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## 2003 FARM AND RANCH IRRIGATION SURVEY

Form Number: 03-A62  
(10/28/03)



**United States  
Department of  
Agriculture**

Please return your completed report to:

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

**OFFICE USE ONLY**

016	017	018
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**USE BLUE OR BLACK BALL POINT PEN**

*Please make corrections to name, address, and ZIP Code if necessary.*

We need to receive your report. The statistical sampling procedures we follow do not allow other farms or ranches to take your place in this survey. If you have any questions about this report call us on our toll-free number **1-888-424-7828**. If you received extra report forms for the **SAME** operation, complete one form and return **all** others in the same envelope. Thank you for taking part in this effort to improve the quality of agricultural statistics.



**National Agricultural  
Statistics Service**

**SECTION 1    ACREAGE IN 2003**

Report land owned, rented, or used by you, your spouse, or by the partnership, corporation, or organization named on the label above.

*(Include ALL LAND, REGARDLESS OF LOCATION OR USE - cropland, Conservation Reserve Program (CRP) and Wetlands Reserve Program (WRP) land, pastureland, rangeland, wasteland, woodland, idle land, farmsteads, etc. Exclude land used on a per-head or animal unit month (AUM) basis under a grazing permit.)*

	None		NUMBER OF ACRES
1. All land owned _____ →	<input type="checkbox"/>	025	
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. <i>(Include Federal, State, and railroad land leased on a per-acre basis. Exclude all land (i.e., private, Federal, State, railroad, etc.) used on a per-head or animal unit month (AUM) basis under a grazing permit.)</i> _____ →	<input type="checkbox"/>	026 +	
3. All land rented or leased TO OTHERS, including land worked on shares by others and land subleased _____ →	<input type="checkbox"/>	027 -	
4. TOTAL ACRES IN "THIS OPERATION" - <i>(Items 1 + 2 - 3 = 4)</i> _____ →		028 =	



**SECTION 2 LAND USED IN 2003**

Distribute all acres in "THIS OPERATION" in column 1. Distribute all irrigated land in "THIS OPERATION" in column 2, items 1 through 4. If the same land had more than one use in 2003, report that land only once in the first use listed below that applies.

For column 2, in addition to fully irrigated land, report as irrigated any land to which partial, supplemental, or semi-irrigation was applied. 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 canals, ditches, spreader dikes, pipes, or other works.

1. <b>Cropland</b> - Report acres only once in one of the following categories	None	<b>Column 1</b>	None	<b>Column 2</b>
		<b>TOTAL ACRES</b>		<b>ACRES IRRIGATED</b>
a. <b>Cropland harvested</b> - Include all land from which crops were harvested or hay was cut, and all land in orchards, citrus groves, and vineyards →	<input type="checkbox"/>	029	<input type="checkbox"/>	030
b. <b>Cropland used only for pasture or grazing</b> - Include rotation pasture and grazing land that could have been used for crops without additional improvements →	<input type="checkbox"/>	031	<input type="checkbox"/>	032
c. <b>Other cropland</b> - Include cropland used for cover crops, cropland on which all crops failed, cropland in cultivated summer fallow, and cropland idle →	<input type="checkbox"/>	033	<input type="checkbox"/>	034
2. <b>Woodland</b> - Include woodland pastured and woodland not pastured →	<input type="checkbox"/>	035		
3. <b>Other pastured land and rangeland</b> - Include any pastured land other than cropland and woodland pastured →	<input type="checkbox"/>	037	<input type="checkbox"/>	038
4. <b>All other land</b> - Include any land not reported above. Include land in farmsteads, buildings, livestock facilities, ponds, roads, wasteland, etc. →	<input type="checkbox"/>	039		
		<b>"THIS OPERATION"</b>		<b>IRRIGATED</b>
5. <b>TOTAL ACRES</b> - ADD acres in each column and enter the totals. (Column 1 total should be equal to item 4 in section 1.) →		041		042

**NOTE:** If the total irrigated acres in column 2, item 5 is '0', go to section 20.

**6. For "THIS OPERATION" what county and state had the most irrigated acres?**

County Name	State
950	951

**SECTION 3 GOVERNMENT PROGRAMS**

1. During 2003, did you receive direct payments, counter-cyclical payments, loan deficiency payments, marketing loans, or participate in any quota programs or any buy-out programs?

691 1  **Yes** 2  **No**

2. In the past 5 years have you received cost-share payments for irrigation or drainage improvements from any of the following organizations?

795 1  **Yes - Continue** 2  **No - Go to section 4**

a. Mark (X) all that apply.

- 698 1  USDA - Environmental Quality Incentive Program (EQIP)
- 2  Non-USDA Federal programs - Include EPA, Bureau of Reclamation, or other programs
- 3  State programs, local water management or supply district programs
- 4  Other - Specify →



**SECTION 4 METHOD OF WATER DISTRIBUTION IN 2003**

Report acres irrigated by each type of ON FIELD distribution or delivery system listed below. If same land was irrigated by more than one method of distribution, report acres irrigated by each method used.

**DO NOT** report information for the delivery system used to convey water from the source to the field, only report information for the FIELD distribution system.

**1. GRAVITY IRRIGATION**

ACRES IRRIGATED BY GRAVITY SYSTEM (FIELD WATER CONVEYANCE METHOD)						
TOTAL	OPEN UN-LINED DITCH	OPEN LINED DITCH	POLY TUBING (or other single-year-use, lay-flat tubing)	ABOVE-GROUND PIPE (except poly-tubing) 1/	UNDER-GROUND PIPE 2/	
None	855	859	857	056	057	858
a. Down rows or furrows → <input type="checkbox"/>	865	869	867	066	067	868
b. Controlled flooding (between borders or within basins) → <input type="checkbox"/>	875	879	877	076	077	878
c. Uncontrolled flooding (rangeland, pastureland, etc.) → <input type="checkbox"/>	885	889	887	086	087	888
d. Other → <input type="checkbox"/>						

1/ Includes gated-pipe, and riser or hydrant systems connected to above ground pipe.  
2/ Includes riser or hydrant systems connected to underground pipe.

**2. SPRINKLER IRRIGATION - Inlet pressure**

ACRES IRRIGATED BY SPRINKLER SYSTEMS			
VERY LOW PRESSURE (UNDER 15 PSI)	LOW PRESSURE (15 TO 29 PSI)	MEDIUM PRESSURE (30 TO 59 PSI)	HIGH PRESSURE (60 PSI OR MORE)
569	576	575	570
571	577	578	579
568	565	566	567

- None
- a. Center pivot systems (circle) →
- b. Linear move tower systems (and other linear continuous move drive systems) →
- c. Solid set and permanent systems (except low-flow micro systems) →
- d. Mechanical move systems -
- (1) Side roll, wheel move, or other mechanical move systems (and other discrete move systems) →
- (2) Big Gun or Traveller systems →
- e. Hand move systems →

**3. DRIP, TRICKLE OR LOW-FLOW MICRO IRRIGATION (except poly and lay-flat tubing)**

- None
- a. Surface drip (on or above ground) →
- b. Sub-surface drip (root zone) →
- c. Low-flow micro sprinklers (sprays) (apply water at low pressure and are not self-propelled or easily moved) →

**4. SUB-IRRIGATION - Water seepage, or use of a drainage system to maintain aquifer water table at a predetermined depth (Exclude methods reported above)** →

ACRES IRRIGATED (ALL PRESSURES)
240
241
242
ACRES IRRIGATED (ALL PRESSURES)
248
246
247
ACRES IRRIGATED
249



**SECTION 5 ACRES IRRIGATED and ESTIMATED QUANTITY OF WATER USED ON "THIS OPERATION" BY SOURCE IN 2003**

Report quantity of water in the unit or units of measure most convenient for you. If measurements are not available, give your best estimate for quantity of water used. If average acre-feet cannot be estimated, give combined pumping capacity and duration in days, or total depth of water applied, or in flow quantities and duration of flow in days.

- 1. **ACRES IRRIGATED** (*Include cropland and pastureland.*) →
- 2. **ESTIMATED QUANTITY OF WATER USED ON "THIS OPERATION" IN 2003** (*Report for only one of the following options items a through e, in the unit most convenient for you.*)
  - a. Total acre feet (If total feet is reported, go to item 3) →
  - or
  - b. Average acre-feet per acre irrigated (*One acre foot covers one acre one foot deep*) →
  - or
  - c. Average inches applied per acre →
  - or
  - d. { Average gallons of water applied per minute (**GPM**) →  
 Total number of 24-hour day equivalents water was applied →
  - or
  - e. { Average flow in cubic feet per second (**CFS**) →  
 Total number of 24-hour day equivalents water flow was applied →

BY WATER SOURCE		
GROUND WATER <i>(from wells)</i>	SURFACE WATER	
	ON FARM	OFF-FARM <i>(All Suppliers)</i>
444 ACRES	449 ACRES	454 ACRES
TOTAL ACRE FEET		
955 ■	960 ■	965 ■
ACRE-FEET PER ACRE		
445 ■	450 ■	966 ■
INCHES PER ACRE		
448	453	967
GPM		
446	451	968
DURATION		
447 DAYS	452 DAYS	969 DAYS
CFS		
956	961	970
DURATION		
957 DAYS	962 DAYS	971 DAYS

If no Off-farm supplied water, go to section 6.

3. Total cost of Off-farm supplied water →

DOLLARS	
456 \$	.00

a. If water was received at no cost, check → <sup>675</sup> 1  **No Cost**

4. **Supplier of off-farm water** - 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.*) →

664

1  **None**

2  **Some**

3  **All**

4  **Unknown**

b. Other Federal agencies such as the U.S. Army Corp of Engineers, Bureau of Indian Affairs, USDA small watershed project, etc. →

665

1  **None**

2  **Some**

3  **All**

4  **Unknown**

c. All other suppliers →

666

1  **None**

2  **Some**

3  **All**

4  **Unknown**



**SECTION 6 WATER TRANSFERS IN 2003**

Water leased or rented on an annual or multi-year basis for use off your farm when the permanent right to the water is maintained by the operator. **Include** water rented or leased directly by your operation or your irrigation provider.

1. In 2003, did you rent or lease water to others for use off your farm?  
(**Include** both agricultural and non-agricultural purposes.)

531 1  **Yes - Continue** 2  **No - Go to section 7**

2. Report quantity of water transferred to others in 2003 -

- a. Ground water from on-farm wells \_\_\_\_\_ →
- b. Surface water from on-farm sources \_\_\_\_\_ →
- c. Water normally received from an off-farm supplier \_\_\_\_\_ →

WATER QUANTITY ACRE - FEET	
532	
533	
534	

3. Report recipients or uses of transferred water - *Check all that apply.*

- 535 1  Other agricultural producers
- 2  Municipal or industrial water users
- 3  Environmental uses (*water quality, instream flow, habitat improvement*)
- 4  Unknown use of transferred water - (*If unknown, check item a or b below*)

- 536 1  a. Water was part of a pool used for several purposes
- 2  b. Water rented or leased was arranged by your irrigation provider

**SECTION 7 EXPENDITURES for IRRIGATION FACILITIES and EQUIPMENT ON "THIS OPERATION" IN 2003**

Report expenditures made and sources of funding assistance in 2003 for the construction of irrigation facilities and purchase of irrigation equipment and machinery on "THIS OPERATION". **Include** estimates of expenditures made or shared with others (*landlords, government agencies, including programs such as Environmental Quality Incentive Program (EQIP), etc.*) **Report the cost of maintenance and repairs in section 13.**

None		TOTAL EXPENDITURES DOLLARS	PRINCIPAL PURPOSE OF EXPENDITURES Mark (X) only one	PRIMARY SOURCE OF FUNDING ASSISTANCE Mark (X) only one
1. Purchase of new or replacement irrigation equipment and machinery ( <b>Include</b> sprinklers, pipes, siphons, nozzles, pumps, motors, engines, etc., at net cost. <b>DO NOT</b> include computers.) → <input type="checkbox"/>	511	\$ .00	512 1 <input type="checkbox"/> Replacement 2 <input type="checkbox"/> Water Conservation 3 <input type="checkbox"/> New Expansion	513 1 <input type="checkbox"/> EQIP cost share program 2 <input type="checkbox"/> Other USDA cost share programs 3 <input type="checkbox"/> Other public cost share programs 4 <input type="checkbox"/> No public funding
2. New well construction or deepening of existing wells ( <b>Include</b> drilling costs, cost of casing, and any costs to prepare well for installation of pump. <b>DO NOT</b> include cost of pumps or motors.) → <input type="checkbox"/>	515	\$ .00	516 1 <input type="checkbox"/> Replacement 2 <input type="checkbox"/> Water Conservation 3 <input type="checkbox"/> New Expansion	517 1 <input type="checkbox"/> EQIP cost share program 2 <input type="checkbox"/> Other USDA cost share programs 3 <input type="checkbox"/> Other public cost share programs 4 <input type="checkbox"/> No public funding
3. Construction or improvement of permanent storage and distribution systems (dams, ponds, reservoirs, permanent ditches, canals, flumes, etc.) → <input type="checkbox"/>	519	\$ .00	520 1 <input type="checkbox"/> Replacement 2 <input type="checkbox"/> Water Conservation 3 <input type="checkbox"/> New Expansion	521 1 <input type="checkbox"/> EQIP cost share program 2 <input type="checkbox"/> Other USDA cost share programs 3 <input type="checkbox"/> Other public cost share programs 4 <input type="checkbox"/> No public funding
4. Land clearing and leveling for irrigation purposes → <input type="checkbox"/>	523	\$ .00	524 1 <input type="checkbox"/> Replacement 2 <input type="checkbox"/> Water Conservation 3 <input type="checkbox"/> New Expansion	525 1 <input type="checkbox"/> EQIP cost share program 2 <input type="checkbox"/> Other USDA cost share programs 3 <input type="checkbox"/> Other public cost share programs 4 <input type="checkbox"/> No public funding
5. Computers, control panels, and software for irrigation water management → <input type="checkbox"/>	544	\$ .00	545 1 <input type="checkbox"/> Replacement 2 <input type="checkbox"/> Water Conservation 3 <input type="checkbox"/> New Expansion	546 1 <input type="checkbox"/> EQIP cost share program 2 <input type="checkbox"/> Other USDA cost share programs 3 <input type="checkbox"/> Other public cost share programs 4 <input type="checkbox"/> No public funding



**SECTION 8 ACRES HARVESTED and CROP YIELDS IN 2003**

For each crop harvested, report separately the acreage and average yield from irrigated land and non-irrigated land.

Report harvested crops as irrigated if any water was artificially applied either before planting or during the crop growing season in 2003. 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.

	None	IRRIGATED CROP <i>Include preplant and supplemental or semi irrigation</i>					NON-IRRIGATED CROP			
		IRRIGATED ACRES HARVESTED	AVERAGE YIELD PER IRRIGATED ACRES HARVESTED	ESTIMATED QUANTITY OF WATER APPLIED PER ACRE AVERAGE			NON-IRRIGATED ACRES HARVESTED	AVERAGE YIELD PER NON-IRRIGATED ACRES HARVESTED		
				ACRE-FEET PER ACRE	OR	INCHES PER ACRE				
1. Corn for grain or seed <i>(Excluding popcorn and sweetcorn.)</i>	<input type="checkbox"/>	050	051	Bu.	052	or	053	054	055	Bu.
2. Corn for silage or greenchop <i>(Excluding popcorn and sweetcorn.)</i>	<input type="checkbox"/>	060	061	Tons	062	or	063	064	065	Tons
3. Sorghum for grain or seed	<input type="checkbox"/>	070	071	Bu.	072	or	073	074	075	Bu.
4. Wheat for grain or seed	<input type="checkbox"/>	080	081	Bu.	082	or	083	084	085	Bu.
5. Barley for grain or seed	<input type="checkbox"/>	090	091	Bu.	092	or	093	094	095	Bu.
6. Soybeans for beans	<input type="checkbox"/>	100	101	Bu.	102	or	103	104	105	Bu.
7. Beans, dry edible	<input type="checkbox"/>	110	111	Cwt.	112	or	113	114	115	Cwt.
8. Rice	<input type="checkbox"/>	120	121	Cwt.	122	or	123			
9. Other small grains <i>(oats, rye, etc.)</i>	<input type="checkbox"/>	130			132	or	133	134		
10. Alfalfa and alfalfa mixtures <i>(dry hay, greenchop and silage)</i>	<input type="checkbox"/>	140	141	Tons, dry	142	or	143	144	145	Tons, dry
11. All other hay, including small grain, other tame and wild hay <i>(dry hay, greenchop and silage)</i>	<input type="checkbox"/>	150	151	Tons, dry	152	or	153	154	155	Tons, dry
12. Peanuts	<input type="checkbox"/>	550	551	Lbs.	552	or	553	554	555	Lbs.
13. Cotton	<input type="checkbox"/>	160	161	Lbs. lint	162	or	163	164	165	Lbs. lint
14. Sugarbeets for sugar	<input type="checkbox"/>	170	171	Tons	172	or	173	174	175	Tons
15. Tobacco, all types	<input type="checkbox"/>	180	181	Lbs.	182	or	183	184	185	Lbs.
16. Potatoes <i>(Exclude sweetpotatoes)</i>	<input type="checkbox"/>	190	191	Cwt.	192	or	193	194	195	Cwt.
17. All land from which vegetables and melons were harvested	<input type="checkbox"/>	200			202	or	203	204		
a. Sweet corn	<input type="checkbox"/>	850	851	Cwt.	852	or	853	854	975	Cwt.
b. Tomatoes	<input type="checkbox"/>	860	861	Cwt.	862	or	863	864	985	Cwt.
c. Lettuce and romaine	<input type="checkbox"/>	870	871	Cwt.	872	or	873	874	995	Cwt.
18. All berries <i>(bearing and nonbearing)</i>	<input type="checkbox"/>	560			562	or	563	564		
19. Land in bearing and nonbearing fruit orchards, citrus or other groves, vineyards, and nut trees	<input type="checkbox"/>	210			212	or	213	214		
20. All other crops - <i>Specify</i> ↓	<input type="checkbox"/>	220			222	or	223	224		
21. Pastureland, all types	<input type="checkbox"/>	230			232	or	233	234		

**SECTION 9 PRIMARY METHOD OF WATER DISTRIBUTION, APPLICATION OF AGRICULTURAL CHEMICALS IN IRRIGATION WATER, and WATER SOURCE FOR CROPS IRRIGATED IN 2003 ON "THIS OPERATION"**

**PRESSURE and GRAVITY IRRIGATION SYSTEMS I.D. CODES for Column 1 below. SEE INSTRUCTION SHEET FOR LARGER PRINT OF CODES.**

- |  |  |  |   |
|--|--|--|---|
| <b>P<br/>R<br/>E<br/>S<br/>S<br/>U<br/>R<br/>E</b> | 01 = Hand Move System<br>02 = Solid or Permanent Set System<br>03 = Side Roll or Wheel Line System<br>04 = Big Gun System<br>05 = Linear Move System (PSI less than 15)<br>06 = Linear Move System (PSI 15 to 29)<br>07 = Linear Move System (PSI equal to or greater than 30 and less than 60)<br>08 = Linear Move System (PSI equal to or greater than 60)<br>09 = Center Pivot System (PSI less than 15)<br>10 = Center Pivot System (PSI 15 to 29)<br>11 = Center Pivot System (PSI equal to or greater than 30 and less than 60)<br>12 = Center Pivot System (PSI equal to or greater than 60)<br>13 = Low-Flow Irrigation (drip, trickle, or micro sprinkler systems)<br>14 = Other Pressure System (Specify type _____) | <b>G<br/>R<br/>A<br/>V<br/>I<br/>T<br/>Y</b> | 15 = Siphon-Tube System (from unlined ditches)<br>16 = Siphon-Tube System (from lined ditches)<br>17 = Portal - or Ditch-Gate System (from unlined ditches)<br>18 = Portal - or Ditch-Gate System (from lined ditches)<br>19 = Poly-Pipe or Lay Flat Tubing System<br>20 = Gated-Pipe System (not poly-pipe)<br>21 = Improved Gated-Pipe System (surge-flow or cablegation systems but not poly-pipe)<br>22 = Subirrigation System<br>23 = Open Discharge from a well or pump<br>24 = Other Gravity System (Specify type _____) |
|--|--|--|---|

Crops irrigated on "THIS OPERATION" in 2003  List only crops irrigated -	Primary Method of Water Distribution Enter Irrigation System I.D. code from Table above.				Chemigation using Irrigation System		Water Source (Column totals may exceed acres of crop when more than one water source was used.)		
	COLUMN 1 Enter code	Percent of irrigated crop using System I.D.		Commercial Fertilizer ACRES	Pesticide Application ACRES	How many of the crop acres were irrigated using -			
		ID	%			On-farm Surface water	Well water	Water from off-farm suppliers 1/	
1. Corn for grain or seed (Excluding popcorn and sweetcorn.)	250	ID	251	%	252	253	254	255	256
2. Corn for silage or greenchop (Excluding popcorn and sweetcorn.)	260	ID	261	%	262	263	264	265	266
3. Sorghum for grain or seed	270	ID	271	%	272	273	274	275	276
4. Wheat for grain or seed	280	ID	281	%	282	283	284	285	286
5. Barley for grain or seed	290	ID	291	%	292	293	294	295	296
6. Soybeans for beans	300	ID	301	%	302	303	304	305	306
7. Beans, dry edible	310	ID	311	%	312	313	314	315	316
8. Rice	320	ID	321	%	322	323	324	325	326
9. Other small grains (oats, rye, etc.)	330	ID	331	%	332	333	334	335	336
10. Alfalfa and alfalfa mixtures (dry hay, greenchop and silage)	340	ID	341	%	342	343	344	345	346
11. All other hay, including small grain, other tame and wild hay (dry hay, greenchop and silage)	350	ID	351	%	352	353	354	355	356
12. Peanuts	580	ID	581	%	582	583	584	585	586
13. Cotton	360	ID	361	%	362	363	364	365	366
14. Sugarbeets for sugar	370	ID	371	%	372	373	374	375	376
15. Tobacco, all types	380	ID	381	%	382	383	384	385	386
16. Potatoes (Exclude sweetpotatoes)	390	ID	391	%	392	393	394	395	396
17. All land from which vegetables and melons were harvested	400	ID	401	%	402	403	404	405	406
a. Sweet corn	900	ID	901	%	902	903	904	905	906
b. Tomatoes	910	ID	911	%	912	913	914	915	916
c. Lettuce and romaine	920	ID	921	%	922	923	924	925	926
18. All berries (bearing and nonbearing)	590	ID	591	%	592	593	594	595	596
19. Land in bearing and nonbearing fruit orchards, citrus or other groves, vineyards, and nut trees	410	ID	411	%	412	413	414	415	416
20. All other crops - Specify ↓	420	ID	421	%	422	423	424	425	426
21. Pastureland, all types	430	ID	431	%	432	433	434	435	436

1/ 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; commercial or municipal water systems.



**SECTION 10** NUMBER OF IRRIGATION WELLS ON "THIS OPERATION" IN 2003, WELL DEPTH, and PUMPING CAPACITY

1. Did "THIS OPERATION" irrigate with water from wells in 2003?

760 1  Yes - Continue 2  No - Go to section 11

NUMBER OF WELLS USED
460

2. Wells used in 2003

a. For the first 3 primary wells pumped in 2003, report the following information -

Well #	Depth of well FEET	Depth to water at start of irrigation season FEET	Depth to bowls or impellers FEET	Pump capacity (Discharge from well) GPM	Operating pressure at well head PSI	Size of engine (For all motors - including electric) HP	Total hours operated (for the season)
1 →	461	462	463	464	676	761	762
2 →	465	466	467	468	677	763	764
3 →	469	470	471	472	678	765	766
Average depth of well FEET	Average depth to water at start of irrigation season FEET	Average depth to bowls or impellers FEET	Average pump capacity (Discharge from well) GPM	Average operating pressure at well head PSI	Average size of engine (For all motors - including electric) HP	Total hours operated (for the season)	
→	481	482	483	484	681	767	768

b. Of all other wells pumped in 2003, report the average for all other wells

3. How many pumping stations (wells from item 2 above with associated piping systems) used backflow prevention devices (check valves) in 2003?

None <input type="checkbox"/>	NUMBER
	770
	ACRES
	771

a. In 2003, how many acres were irrigated with these wells (item 3 above)?

4. How many wells (from item 2 above) had flow meters or other flow measurement devices?

<input type="checkbox"/>	NUMBER OF WELLS METERED
	683
	ACRES
	772

a. In 2003, how many acres were irrigated with these systems (item 4 above)?

5. Has the average depth to water for the wells supplying this operation changed in the last five years?

773 1  Yes - Continue 2  No - Go to item 6

a. If yes, check one below. ↘

487 1  Increased depth 2  Decreased depth

6. How many of the wells used in 2003 are free flowing (artesian wells)?

None <input type="checkbox"/>	NUMBER
	486

7. Wells not used in 2003, but capable of being used (Exclude abandoned wells.)

<input type="checkbox"/>	NUMBER OF WELLS NOT USED
	485





**SECTION 11 PUMPS, OTHER THAN WELL PUMPS, USED FOR IRRIGATION ON "THIS OPERATION" IN 2003**

Report for all pumps, other than well pumps, on "THIS OPERATION" whether they are in use or not.

- 1. Tailwater pits  None
- 2. Ponds, lakes, reservoirs, rivers, canals, etc.
- 3. Relifting or boosting water within system

Number of pumps	Vertical lift AVG. FEET	Discharge capacity AVG. GPM	Discharge operating pressure AVG. PSI
490	774	491	687
492	775	493	688
494	776	777	778

**SECTION 12 ENERGY USE ON "THIS OPERATION" IN 2003 FOR PUMPING IRRIGATION WATER**

Report for all fuel and power used in 2003 for irrigation pumping on "THIS OPERATION". Include in the cost figures any additional charges such as the "fuel adjustment charge" or any other type of additional charge which is based on the amount of power or fuel purchased. Include landlord's share.

- 1. Electricity  None
- 2. Natural gas
- 3. LP gas, propane, or butane
- 4. Diesel fuel
- 5. Gasoline and gasohol
- 6. Solar and other renewable

Number of wells or pumps powered by type of energy used	Total cost of energy used Dollars	Acres irrigated by water source	
		Water from wells 1/	Surface water 2/
495	496 \$ .00	497	781
498	499 \$ .00	500	782
501	502 \$ .00	503	783
504	505 \$ .00	506	784
507	508 \$ .00	509	785
779		780	786

1/ Include only acres for wells reported in section 10, item 2.  
2/ Include only acres for pumps reported in section 11.

**SECTION 13 IRRIGATION MAINTENANCE and REPAIR COSTS FOR IRRIGATION EQUIPMENT and FACILITIES ON "THIS OPERATION" IN 2003**

Report all expenses in 2003 for keeping irrigation equipment and facilities in working order. Include expenses for tune-ups, oil changes, and repairs to pumps, motors, pipes, canals, sprinkler systems, ditch and canal cleanout, etc. (Exclude construction or improvement costs reported in section 7.)

- 1. Amount spent for maintenance and repairs of irrigation equipment and facilities in 2003 including maintenance of on-farm ditches (Include payments made by landlord's - Give estimate if actual figures are unavailable.)  None

DOLLARS	
510	
\$	.00

**SECTION 14 LABOR COSTS FOR IRRIGATION ACTIVITIES ON "THIS OPERATION" IN 2003**

(Include gross cash payments to employees, including family members, before deductions for social security, taxes, insurance premiums, etc. and payments for contract labor. Exclude customwork.)

- 1. Cash wages paid for -

- a. Hired irrigation labor  None
- b. Contract irrigation labor

DOLLARS	
787	
\$	.00
788	
\$	.00



**SECTION 15 IRRIGATION PRACTICES IN 2003**

**1. How did you decide when to schedule water use in 2003? Mark (X) all that apply.**

- 527
- 1  Condition of crop (*observation*)
  - 2  Feel of the soil
  - 3  Use of soil moisture sensing devices such as moisture blocks or tensiometers
  - 4  Use of plant moisture sensing devices such as pressure (*chamber*) bombs or infrared (IR) thermometer
  - 5  Use of irrigation scheduling service (Including commercial and government)
  - 6  Reports on daily crop-water evapo-transpiration (ET) use (*Internet, newspapers, radio, TV, fax and email*)
  - 7  Water delivered by irrigation organization in turn (no choice by water user)
  - 8  Personal calendar schedule
  - 9  Computer simulation models (*not from a commercial service*)
  - 10  When neighbors begin to irrigate
  - 11  Other - Specify

**2. Did you have to discontinue irrigation during 2003 long enough to affect crop yields?**

- 669
- 1  **Yes - Continue**    2  **No - Go to section 16**

**a. Mark (X) all that apply.**

- 670
- 1  Shortage of surface water (*water from reservoirs, lakes, streams, water supply organizations, etc.*)
  - 2  Shortage of ground water (*lowering water level of wells or depletion of ground water*)
  - 3  Irrigation equipment failure
  - 4  Energy price increases or energy shortage
  - 5  Poor water quality
  - 6  Loss of water rights not due to voluntary transfers
  - 7  Cost of purchased water
  - 8  Other - Specify

**SECTION 16 OTHER USES OF IRRIGATION WATER ON "THIS OPERATION" IN 2003**

**1. Report irrigation used for any of the following purposes -**

- a. Prevent freeze damage
- b. Crop cooling to delay early budding, blooming, or to reduce heat stress (*cool crop canopy*)
- c. Leaching to remove salts from the soil (*salinity control*)
- d. Disposal of liquid livestock waste
- e. To provide wildlife or waterfowl habitat
- f. Other - Specify

	ACRES IRRIGATED
None <input type="checkbox"/>	440
<input type="checkbox"/>	441
<input type="checkbox"/>	442
<input type="checkbox"/>	488
<input type="checkbox"/>	439
<input type="checkbox"/>	443



**SECTION 17 WATER MANAGEMENT PRACTICES FOR OPERATORS USING GRAVITY IRRIGATION SYSTEMS**

1. Did you use gravity irrigation systems to irrigate any land in 2003 (acres reported in section 4, item 1)?

671 1  Yes - Continue 2  No - Go to section 18

2. On how many acres did you use the following techniques?

- a. Irrigation water captured for further use (tailwater pits) \_\_\_\_\_ →
- b. Water restricted from running off by diking end of field \_\_\_\_\_ →
- c. Surge flow or cablegation technique \_\_\_\_\_ →
- d. Shortening of furrow length \_\_\_\_\_ →
- e. Limited irrigation set time or number of irrigations, to reduce water applied \_\_\_\_\_ →
- f. Alternate row irrigation \_\_\_\_\_ →
- g. Water-soluble polyacrylamide (PAM) \_\_\_\_\_ →
- h. Mulch or other types of row covers \_\_\_\_\_ →
- i. Gravity system with laser leveling \_\_\_\_\_ →
- j. Special furrowing techniques, such as wide-spaced bed furrowing, compacted furrowing, or furrow diking \_\_\_\_\_ →   
Specify technique used \_\_\_\_\_

None	NUMBER OF ACRES
<input type="checkbox"/>	672
<input type="checkbox"/>	789
<input type="checkbox"/>	673
<input type="checkbox"/>	684
<input type="checkbox"/>	685
<input type="checkbox"/>	686
<input type="checkbox"/>	699
<input type="checkbox"/>	790
<input type="checkbox"/>	791
<input type="checkbox"/>	674

**SECTION 18 IMPROVEMENTS TO IRRIGATION SYSTEMS THAT REDUCE ENERGY and/or CONSERVE WATER**

Consider as an improvement changes in equipment or management practices.  
For example - retrofitting a sprinkler system for low pressure operation or adopting irrigation scheduling as a management practice.

1. Have you implemented improvements to your irrigation system on existing irrigated acres since 1998?

693 1  Yes - Continue 2  No - Go to item 3

2. What were the results of these improvements on a per acre basis? - Mark (X) all that apply.

- 694 1  Improved crop yield or quality
- 2  Reduced energy costs
- 3  Reduced water applied
- 4  Reduced labor costs
- 5  Reduced fertilizer or pesticide losses
- 6  Reduced soil erosion
- 7  Reduced tailwater
- 8  None of the above

3. What are barriers to implementing improvements that might reduce energy and/or conserve water in your irrigation system? - Mark (X) all that apply.

- 695 1  Investigating improvements not a priority at this time
- 2  Risk of reduced yield or poorer quality crop yields from not meeting water needs
- 3  Physical field/crop conditions limit system improvements
- 4  Improvement(s) will reduce costs, but not enough to cover installation costs
- 5  Can not finance improvements
- 6  Landlord(s) will not share cost of improvements
- 7  Uncertainty about future availability of water
- 8  Will not be farming this operation long enough to justify new improvements
- 9  Other - Specify \_\_\_\_\_



**SECTION 19 SOURCES OF IRRIGATION INFORMATION**

1. What are the sources of information that you rely on for guidance in reducing irrigation costs or to conserve water used for irrigation? - Mark (X) all that apply, then go to section 21.

- 696 1  Extension agents or university specialists
- 2  Private irrigation specialists or crop consultants hired by owner or operator
- 3  Irrigation equipment dealers
- 4  Local irrigation district employees or others hired by the water supplier
- 5  Government specialists from the Natural Resources Conservation Service, Local Conservation District, Bureau of Reclamation or other Federal and State agencies
- 6  Media reports or information in the press
- 7  Neighboring farmers
- 8  Electronic information services (World Wide Web, DTN, Internet links to private or public data sources, etc.)
- 9  Other - Specify \_\_\_\_\_

**SECTION 20 IRRIGATED LAND IN 2002 - DO NOT answer this section if you irrigated ANY land in 2003, go to section 21**

1. Was any land irrigated on "THIS OPERATION" in 2002?

- 528 1  Yes - Continue      2  No - Go to section 21

2. Reasons for not irrigating in 2003 - Mark (X) all that apply.

- 529 1  Sufficient soil moisture - no irrigation needed
- 2  Shortage of surface water (water from reservoirs, lakes, streams, water supply organizations, etc.)
- 3  Shortage of ground water (lowering water level of wells or depletion of ground water)
- 4  Irrigation uneconomical due to high fuel and power costs and/or low commodity prices
- 5  Abandoned irrigation because of land degradation (soil erosion, soil salinity, etc.)
- 6  Loss of water rights (not due to voluntary transfers)
- 7  Sold or leased water rights or annual water allocation
- 8  Converted to non-agricultural use
- 9  Converted to an agricultural enterprise not requiring irrigation
- 10  Available surface water too salty due to drought conditions
- 11  Other - Specify \_\_\_\_\_

3. Do you consider your discontinuance of irrigation to be permanent?

- 530 1  Yes      2  No

**SECTION 21 VALUE OF SALES**

1. What was the total value of sales for both crops and livestock produced and sold from "THIS OPERATION" in 2003? Check only one below.

- 980 1  \$0 - \$24,999    2  \$25,000 - \$49,999    3  \$50,000 - \$99,999    4  \$100,000 - \$249,999
- 5  \$250,000 - \$499,999    6  \$500,000 - \$999,999    7  \$1,000,000 and over

- 2. What percent of total farm sales were from irrigated crop sales? \_\_\_\_\_ →
- 3. What percent of total farm sales were from livestock sales? \_\_\_\_\_ →

PERCENT
981
982

**SECTION 22 PERSON COMPLETING THIS FORM - Please print**

Name _____	Date _____	Telephone with Area Code _____
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According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The time required to complete this information collection is estimated to average 30 to 60 minutes per response.

**Do You Need Help?** Do not hesitate to contact the National Agricultural Statistics Service if you need more help. Please use our Toll Free number 1-888-424-7828. **We Thank You Very Much for the prompt return of your completed survey.**

Would you like to receive a summary of the results of this survey in the mail? \_\_\_\_\_ →

Results will also be available on the Internet at <http://www.usda.gov/nass/>, in the fall of 2004.

099 1  Yes    2  No

OFFICE USE	Respondent			Response Code			Enum.	Eval.		
	1-Op/Ptnr/Mgr 2-Spouse	3-Acct/Bkpr 4-Other	930	2-Tele 3-Int 7-TR	8-IR 9-Inac	931	933	011	013	015

