Table 3. Anti-quality water factors means by county.

	Overall mean n = 91	Clinton n = 13	Franklin n = 18	Jefferson n = 20	Lewis n = 22	St. Lawrence n = 18
pH	7.423	7.65[b]	7.84[c]	7.46[b]	7.25[a]	7.52[b]
Tcoli	0.63	1.22[b]	0.26[a]	1.1[b]	1.26[b]	0.85[ab]
Nitrates	13.16	3.22[a]	17.79[ab]	22.99[b]	24.62[b]	5.23[a]
Nitrogen	3.04	0.64[a]	4.04[ab]	5.22[b]	5.62[b]	1.12[a]
Sulfates	35.54	33.38	37.81	21.51	16.17	31.53
Sulfur	11.71	11.3	[12.53]	7.28	5.37	10.38
Chlorides	34.84	21.97	26.3	56.01	34.41	41.2
Hardness	242.79	193.82[a]	183.21[a]	287.858[b]	165.98[a]	300.27[b]
TDS	394.3	349.89[ab]	279.45[a]	483.16[b]	282.25[a]	416.06[b]
CA	66	46.71[a]	49.11[a]	92.79[c]	58.31[ab]	76.48[bc]
P	0.05	0.15	0.07	0.11	0.12	0.02
Mg	18.97	18.78[b]	14.75[b]	13.63[b]	4.92[a]	26.61[c]
K	7.18	4.56	4.28	8.64	10.16	3.65
na	27.43	31.97	3.47	31.86	10.86	17.86
Fe	0.06	0.073[a]	0.063[a]	0.111[a]	0.103[a]	0.297[b]
Zn	0.008	0.03	0.024	0.024	0.034	0.026
Cu	0.022	0.012	0.006	0.004	0.0245	0.038
Mn	0.033	0.06	0.034	0.065	0.025	0.112
Mo	0.0007	<0.01	0	<0.01	<0.01	<0.01

[abc] Differences among means are indicated by different superscripts (P <0.05).

Table 4. Anti-quality means by water source.

	Overall n = 91	**Municipal** n = 4	**Pond** n = 3	**Spring** n = 7	**Well** n = 76
pH	7.423	7.81[c]	7.73[bc]	7.2[a]	7.41[ab]
Tcoli	0.63	0.5[a]	1.85[b]	161[b]	0.36[a]
Nitrates	13.16	11.25	0	26.81	23.64
Nitrogen	3.04	2.4	0	6.16	5.4
Sulfates	35.54	19.29	25.45	21.21	46.68
Sulfur	11.71	6.46	8.54	7.03	15.47
Chlorides	34.84	19.81	36.9	48.61	38.59
Hardness	242.79	165.39	201.28	256	282.24
TDS	394.3	238.3	317.61	449.18	443.58
CA	66	47.55	48.86	83.4	78.92
P	0.05	0.099	0.097	0.049	0.129
Mg	18.97	11.39	19.31	11.54	20.7
K	7.18	5.45	0.81	7.84	10.93
na	27.43	2.75	17.04	34.8	21.85
Fe	0.06	0.00[a]	0.34[b]	0.13[ab]	0.06[a]
Zn	0.008	0.017[a]	0.049[b]	0.025[a]	0.018[a]
Cu	0.022	0.016	0.01	0.026	0.004
Mn	0.033	0.057	0.076	0.034	0.07
Mo	0.0007	0	<0.01	<0.01	<0.01

[abc] Differences among means are indicated by different superscripts (P <0.05).

Table 5. **Impact of treatment system on water quality.**

		Treatment system	
	Overall	Yes	NO
	n = 91	n = 10	n = 81
pH	7.423	7.52	7.57
Tcoli	0.63	0.77	1.11
Nitrates	13.16	27.34[b]	2.2[a]
Nitrogen	3.04	6.17[b]	0.48[a]
Sulfates	35.54	38.99	17.33
Sulfur	11.71	12.91	5.83
Chlorides	34.84	30.87	41.08
Hardness	242.79	244.61	207.84
TDS	394.3	384.79	339.54
CA	66	77.17	52.19
P	0.05	0.093	0.094
Mg	18.97	12.62	18.86
K	7.18	8.62	3.9
na	27.43	15.13	23.09
Fe	0.06	0.14	0.12
Zn	0.008	0.043[b]	0.0123[a]
Cu	0.022	0.009	0.004
Mn	0.033	0.059	0.059
Mo	0.0007	<0.001	<0.001

[abc] Differences among means are indicated by different superscripts (P <0.05).

Table 6. Anti-quality means of samples by herdsize.

		Herdsize			
	Overall n = 91	< 100 n = 34	100 to 499 n = 44	500 to 999 n = 7	≥ 1000 n = 6
pH	7.423	7.46	7.5	7.63	7.59
Tcoli	0.63	1.08	0.95	0.65	1.09
Nitrates	11.95	11.71	14.59	13.68	19.11
Nitrogen	2.76	2.59	3.3	3.07	4.35
Sulfates	35.54	21.29	43.76	31.43	16.16
Sulfur	11.71	7.01	14.36	10.56	5.56
Chlorides	34.84	17.99	28.66	59.9	37.34
Hardness	242.79	181.66	250.86	251.22	221.16
TDS	394.3	296.5	374.59	436.32	341.25
CA	66.00	59.30	72.04	65.72	61.68
P	0.05	0.054^{a}	0.049^{a}	0.093^{a}	0.326^{b}
Mg	18.97	8.15^{a}	17.26^{b}	21.25^{b}	16.3^{ab}
K	7.18	1.85	4.97	10.36	7.84
Na	27.43	20.77	15.68	26.42	13.57
Fe	0.06	0.142	0.171	0.098	0.107
Zn	0.008	0.029	0.028	0.021	0.032
Cu	0.022	0.05	0.008	0.0114	0.01
Mn	0.033	0.057	0.047	0.14	0.14
Mo	0.0007	<0.001	<0.001	<0.001	<0.001

[abc] Differences among means are indicated by different superscripts (P <0.05).

Table 7. Anti-quality means broken out by daily average milk production.

		Average production/cow/day					
	Overall	<50	50 to 59	60 to 69	70 to 79	80 to 89	>90
	n = 91						
pH	7.423	7.51[ab]	7.39[a]	7.72[b]	7.57[ab]	7.45[a]	7.62[ab]
Tcoli	0.63	1.1	0.72	0.57	1.22	1.17	0.86
Nitrates	11.95	9.53	23.98	14.79	13.74	21.05	5.54
Nitrogen	2.76	2.11	5.38	3.37	3.08	4.82	1.2
Sulfates	35.54	17.42	51.56	26.84	22.02	27	24.14
Sulfur	11.71	5.89	17.12	9.04	7.28	8.97	7.91
Chlorides	34.84	3043	73.09	45.26	32.36	30.96	33.78
Hardness	242.79	213.36	256.65	228.22	215.41	199.13	238.6
TDS	394.3	331.25	416.79	386.01	372.27	333.05	333.62
CA	66	56.16	70.9	63.73	61.12	58.53	77.65
P	0.05	0.144[bc]	0.147[bc]	0.138[bc]	0.181[c]	0.057[b]	0.0047[a]
Mg	18.97	19.25	1938	16.82	15.27	12.89	10.34
K	7.18	8.99	6.81	9.38	6.49	5.72	0.13
Na	27.43	12.35	23.56	23.72	29.72	19.63	5.69
Fe	0.06	0.09[a]	0.024[a]	0.093[a]	0.137[a]	0.096[a]	0.366[b]
Zn	0.008	0.28	0.025	0.029	0.026	0.035	0.024
Cu	0.022	0.01	0.021	0.029	0.014	0.02	0.012
Mn	0.033	0.068	0.019	0.067	0.013	0.008	0.179
Mo	0.0007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

[abc] Differences among means are indicated by different superscripts (P <0.05).

Figure 1. Common anti-quality factors impacting water quality on Northern New York dairy farms.

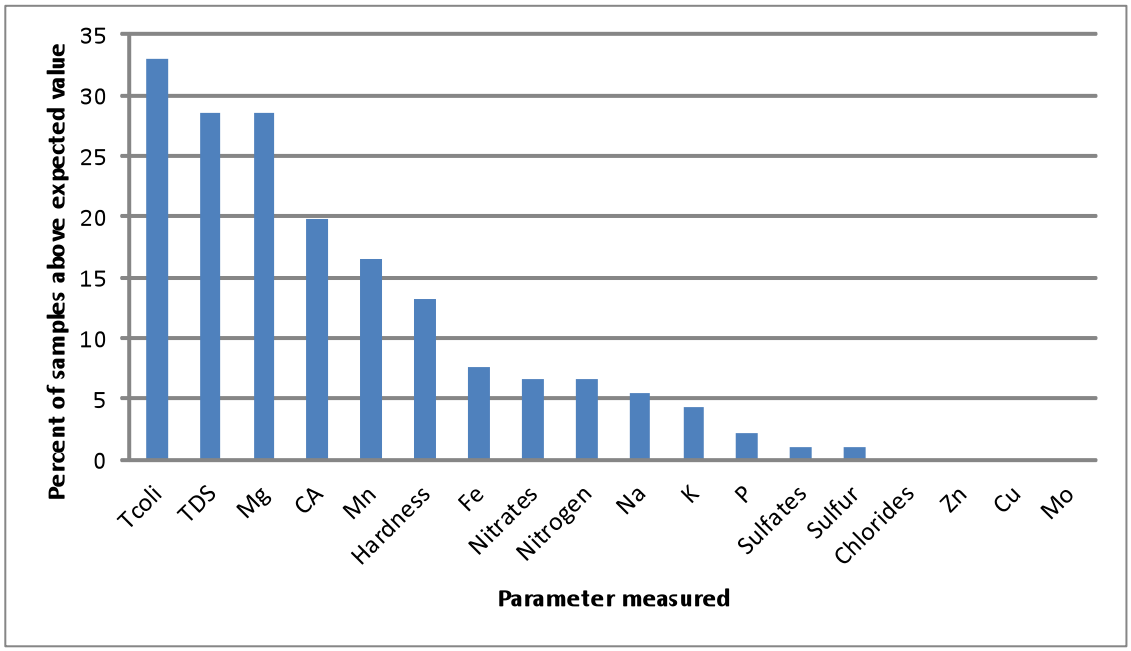

Figure 2. Impact of anti-quality factors found in water on milk production in Northern New York.