Irrigation Water Management Survey

Project Code : 656

Survey Purpose

- The Irrigation and Water Management Survey (IWMS), formerly known as the Farm and Ranch Irrigation Survey (FRIS), is a follow up survey focused on producers reporting irrigation or having land equipped for irrigation on the Census of Agriculture. It is conducted once every five years and is deemed mandatory under the same authority as the Census of Agriculture (*Title 7 USC 2204(g) Public Law 105-113*).

Survey Purpose (Cont'd)

- This data supplements the irrigation data collected from operators in the Census of Agriculture. Irrigation data from this survey provides one of the most complete and detailed profiles of irrigation in the U.S.
- Producers provide information on topics such as water sources and amount of water used, acres irrigated by type of system, and system investments and energy costs.

Fun Fact

- According to the 2018 IWMS publication, Texas was the third highest in water applied by Acre-Feet at 5.3 million

Top Five States by Water Applied:

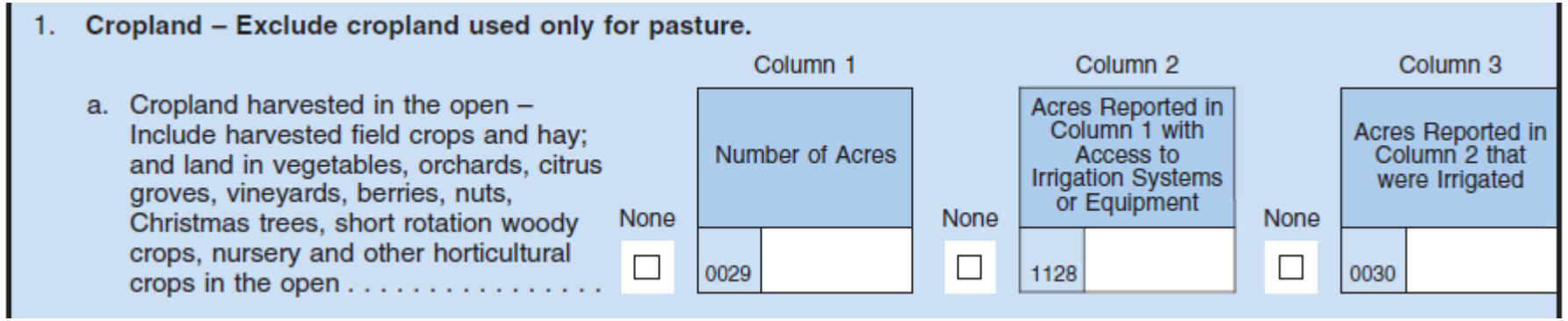
State:	Acre-Feet Applied:	Acres Irrigated:
California	24.5 million	8.4 million
Idaho	6.6 million	3.4 million
Texas	5.3 million	4.1 million
Arkansas	5.1 million	4.2 million
Nebraska	4.9 million	7.7 million

Survey Overview

- All operators assigned are matches to ARMS 3
- Reference year is 2023
- Operations received/will receive the following:
  - Pre-survey Postcard - November 17th
  - Initial Survey Mailing Jan 3rd
  - Thank you/ Reminder Postcard - February 6th
  - Second/Follow-up mailing February 26th
- Publication release date will be November 14th

Changes from 2018

- The most significant change from 2018 is the expansion of Section 2, to include a new column for acres equipped with irrigation equipment.

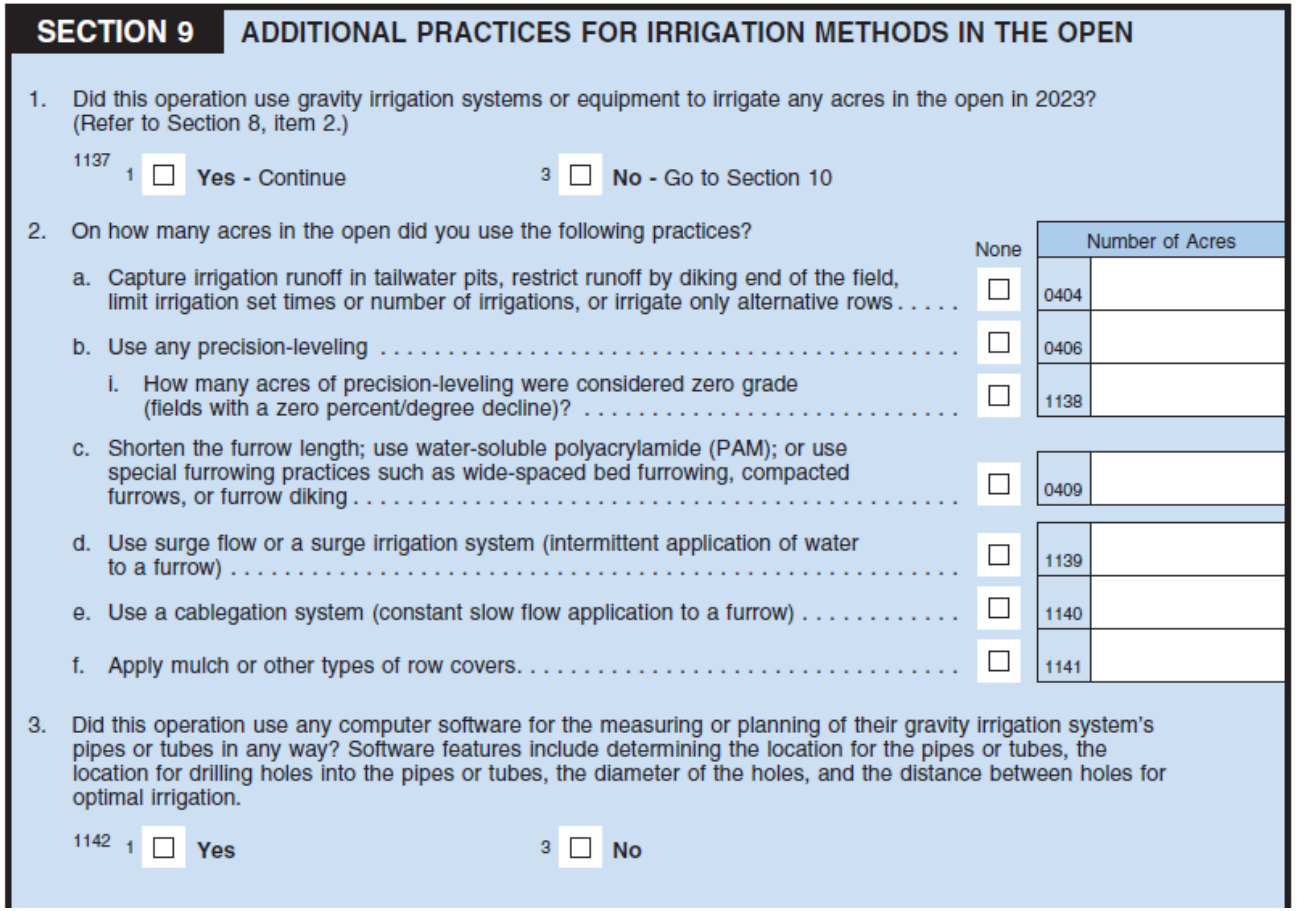


1. **Cropland – Exclude cropland used only for pasture.**

		Column 1		Column 2		Column 3	
		None	Number of Acres	None	Acres Reported in Column 1 with Access to Irrigation Systems or Equipment	None	Acres Reported in Column 2 that were Irrigated
a.	Cropland harvested in the open – Include harvested field crops and hay; and land in vegetables, orchards, citrus groves, vineyards, berries, nuts, Christmas trees, short rotation woody crops, nursery and other horticultural crops in the open	☐	0029	☐	1128	☐	0030

Changes from 2018 (cont'd)

- Section 9: This section is new to the questionnaire for 2023. It contains a list of conservation practices from Section 14 of the 2018 questionnaire. A question regarding the use of computer software for irrigation system planning was also added.



SECTION 9 ADDITIONAL PRACTICES FOR IRRIGATION METHODS IN THE OPEN

1. Did this operation use gravity irrigation systems or equipment to irrigate any acres in the open in 2023? (Refer to Section 8, item 2.)

1137 1 ☐ **Yes** - Continue 3 ☐ **No** - Go to Section 10

2. On how many acres in the open did you use the following practices?

	None	Number of Acres	
a. Capture irrigation runoff in tailwater pits, restrict runoff by diking end of the field, limit irrigation set times or number of irrigations, or irrigate only alternative rows	☐	0404	
b. Use any precision-leveling	☐	0406	
i. How many acres of precision-leveling were considered zero grade (fields with a zero percent/degree decline)?	☐	1138	
c. Shorten the furrow length; use water-soluble polyacrylamide (PAM); or use special furrowing practices such as wide-spaced bed furrowing, compacted furrows, or furrow diking	☐	0409	
d. Use surge flow or a surge irrigation system (intermittent application of water to a furrow)	☐	1139	
e. Use a cablegation system (constant slow flow application to a furrow)	☐	1140	
f. Apply mulch or other types of row covers	☐	1141	

3. Did this operation use any computer software for the measuring or planning of their gravity irrigation system's pipes or tubes in any way? Software features include determining the location for the pipes or tubes, the location for drilling holes into the pipes or tubes, the diameter of the holes, and the distance between holes for optimal irrigation.

1142 1 ☐ **Yes** 3 ☐ **No**

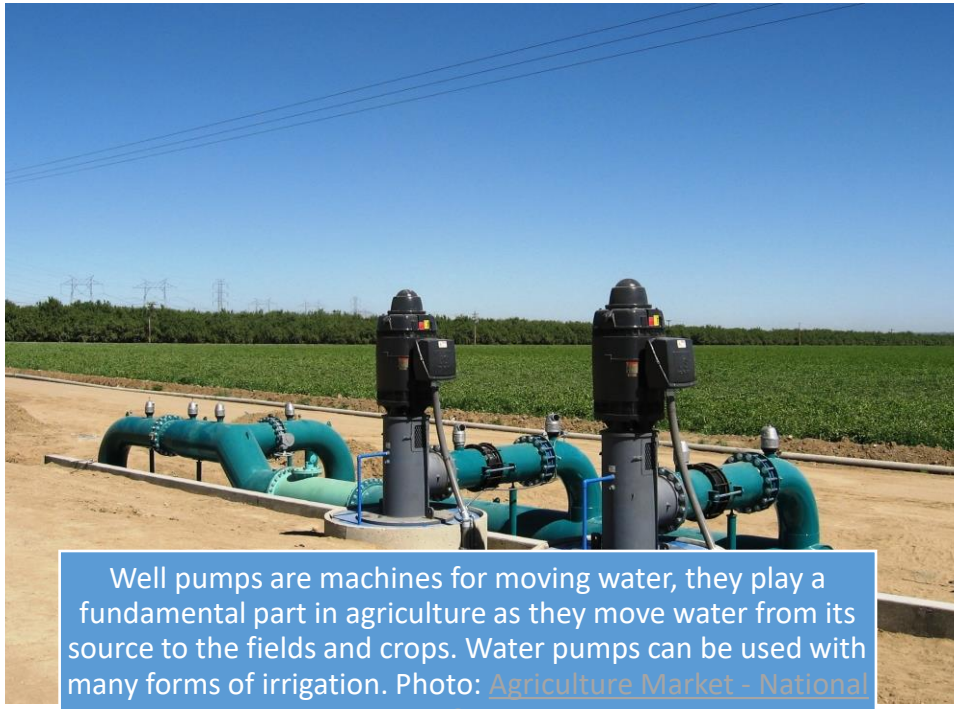
Sections 3,4, & 5: Water Sources

- Sections 3, 4, and 5 could likely be the most difficult sections to complete since many farmers and ranchers do not keep complete records of water usage. Receiving a best estimate from the respondent will be adequate. Each operator may have their own system for estimating water usage.
- Ground water is water from a well or wells located on the target operation. If ground water from wells was used, complete the information in **Section 3**

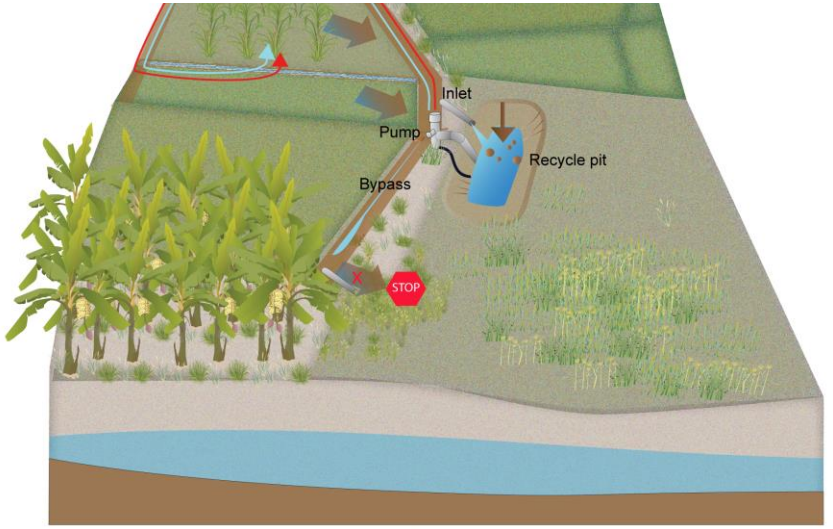
Sections 3,4, & 5: Water Sources (Cont'd)

- On farm surface water is a water supply not controlled by a water supply organization and includes water from a stream, drainage ditch, lake, pond, spring, or reservoir on or adjacent to the target operator's farm. Include recycled water and on-farm reclaimed water. If on farm surface water was used, complete the information in **Section 4.**
- Off-farm water from all suppliers could be surface or ground water from U.S. Bureau of Reclamation, other Federal agencies, municipal water suppliers, rural water suppliers, irrigation districts, or other suppliers. If any of these were used, complete the information ins **Section 5.**

Section 6: Well Pumps vs. Tail Water Pits



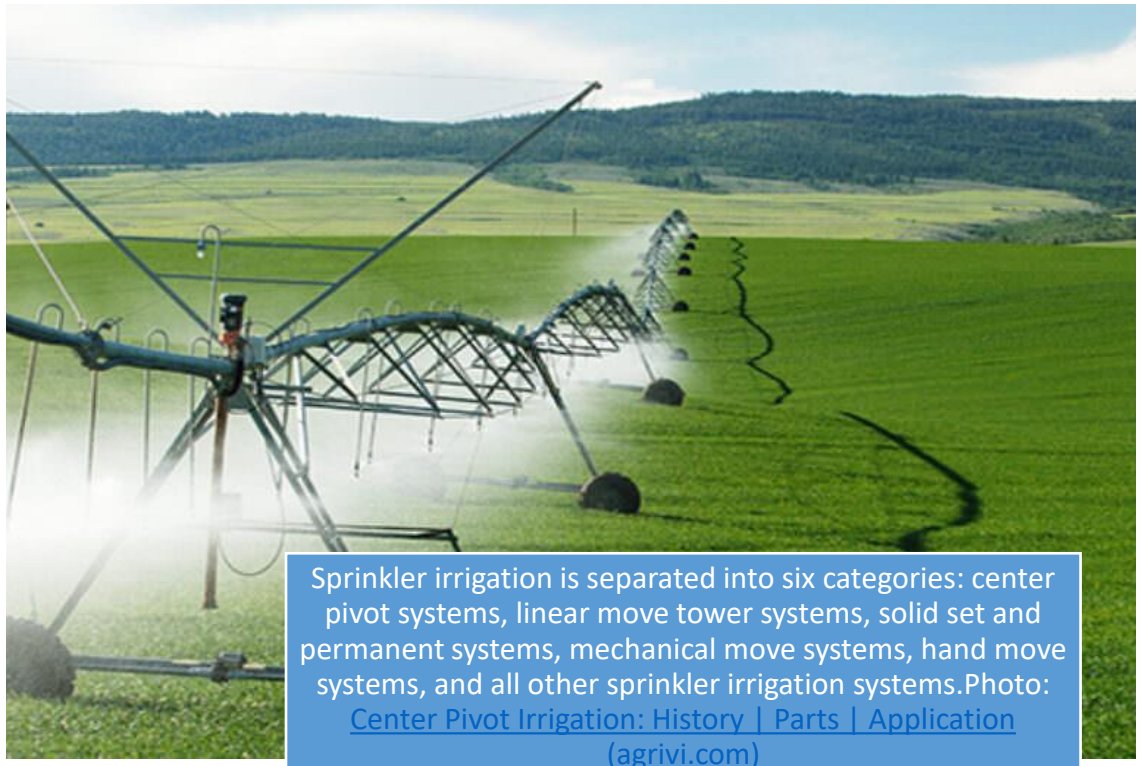
Well pumps are machines for moving water, they play a fundamental part in agriculture as they move water from its source to the fields and crops. Water pumps can be used with many forms of irrigation. Photo: Agriculture Market - National Pump Company



Tailwater pits hold water that was recovered from previously irrigated land for recycling.Photo: Recycle pits (Department of Environment, Science and Innovation) (des.qld.gov.au)

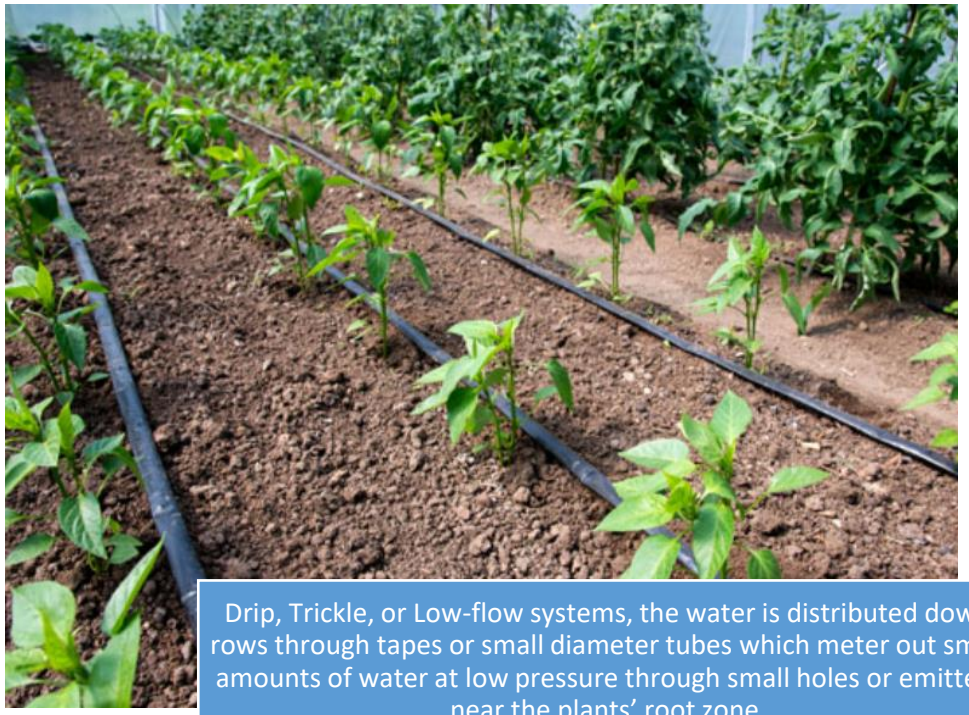
Section 8: Gravity & Sprinkler

Gravity irrigation refers to free flowing application of water across a field. The water is distributed across a field using either above or below ground pipes, poly-tubing, or open ditches near the head of the field from which water is released to flow down furrows or to flood the field.Phtoto: Water saving irrigation techniques | PANORAMA



Sprinkler irrigation is separated into six categories: center pivot systems, linear move tower systems, solid set and permanent systems, mechanical move systems, hand move systems, and all other sprinkler irrigation systems.Photo: Center Pivot Irrigation: History | Parts | Application (agrivi.com)

Section 8: Drip & Hydroponics



Drip, Trickle, or Low-flow systems, the water is distributed down rows through tapes or small diameter tubes which meter out small amounts of water at low pressure through small holes or emitters near the plants' root zone.
Photo: A Guide to Drip Irrigation Systems - Green Thumb Nursery

Hydroponics is the technique of growing plants using a water-based nutrient solution rather than soil, and can include an aggregate substrate, or growing media, such as vermiculite, coconut coir, or perlite. Hydroponic production systems are used by small farmers, hobbyists, and commercial enterprises.
Photo: Nicks Greens (nickgreens.com)

Sample Overview

- Sample Sizes
  - US population of irrigators ~200,000
  - US target sample - 35,500
  - TX target sample - 2288
  - OK target sample - 363