
Appendix B.

General Explanation and Report Form

DEVELOPMENT OF THE REPORT FORM

Planning for the 2018 Irrigation and Water Management Survey (IWMS) started in 2014 with the closeout of the 2013 Farm and Ranch Irrigation Survey (FRIS). Extensive correspondence, discussions, and meetings took place with representatives of the Economic Research Service (ERS) regarding 2013 FRIS content. Evaluations from NASS staff of the 2013 FRIS were reviewed. The decision was made to continue with the single report form design to collect irrigation data from both farm and ranch producers alongside horticultural producers.

Under the leadership of the Methodology Division at NASS, a complete review of the 2013 FRIS was provided and cognitive testing was conducted. As a result, the findings and recommendations led to the following notable changes for the 2018 Irrigation and Water Management Survey.

Major Changes

The only major change was the report form title. Other changes included combining the water practices sections.

Other Changes

Sections 1 and 2: Include and exclude items were listed to gain the same improvements as the census of agriculture report forms. The horticultural area question was split to collect open acres separately from under protection areas.

Section 3: Items 4a to 4c were reordered to separate them from Number of wells. The reference text of “artesian wells” was removed to capture wells as “flowing wells that did not require a pump.” Removed the Total Hours Operated column in items 5 and 5a.

Section 6: Removed Average Hours Operated column.

Section 9: The non-irrigated crop questions were removed. This change was made for multiple reasons. With the improved data collected in Section 2, too many operations did not report their non-irrigated land properly in later sections, resulting in inconsistencies between cropland harvested in the open acreage and the sum of both acres irrigated and non-irrigated. The source of this inconsistency was incomplete data in the non-irrigated crop columns. Analysts were required to update a large number of records manually to synchronize the items. The data user was also confused as to what this data meant. Many data users mistook the non-irrigated yield in FRIS as being equivalent to the state’s non-irrigated yield when it was just the non-irrigated yields on irrigated farms only.

Sections 9 and 10: The All other crops grown in the open category was split to collect Horticulture in the open acres and All other non-horticulture crops grown separately.

DATA CHANGES

Some history concerning the data changes from 2003, 2008, 2013, and 2018 are described here.

Publication Changes

2003: Data were published for irrigating farms and ranches and included data for horticultural operations that reported less than \$10,000 in sales in the 2002 Census of Agriculture. The 2003 FRIS table structure is similar to 2008 FRIS Chapter 1 tables.

2008: Two report forms were used – one for farm and ranch operations and another for horticultural operations with any sales in 2008. Data for farm and ranch operations were published in Chapter 1, Tables

1 through 43 (General Data). Horticultural operations data were published in Chapter 2, Tables 1 through 9 (Horticultural Operations Data). To bridge the 2003 tables with the 2008 Chapter 1 tables, the 2003 U.S. data were adjusted in the 2008 publication by removing data for horticultural operations with less than \$10,000 in sales.

2013: A single report form was used to collect data from irrigating farm and ranch operations and from horticultural operations with any level of sales. Data published in Tables 2 through 39 (Entire Farm Data) are for all irrigating operations – farms and ranches and horticultural operations combined. Data are not comparable between the 2013 and 2008 surveys because horticultural operations’ data were reported separately in 2008 (Chapter 2). The 2013 horticultural operations data in Tables 40 through 45 are comparable with their corresponding 2008 Chapter 2 tables. To provide a measure of comparability in the 2013 tables, the 2008 U.S. data were adjusted, where possible, to include the 2008 horticultural operations data. In many of the first 27 tables, 2008 U.S. data were omitted.

Several tables were affected by changes to the report form sections. Some tables that appeared in the 2008 FRIS were not published in the 2013 FRIS, including Chapter 1 tables 13, 24, 31, and 40 and Chapter 2 tables 5, 6, and 7. Table 3 was updated to reflect changes that were made to the land use categories in Section 2 of the FRIS report form; specifically the types of pasture – permanent, woodland pastured, and other pasture. The change was made to align FRIS with the 2012 census.

The subirrigation method of water distribution for acres in the open was not included on the 2013 FRIS report form. This change affected Tables 28, 31, 32, and 39. The data for this method are now reported in the Other gravity item. In 2008 data were collected for five categories of Uncontrolled flooding and Other gravity methods and were published in Table 7. Only data for the total acres of each of these conveyance systems were collected and published in 2013.

Wells capable of being used, irrigation water transfers, and other uses of irrigation water are no longer published. Crops with small acreages have high variability because of the sample size.

Sugarbeets, barley, and tobacco were removed as individual items in the field crops sections. Respondents reported these in the Other small grains or Other crops categories on the report form.

Water management practices for gravity irrigation were combined into four categories in Table 39.

2018: The title of the survey was changed from Farm and Ranch Irrigation Survey (FRIS) to Irrigation Water Management Survey (IWMS). The name of the survey changed because the name did not specify horticulture operations while the report form was designed to include all irrigators. Only a small number of changes were made to the combined report form to separate mixed values.

Horticulture in the open acreage was recorded under Other cropland on the 2013 report form and was recorded separately from Other cropland in 2018. This change affected tables 35, 36, and 38. Farm counts, acreage values, water application rates, and distribution methods for Other cropland are not comparable between 2013 and 2018.

DEFINITIONS AND EXPLANATIONS

This section provides definitions and explanations of specific terms and phrases used on the report form or in the publication tables. Items in the publication tables that carry the note “see text” also are explained.

Acre-foot of water. An acre-foot of water is the quantity of water required to cover one acre to a depth of one foot. This is equivalent to 43,560 cubic feet or 325,851 gallons.

Acres affected by irrigation interruption. Acres or area irrigated that had a stoppage of irrigation for a period of time which resulted in an effect on crop yields. Reasons for stopping irrigation included water shortages, equipment failure, energy costs and shortages, water salinity levels, water costs, and changes in water access rights.

Acres and quantity harvested. If two or more crops were harvested from the same land during the year (double cropping), the acres were counted for each crop. Therefore, the total acres of all crops harvested

could exceed the acres of cropland harvested. An exception to this procedure was hay crops.

When more than one cutting of hay was taken from the same acres, the acres were counted only once, but the quantity harvested includes all cuttings. For interplanted crops or “skip-row” crops, acres were reported according to the portion of the field occupied, whether by a crop or whether it was idle land.

If a crop was interplanted in an orchard or vineyard and harvested, then the entire orchard or vineyard acreage was reported under land in bearing and non-bearing fruit orchards, citrus or other groves, vineyards, and nut trees and the interplanted estimated crop acreage was reported under the appropriate crop.

Acres of land in bearing and non-bearing fruit orchards, citrus or other groves, vineyards, and nut trees were included in cropland harvested whether the crop was harvested or not.

Acres irrigated. Acres or area irrigated are the acres of agricultural land to which water was applied by any artificial or controlled means such as sprinklers, flooding, furrows, ditches, gated pipe, hand watered, capillary mats, trough irrigation, ebb-and-flood irrigation, subirrigation, and spreader dikes including preplanted, partial, and supplemental irrigation. Land flooded was to be included as irrigated only if the water was diverted to agricultural land by dams, canals, or other works. Table 1 provides a comparison with the 2018 Irrigation and Water Management Survey data and the 2017 Census of Agriculture data.

Acres irrigated affected by expenditure. This is the number of acres which were affected by the reported cost of the expenditures. It is not comparable with Acres irrigated in the expenditure tables in the 2008 and earlier FRIS publications.

Acres irrigated on farms with any hired or contract labor. This is the total acres irrigated on the operation. On some operations, hired labor or contract labor were paid for work on all the acres in the operation. On other operations, hired labor or contract labor were paid for work on only part of the total acres irrigated in the operation.

All other crops. Data relate to any non-vegetable crops not having a specified code on the 2018 report form. Crops such as grass seed, sunflower seed, sugarcane, etc. were included in other field crops. Data are not comparable to 2013. Horticulture acres in the open had its own category in 2018.

All other land. This category includes farmsteads, buildings, livestock facilities, ponds, roads, ditches, wasteland, etc. It includes those acres in the farm operation not classified as cropland, woodland, pastureland, or rangeland.

Any water management practice used. See Water management practices used.

Application of commercial fertilizers or pesticides in irrigation water. This inquiry was intended to measure the number of farms and acres on which fertilizer and pesticides were distributed through irrigation systems.

Area in the open - acres irrigated. Acres in the open irrigated is the total area irrigated for horticultural crops grown in the open, whether harvested or not.

Area under protection - square feet irrigated. The total area used to grow horticultural crops under protection, whether harvested or not.

Average operating pressure. The average operating pressure for pumped wells was reported for up to three individual wells and as the average operating pressure for the remaining wells, if any. Artesian wells are not included as wells pumped. The average operating pressure was calculated using these reported data.

Average pumping capacity. The average pumping capacity for pumped wells was reported for up to three individual wells and as the average pumping capacity for the remaining wells, if any. Artesian wells are not included as wells pumped. The average pumping capacity was calculated using these reported data.

Barriers to making improvements to reduce energy use or conserve water. This item shows the barriers to implementing improvements that might reduce energy and/or conserve water. Respondents were asked to report for the period covering 2014 to 2018. The information was tabulated as reported. No

imputation was made for a blank response.

Cropland harvested. This category includes land from which crops were harvested and hay was cut, land used to grow short-rotation woody crops, and land in orchards, citrus groves, cultivated Christmas trees, vineyards, nurseries, and greenhouses. Land from which two or more crops were harvested was counted only once. Land in tapped maple trees was included in woodland.

Cropland harvested in the open. Acres that included harvested field crops and hay along with land used for vegetables, orchards, citrus groves, vineyards, berries, nuts, cultivated Christmas trees, short-rotation woody crops, nursery and other horticultural crops grown in the open. Does not include land used for growing horticultural crops under protection nor cropland reported as failed or used for cover crops.

Cropland not harvested or grazed. This category includes acreage which could have been used for crops without any additional improvement and which was not reported as cropland harvested or other pasture or grazing land that could have been used for crops without additional improvements. This category includes:

1. Land used for cover crops or soil improvement but not harvested or grazed.
2. Land in Federal or State conservation programs that was not hayed or grazed in 2018.
3. Land occupied with growing crops for harvest in 2019 or later years (except fruit or nuts in an orchard, grove, or vineyard or berries being maintained for production). Example is acreage planted in winter wheat for harvest in 2019 and no crop was harvested from these acres in 2018.
4. Land in summer fallow in 2018.
5. Land with crops that failed and no crop was harvested on the acreage in 2018.

Crops unit of measurement. Crop units were preprinted on the report forms and respondents were instructed to report crops in these units.

Discharge capacity. See Average operating pressure.

Discharge operating pressure. See Average pumping capacity.

Estimated quantity of water applied. Most water used for irrigation is not metered or measured accurately. The quantity of water data are based on the best estimates provided by irrigators. Generally, in areas with water shortages, such as southern California and Arizona, irrigators are more likely to provide actual quantities of water used than in Mountain States where water shortages may be less of a problem or precise measuring methods are not readily available. In the Mountain States where water from snow-melt is diverted for use in season, the amount of water used may be a rough estimate, seldom a measured figure.

Expenditures for irrigation facilities and equipment. There are six categories of expenditures. The expenditures purposes include; new expansion, water conservation, energy conservation, and scheduled replacement or maintenance. The expenditures are also grouped by primary source of funding.

Farms using off-farm water. Respondents were asked to report the amount (none, some, or all) of off-farm water supplied by the U.S. Bureau of Reclamation, other federal agencies, and all other suppliers. However, many respondents did not answer this question. Instead, the computer edit set the entry to unknown. The number of farms using water from the U.S. Bureau of Reclamation, other federal agencies, and all other suppliers may be understated.

Flowing wells used. Flowing or artesian wells are wells which flow freely and provide water used for irrigation without pumping during the irrigation season. All flowing or artesian wells were excluded from data for pumped wells.

Gross value of agricultural products sold. See Market value of agricultural products sold.

Horticultural crops. The horticultural data are published in the following categories:

Cultivated Christmas trees and short rotation woody crops in the open. Includes all trees to be cut in 2018 or later years. Irrigated live Christmas trees were reported in nursery crops.

Floriculture and bedding crops. Includes annual bedding/garden plants, herbaceous perennials, cut flowers and cut cultivated greens, foliage plants for indoor or patio use, potted flowering plants, and other floriculture type crops.

Food crops grown under protection. Includes all food crops that were grown in a greenhouse or under some sort of structure that regulated light, shade, temperature, etc. No food crops grown in open fields were reported for this crop type.

Mushroom crops under protection. Includes all mushroom species that were irrigated in 2018. Logs were converted to and reported in square feet.

Nursery crops. Includes deciduous shade and flowering trees, broadleaf and coniferous evergreens, live Christmas trees for sale as potted trees or balled and burlapped, fruit and nut trees and plants, ornamental grasses, palms for landscaping, shrubs, vines, aquatic plants, and other woody ornamentals.

Propagative materials. Includes dry bulbs, corms, tubers, and rhizomes; cuttings, seedlings, liners, and plugs; flower seeds; vegetable seeds; vegetable transplants; and tobacco transplants.

Sod in the open. Includes all irrigated sod, sprigs, or plugs.

Other horticultural crops. This category includes all crops that are primarily considered ornamental or horticultural and are not listed on the report form. Fruit, nut, and vegetable crops grown in the open are not considered horticultural crops.

Institutional, research, and experimental farms. In prior censuses of agriculture, data for these farms were combined with American Indian reservation farms into one category. However, in the 2018 Irrigation and Water Management Survey and the 2013 Farm and Ranch Irrigation Survey, only American Indian reservation farms were included in the sample while institutional, research, and

experimental farms were excluded.

Irrigated farms. Irrigated farms or ranches are those with any agricultural land irrigated by any artificial or controlled means in the specific calendar year. The acreage irrigated may vary from a very small portion of the total acreage in the farm or ranch to irrigation of all agricultural land in the farm or ranch. This includes reclaimed water and livestock lagoon wastewater distributed by sprinkler or flood systems.

Irrigated land. Irrigated land is defined as “all land watered by artificial or controlled means.” No attempt was made to define the degree or intensity of irrigation. Therefore, the data for irrigated land include land with as little as one-half inch of water applied as well as land with several acre-feet of water applied.

Irrigation pumps. The inventory data for number of irrigation pumps include well pumps and pumps other than well pumps used for irrigation on the operation.

Land in farms. The acreage designated as “land in farms” consists primarily of agricultural land used for crops, pasture, or grazing. It also includes woodland and wasteland not actually under cultivation or used for pasture or grazing, provided it was part of the farm producer’s total operation. Large acreages of woodland or wasteland held for nonagricultural purposes were removed from individual reports during the data review process. Land in farms includes idle cropland, cropland not harvested, and land in government conservation programs.

Land in farms is an operating unit concept and includes land owned and operated as well as land rented from others. Land used rent free was reported as land rented from others. All grazing land, except land used under government permits on a per-head basis (AUM), was included as land in farms provided it was part of a farm or ranch. Land under the exclusive use of a grazing association was reported by the grazing association and included as land in farms. All land in American Indian reservations used for growing crops or grazing livestock, or with the potential of grazing livestock, was included as land in farms. Land in reservations not reported by reservations, individual American Indians, or non-Native Americans was reported in the name of the

cooperative group that used the land. In some instances, an entire American Indian reservation was reported as one farm.

Market value of agricultural products sold. This category represents the gross market value before taxes and production expenses of all agricultural products sold or removed from the place during the survey year, regardless of who received the payment. It includes sales by the producers as well as the value of any shares received by partners, landlords, contractors, or others associated with the operation. It represents the sum of all crops, including nursery products, and livestock and poultry and their products. Market value of agricultural products sold does not include payments received for participation in federal farm programs. Also, it does not include income from farm-related sources such as customwork and other agricultural services, or income from nonfarm sources.

North American Industry Classification System. The North American Industry Classification System (NAICS) classifies economic activities. It was jointly developed by Mexico, Canada, and the U.S. The NAICS makes it possible to produce comparable industrial statistics for Mexico, Canada, and the U.S. Farms were classified by NAICS code based on their 2017 census report(s). Establishments primarily engaged in crop production are classified in major group 111. Establishments primarily engaged in production of livestock and animal specialties are classified in major group 112. Establishments are further classified into the appropriate six-digit code for the commodity or commodities which account for one-half of the establishment's agricultural production.

Nursery and other horticultural crops. Nursery and horticultural crops grown in the open, such as floriculture, bedding crops, nursery crops, sod, propagative materials, cultivated Christmas trees, and short rotation woody crops.

Nursery, greenhouse, and other horticulture under protection. Includes crops grown under glass, rigid plastic, plastic film, shade cloth, fiberglass, "tunnel" protection, and hoop houses. Crops that are covered only temporarily, such as for frost protection, are not considered as crops under protection. Includes

floriculture, bedding crops, nursery crops, propagative materials, food crops under protection, and mushrooms.

Off-farm water supply. Off-farm water supply is water from off-farm water suppliers, such as the U.S. Bureau of Reclamation; irrigation districts; mutual, private, cooperative, or neighborhood ditches; commercial companies; or community water systems. It includes reclaimed water from off-farm livestock facilities, municipal, industrial, and other reclaimed water sources

On-farm surface supply. On-farm surface supply is water from a surface source not controlled by a water supply organization. It includes sources such as streams, drainage ditches, lakes, ponds, reservoirs, and on-farm livestock lagoons on or adjacent to the operated land.

Other drip, trickle, or low-flow micro systems. This category is for any drip, trickle, or low-flow micro systems that were not included in the other three specific descriptions.

Other or unspecified discontinuance. This category is for any discontinuance reason that was not specified on the report form.

Other pasture and grazing land that could have been used for crops without additional improvements. This category includes land used only for pasture or grazing that could have been used for crops without additional improvement. Also included are acres of crops hogged or grazed but not harvested prior to grazing. However, cropland that was pastured before or after crops were harvested was included as harvested cropland rather than cropland for pasture or grazing.

Other small grains (barley, oats, rye, etc.). This category is not comparable with 2008 or earlier FRIS publications. In previous report forms, barley had its own specific code. In both 2013 and 2018 it did not have a specific code and is included with Other small grains.

Other sprinkler systems. Includes any sprinkler system that was not listed on the report form.

Permanent pasture and rangeland. This land use category encompasses grazing land that does not qualify as woodland pasture or cropland pasture. It may be irrigated or dry land. In some areas, it can be a high quality pasture that could not be cropped without improvements. In other areas, it is barely able to be grazed and is only marginally better than wasteland.

Poly pipe (or other single-year use, lay-flat tubing). Includes all short term surface tubing and pipes. Does not include permanent above ground or underground pipes.

Primary source of funding assistance. Respondents were instructed to only report the primary source of funding assistance for expenditures. Nonresponses to this item were summarized as “No funding assistance.”

Pumps by average discharge operating pressure. This category is the average pressure of pumps, other than well pumps, used on the operation.

Pumps by average operating pressure. See Average operating pressure.

Reason for discontinuance of irrigation since 2017. These data reflect the expanded number of operations that irrigated in 2017 but not in 2018 and the acres or area irrigated in the previous census year. The data also show the reason for discontinuance. Some respondents reported multiple reasons, while others gave no specific reason.

Reclaimed water. Reclaimed water is wastewater that has been treated for non-potable reuse purposes. Sources include municipal, industrial, off-farm livestock operations, and other reclaimed water sources. Water from off-farm livestock facilities, municipal, industrial, and other reclaimed water sources were reported as off-farm supplies. While reclaimed water from on-farm livestock facilities were reported as on-farm surface water.

Recycled water. Recycled water is the reuse of surface or ground water that has already been used to irrigate a crop on the operation. Recycled water use was reported as on-farm surface water.

Scheduled by water supplier. Producer’s decision to irrigate was determined by a third party, subject to delivery and availability conditions. Examples include water delivered by trucks or canals not controlled by the producer.

Solar pumps. The data were not published at the State level because of low data reliability at the State level. There are few operations with solar pumps in the population.

Sources of irrigation information. These data show which sources were used by farmers to help them make irrigation decisions. The information for this item was tabulated as reported. No imputation was made for a blank response.

Sprinkler systems. Center pivot systems are published as either high-pressure delivery with water delivered at 60 psi or more, medium pressure delivery with water delivered at 30 to 59 psi, or low pressure delivery with water delivered at less than 30 psi. Linear move tower and solid set or permanent systems are published as medium to high pressure at 30 psi or more or low pressure, less than 30 psi. The mechanical-move systems are further classified as either linear move, side roll, wheel move, or big gun where the sprinkler device is moved across the field either by self-propelled methods or by tractor.

Hand move systems include any distribution systems which are moved without mechanical assistance.

Other sprinkler systems include any other system not listed on the report form.

Surge flow or cablegation, mulch, or other types of row covers. In 2013 this was referred to as Surge flow or cablegation; the data are comparable. See Water management practices.

Tailwater pits. Irrigation water is captured after the initial application of irrigation water. The water drains into a collection pit and is returned through an irrigation system to irrigate the same field or other fields.

Total cropland. This category includes cropland harvested, cropland used only for pasture or grazing, cropland idle or used for cover crops or soil

improvement but not harvested and not pastured or grazed, cropland on which all crops failed or were abandoned, and cropland in cultivated summer fallow.

USDA programs for water conservation and environmental improvements (CTA, EQIP, RCPP, WHIP, CIG). These technical and financial resources include Conservation Technical Assistance, Environmental Quality Incentives Program, Regional Conservation Partnership Program, Wildlife Habitat Incentive Program, and Conservation Innovation Grants.

Water management practices. These practices refer to gravity irrigation systems only. The respondent reported whether they used any of the techniques listed on the report form and the number of acres on which they applied this technique. Some respondents answered “Yes” to the screening question, item 3 in Section 14, but did not indicate which technique they used or the number of acres for any technique. No imputation was made for a blank response.

Water Resources Regions (WRR). Data from FRIS were tabulated by WRR. Boundaries of these areas are shown on the map on page 1. Geographic descriptions of the areas used to approximate water resources region are as follows:

01 New England Region. The drainage within the United States that ultimately discharges into the Bay of Fundy and the Atlantic Ocean. These points of discharge are located within and between Maine and Connecticut; Long Island Sound and the St. Francis River, a tributary of the St. Lawrence River.

02 Middle Atlantic Region. The drainage within the United States that ultimately discharges into the Atlantic Ocean, whose point of discharge is located within and between New York and Virginia, and the Richelieu River, a tributary of the St. Lawrence River.

03 South Atlantic-Gulf Region. The drainage that ultimately discharges into the Atlantic Ocean, whose point of discharge is located within and between North Carolina and Florida; and the Gulf of Mexico, whose point of discharge is located within and between Florida and Mississippi, including the Pearl River.

04 Great Lakes Region. The drainage within the United States that discharges into the Great Lakes system, including the Lakes’ surfaces; and the St. Lawrence River as far east as, but excluding the Richelieu River.

05 Ohio Region. The drainage of the Ohio River, excluding that of the Tennessee River.

06 Tennessee Region. The drainage of the Tennessee River.

07 Upper Mississippi Region. The drainage of the Mississippi River above the mouth of the Ohio River, excluding drainage of the Missouri River above a point immediately below the mouth of the Gasconade River.

08 Lower Mississippi River. The drainage of the Mississippi River below the mouth of the Ohio River, but excluding the drainage of the Arkansas, White, and Red Rivers and above the points of highest backwater effects of the Mississippi River in those parts; and the coastal streams, other than the Mississippi River, that discharge into the Gulf of Mexico from the boundaries of, but excluding the Pearl and Sabine Rivers.

09 Souris-Red-Rainy Region. The drainage within the United States of the Souris, Red, and Rainy Rivers.

10 Missouri Region. The drainage within the United States of the Missouri River above a point immediately below the mouth of the Gasconade River and the Saskatchewan River.

11 Arkansas-White-Red Region. The drainage of the Arkansas River above the point of highest backwater effect of the Mississippi River, the Red River above the point of highest backwater effect of the Mississippi River, and the White River above the point of highest backwater effect of the Mississippi River near Peach Orchard Bluff, AR.

12 Texas-Gulf Region. The drainage that discharges into the Gulf of Mexico from and including Sabine Pass to, but excluding, the Rio Grande and the Lower Rio Grande Valley.

13 Rio Grande Region. The drainage within the

United States of the Rio Grande; the San Luis Valley, North Plains, San Augustine Plains, Mimbres, Estancia Jonado del Muerto, Tularosa, Salt, and various smaller closed basins; and the Lower Rio Grande Valley.

14 Upper Colorado Region. The drainage of the Colorado River above the Lee Ferry Compact Point, which is about 1 mile below the mouth of the Paria River; and the Great Divide closed basin.

15 Lower Colorado Region. The drainage within the United States of the Colorado River below the Lee Ferry Compact Point, which is about 1 mile below the mouth of the Paria River; the Rios Yaqui, Magdalena, Sonoita, and other lesser streams that ultimately discharge into the Gulf of California; and the Animas Valley, Wilcox Playa, El Dorado Valley, and other smaller closed basins.

16 Great Basin Region. The drainage of the Great Basin that ultimately discharges into Utah and Nevada.

17 Pacific-Northwest Region. The drainage within the United States that ultimately discharges into the Straits of Georgia and Juan de Fuca and the Pacific Ocean. The point of discharge is within Washington

and Oregon, including the Columbia River.

18 California Region. The drainage within the United States that ultimately discharges into the Pacific Ocean, whose point of discharge is within California, which includes the Central Valley; and that portion of the Great Basin and other closed basins in California.

19 Alaska. Entire State.

20 Hawaii. Entire State.

Woodland not pastured. These acres were included in All other land. Woodland includes natural or planted woodlots or timber tracts and cutover and deforested land with young growth which has or will have value for wood products and woodland pastured. Land planted for Christmas tree production and short rotation woody crops was reported in Cropland harvested.

Woodland pastured. This category includes all woodland used for pasture or grazing during the survey year. Woodland or forest land pastured under a per-head grazing permit was not counted as land in farms and, therefore, was not included in woodland pastured.

2018 IRRIGATION AND WATER MANAGEMENT SURVEY

Form Number: 18-A621
(09/05/2018)



National Agricultural
Statistics Service

Return your
completed report to:

Census of Agriculture
1201 East 10th Street
Jeffersonville, IN 47132

18-A621

OFFICE USE ONLY

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Make corrections to name, address, and ZIP Code if necessary.

- **February 15, 2019** – Everyone, including nursery, greenhouse, and other horticultural crop producers, must return this form by this date.
- **www.agcounts.usda.gov** – Use this website to report via the Internet.
- Use **blue or black ballpoint pen** to complete this form.
- **Questions** – Call us toll-free at 1-888-424-7828. Thank you for your cooperation.

SECTION 1 ACREAGE IN 2018

- Report land owned, rented, or used by you, your spouse, or the partnership, corporation, or organization printed above.
- Round to whole acres.
- Include ALL LAND, regardless of location or use – cropland, pastureland, rangeland, woodland, idle land, **greenhouses or other area under protection**, farmsteads, Conservation Reserve Program (CRP) land, etc.

		None		Number of Acres
1. All land owned	0025	<input type="checkbox"/>		<input style="width: 100%;" type="text"/>
2. All land rented or leased from others , including land worked by you on shares, used rent free, in exchange for services, payment of taxes, etc. Include Federal, state and railroad land leased on a per-acre basis. Exclude leased land (e.g., private, Federal, state, railroad) used on a per-head or animal unit month (AUM) basis under a grazing permit	0026	<input type="checkbox"/>	+	<input style="width: 100%;" type="text"/>
3. All land rented or leased to others , including land worked on shares by others and land subleased	0027	<input type="checkbox"/>	-	<input style="width: 100%;" type="text"/>
4. TOTAL ACRES in this operation (Items 1 + 2 - 3 = BOX A)	0028	=		<div style="border: 1px solid black; padding: 2px; text-align: center;">BOX A</div> <input style="width: 100%;" type="text"/>

The information you provide will be used for statistical purposes only. Your responses will be kept confidential and any person who willfully discloses ANY identifiable information about you or your operation is subject to a jail term, a fine, or both. This survey is conducted in accordance with the Confidential Information Protection provisions of Title V, Subtitle A, Public Law 107-347 and other applicable Federal laws. For more information on how we protect your information please visit: www.nass.usda.gov/confidentiality. Response to this survey is required by law under Title 7 USC 2204(g) Public Law 105-113.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB number is 0535-0234. The time required to complete this information collection is estimated to average 45 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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SECTION 2 LAND IN 2018

- Of the acres reported in **BOX A** on the previous page, report how all the land was used in column 1 below.
- If the same land had more than one use in 2018, report that land only one time in items 1 through 3.
- **Include area under protection.** Under protection includes crops grown under glass, rigid plastic, plastic film, shade cloth, fiberglass, "tunnel" protection and hoop houses. Crops covered only temporarily, such as for frost protection, to be further grown in the open should not be included for area under protection.
- In column 2, include as irrigated any land to which partial, supplemental, or preplant irrigation water was applied.
- Irrigation is the application of water by any artificial or controlled means such as sprinklers, furrows and ditches, spreader dikes, flooding, hand watering, or subirrigation pipes. Include the area where lagoon waste water from livestock operations was distributed by a sprinkler or flood system.

1. Cropland – Exclude cropland used only for pasture.

	None	Column 1 Number of Acres	None	Column 2 Acres Reported in Column 1 that are 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	<input type="checkbox"/>	0029	<input type="checkbox"/>	0030
b. Nursery, greenhouse, and other horticulture under protection – Include all area under protection. Round to the nearest whole acre	<input type="checkbox"/>	0077	<input type="checkbox"/>	0078
c. Cropland not harvested or grazed – Include cropland on which all crops failed, cropland idle, cropland used for cover crops or CRP, and cropland in summer fallow	<input type="checkbox"/>	0033	<input type="checkbox"/>	0034

2. Pasture

a. Permanent pasture and rangeland	<input type="checkbox"/>	0135	<input type="checkbox"/>	0136
b. Woodland pastured	<input type="checkbox"/>	0137		
c. Other pasture and grazing land (including rotational pasture) that could have been used for crops without additional improvements.	<input type="checkbox"/>	0107	<input type="checkbox"/>	0108

3. All other land – Include land not reported above. Include woodland not pastured, farmsteads, home, buildings, livestock facilities, ponds, roads, wasteland, etc.

0039

Total Acres
on this Operation

Total Acres
Irrigated

4. TOTAL ACRES – Add acres in each column and enter the totals.

BOX B		BOX C	
0041		0042	

(**BOX B** above should be the same as **BOX A** on page 1.)

5. Was any area irrigated on this operation in 2018?

- Include all irrigated land in the open and all area under protection.
- Irrigation is the application of water by any artificial or controlled means such as sprinklers, furrows and ditches, spreader dikes, flooding, hand watering, or subirrigation pipes. Include the area where lagoon waste water from livestock operations was distributed by a sprinkler or flood system.

0003 1 **Yes - Continue**

3 **No - Go to Section 16 on page 20**

6. What State had the majority of irrigated acres on this operation in 2018?

0951

State

SECTION 3 GROUND WATER FROM WELLS

1. Did this operation irrigate with ground water from wells on this operation in 2018?

0760

1 **Yes** - Continue

3 **No** - Go to Section 4

If exact amounts are not available, provide your best estimate for quantity of water applied. If total area irrigated in the open is less than one acre, report as one acre in item 2. If the wells are not on the operation, such as a municipal or rural water system, report this as off-farm water in Section 5.

2. Report acres in the open irrigated with ground water and amount of water applied in 2018. Include all irrigated crops, including nursery, greenhouse, floriculture, sod, mushrooms, vegetable seeds, and propagative materials grown in the open and irrigated pastureland

Acres in the Open Irrigated by Ground Water		Quantity of Ground Water Applied		Enter Code for Unit of Measure 1 = Total Acre-Feet 2 = Total Gallons 3 = Inches/Acre	
0444		0446		0447	

3. Report the area under protection irrigated with ground water in 2018. Under protection includes nursery, greenhouse, floriculture, sod, mushrooms, vegetable seeds, and propagative materials grown under glass, rigid plastic, plastic film, shade cloth, fiberglass, "tunnel" protection and hoop houses

None

Square Feet Under Protection Irrigated with Ground Water	
0455	

4. How many wells on this operation were used for irrigation in 2018?

Number of Wells	
0460	

a. Of the (item 4) wells, how many used backflow prevention devices (check valves) and how many acres and/or square feet under protection were irrigated with these wells in 2018?

None

Number of Wells		Acres in the Open		Square Feet Under Protection	
0770		0771		0679	

b. Of the (item 4) wells, how many had flow meters or other flow measurement devices and how many acres and/or square feet under protection were irrigated with these wells in 2018?

0683		0772		0680	
------	--	------	--	------	--

c. Of the (item 4) wells, how many were free flowing wells that did not require a pump?

0486	
------	--

5. Report for the first three primary wells pumped in 2018.

	Depth of Well (Feet)	Depth to Bowls or Impellers (Feet)	Depth to Water at Start of Irrigation Season (Feet)	Pump Capacity – Discharge From Well (GPM)	Operating Pressure at Well Head (PSI)	Horsepower of Engines or Motors, Including Electric (HP)
Well #1	0461	0463	0462	0464	0676	0761
Well #2	0465	0467	0466	0468	0677	0763
Well #3	0469	0471	0470	0472	0678	0765

a. Report averages for all other wells pumped in 2018.

	Average Depth of Well(s) (Feet)	Average Depth to Bowls or Impellers (Feet)	Average Depth to Water at Start of Irrigation Season (Feet)	Average Pump Capacity – Discharge From Well (GPM)	Average Operating Pressure at Well Head (PSI)	Average Horsepower of Engines or Motors, Including Electric (HP)
	0481	0483	0482	0484	0681	0767

6. For the wells used on this operation, what is the best description for the depth to water over the last five years? Mark (X) one.

0487

1 Depth to water did not change

2 Depth to water increased

3 Depth to water decreased

21308036

SECTION 4 ON-FARM SURFACE WATER

1. Did this operation irrigate with on-farm surface water, including recycled water and on-farm reclaimed water, in 2018?

Recycled water is reused surface or groundwater that was previously used to irrigate a crop (e.g. water from a tailwater reuse pit used for irrigation).

On-farm reclaimed water is on-farm livestock wastewater that has been treated for non-potable reuse purposes. (For the purposes of this irrigation survey, to be considered an irrigation application of reclaimed water, at least 0.5 inches of reclaimed water must be applied on the area during the growing season.)

0438 1 **Yes** - Continue 3 **No** - Go to Section 5

If exact amounts are not available, provide your best estimate for quantity of water applied. If total area irrigated in the open is less than one acre, report as one acre in item 2.

2. Report acres in the open irrigated with on-farm surface water and amount of water applied in 2018. Include irrigated nursery, greenhouse, floriculture, sod, mushrooms, vegetable seeds, and propagative materials grown in the open and irrigated pastureland

Acres in the Open Irrigated by On-Farm Surface Water		Quantity of On-Farm Surface Water Applied		Enter Code for Unit of Measure 1 = Total Acre-Feet 2 = Total Gallons 3 = Inches/Acre	
0449		0451		0452	

3. Report the area under protection irrigated with on-farm surface water in 2018. Under protection includes nursery, greenhouse, floriculture, sod, mushrooms, vegetable seeds, and propagative materials grown under glass, rigid plastic, plastic film, shade cloth, fiberglass, "tunnel" protection and hoop houses

None

Square Feet Under Protection Irrigated with On-Farm Surface Water	
0458	

4. Did this operation use **on-farm recycled water** to irrigate any crops, including horticultural crops, grown during 2018?

0600 1 **Yes** - Continue 3 **No** - Go to Item 5 below

a. How many acres in the open and square feet under protection were irrigated with **on-farm recycled water** during 2018?

Acres in the Open		Square Feet Under Protection	
0601		0936	

5. Did this operation use **reclaimed water from on-farm livestock facilities** to irrigate any crops, including horticultural crops, grown during 2018? (For the purposes of this irrigation survey, to be considered an irrigation application of reclaimed water, at least 0.5 inches of reclaimed water must be applied on the area during the growing season. If this minimum amount is not met, mark (X) "No" below.)

0543 1 **Yes** - Continue 3 **No** - Go to Section 5

a. How many acres in the open and/or square feet under protection were irrigated with one or more applications of **reclaimed water from on-farm livestock facilities** during 2018?

Acres in the Open		Square Feet Under Protection	
0587		0588	

b. How much **reclaimed water from on-farm livestock facilities** was used for irrigation during 2018?

Acre-Feet		OR	Gallons	
0599			0561	

SECTION 5 OFF-FARM WATER

1. Did this operation irrigate with off-farm water in 2018?

INCLUDE

- acres in the open and area under protection irrigated with off-farm water from all suppliers
- all off-farm surface water, municipal (such as town or city) water, and rural water suppliers
- area irrigated with reclaimed water from off-farm sources such as treated municipal sewer water (blue water), industrial, off-farm livestock operations, or other off-farm sources

0457 1 **Yes** - Continue 3 **No** - Go to Section 6

If exact amounts are not available, provide your best estimate for quantity of water applied. If total area irrigated in the open is less than one acre, report as one acre in item 2.

2. Report acres in the open irrigated with off-farm water and amount of water applied in 2018. Include irrigated horticultural crops grown in the open and irrigated pastureland

Acres in the Open Irrigated by Off-Farm Water		Quantity of Off-Farm Water Applied		Enter Code for Unit of Measure 1 = Total Acre-Foot 2 = Total Gallons 3 = Inches/Acre	
0454		0968		0969	

3. Report the area under protection irrigated with off-farm water in 2018. Under protection includes nursery, greenhouse, floriculture, sod, mushrooms, vegetable seeds, and propagative materials grown under glass, rigid plastic, plastic film, shade cloth, fiberglass, "tunnel" protection and hoop houses.....

Square Feet Under Protection Irrigated with Off-Farm Water	
0428	

4. Did you pay for the off-farm water received on this operation?
0675 1 **Yes** - Report the total dollars paid for the off-farm water.....
3 **No** - Continue

Dollars	
0456	\$00

5. How much of this operation's off-farm water was supplied, delivered, or transferred through a project financed, constructed, or managed by –

- a. U.S. Bureau of Reclamation? Include reclamation water delivered through a local district.
0664 1 None 2 Some 3 All
- b. Other Federal agencies such as the U.S. Army Corp of Engineers, Bureau of Indian Affairs, and USDA small watershed project?
- c. All other suppliers? Include ¹⁰¹² town and city water. Specify: ..
0666 1 None 2 Some 3 All

6. Did this operation use **reclaimed water from off-farm sources** such as municipal reclaimed water, industrial, off-farm livestock operations, or other off-farm sources to irrigate any crops in 2018? Off-farm reclaimed water is wastewater that has been treated for non-potable reuse purposes. (For the purposes of this irrigation survey, to be considered an irrigation application of reclaimed water, at least 0.5 inches of reclaimed water must be applied on the area during the growing season. If this minimum amount is not met, mark (X) "No" below.)

0602 1 **Yes** - Continue 3 **No** - Go to Section 6

a. How many acres in the open and/or square feet under protection were irrigated with one or more applications of **reclaimed water from off-farm sources** during 2018?

Acres in the Open		Square Feet Under Protection	
0597		0598	

b. How much **reclaimed water from off-farm sources** was used for irrigation during 2018?.....

Acre-Foot		Gallons	
0644		0645	

OR

c. What sources of reclaimed water were used on this operation in 2018? Mark (X) all that apply.

- 1001 Municipal 1002 Industrial
1003 Off-farm livestock operation 1004 Other - Specify: 1005

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SECTION 6 PUMPS, OTHER THAN WELL PUMPS, USED FOR IRRIGATION

1. Were any surface water source pumps used on this operation for irrigation during 2018?

0488 1 **Yes** - Continue

3 **No** - Go to Section 7

	None	Number of Pumps Used	Vertical Lift (Average Feet)	Discharge Capacity (Average GPM)	Discharge Operating Pressure (Average PSI)
		0490	0774	0491	0687
2. Tailwater pits (pits that hold water previously used for irrigation)	<input type="checkbox"/>	0492	0775	0493	0688
3. Ponds, lakes, reservoirs, rivers, canals, etc.	<input type="checkbox"/>	0494	0776	0777	0778
4. Relifting or boosting water within system (pumps providing additional lift, pressure, or lateral movement)	<input type="checkbox"/>				

SECTION 7 ENERGY EXPENSE FOR ALL WELL AND OTHER IRRIGATION PUMPS

Report the energy expense by power source. Report the fuel used and power expense for pumping irrigation water for the well pumps reported in Section 3 and for other pumps reported in Section 6 above. Report energy expense for acres in the open and area under protection. If irrigated acres in the open were less than one acre, round to one acre. Include the cost of any additional charges such as the fuel adjustment charge or any other type of charge which was based on the amount of power or fuel purchased. Include landlord's share.

POWER SOURCE	None	Number of Wells and Other Pumps Used (Reported in Sections 3 & 6)	Cost of Energy Used to Power Pumps (Dollars)	Area Irrigated with Water Pumped from Wells		Area Irrigated with Pumped Surface Water (Both on- and off-farm)	
				Acres in the Open (Whole Acres)	Square Feet Under Protection	Acres in the Open (Whole Acres)	Square Feet Under Protection
		0495	0496	0497	0124	0781	0537
1. Electricity	<input type="checkbox"/>		\$.00				
		0498	0499	0500	0125	0782	0538
2. Natural gas	<input type="checkbox"/>		\$.00				
		0501	0502	0503	0126	0783	0539
3. LP gas, propane, or butane	<input type="checkbox"/>		\$.00				
		0504	0505	0506	0127	0784	0540
4. Diesel and biodiesel fuel	<input type="checkbox"/>		\$.00				
		0507	0508	0509	0128	0890	0541
5. Gasoline, ethanol, and blends	<input type="checkbox"/>		\$.00				
		0779		0780	0129	0786	0542
6. Solar and other pumps without direct energy expense	<input type="checkbox"/>						

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SECTION 8 METHOD OF WATER DISTRIBUTION IN FIELDS IN THE OPEN

1. Did this operation irrigate any fields in the open?

- Include acres of horticultural crops grown in the open or under natural shade.
- Exclude crops grown under protection: glass, rigid plastic, plastic film, including "tunnel" protection. (Methods for crops grown under protection will be reported in Section 12.)

0489 ¹ **Yes - Continue** ³ **No - Go to Section 12**

Report acres irrigated by each type of FIELD distribution or delivery system listed below. If the same land was irrigated by more than one method of distribution, report acres irrigated by each method used. Report information for the field distribution system, NOT for the delivery system used to convey water from the source to the field, if different.

2. Gravity irrigation

None

Acres in the Open Irrigated by Gravity System (Field Water Conveyance System)					
Total	Unlined Open Ditch	Lined Open Ditch	Poly Pipe (or other single-year use, lay-flat tubing)	Above Ground Pipe (except poly pipe) ¹	Underground Pipe ²
0855	0859	0857	0056	0057	0858
a. Down rows or furrows	<input type="checkbox"/>				
0865	0869	0867	0066	0067	0868
b. Controlled flooding (between borders or within basins).	<input type="checkbox"/>				
0875					
c. Uncontrolled flooding (rangeland, pastureland, etc.)	<input type="checkbox"/>				
0885					
d. Other gravity systems	<input type="checkbox"/>				

¹ Include gated pipe and riser or hydrant systems connected to above ground pipe.
² Include riser or hydrant systems connected to underground pipe.

3. Sprinkler irrigation – Inlet pressure

None

Acres In the Open Irrigated by Sprinkler System			
Very Low Pressure (Under 15 PSI)	Low Pressure (15 to 29 PSI)	Medium Pressure (30 to 59 PSI)	High Pressure (60 PSI or more)
0569	0576	0575	0570
a. Center pivot systems (circle).	<input type="checkbox"/>		
0571	0577	0578	0579
b. Linear move tower systems (and other linear continuous move drive systems)	<input type="checkbox"/>		
0568	0565	0566	0567
c. Solid set or permanent systems (except low-flow micro systems)	<input type="checkbox"/>		

d. Mechanical move systems

None

Acres Irrigated (all pressures)

(i) Side roll, wheel move, or other mechanical move systems and other discrete move systems

0240

(ii) Big gun or traveler systems

0241

e. Hand-move systems, including hand watered nursery and other horticultural crops grown in the open

0242

f. Other sprinkler systems

0243

4. Drip, trickle, or low-flow micro irrigation

a. Surface drip (on or above ground)

0248

b. Sub-surface drip (root zone)

0246

c. Low-flow micro sprinklers or sprays (these systems apply water at low pressure and are not self-propelled or easily moved)

0247

d. Other drip, trickle, or low-flow micro systems

0249

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SECTION 9 ACRES HARVESTED IN THE OPEN AND PASTURELAND

1. Did this operation irrigate any crops in the open or pastureland?

0388

1 **Yes** - Continue

3 **No** - Go to Section 12

For each item listed, report the irrigated acres harvested in the first column. If pastureland is irrigated, report total acres of irrigated pastureland in the first column. For selected crops, report the average yield from the irrigated harvested acres in the second column. Then report the average irrigation water applied per acre in either acre-feet or inches for the acres reported in column one. Report the crop as irrigated if water was applied to supplement rainfall, even if the amount of water applied was not sufficient to obtain maximum yields. **Report nursery and other horticultural crops grown in the open in item 17.**

Irrigated Crops and Pastureland		Irrigated Land Include preplant and supplemental or semi-irrigation					
		Irrigated Acres Harvested	Average Yield per Irrigated Acre Harvested		Average Estimated Quantity of Water Applied per Acre		
					Acre-Feet	Tenths	OR
	None	0050	0051		0052		0053
2. Corn for grain or seed – Exclude popcorn and sweet corn.	<input type="checkbox"/>			Bu.			OR
		0060	0061	Tenths	0062		0063
3. Corn for silage or greenchop – Exclude popcorn and sweet corn.	<input type="checkbox"/>			Tons			OR
		0070	0071		0072		0073
4. Sorghum for grain or seed.	<input type="checkbox"/>			Bu.			OR
		0080	0081		0082		0083
5. Wheat for grain or seed.	<input type="checkbox"/>			Bu.			OR
		0106	0101		0102		0103
6. Soybeans for beans.	<input type="checkbox"/>			Bu.			OR
		0110	0111		0112		0113
7. Beans, dry edible.	<input type="checkbox"/>			Cwt.			OR
		0120	0121		0122		0123
8. Rice – Include post harvest water applied to improve residue decomposition. .	<input type="checkbox"/>			Cwt.			OR
		0130			0132		0133
9. Other small grains (barley, oats, rye, etc.)..	<input type="checkbox"/>						OR
		0140	0141	Tenths	0142		0143
10. Alfalfa and alfalfa mixtures (dry hay, greenchop, and silage)	<input type="checkbox"/>			Tons, dry			OR

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SECTION 9 Continued –

Irrigated Crops and Pastureland		Irrigated Land Include preplant and supplemental or semi-irrigation					
		Irrigated Acres Harvested	Average Yield per Irrigated Acre Harvested		Average Estimated Quantity of Water Applied per Acre		
					Tenths	OR	Inches
11. All other hay and haylage including small grain, other tame, and wild hay (dry hay, greenchop, and silage)	None	0150	0151	Tenths	0152	0153	
	<input type="checkbox"/>			Tons, dry			
12. Peanuts	<input type="checkbox"/>	0550	0551		0552	0553	
				Lbs.			
13. Cotton	<input type="checkbox"/>	0160	0161		0162	0163	
				Lbs. lint			
14. All land from which vegetables, potatoes, and melons were harvested	<input type="checkbox"/>	0186	Tenths		0187	0188	
a. Sweet corn	<input type="checkbox"/>	0850	Tenths	0851	0852	0853	
				Cwt.			
b. Tomatoes in the open	<input type="checkbox"/>	0860	Tenths	0861	0862	0863	
				Cwt.			
c. Lettuce and romaine	<input type="checkbox"/>	0870	Tenths	0871	0872	0873	
				Cwt.			
d. Potatoes – Exclude sweet potatoes	<input type="checkbox"/>	0190	Tenths	0191	0192	0193	
				Cwt.			
15. All berries	<input type="checkbox"/>	0560	Tenths		0562	0563	
16. Land in bearing and non-bearing fruit orchards, citrus or other groves, vineyards, and nut trees	<input type="checkbox"/>	0210	Tenths		0212	0213	
17. Nursery and other horticultural crops grown in the open (Note: Nursery, greenhouse, and other horticultural crops grown under protection will be reported in a later section.)	<input type="checkbox"/>	0690	Tenths		0691	0692	
18. All other crops grown in the open and not listed - Specify: 0620 <input type="text"/>	<input type="checkbox"/>	0621			0622	0623	
19. Irrigated pastureland, all types	<input type="checkbox"/>	0230			0232	0233	

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SECTION 10 FIELD WATER DISTRIBUTION AND WATER SOURCE FOR CROPS IN THE OPEN

1. Did this operation irrigate any crops in the open or pastureland?

1489

1 **Yes** - Continue

3 **No** - Go to Section 12

WATER DISTRIBUTION CODES – USE IN THE TABLE BELOW

CODE	PRESSURE SYSTEM	CODE	GRAVITY SYSTEM
01 = Hand-move system 02 = Solid set or permanent system 03 = Side roll or wheel line system 04 = Big gun or traveling gun system 05 = Linear move system (under 15 PSI) 06 = Linear move system (15 to 29 PSI) 07 = Linear move system (30 to 59 PSI) 08 = Linear move system (60 PSI or more) 09 = Center pivot system (under 15 PSI) 10 = Center pivot system (15 to 29 PSI) 11 = Center pivot system (30 to 59 PSI) 12 = Center pivot system (60 PSI or more) 13 = Low-flow irrigation (drip, trickle, or micro sprinkler system) 14 = Other pressure system – Specify:		15 = Down rows or furrows from unlined open ditches 16 = Down rows or furrows from lined open ditches 17 = Down rows or furrows from poly pipe, lay-flat tubing, or above ground or underground pipe 18 = Controlled flooding within field borders from unlined open ditches 19 = Controlled flooding within field borders from lined open ditches 20 = Controlled flooding within field borders from poly pipe, lay-flat tubing, or above ground pipe 21 = Controlled flooding within field borders from underground pipe 22 = Uncontrolled flooding (rangeland, pastureland, etc.) including open discharge from a well or pump 23 = Other gravity system – Specify:	
1006	<input type="text"/>	1007	<input type="text"/>

Report for irrigated acres in the open. For each irrigated crop in the open, report separately the primary field distribution method, acres irrigated by water source, and acres on which chemigation was used in the irrigation system. Refer to the table above for the water distribution codes.

Irrigated Crops and Pastureland	Enter Code from Above for Primary Method of Field Water Distribution	Water Source (Column totals may exceed irrigated crop acres reported in Section 9 when more than one water source was used.)			Acres on which chemigation was applied through the irrigation system		
		Ground Water from Wells (Acres)	On-Farm Surface Water ¹ (Acres)	Off-Farm Water (All Suppliers) ² (Acres)	Commercial Fertilizer (Acres)	Pesticide Application (Acres)	
2. Corn for grain or seed – Exclude popcorn and sweet corn . <input type="checkbox"/>	None	0250	0255	0254	0256	0252	0253
3. Corn for silage or greenchop – Exclude popcorn and sweet corn . <input type="checkbox"/>		0260	0265	0264	0266	0262	0263
4. Sorghum for grain or seed <input type="checkbox"/>		0270	0275	0274	0276	0272	0273
5. Wheat for grain or seed <input type="checkbox"/>		0280	0285	0284	0286	0282	0283
6. Soybeans for beans <input type="checkbox"/>		0300	0305	0304	0306	0302	0303
7. Beans, dry edible <input type="checkbox"/>		0310	0315	0314	0316	0312	0313
8. Rice <input type="checkbox"/>		0320	0325	0324	0326	0322	0323
9. Other small grains (barley, oats, rye, etc.) <input type="checkbox"/>		0330	0335	0334	0336	0332	0333
10. Alfalfa and alfalfa mixtures (dry hay, greenchop, and silage) . <input type="checkbox"/>		0340	0345	0344	0346	0342	0343

¹ On-farm water source includes recycled water and reclaimed water from on-farm livestock operations.
² Off-farm water supplies may include water purchased from the U.S. Bureau of Reclamation; a state, county, or local district; mutual, private, cooperative, or neighborhood ditches; or commercial or municipal water systems.

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SECTION 10 Continued –

Irrigated Crops and Pastureland	Enter Code from Previous Page for Primary Method of Field Water Distribution	Water Source (Column totals may exceed irrigated crop acres reported in Section 9 when more than one water source was used.)						Acres on which chemigation was applied through the irrigation system				
		Ground Water from Wells (Acres)		On-Farm Surface Water ¹ (Acres)		Off-Farm Water (All Suppliers) ² (Acres)		Commercial Fertilizer (Acres)		Pesticide Application (Acres)		
11. All other hay and haylage including small grain, other meadow, and wild hay (dry hay, greenchop, and silage)	None <input type="checkbox"/>	0350	0355	0354	0356	0352	0353					
12. Peanuts	<input type="checkbox"/>	0580	0585	0584	0586	0582	0583					
13. Cotton	<input type="checkbox"/>	0360	0365	0364	0366	0362	0363					
14. All acres in the open from which vegetables, potatoes, and melons were harvested	<input type="checkbox"/>	0474	0479	Tenths	0478	Tenths	0480	Tenths	0476	Tenths	0477	Tenths
a. Sweet corn	<input type="checkbox"/>	0900	0905	Tenths	0904	Tenths	0906	Tenths	0902	Tenths	0903	Tenths
b. Tomatoes in the open	<input type="checkbox"/>	0910	0915	Tenths	0914	Tenths	0916	Tenths	0912	Tenths	0913	Tenths
c. Lettuce and romaine	<input type="checkbox"/>	0920	0925	Tenths	0924	Tenths	0926	Tenths	0922	Tenths	0923	Tenths
d. Potatoes – Exclude sweet potatoes	<input type="checkbox"/>	0390	0395	Tenths	0394	Tenths	0396	Tenths	0392	Tenths	0393	Tenths
15. All berries	<input type="checkbox"/>	0590	0595	Tenths	0594	Tenths	0596	Tenths	0592	Tenths	0593	Tenths
16. Land in bearing and non-bearing fruit orchards, citrus or other groves, vineyards, and nut trees	<input type="checkbox"/>	0410	0415	Tenths	0414	Tenths	0416	Tenths	0412	Tenths	0413	Tenths
17. Nursery and other horticultural crops grown in the open (Note: Nursery, greenhouse, and other horticultural crops grown under protection will be reported in a later section.)	<input type="checkbox"/>	1110	1115	Tenths	1114	Tenths	1116	Tenths	1112	Tenths	1113	Tenths
18. All other crops grown in the open and not listed – Specify:		1120	1125		1124		1126		1122		1123	
1119 <input type="text"/>	<input type="checkbox"/>	0430	0435		0434		0436		0432		0433	
19. Irrigated pastureland, all types	<input type="checkbox"/>											

¹ On-farm water source includes recycled water and reclaimed water from on-farm livestock operations.
² Off-farm water supplies may include water purchased from the U.S. Bureau of Reclamation; a state, county, or local district; mutual, private, cooperative, or neighborhood ditches; or commercial or municipal water systems.

21308119

SECTION 11 IRRIGATION FOR NURSERY AND OTHER HORTICULTURAL CROPS GROWN IN THE OPEN

1. Were any irrigated nursery, floriculture, sod, mushrooms, vegetable seeds, propagative materials, Christmas trees, or other horticultural crops grown in the open (including natural shade) on this operation in 2018?

0751 1 **Yes - Continue** 3 **No - Go to Section 12**

2. Report total acres and irrigated acres for nursery and other horticultural crops grown in the open (including natural shade)

None

Acres in the Open			
Total Acres		Irrigated Acres	
	Tenths		Tenths
0737		0738	

3. For nursery and other horticultural crops in the open, enter the total acres and irrigated acres by crop category on this operation in 2018.

NURSERY AND OTHER HORTICULTURAL CROPS IN THE OPEN

a. Floriculture and bedding crops
Bedding/garden plants - annuals, herbaceous perennials, vegetable plants; cut flowers and cut florist greens; indoor foliage plants; potted flowering plants; hanging baskets

None

Total Acres		Irrigated Acres	
	Tenths		Tenths
0739		0740	

b. Nursery crops
Nursery stock - ornamentals, shrubs, flowering trees, evergreens, live Christmas trees, fruit and nut trees and plants, vines, palms, ornamental grasses, bareroot herbaceous perennials; aquatic plants

0741		0742	
------	--	------	--

c. Sod

0743		0744	
------	--	------	--

d. Propagative materials
Bulbs, corms, rhizomes, tubers, cuttings, seedlings, liners, plugs, flower seeds, tobacco plants, vegetable seeds, vegetable transplants to farm fields

0745		0746	
------	--	------	--

e. Christmas trees and short rotation woody crops

0747		0748	
------	--	------	--

f. Other horticultural crops - Specify:

1010 ...

0749		0750	
------	--	------	--

SECTION 11 CONTINUED –

4. For nursery and other horticultural crops in the open, report area irrigated or watered in 2018 by method used. If more than one method was used on the same area, report for all methods that apply. Report quantity of water used for growing and finishing in the unit or units of measure most often used on this operation.

IRRIGATION METHODS	None	1		2		OR	3		
		Total Acres Irrigated or Watered Tenths	Quantity of Water Applied	Enter Code for Unit of Measure 1 = Acre-Feet 2 = Gallons 3 = Inches/Acre	Average Flow Rate (Gallons per Minute) Tenths		Number of Hours per Week Used in 2018	Number of Weeks Used in 2018	
		0796	0797	0798			0799	0800	0801
a. Hand watered.....	<input type="checkbox"/>	0802	0803	0804		OR	0805	0806	0807
b. Gravity irrigation.....	<input type="checkbox"/>	0808	0809	0810		OR	0811	0812	0813
c. Sprinkler.....	<input type="checkbox"/>	0814	0815	0816		OR	0817	0818	0819
d. Drip, trickle, or low-flow micro irrigation.....	<input type="checkbox"/>	0820	0821	0822		OR	0823	0824	0825
e. Subirrigation (including hydroponic)...	<input type="checkbox"/>					OR			

5. For each method used to irrigate or water nursery and other horticultural crops in the open, report water sources by percent of source applied. If more than one source was used, report all that apply. For example, if the only source for handwatered crops was ground water, then report 100 percent in column 1, row a. If this operation used gravity irrigation and half of the water came from ground water and half came from on-farm surface water, then report 50 percent in column 1, row b and 50 percent in column 2, row b.

IRRIGATION METHODS	Water Source			
	1 Ground Water from Wells (Percent)	2 On-Farm Surface Water (Percent)	3 Off-Farm Water (All Suppliers) (Percent)	Total
	0832	0833	0834	
a. Hand watered.....				100%
	0835	0836	0837	
b. Gravity irrigation.....				100%
	0838	0839	0840	
c. Sprinkler.....				100%
	0841	0842	0843	
d. Drip, trickle, or low-flow micro irrigation.....				100%
	0844	0845	0846	
e. Subirrigation (including hydroponic).....				100%

For each irrigation method used, columns 1 + 2 + 3 must equal 100 percent.

21308135

SECTION 12 IRRIGATION FOR NURSERY, GREENHOUSE, AND OTHER HORTICULTURAL CROPS GROWN UNDER PROTECTION

1. Were any irrigated nursery or greenhouse crops, floriculture, sod, mushrooms, vegetable seeds, propagative materials, or other horticultural crops grown under protection on this operation in 2018? Include crops grown under glass, rigid plastic, plastic film, shade cloth, fiberglass, "tunnel" protection and hoop houses. Exclude crops temporarily covered for early germination, frost protection, etc. Report crops grown under natural shade in Section 11.

0627 1 **Yes - Continue** 3 **No - Go to Section 13**

2. Report total area and irrigated area for nursery, greenhouse, and other horticultural crops grown under protection

Square Feet Under Protection			
Total Area		Irrigated Area	
0628		0629	

3. For nursery or greenhouse crops, floriculture, sod, mushrooms, vegetable seeds, propagative materials, or other horticultural crops grown under protection, enter the total area and irrigated area by horticultural crop category on this operation in 2018.

NURSERY, GREENHOUSE, AND OTHER HORTICULTURAL CROPS UNDER PROTECTION

a. Floriculture and bedding crops
Bedding/garden plants - annuals, herbaceous perennials, vegetable plants; cut flowers and cut florist greens; indoor foliage plants; potted flowering plants; hanging baskets

Total Area (Square Feet)		Irrigated Area (Square Feet)	
0630		0631	

b. Nursery crops
Nursery stock - ornamentals, shrubs, flowering trees, evergreens, live Christmas trees, fruit and nut trees and plants, vines, palms, ornamental grasses, bareroot herbaceous perennials; aquatic plants.

0632		0633	
------	--	------	--

c. Propagative materials
Bulbs, corms, rhizomes, tubers, cuttings, seedlings, liners, plugs, flower seeds, tobacco plants, vegetable seeds, vegetable transplants to farm fields

0636		0637	
------	--	------	--

d. Food crops grown under protection
Tomatoes, other vegetables and fresh cut herbs, fruits and berries

0638		0639	
------	--	------	--

e. Mushroom crops

0640		0641	
------	--	------	--

f. Other horticultural crops – Specify:
1011

0642		0643	
------	--	------	--

SECTION 12 CONTINUED –

4. For nursery, greenhouse, and other horticultural crops under protection, report area irrigated or watered in 2018 by method used. If more than one method was used on the same area, report for all methods that apply. Report quantity of water in the unit or units of measure most often used on this operation. If total quantity of water (column 2a) and the unit of measure (column 2b) are known, then skip column 3.

IRRIGATION METHODS	None	1		2		OR	3		
		Total Area Irrigated or Watered (Square Feet)	a. Quantity of Water Applied	b. Enter Code for Unit of Measure 1=Acre-Feet 2=Gallons 3=Gallons/Sq Ft 4=Inches/Sq Ft	a. Average Flow Rate (Gallons per Minute) Tenths		b. Number of Hours per Week Used in 2018	c. Number of Weeks Used in 2018	
		0701	0702	0703			0704	0705	0706
a. Hand watered	<input type="checkbox"/>	0707	0708	0709		OR	0710	0711	0712
b. Gravity irrigation	<input type="checkbox"/>	0713	0714	0715		OR	0716	0717	0718
c. Sprinkler	<input type="checkbox"/>	0719	0720	0721		OR	0722	0723	0724
d. Drip, trickle, or low-flow micro irrigation	<input type="checkbox"/>	0725	0726	0727		OR	0728	0729	0730
e. Subirrigation (including hydroponic) ...	<input type="checkbox"/>					OR			

5. For each method used to irrigate or water nursery, greenhouse, or other horticultural crops under protection, report water sources by percent of source applied. If more than one source was used, report all that apply. For example, if the only source for handwatered crops was ground water, then report 100 percent in column 1, row a. If this operation used gravity irrigation and half of the water came from ground water and half came from on-farm surface water, then report 50 percent in column 1, row b and 50 percent in column 2, row b.

IRRIGATION METHODS	Water Source			
	1 Ground Water from Wells (Percent)	2 On-Farm Surface Water (Percent)	3 Off-Farm Water (All Suppliers) (Percent)	Total
a. Hand watered	0646	0647	0648	100%
b. Gravity irrigation	0649	0650	0651	100%
c. Sprinkler	0652	0653	0654	100%
d. Drip, trickle, or low-flow micro irrigation	0655	0656	0657	100%
e. Subirrigation (including hydroponic)	0658	0659	0660	100%

For each irrigation method used, columns 1 + 2 + 3 must equal 100 percent.

21308150

SECTION 13 EXPENDITURES FOR IRRIGATION

EXPENDITURE AND FUNDING ASSISTANCE CODES – USE IN THE TABLE BELOW

CODE	PRIMARY PURPOSE OF EXPENDITURE	CODE	PRIMARY SOURCE OF FUNDING ASSISTANCE
1 =	New expansion	1 =	No funding assistance or loans
2 =	Water conservation	2 =	FSA Environmental Quality Incentives Program (EQIP)
3 =	Energy conservation	3 =	Other USDA financial assistance or loans
4 =	Scheduled replacement or maintenance	4 =	Non-USDA and all other financial assistance or loans

Report the 2018 expenditure cost, acres affected (rounded to the nearest acre), primary purpose of expenditure, and primary source of funding assistance by expenditure category using the Expenditure and Funding Assistance Codes from the table above. Include the portion of the expenditures made by or shared with others (landlords or government agencies), including programs such as Environmental Quality Incentive Program (EQIP).

EXPENDITURE TYPE	None	Total Cost of Expenditure (Include amount financed)	Irrigated Acres Affected by Expenditure (Acres)	Enter Code from Above for Primary Purpose of Expenditure	Enter Code from Above for Primary Source of Funding Assistance
1. Purchase of new or replacement irrigation equipment and machinery – Include sprinklers, pipes, siphons, nozzles, pumps, engines, motors, filtration equipment, etc. Exclude computers, computer control panels, and software	<input type="checkbox"/>	0511 \$.00	0514	0512	0513
2. New well construction or deepening of existing wells – Include drilling costs, cost of casing, and any costs to prepare well for installation of pump. Exclude cost of pumps or motors	<input type="checkbox"/>	0515 \$.00	0518	0516	0517
3. Construction or improvement of permanent storage and distribution systems – Include dams, ponds, reservoirs, permanent ditches, canals, flumes, etc.	<input type="checkbox"/>	0519 \$.00	0522	0520	0521
4. Computers, control panels, computer controlled valves, software, and software-controlled hardware for irrigation water management.	<input type="checkbox"/>	0544 \$.00	0547	0545	0546
5. Clearing or leveling non-irrigated land for new irrigation acres (the primary purpose is expansion of irrigation acres)	<input type="checkbox"/>	0548 \$.00	0526		0549
6. Land leveling of previously irrigated land (the primary purpose cannot be new expansion)	<input type="checkbox"/>	0556 \$.00	0559	0557	0558

21308168

SECTION 14 IRRIGATION AND WATER MANAGEMENT PRACTICES

1. How did you decide when to irrigate in 2018? Mark (X) all that apply –

- 1020 Condition of crop (observation or experience)
- 1021 Feel of the soil
- 1022 Use of soil moisture-sensing devices (moisture blocks, tensiometers, capacitance, other electronic sensors)
- 1023 Use of plant moisture-sensing devices such as pressure (chamber) bombs or infrared (IR) thermometer
- 1024 Use of irrigation scheduling service, including commercial and government
- 1025 Reports on daily crop-water evapo-transpiration (ET) use (Internet, newspapers, radio, TV, fax, or email)
- 1026 When water was delivered or available by irrigation water supplier (no choice by water user)
- 1027 Personal calendar schedule
- 1028 Computer simulation models (not from a commercial service)
- 1029 When neighbors began to irrigate

2. Did you have to discontinue irrigation during 2018 long enough to affect crop yields?

- 0669 1 **Yes** - Continue 3 **No** - Go to item 3

a. On how many acres did you discontinue irrigation long enough to affect crop yields for any reason during 2018?

None	Number of Acres
<input type="checkbox"/>	1039

b. What were the reasons for discontinuing irrigation? Mark (X) all that apply –

- 1030 Shortage of surface water (water from reservoirs, lakes, streams, water supply organizations, etc.)
- 1031 Shortage of ground water (lowering water level of wells or depletion of ground water)
- 1032 Irrigation equipment failure
- 1033 Energy price increases or energy shortage
- 1034 Water salinity too high
- 1035 Loss of water rights not due to voluntary transfers
- 1036 Cost of purchased water
- 1037 Other – Specify: ¹⁰³⁸

3. Did this operation use gravity irrigation systems to irrigate any acres in the open on this operation (Section 8, item 2) in 2018?

- 0403 1 **Yes** - Continue 3 **No** - Go to item 5

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

- 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.
- b. Use a surge-flow or cablegation system, apply mulch, or use other types of row covers
- c. Use precision-leveling or zero-grading.
- d. 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.

None	Number of Acres
<input type="checkbox"/>	0404
<input type="checkbox"/>	0405
<input type="checkbox"/>	0406
<input type="checkbox"/>	0409

21308176

SECTION 14 CONTINUED –

5. What sources of information does this operation rely on for guidance in reducing irrigation costs or to conserve water used for irrigation? Mark (X) all that apply –

- 1040 Extension agents or university specialists
- 1041 Private irrigation specialists or crop consultants hired by owner or operator
- 1042 Irrigation equipment dealers
- 1043 Local irrigation district employees or others hired by the water supplier
- 1044 Government specialists from the Natural Resources Conservation Service, local conservation district, Bureau of Reclamation, or other Federal or state agencies
- 1045 Media reports or information in the press
- 1046 Neighboring farmers
- 1047 Electronic information services (Internet, DTN, Internet links to private or public data sources, etc.)
- 1048 None

6. Did any of the following prevent you from implementing improvements that would have reduced energy and/or conserved water in your irrigation system during the past five years? Mark (X) all that apply –

- 1070 Investigating improvements is not a priority at this time
- 1071 Risk of reduced yield or poorer quality crop from not meeting water needs
- 1072 Physical field or crop conditions limit system improvements
- 1073 Improvements will reduce costs, but not enough to recover implementation costs
- 1074 Cannot finance improvements
- 1075 Landlord(s) will not share cost of improvements
- 1076 Uncertainty about future availability of water
- 1077 Will not be farming this operation long enough to justify new improvements
- 1078 Improvements will increase management time or cost

7. Has this operation made irrigation and/or drainage improvements above regular maintenance in the **past five years**?

- 0209 1 **Yes** - Continue 3 **No** - Go to Section 15

8. Did you receive any technical or financial assistance for these irrigation and/or drainage improvements?

- 0211 1 **Yes** - Continue 3 **No** - Go to Section 15

a. From which of the following sources did you receive technical or financial assistance for these improvements? Mark (X) all that apply –

SOURCE OF ASSISTANCE

- (i) USDA programs for water conservation and environmental improvements (CTA, EQIP, RCPP, WHIP, CIG)
- (ii) Other USDA programs for stewardship (CSP) or easements (CRP, WRP, GRP, FRPP)
- (iii) Non-USDA Federal programs (Bureau of Reclamation, EPA, or other programs)
- (iv) State programs (including CREP), local water management, or water supply districts
- (v) Private businesses such as equipment dealers, bankers, or lenders

Technical Assistance		Financial Assistance	
0215	<input type="checkbox"/>	0216	<input type="checkbox"/>
0217	<input type="checkbox"/>	0218	<input type="checkbox"/>
0219	<input type="checkbox"/>	0235	<input type="checkbox"/>
0236	<input type="checkbox"/>	0237	<input type="checkbox"/>
0238	<input type="checkbox"/>	0239	<input type="checkbox"/>

21308184

SECTION 15 LABOR USED FOR IRRIGATION ON THIS OPERATION IN 2018

1. Did you have any paid labor for the irrigation portion of your operation in 2018?

0731

1 **Yes** - Continue

3 **No** - Go to Section 16

a. Report the number of hours that the hired workers performed irrigation work in 2018 and the average hourly wage. (Exclude contract labor.)

None

Total Hours of Paid Irrigation Labor per Year		Average Hourly Wage	
			Cents
0732		0733	\$

b. Report contract irrigation labor expenses on this operation in 2018

None

Total Expense for Contract Irrigation Labor	
0788	\$.00

21308192

SECTION 16 NO IRRIGATED LAND IN 2018

1. Complete this section if you did not irrigate any land in 2018. If you did irrigate land in 2018, skip to Section 17.

2. Was any land irrigated on this operation in 2017?

- 0528 1 **Yes** - Continue 3 **No** - Go to Section 17

3. What were the reasons for not irrigating in 2018? Mark (X) all that apply –

- | | |
|---|---|
| 1050 <input type="checkbox"/> Sufficient soil moisture – no irrigation needed | 1057 <input type="checkbox"/> Sold or leased irrigated land or irrigated area under protection to others and did not irrigate during 2017 |
| 1052 <input type="checkbox"/> Shortage of surface water (water from reservoirs, lakes, streams, water supply organizations, etc.) | 1058 <input type="checkbox"/> Restrictions on water use |
| 1053 <input type="checkbox"/> Shortage of ground water (lowering water level of wells or depletion of ground water) | 1059 <input type="checkbox"/> Converted to non-agricultural use |
| 1054 <input type="checkbox"/> Irrigation uneconomical due to high fuel and power costs and/or low commodity prices | 1060 <input type="checkbox"/> Converted to an agricultural enterprise not requiring irrigation |
| 1055 <input type="checkbox"/> Loss of water rights not due to voluntary transfers | 1061 <input type="checkbox"/> Available surface water too salty |
| 1056 <input type="checkbox"/> Sold or leased water rights or annual water allocation | 1062 <input type="checkbox"/> Other – Specify:
1063 <input type="text"/> |

4. Do you consider your discontinuance of irrigation to be permanent? 0530 1 **Yes** 3 **No**

SECTION 17 VALUE OF SALES IN 2018

1. Which range includes the gross value of all agricultural products sold from this operation in 2018 including landlord's share? Mark (X) only one –

- 0980 1 \$0 - \$9,999 2 \$10,000 - \$24,999 3 \$25,000 - \$49,999 4 \$50,000 - \$99,999
5 \$100,000 - \$249,999 6 \$250,000 - \$499,999 7 \$500,000 - \$999,999 8 \$1,000,000 and over

2. What percent of total sales were from **irrigated** crop sales, including irrigated nursery or greenhouse crops, floriculture, sod, mushrooms, vegetable seeds, and propagative materials?

Percent	
0981	
0982	
100%	

3. What percent of total sales were from **non-irrigated** crop sales and livestock sales?

SECTION 18 PERSON COMPLETING THIS FORM – Please print

Name 1092 Area Code and Phone Number 9911 Date (MM DD YY) 9910

Survey Results: To receive the complete results of this survey on the release date, go to www.agcensus.usda.gov.

To have a brief summary emailed to you at a later date, please enter your email address: 1095

Would you rather have a brief summary mailed to you at a later date? 9990 1 **Yes** 3 **No**

Thank you for your response

OFFICE USE

Response	Respondent	Mode	Enum.	Eval.	R. Unit	Change	Optional Use
1-Comp 2-R 3-Inac	9901 1-Op/Mgr 2-Sp 3-Acct/Bkpr 4-Partner 9-Oth	9902 1-PASI (Mail) 2-PATI (Tel) 3-PAPI (Face-to-Face)	9903 9998	9900	9921	9985	9907 9908 9906 9916

S/E Name

21308200



INSTRUCTION BOOKLET 2018 IRRIGATION AND WATER MANAGEMENT SURVEY



Completing the 2018 Questionnaire

Everyone who receives a questionnaire must fill it out and return it, including nursery, greenhouse, and other horticultural crop producers.

Use a **blue** or **black** ball point pen.

Round to whole acres.

If You Received More than One Questionnaire for the Same Operation

Duplicate form(s) — If you received extra report forms for the SAME farming operation, return all report forms in the same envelope as the completed report. Make all entries clear and easy to read.

Irrigation is the application of water by any artificial or controlled means, such as sprinklers, furrows and ditches, spreader dikes, flooding, hand watering, or subirrigation pipes. Include the area where lagoon waste water from livestock operations was distributed by a sprinkler or flood system.

Include area in the open and under protection. Under protection includes nursery, greenhouse, floriculture, sod, mushrooms, vegetable seeds, and propagative materials grown under glass, rigid plastic, plastic film, shade cloth, fiberglass, "tunnel" protection, and hoop houses. Crops covered only temporarily to be further grown in the open should not be included for area under protection.

General

Refer to the instructions below for completing your questionnaire. The enclosed census follow-on questionnaire was mailed to producers and growers throughout the United States. Because it is meant for use in all parts of the country, it may contain items and inquiries which do not apply to your operation. In this case, mark the "No" or "None" box and go on to the next item or section.

Partial Year Operation

If you stopped farming during 2018, complete the questionnaire for the portion of 2018 that you did farm. Write "Stopped farming in 2018" and the date you stopped farming below the address area. Mail the completed questionnaire in the return envelope.

Partnership Operations

Complete only ONE questionnaire for a partnership operation and include all partners' shares on the same questionnaire. If two or more questionnaires were received for the partnership, see instruction on "If You Received More Than One Questionnaire for the Same Operation" above.

How to Enter Your Responses on the Questionnaire

Please enter your answers in the spaces provided and in the units requested, i.e., number of acres, dollars, percent, etc. Mark all applicable Yes/No boxes with an "X".

Instructions by Section

Complete Sections 1 and 2 of the questionnaire. If you did not irrigate or water any cropland (including nursery and greenhouse area in the open and under protection), pastureland, or rangeland in 2018, complete Sections 1 and 2 and then go to Section 16 on the back page and complete the remainder of the questionnaire.

Section 1 – Acreage in 2018

Report land owned, rented, or used by the respondent, spouse, partnership, corporation, or organization identified on the questionnaire. If you did not operate any land in 2018, go to Section 18 on the back page and complete the remainder of the questionnaire.

Include all land, regardless of location or use; cropland, pastureland, rangeland, woodland, idle land, **greenhouses or other area under protection**, farmsteads, Conservation Reserve Program (CRP), Wetlands Reserve Program (WRP), Farmable Wetlands Program (FWP), and Conservation Reserve Enhancement Program (CREP). All responses in this section should be rounded to whole acres. Area under protection less than one acre should be reported as one acre. **Exclude** land used under a grazing permit.

Item 1 - Report all land owned in 2018 by you and/or your spouse, or by the partnership, corporation, or organization named on the questionnaire. Include all fields and tracts of cropland, pastureland, woodland, wasteland, idle land, and farmsteads.

Item 2 - Report all land rented or leased from others on shares, cash rent, used rent-free, in exchange for services, for taxes, etc., regardless of location, even if used for part of the year. **Exclude** land used on a per-head basis under a grazing permit or animal unit month (AUM) basis.

Item 3 - Report all land rented or leased to others regardless of the purpose. Include land that was rented and subleased to others.

Item 4 - The acres in item 4, **Box A**, should equal item 1 plus item 2 minus item 3. All responses to this questionnaire should refer to these **total acres in this operation**. It is important that this number is correct as it is used to establish consistency throughout the questionnaire. The acreage of this operation must equal the acreage reported in Section 2, item 4, column 1, **Box B**. After completing Section 1, if the acres in Item 4, Box A equal zero and you did not raise or own any livestock, aquaculture, or poultry in 2018, write a description of the land use in the space by item 4. Complete Section 18 and mail the questionnaire in the return envelope.

Section 2 – Land in 2018

Account for total acres in **this operation** in column 1 and irrigated land in **this operation** in column 2. If the same land had more than one use in 2018, report that land only once in the first use that applies. Irrigation refers to the one or more applications of water to land or crops by any artificial or controlled means, such as sprinklers, furrows and ditches, spreader dikes, flooding, hand watering, or subirrigation pipes. Include the area where lagoon waste water from livestock operations was distributed by a sprinkler or flood system.

Include area in the open and under protection. Under protection includes nursery, greenhouse, floriculture, sod, mushrooms, vegetable seeds, and propagative materials grown under glass, rigid plastic, plastic film, shade cloth, fiberglass, “tunnel” protection and hoop houses. Crops covered only temporarily to be further grown in the open should not be included for area under protection.

In addition to fully irrigated land, report as irrigated any land to which partial, supplemental, or semi-irrigation was applied in column 2. Also include any acreage which received only preplant irrigation (watered before planting). Hayland, pastureland or rangeland should be reported as irrigated if spring flood water was spread by man-made canals, ditches, spreader dikes, pipes, or other water works. Include acres where lagoon wastewater from livestock operations was used for irrigation. Include area under protection that was hand watered.

For conservation program land, if the operator was allowed to cut conservation program land for hay, then this land should be considered cropland harvested; if it was grazed, it should be considered other pasture and grazing land. Except for disaster designation uses, almost all conservation program land will be reported in item 1c, cropland not harvested or grazed.

Item 1a - Include as cropland harvested in the open: field crops, hay and forage, land in vegetables, citrus groves, vineyards, berries, nuts, orchards, Christmas trees (whether harvested in 2018 or not), short rotation woody crops, nursery and other horticultural crops such as bedding and garden plants, nursery stock, and propagative materials.

For winter wheat, report the 2018 acres harvested.

For double cropped acres if more than one crop was harvested from the same land in 2018, report those acres only once as cropland harvested.

Item 1b - Include as nursery, greenhouse, and other horticulture under protection: crops grown under glass, rigid plastic, plastic film, shade cloth, fiberglass, “tunnel” protection, and hoop houses. Crops covered only temporarily, such as for frost protection, to be further grown in the open should not be included for area under protection.

Item 1c - Include cropland used for cover crops, cropland on which all crops failed, idle cropland, cropland in summer fallow, and cropland in government programs, including conservation program land unless used for grazing, hay, or forage. Include land on which sugarcane and pineapples were grown but not harvested in 2018.

Item 2a - Exclude land used under a grazing permit.

Item 2b - Report woodland pastured.

Item 2c - Include any pastured land other than cropland and woodland pastured. Include rotation pasture and grazing land that could have been used for crops without additional improvements.

Item 3 - Any land that does not fit into one of the above categories. Include land in roads, buildings, farmsteads, woodland not pastured, and wasteland.

Item 4 - This should equal the sum of all land uses reported in items 1 through 3. Also, **Box B** acres must equal acres in “this operation” reported in Section 1, item 4, **Box A**. Anyone who irrigated any land in 2018 should complete the entire questionnaire.

Item 5 - This question helps determine if this operation irrigated any area in the open or under protection in 2018. If the answer to this question is 'Yes', then continue completing the form. If you did not irrigate any area in the open or under protection, check the 'No' box and go to Section 16 on the back page.

Item 6 - Report the state with the largest amount of irrigated land for "this operation." If you irrigate in more than one state and the acres irrigated happens to be the same in those states, then report the state that includes your farmstead.

Section 3 – Ground Water From Wells

Water usage for this survey will be published in acrefeet. An acre-foot is the quantity of water needed to cover one acre to the depth of one foot, or 326,000 gallons. Ground water is water from a well or wells located on this operation.

Item 1 - Report whether this operation irrigated any land with ground water from wells on this operation at any time during 2018.

Item 2 - Report acres in the open irrigated with ground water from wells and the estimated quantity of ground water used in one of the following units:

- total acre-feet; or
- total gallons; or
- average inches applied per acre

Item 3 - Report the area under protection irrigated with ground water in square feet. Report the area only once, regardless of how many crops were grown for sale from the same area.

Item 4 - Report the total number of wells used on this operation in 2018.

Item 4a - Report the number of wells reported in item 4 above that used backflow prevention devices (check valves) in 2018. Report the number of acres and area under protection irrigated in 2018 with water pumped from wells with backflow prevention devices.

Item 4b - Report how many wells reported in item 4 above used flow meters or flow measuring devices. Report the number of acres and area under protection irrigated in 2018 with water from wells with flow measurement devices.

Item 4c - Report the number of free-flowing wells used in 2018. Free-flowing wells do not require the use of a pump to lift the water to the surface. Water flows to the surface under natural pressure. These are most commonly found in Florida and some western states.

Item 5 - Report the well characteristics for up to 3 primary wells pumped on this operation in 2018.

Note: The 3 primary wells should include those wells with the greatest quantity of water pumped in 2018. Report the characteristics for each individual well even if these values are similar across wells. If less than 3 wells were pumped in 2018, then only report for those wells used. Do not include the characteristics of free flowing wells that did not use a well pump, reported in Item 4c.

Item 5a - If you used more than 3 wells in 2018, then for all other wells (excluding the 3 primary wells), report the average value for well characteristics.

Item 6 - Change in depth to water is defined as a change in the depth of water from the well-head to the water table level that has occurred over the last five years prior to 2018.

Section 4 – On-Farm Surface Water

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 your farm.

Item 1 - Report whether this operation used any on-farm surface water including recycled and reclaimed water. For this survey, recycled water is the reuse of irrigation water that was previously used to irrigate a crop on the operation. Reclaimed water is treated wastewater used for irrigation.

Item 2 - Report acres in the open on this operation irrigated with on-farm surface water and the estimated quantity used in one of the following units:

- total acre-feet; or
- total gallons; or
- average inches applied per acre

Item 3 - Report the total area under protection irrigated with on-farm surface water in square feet. Report the area only once, regardless of how many crops were grown for sale from the same area.

Item 4 - Report whether this operation used recycled water to irrigate any crops in 2018.

Item 4a - Report the area on which one or more applications of recycled water for irrigation were made in 2018. Report the acres only once even if multiple applications were made to the same acreage.

Item 5 - Report whether this operation used reclaimed water from on-farm livestock to irrigate any crops in 2018. For the purposes of this survey, the total 2018 application of reclaimed water needs to be at least one half inch to be considered irrigation.

Item 5a - Report the area on which one or more applications of reclaimed water for irrigation were made in 2018. Report the acres only once even if multiple applications were made to the same acreage.

Item 5b - Report how much reclaimed irrigation water was used on this operation in 2018. Report the quantity of reclaimed water in acre-feet or total gallons.

Section 5 – Off-Farm Water

Off-farm surface water is surface or ground water from U.S. Bureau of Reclamation, other Federal agencies, irrigation districts, or other suppliers.

Item 1 - Report whether this operation used any water from off-farm sources.

Item 2 - Report acres in the open on this operation irrigated with off-farm water and the estimated quantity used in one of the following units:

- total acre-feet; or
- total gallons; or
- average inches applied per acre

Item 3 - Report the total area under protection irrigated with off-farm water in square feet. Report the area only once, regardless of how many crops were grown for sale from the same area.

Item 4 - Report whether this operation received any off-farm water and total cost, if any was purchased. Report in whole dollars.

Item 5 - Report the supplier of off-farm water.

Item 6 - Report whether this operation used reclaimed water to irrigate any crops in 2018.

Item 6a - Report the area on which one or more applications of reclaimed water for irrigation were made in 2018. Report the acres only once even if multiple applications were made to the same acreage.

Item 6b - Report how much reclaimed irrigation water was used on this operation in 2018. Report the quantity of reclaimed water in acre-feet or total gallons.

Item 6c - Identify the source(s) of reclaimed water used on this operation by marking an 'X' in all the sources that apply.

Section 6 – Pumps, Other Than Well Pumps, Used For Irrigation

These are pumps that were used for pumping surface water from rivers and streams, irrigation channels, ponds, and other water holding systems.

Tailwater pits hold water that was previously used for irrigation.

Relifting or boosting water within system - Some irrigation systems using water from wells may also have pumps in places other than their well pumps to provide additional lift, pressure, or lateral movement, especially on farms with large distribution systems or irregular terrain. These pumps are often referred to as booster pumps. Include these booster pumps in this section.

Vertical lift refers to the average surface-level feet-of-lift the pumps must raise the water in order to distribute the water through the field irrigation system. Discharge capacity refers to average pumping capacity in gallons per minute (GPM). Discharge operating pressure refers to the average operating pressure in pounds per square inch at the point of discharge.

Section 7 – Energy Expense for All Well and Other Irrigation Pumps

For each energy source, report the number of well pumps and other pumps, the cost of the energy used to power pumps (include the landlord's share of pumping costs), and the number of acres irrigated by water source. The sum of acres irrigated across all energy types may be less than the total acres irrigated for the operation reported in Section 2, item 4, column 2, Box C. The difference should equal those acres irrigated using no pumps to supply water to the field.

Section 8 – Method of Water Distribution in Fields in the Open

This section refers to the method used to distribute irrigation water.

Item 1 - Report whether this operation irrigated any fields in the open. If so, complete this section.

Report the acres of land irrigated by each of the distribution systems listed. If the same land was irrigated by more than one method, then report acres irrigated by each method used. **Note:** Do not report information for the delivery system used to convey water from the source to the field. Report the method only for the field distribution system.

Item 2 - Gravity irrigation refers to the free flowing application of water across a field. The water is distributed across a field using either pipes or open ditches near the head of the field from which water is released to flow down furrows or to flood the field.

Item 2a - Row crops are generally irrigated by water flowing down furrows.

Item 2b - Report the controlled flooding acreage for crops such as rice or cranberries which are flooded across the entire field with the water contained within borders or basins.

Item 2c - Uncontrolled flooding is often used to water pasture or rangeland. Water is directed to the area by artificial or controlled means but there are no furrows or borders within the field when uncontrolled flooding is used.

Item 2d - Report acreage here if not reported in any of the above gravity system categories.

Item 3 - Sprinkler irrigation is separated into six categories: center pivot, linear move tower, solid set and permanent systems, mechanical move systems, hand-move systems, and other sprinkler systems. Use nozzle pressure for the pressure categories

Item 3a - A center pivot system uses a boom half the width of the field. It is anchored at the center of the field and sweeps in a circle.

Item 3b - Linear move tower systems and other linear continuous move drive systems are self-propelled systems that travel in straight lines across the field.

Item 3c - Report for solid set and permanent systems. Exclude low-flow micro systems.

Item 3di - Mechanical move systems include side roll, wheel move, other mechanical move systems, and other discrete move systems.

Item 3dii - Big gun or traveler systems use large pulsating sprinklers and travel across the area being watered.

Item 3e - Hand-move systems are any non-propelled system which must be moved manually.

Item 3f - Report acreage here if not reported in any of the above sprinkler system categories.

Item 4 - Drip, trickle, or low-flow micro irrigation water is generally distributed by tubes or tapes which meter out small amounts of water at low pressure.

Item 4a - Report acres on which on or above ground surface drip irrigation was used.

Item 4b - Report acres on which sub-surface or root zone drip was used.

Item 4c - Report acres on which low-flow micro sprinklers were used. This refers to micro sprinklers that apply water at low pressure and are not self-propelled or easily moved.

Item 4d - Report acreage here if not reported in any of the above drip, trickle, or low-flow system categories.

The total acres, by method of water distribution, should be equal to or greater than Section 2, column 2, item 4, total acres irrigated, Box C. Every acre reported as irrigated in Section 2 needs to be reported by method of irrigation in Section 8. If you use multiple methods of water distribution for the same acres, this sum may be larger than Section 2, column 2, item 4, total acres irrigated, Box C.

Section 9 – Acres Harvested in the Open and Pastureland

Report the acres of each crop harvested and its corresponding average yield per acre. Report acres of each crop harvested, even when multiple crops have been harvested off the same land. In addition, for each irrigated crop harvested, report the estimated average quantity of water applied per acre for the 2018 irrigation season. Report water applied in average acre-feet per acre or in inches per acre (but not both). Acre-feet per acre should be reported to the nearest tenth of a foot (for example, 1.6 or 2.3 acre-feet per acre), while acre-inches per acre should be reported to the nearest whole inch (for example, 19 or 28 inches per acre).

The sum of irrigated acres harvested in Section 9 should be equal to or greater than Section 2, item 4, column 2, Box C, total acres irrigated.

Any harvested crop grown in the open not pre-listed should be entered under item 18 'all other crops grown in the open.' Report the crop name in the 'specify' area.

Section 10 – Field Water Distribution and Water Source for Crops in the Open

For each crop with irrigated acres harvested reported in Section 9, report the primary type of irrigation system in the first column by selecting the appropriate water distribution code from the water distribution code list above the table. Report the number of acres irrigated from each water source (ground, on-farm surface, and off-farm suppliers).

Then, for each irrigated crop, report the number of acres that were irrigated applying chemigation, that is, the application of fertilizers or pesticides through the irrigation water. Report the acres of commercial fertilizer application and acres for pesticide application separately.

Note: For each crop, an irrigated acre harvested may be reported in both the fertilizer and pesticide columns. Therefore, for each crop, the sum of chemigation acres may total more than the corresponding irrigated harvested acres reported for that crop in column 1 of section 9.

Report the acres of the irrigated crop by water source.

Section 11 – Irrigation for Nursery and Other Horticultural Crops Grown in the Open

Item 1 - Report whether this operation irrigated any nursery, greenhouse, floriculture, mushrooms, propagative materials, or other horticultural crops grown in the open in 2018. If any horticultural crops on your operation were grown in the open, then complete this section.

Item 2 - Report the total acres and irrigated acres for horticulture crops grown in the open to the nearest tenth acre. Report the acres only once even when multiple crops were harvested off the same land. Irrigation refers to the application of water to land or crops by any artificial or controlled means.

Item 3 - Report acres for each horticulture crop listed to the nearest tenth acre. Report acres of each crop harvested, even when multiple crops were harvested off the same land. For example, if annual bedding plants and a nursery crop were harvested from the same 2 acres, enter 2.0 acres in the Floriculture and bedding crops category and 2.0 acres in the Nursery crop category. For each category, enter the total acres grown in the open and irrigated acres.

Report for each crop category grown on this operation the total acres in the open and irrigated acres in the appropriate category:

- a. Floriculture and bedding crops - Bedding/garden plants - annuals, herbaceous perennials, vegetable plants; cut flowers and cut florist greens; indoor foliage plants; potted flowering plants; hanging baskets
- b. Nursery crops - Nursery stock - ornamentals, shrubs, flowering trees, evergreens, live Christmas trees, fruit and nut trees and plants, vines, palms, ornamental grasses, bareroot herbaceous perennials; aquatic plants
- c. Sod
- d. Propagative materials - Bulbs, corms, rhizomes, tubers, cuttings, seedlings, liners, plugs, flower seeds, tobacco plants, vegetable seeds, vegetable transplants to farm fields
- e. Christmas trees and short rotation woody crops - A short rotation woody crop is a tree that grows from seed to a mature tree in 10 years or less.
- f. Other horticultural crops - If more than one crop was grown for this category, report the primary type of crop in the specify area.

Item 4 - Report the area irrigated or watered for horticultural crops grown in the open in 2018 by irrigation method used on this operation. If more than one method was used, report area in all methods that apply. Report quantity of water in the unit of measure most used for each method. If the total quantity of water, column 2a, and the unit of measure, column 2b, is known, then skip column 3.

Report for the following irrigation methods:

- a. Hand Watered
- b. Gravity Irrigation - refers to the free-flowing application of water.
- c. Sprinkler - Exclude hand-held sprinklers.
- d. Drip, trickle, or low-flow micro irrigation - the water is distributed down the rows by tapes which meter out small amounts of water at low pressure near the plant's roots.
- e. Subirrigation - this is sometimes referred to as water seepage. It is used to maintain a water table at a predetermined depth. Normally these systems are permanently in place below the rootline. Water is usually applied by using emitters. Include hydroponic in this category.

The total area reported, by method used, should be equal to or greater than item 2, irrigated area, code 0738.

Item 5 - Report the water source percentage for each irrigation method listed. The percentage for ground water, on-farm water, and off-farm water should add to 100% for each method (row).

Definitions of Water Sources

Ground water is water from a well or wells located on this farm.

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 your farm.

Off-farm surface water is surface or ground water from U.S. Bureau of Reclamation, other Federal agencies, or other suppliers.

Section 12 – Irrigation for Nursery, Greenhouse, and Other Horticultural Crops Grown Under Protection

Item 1 - Report whether this operation irrigated any nursery, greenhouse, floriculture, mushrooms, propagative materials, or other horticultural crops grown under protection. Under protection includes horticultural crops grown under glass, rigid plastic, plastic film, including “tunnel” protection and hoop houses. If any horticultural crops on your operation were grown under protection, then complete this section.

Item 2 - Report the total area and irrigated area under protection in square feet. Report the area only once, regardless of how many crops were grown for sale from the same area. Irrigation refers to one or more applications of water to land or crops by any artificial or controlled means.

Item 3 - Report the area irrigated in square feet for each horticultural category listed. Report the area of each horticulture crop, even when multiple crops were harvested off the same land. For example, if two crops of annual bedding plants were grown from 1,000 square feet, enter 1,000 in the Floriculture and Bedding Crops category. If 500 square feet of food crops were also grown in the same area, then also report 500 in the Food crops grown under protection category. For each category, enter the total area under protection that was irrigated.

Report crops grown on this operation in the appropriate category:

- a. **Floriculture and bedding crops** - Bedding/garden plants - annuals, herbaceous perennials, vegetable plants; cut flowers and cut florist greens; indoor foliage plants; potted flowering plants; hanging baskets
- b. **Nursery crops** - Nursery stock - ornamentals, shrubs, flowering trees, evergreens, live Christmas trees, fruit and nut trees and plants, vines, palms, ornamental grasses, bareroot herbaceous perennials; aquatic plants

- c. **Propagative materials** - Bulbs, corms, rhizomes, tubers, cuttings, seedlings, liners, plugs, flower seeds, tobacco plants, vegetable seeds, vegetable transplants to farm fields
- d. **Food crops grown under protection** - Tomatoes, other vegetables and fresh cut herbs, fruits and berries.
- e. **Mushrooms**
- f. **Other horticultural crops** - If more than one crop was grown for this category, report the primary type of crop in the specify area.

Item 4 - Report the area irrigated or watered for horticultural crops grown under protection in 2018 by irrigation method used on this operation.

If more than one method was used, report area in all methods that apply. Report quantity of water in the unit of measure most used for each method. If the total quantity of water, column 2a, and the unit of measure, column 2b, is known, then skip column 3.

Report for the following irrigation methods:

- a. **Hand Watered**
- b. **Gravity Irrigation** - refers to the free-flowing application of water.
- c. **Sprinkler** - Exclude hand-held sprinklers.
- d. **Drip, trickle, or low-flow micro irrigation** - the water is distributed down the rows by tapes which meter out small amounts of water at low pressure near the plant's roots.
- e. **Subirrigation** - this is sometimes referred to as water seepage. It is used to maintain a water table at a predetermined depth. Normally these systems are permanently in place below the rootline. Water is usually applied by using emitters. Include hydroponic in this category.

The total area reported, by method used, should be equal to or greater than item 2, irrigated area, code 0629.

Item 5 - Report the water source percentage for each irrigation method listed. The percentage for ground water, on-farm water, and off-farm water should add to 100% for each method (row).

Definitions of Water Sources

Ground water is water from a well or wells located on this farm.

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 your farm.

Off-farm surface water is surface or ground water from U.S. Bureau of Reclamation, other Federal agencies, or other suppliers.

Section 13 – Expenditures for Irrigation

For the construction and improvement categories report the cost of the expenditure in column 1, the irrigated acres affected in column 2, the primary purpose code of the expenditure in column 3, and the primary source code of the funding assistance in column 4 if any were received. Primary purpose codes and source codes of the funding can be found at the top of the page.

Section 14 – Irrigation and Water Management Practices

Item 1 - Report on the method(s) or approach(es) used to decide when to schedule water applications in 2018. Mark all that apply.

Item 2 - Report whether this operation had to discontinue irrigation in 2018 long enough to affect crop yield.

Item 2a - Report the acres which had to discontinue or reduce irrigation long enough to reduce crop yields.

Item 2b - Report the reason(s) if irrigation was discontinued. Mark all that apply. If “other” is marked, report the reason for discontinuing irrigation in the “specify” response area.

Item 3 and 4 - If you reported gravity irrigation in Section 8, then complete Items 3 and 4. In Item 4, for each practice, a through d, report the number of gravity irrigated acres using the specific practices.

Item 5 - Report the sources that this operation relied on for guidance in reducing irrigation costs or to conserve water. Mark all that apply.

Item 6 - Report any issues which prevented you from implementing improvements to existing irrigation systems during the past five years. Mark all that apply.

Item 7 - If you made irrigation and/or drainage improvements above regular maintenance in the past five years, then mark item 7 ‘Yes’

Item 8 and 8a - If you received any technical or financial assistance for irrigation and/or drainage improvements, mark yes to item 8 and indicate the sources you received technical or financial assistance in item 8a. Mark all that apply. If no assistance was received, do not mark any check box.

Section 15 – Labor Used for Irrigation on This Operation in 2018

If you paid any labor cost for the irrigation activities, report total hours and average hourly wage in item 1a and report contract labor expenses for irrigation activities in item 1b. Labor costs here should pertain only to the operation and maintenance of the irrigation system and facilities. Include the landlord’s share of irrigation labor costs. Exclude cost for custom work and contract labor for harvesting.

Section 16 – No Irrigated Land in 2018

Complete this section ONLY if you did not irrigate in 2018. If you did irrigate in 2018, skip to Section 17.

Item 2 - Report whether any land on this operation was irrigated in 2017.

Item 3 - Report the reasons for not irrigating in 2018. Mark all that apply and if ‘other’ is marked, report the reason(s) in the “specify” response area.

Item 4 - Report whether the discontinuance of irrigation is permanent.

Section 17 – Value of Sales in 2018

Item 1 - Select the appropriate range of the gross value of sales of all agricultural products sold from this operation in 2018. Agricultural products include all crops and livestock sold from this operation.

Item 2 - Report the percent of the total gross value of sales that were from **irrigated** crops.

Item 3 - Report the percent of the total gross value of sales that were from **non-irrigated crop or livestock** sales. The sum of items 2 and 3 should equal 100 percent.

Section 18 – Person Completing this Form

Please print the name of the person completing this questionnaire, the date completed, and telephone number. Please indicate if you would like a free summary of the survey results in the mail.