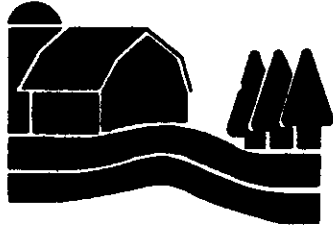


**iowa
farm and
rural life
poll**



Iowa Farmers' Opinions About Water

Water quality, conservation and use are increasingly receiving national, state and local attention. Several popular press articles in the past year have examined the importance of water and some of the tough policy decisions facing the United States. In a special report Oct. 31, 1983, U.S. News and World Report characterized the problem in an article titled "War over Water: Crisis in the 80's."

The press has covered numerous incidents of water pollution such as Times Beach and Love Canal--vivid reminders of the possible public health consequences of water pollution.

Iowa is not exempt from water pollution problems. Although on a smaller scale, there have been several instances of water pollution reported in the state in past years. The 1983 drought across much of the state added to our awareness of our dependency on water. The Iowa Legislature has asked the Iowa Water, Air and Waste Management Commission to submit a detailed water resource plan outlining the water issues facing the state.

To better understand the water concerns among Iowa farmers and to assist policy makers, several water questions were included in the fall 1983 Iowa

Farm and Rural Life Poll. A statewide random sample of 2,011 farmers were asked their opinions about water quality and the problems they have encountered. The information presented here represents the opinions of about one out of every 60 farmers across the state.

Drinking Water Quality

Farmers were asked their opinions of the quality of drinking water in the U.S., in Iowa, in their own communities and on their own farms. Two-thirds of them felt water quality was a severe or moderate problem in the nation. Fewer --47 percent--felt water quality was a problem in Iowa, while 30 percent said it was in a problem in their communities and 20 percent on their own farms (Fig. 1).

There was a strong tendency among respondents to view the problem as much worse the farther it was from home. A similar relationship has been found in other studies on perceptions of soil erosion and is referred to as the proximity effect. The closer to home, the less likely the issue is seen as a problem. However, in this survey, five percent of the farmers said they had a severe water quality problem, and 15 percent said they had a moderate problem on their own farm.

Prepared by Paul Lasley, extension sociologist, and John A. Wallize, communications specialist. Tom Glanville, water specialist, assisted in drafting the questionnaire and provided background material. The Division of Statistics, Iowa Department of Agriculture, provided valuable assistance.

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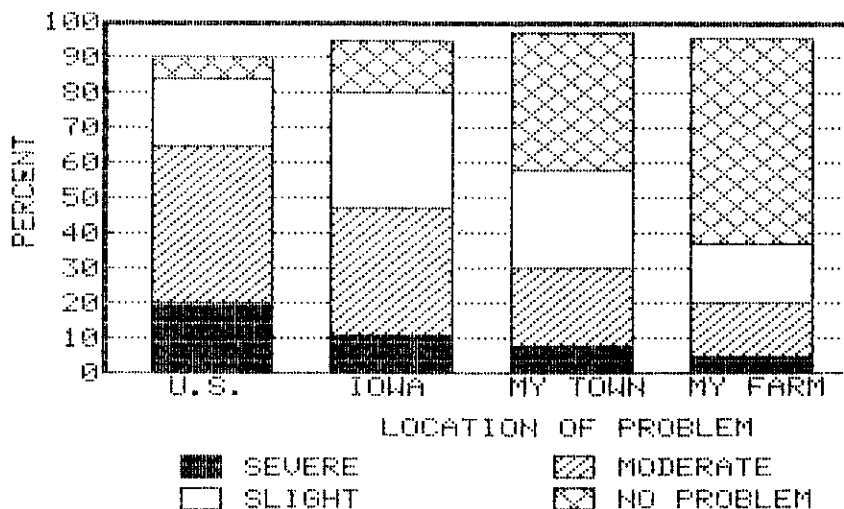
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Ten percent of the respondents were not sure about the nation's water quality problems. However, only 6 percent felt water quality was not a problem in the U.S.

Opinions regarding drinking water quality varied across the state. The proportion of farmers who felt they had moderate or severe water quality problems on their farms ranged from 15 to 30 percent (Table 1). These opinions reflect areas in the state where water quality problems have been previously identified. For instance, in western and southern Iowa, the dissolved mineral content of the water in bedrock aquifers is quite high, often running more than 1,000 milligrams per liter. Such water is considered of poor to very poor quality, while much of northeastern Iowa has good to fair quality water in the bedrock aquifers.

About two out of five farmers in the Ottumwa, Creston and Sioux City Extension areas (Fig. 2) indicated their communities have moderate or severe water quality problems. About one-third of the respondents in the Spencer, Fort Dodge and Des Moines areas

FIG. 1. WATER QUALITY



Blank at top indicates percent not sure.

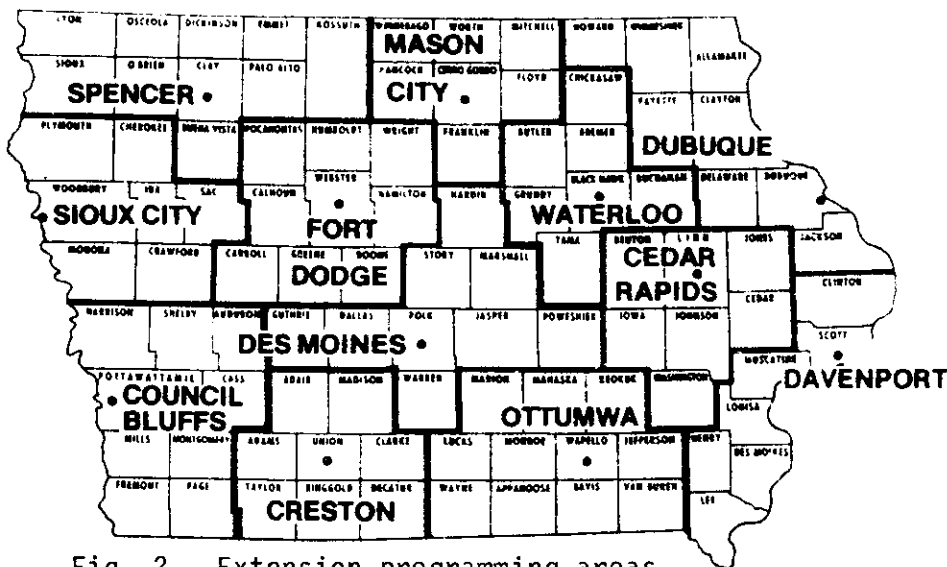


Fig. 2. Extension programming areas.

TABLE 1. Percent of Iowa farmers indicating water quality is a moderate or severe problem by Extension area.

Area	Mason		Sioux Fort		Des Moines		Cedar Rapids		Council Bluffs		Creston	Ottumwa	Davenport	Statewide
	Spencer	City	Waterloo	Dubuque	City	Dodge	Rapids	Bluffs						
U. S.	71	63	71	68	59	63	60	66	63	68	65	75	65	
Iowa	49	39	45	49	49	45	47	40	44	58	55	47	47	
Own Community	32	20	28	26	38	30	32	24	29	38	41	23	30	
Own Farm	24	15	18	17	23	23	21	15	21	28	30	15	20	

felt their communities had moderate or severe water quality problems.

Although Creston and Ottumwa area producers were more likely to say that Iowa has a severe or moderate water quality problem, about half the respondents throughout the state generally agreed that water is a moderate or severe problem. Sioux City area respondents were least likely to define drinking water quality as a severe or moderate problem in the nation, even though a greater percentage of them reported community water problems in the area.

Sources of Contamination

Respondents were asked to rank five principal sources of water pollution in Iowa in terms of severity. Runoff of pesticides and fertilizer and industrial wastes were viewed as the two principal sources of water pollution in the state (Table 2).

One-third (34 percent) ranked either pesticides, fertilizer, or industrial wastes as the principal source of water pollution. Sixteen percent of the farmers ranked soil erosion sediment and sewage from towns and cities as the principal source of water pollution. Of the five sources of pollution, animal wastes were ranked as the least important source of water pollution by 58 percent. Twenty-one percent ranked soil erosion sediment as the least important source of pollution.

Availability of Drinking Water

The amount of available drinking water was not as great a concern as water quality. And again, the closer to home, the less likely the supply of drinking water was defined as a problem. In the statewide sample, 51 percent said the quantity of drinking water was a moderate or severe problem

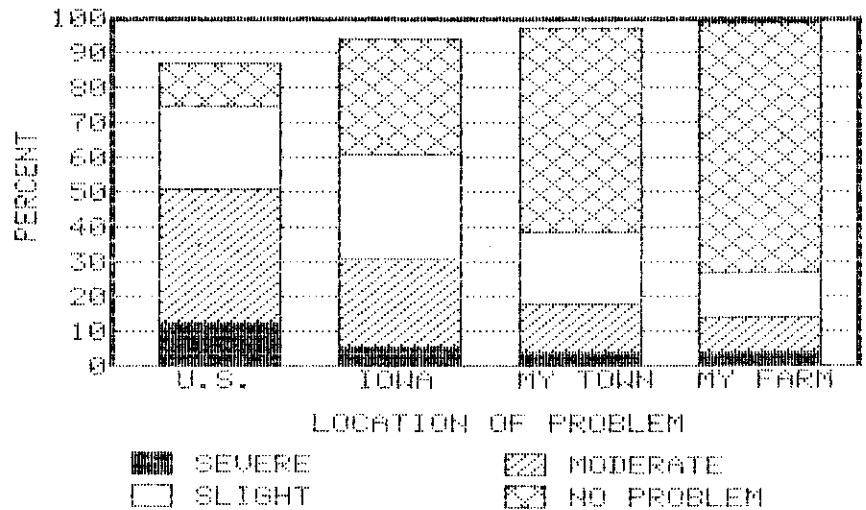
in the nation, but just one-third thought it was a problem in Iowa (Fig. 3). In their own community about one out of five (18 percent) felt quantity of drinking water was a problem, and 14 percent acknowledged a problem on their farms.

Looking at the problem of availability of drinking water by Extension areas, southern Iowa appears to have the most problems. At the community level about one-third of the respondents in the Creston and Ottumwa areas felt there was a moderate or severe problem (Table

TABLE 2. Respondents' views on sources of water pollution.

Source	-----Rank of sources-----				
	1	2	3	4	5
Pesticide and fertilizer runoff	34	25	24	14	3
Industrial wastes	34	27	20	10	9
Soil erosion sediment	16	17	18	28	21
Sewage from towns, cities	16	26	25	26	7
Animal wastes	3	5	13	21	58

FIG. 3. WATER QUANTITY



Blank at top indicates percent not sure.

3). About one-fourth of the Creston and Ottumwa areas felt they had a problem on their own farm.

Again, in these areas in addition to highly mineralized water, the bedrock aquifers with large amounts of water are much deeper. Bedrock aquifers found at or near the surface in northeast Iowa are 2,000 feet deep or more in southwestern counties. Since it is expensive to bring water from this depth and to treat it for dissolved minerals, water users in these areas tend to rely on the shallower water sources.

Changes in Quality, Quantity

Changes in household water quality or supply were noted by numerous respondents. Odor in the water, increased sediment and a change in taste were each noted by 12 percent of those responding. A drop in the water table

was noted by 14 percent statewide (Table 4).

In the Creston area, 29 percent of the respondents experienced a drop in the water table in the past five years. Other Extension areas exceeding the state average in this observation were Ottumwa, Sioux City, Des Moines and Davenport. The highest percentage of respondents reporting changes in water quality and supply was in the Creston area.

Treatment

Many farm families use some type of water treatment on their household supplies. Forty-six percent statewide said they use a water softener. More than 50 percent of the respondents said they used a water softener in the Spencer, Mason City, Waterloo, Fort Dodge, Cedar Rapids and Davenport areas (Table 5).

TABLE 3. Percent of respondents who felt that the quantity of drinking water available is a severe or moderate problem, by Extension area.

Area	Mason		Sioux Fort		Des Moines	Cedar Rapids	Council Bluffs		Creston	Ottumwa	Davenport	Statewide	
	Spencer	City	Dubuque	Dodge			Creston	Ottumwa					
U.S.	53	44	55	52	47	55	48	49	52	53	50	60	51
Iowa	32	23	27	29	28	30	32	27	30	42	37	34	31
Own Community	15	10	14	12	19	15	20	17	19	37	28	16	18
Own Farm	11	7	9	7	12	13	16	12	17	25	22	13	14

TABLE 4. Have you experienced any of the following changes in the quality or quantity of your household water supply in the last five years? Replies indicated by Extension areas.

Area	Mason		Sioux Fort		Des Moines	Cedar Rapids	Council Bluffs		Creston	Ottumwa	Davenport	Statewide	
	Spencer	City	Dubuque	Dodge			Creston	Ottumwa					
Cloudiness in water	9	9	9	8	7	11	13	7	6	17	12	6	9
Odor in water	14	9	15	10	5	14	15	8	9	19	16	11	12
Change in taste	14	9	13	12	12	8	14	7	11	21	18	8	12
Change in color	8	7	6	5	5	7	6	7	6	14	11	7	7
More sediment	14	8	13	10	14	13	13	9	10	18	11	9	12
Water table drop	9	8	13	10	19	9	19	11	11	29	20	16	14

About 13 percent statewide reported using an iron filter and an equal number used a chlorinator or other disinfectant. About one-fifth of the respondents reported using an iron filter in the Spencer, Fort Dodge, Des Moines and Waterloo areas. About 20 percent said they used a chlorinator/disinfectant in the Creston, Sioux City and Des Moines areas. Twelve percent statewide said they had a in-line or cartridge filter.

Characteristics of Farm Wells

Eighty-eight percent of the farm families reported they rely on wells as their principal source of drinking water. Eleven percent rely on a rural water district to provide their drinking water. Forty-nine percent said they had their household water tested for contamination in the past five years.

Respondents provided details on about 1,600 farm wells throughout the state. Depth statewide ranged from 10 feet to 990 feet. Average well depth for the state was 132 feet (Table 6).

Depth of wells varied by area, also. The average depth of wells was less in those areas that tended to report more water quality problems. In the Creston area, where a larger percent of respondents reported problems, the average depth of wells was 40 feet. The Ottumwa area, which also had a higher percentage of problems had the second lowest average depth--75 feet--followed closely by Council Bluffs at 77 feet. The deepest wells appeared to be in the Davenport and Dubuque areas, which had average depths of 165 and 191 feet, respectively.

About one-fourth (23 percent) of Iowa's farm wells are less than 10 years old

TABLE 5. Percent of respondents who treat water for drinking, by Extension area.

Area	Mason		Sioux		Fort	Des	Cedar	Council		Creston	Ottumwa	Davenport	Statewide
	Spencer	City	Waterloo	Dubuque	Dodge	Moines	Rapids	Bluffs					
Water softener	55	58	61	37	43	60	50	59	25	33	20	53	46
Charcoal filter	9	11	6	6	4	10	10	7	4	7	3	5	7
Iron filter	20	16	18	5	5	21	23	14	4	8	3	16	13
Chlorinator/ disinfectant	15	13	13	6	19	16	18	11	4	23	6	13	13
In-line cartridge filter	18	6	12	8	11	20	11	17	10	12	5	11	12
Distillation unit	3	3	5	0	6	3	2	3	0	2	1	1	2
Reverse osmosis	1	2	0	1	0	0	1	0	2	0	1	0	0

TABLE 6. Characteristics of Iowa farm wells as reported by respondents.

Area	Mason		Sioux		Fort	Des	Cedar	Council		Creston	Ottumwa	Davenport	Statewide
	Spencer	City	Waterloo	Dubuque	Dodge	Moines	Rapids	Bluffs					
Depth in feet													
Range	15-630	15-584	20-850	22-800	10-549	15-650	10-600	18-650	15-420	10-190	10-340	12-990	10-990
Mean	138	121	171	191	87	139	138	156	85	40	75	165	132

(Table 7). The percentage of wells drops with age--but six percent of the state's wells have been in use more than 75 years. Average age of farm wells in the state is 29 years and those in the Creston, Ottumwa and Dubuque areas exceed the state average, at 32 to 35 years of use.

TABLE 7. Age of Iowa farm wells.

Age in years	Number	Percent
1-10	356	23
11-20	308	20
21-30	268	17
31-40	175	11
41-50	186	12
51-75	160	10
76 and older	93	6
	<u>1,546</u>	<u>100</u>

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and justice for all

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