2
V19B	105.7	341.8	4.1	35.9	62.4	0.0	0.0	2.1	17.9	4.9	13.7	11.4	7.2	0.0	0.0	4.5	0.0	0.0	1.1	6.1	33.8
V20	41.8	642.3	10.4	0.0	9.0	0.0	2.7	1.1	13.2	3.2	78.6	3.5	43.6	0.0	2.7	2.5	0.0	0.0	0.0	551.0	276.5
V21A	147.9	99.9	100.8	0.0	62.2	4.9	2.8	2.1	20.3	12.7	6.3	12.6	36.4	0.0	6.8	50.8	0.0	1.0	0.0	0.0	38.6
V21B	2.4	76.4	1.8	0.0	5.7	17.2	0.2	1.1	8.6	14.9	78.2	5.0	79.4	0.0	73.6	7.1	0.0	0.2	0.0	268.1	236.6
V21C	9.6	49.4	2.0	0.0	17.3	9.8	0.0	0.0	3.1	18.9	52.9	0.0	31.5	0.0	9.5	0.0	0.0	0.3	0.0	317.8	86.5

Table A3-111. San Joaquin Valley Gross Revenues – Dry Year with Maximum Groundwater Replacement, 65 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	221.1	273.9	7.8	65.3	156.1	250.2	38.0	181.7	6.2	30.9	228.6	157.2	100.5	15.7	1.3	197.1	8.0	1.7	0.0	12.2	45.3
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	187.2	897.8	18.6	119.8	46.9	18.6	0.2	48.5	27.6	0.7	232.3	75.2	142.3	19.6	1.3	53.7	4.8	0.3	1.1	90.8	776.6
V14A	35.8	764.2	3.4	11.5	137.6	280.3	8.5	59.1	97.7	153.1	78.8	31.3	199.4	0.0	0.0	316.2	0.0	0.6	0.0	50.5	93.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.4	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	225.8	450.8	15.1	109.5	299.2	3.7	4.8	13.5	75.2	68.3	422.8	132.1	23.6	13.6	0.0	182.5	0.0	4.1	0.0	9.2	409.6
V15B	1.1	94.7	0.0	0.0	4.9	4.9	0.0	0.0	3.8	0.0	36.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.8
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	253.1	463.7	32.3	275.4	93.2	8.6	11.4	3.4	37.8	2.1	574.2	236.8	34.5	1.8	1.4	3.4	0.0	0.0	0.0	1,966.3	316.1
V19A	0.9	491.4	0.0	0.0	5.6	3.3	0.0	2.0	16.0	2.4	100.8	0.0	28.7	0.0	0.0	1.4	0.0	0.0	0.0	41.3	14.9
V19B	105.7	341.8	4.1	35.9	62.4	0.0	0.0	2.1	17.9	4.9	13.7	11.4	7.2	0.0	0.0	4.5	0.0	0.0	1.1	6.1	33.8
V20	41.8	642.3	10.4	0.0	9.0	0.0	2.7	1.1	13.2	3.2	78.6	3.5	43.6	0.0	2.7	2.5	0.0	0.0	0.0	551.0	276.5
V21A	147.9	99.9	100.8	0.0	62.2	4.9	2.8	2.1	20.3	12.7	6.3	12.6	36.4	0.0	6.8	50.8	0.0	1.0	0.0	0.0	38.6
V21B	2.4	76.4	1.8	0.0	5.7	17.2	0.2	1.1	8.6	14.9	78.2	5.0	79.4	0.0	73.6	7.1	0.0	0.2	0.0	268.1	236.6
V21C	9.6	49.4	2.0	0.0	17.3	9.8	0.0	0.0	3.1	18.9	52.9	0.0	31.5	0.0	9.5	0.0	0.0	0.3	0.0	317.8	86.5

Table A3-112. San Joaquin Valley Gross Revenues – Dry Year with Maximum Groundwater Replacement, 75 Scenario ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	221.1	273.9	7.8	65.3	156.1	250.2	38.0	181.7	6.2	30.9	228.6	157.2	100.5	15.7	1.3	197.1	8.0	1.7	0.0	12.2	45.3
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	187.2	897.8	18.6	119.8	46.9	18.6	0.2	48.5	27.6	0.7	232.3	75.2	142.3	19.6	1.3	53.7	4.8	0.3	1.1	90.8	776.6
V14A	35.8	764.2	3.4	11.5	137.6	280.3	8.5	59.1	97.7	153.1	78.8	31.3	199.4	0.0	0.0	316.2	0.0	0.6	0.0	50.5	93.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.4	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	225.8	450.8	15.1	109.5	299.2	3.7	4.8	13.5	75.2	68.3	422.8	132.1	23.6	13.6	0.0	182.5	0.0	4.1	0.0	9.2	409.6
V15B	1.1	94.7	0.0	0.0	4.9	4.9	0.0	0.0	3.8	0.0	36.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.8
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	253.1	463.7	32.3	275.4	93.2	8.6	11.4	3.4	37.8	2.1	574.2	236.8	34.5	1.8	1.4	3.4	0.0	0.0	0.0	1,966.3	316.1
V19A	0.0	479.5	0.0	0.0	5.3	3.2	0.0	2.0	14.7	2.4	99.7	0.0	28.3	0.0	0.0	1.3	0.0	0.0	0.0	40.8	14.5
V19B	105.7	341.8	4.1	35.9	62.4	0.0	0.0	2.1	17.9	4.9	13.7	11.4	7.2	0.0	0.0	4.5	0.0	0.0	1.1	6.1	33.8
V20	41.8	642.3	10.4	0.0	9.0	0.0	2.7	1.1	13.2	3.2	78.6	3.5	43.6	0.0	2.7	2.5	0.0	0.0	0.0	551.0	276.5
V21A	147.9	99.9	100.8	0.0	62.2	4.9	2.8	2.1	20.3	12.7	6.3	12.6	36.4	0.0	6.8	50.8	0.0	1.0	0.0	0.0	38.6
V21B	2.4	76.4	1.8	0.0	5.7	17.2	0.2	1.1	8.6	14.9	78.2	5.0	79.4	0.0	73.6	7.1	0.0	0.2	0.0	268.1	236.6
V21C	9.6	49.4	2.0	0.0	17.3	9.8	0.0	0.0	3.1	18.9	52.9	0.0	31.5	0.0	9.5	0.0	0.0	0.3	0.0	317.8	86.5

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A3.3.4.1 Annual Profits

Annual profits are estimated as crop revenues less crop production costs. Figure A3-3 shows the estimated profits by flow scenario, year type, and groundwater condition for the Sacramento Valley and San Joaquin Valley SWAP analysis regions.

Figure A3-3. Annual Total Profit by Region, Water Year Type, Flow Scenario, and Groundwater Condition ($ millions)

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