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Rural Water Quality Information Tool

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ABSTRACT An estimated 25% percent of Canadians, living primarily in rural areas, rely on private wells, cisterns or other sources for their drinking water. A significant percentage of water quality guidelines are exceeded in these water supplies. Private water systems have also had a higher occurrence of bacterial contamination than municipal systems. With the need for access to information regarding assessment of these sources a peer reviewed Rural Water Quality Information Tool was developed by Alberta Agriculture & Food and by former Prairie Farm Rehabilitation Administration of Agriculture and Agri-Food Canada.

The Internet tool assesses water used for human drinking, livestock water, irrigation or mix water for chemical spraying application by comparing water analysis results against the most applicable Canadian federal water quality guidelines or best available information and provides a printed report. The tool provides references to key background information for further investigation. Sampling, testing and treatment information is also provided.

Keywords: Water quality, water suitability, water analysis, water treatment

INTRODUCTION Concerns over water quality issues have gained profile in recent years, and responsible producers are becoming more and more inquisitive about assessing the quality of water that they use. However the complexity involved in making fully informed water management decisions can be quite involved. Water quality and its suitability for various uses is part of that picture.

From this need a user-friendly tool was developed to help interpret water quality test data. This tool is called the "Rural Water Quality Information Tool" (RWQIT) and is available online on the Alberta Agriculture and Forestry "Ropin' *the Web*" site.

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The tool assesses suitability of human drinking water, livestock, irrigation, or spray water based on water test results. The RWQIT is a personalized, unbiased tool which helps agricultural producers and other rural water users in Alberta assess the quality and suitability of their raw or treated water. In the livestock section of the tool, assessment is provided for cattle & horses, poultry, and swine.

Not only can it help them get more value from the limited testing producers can afford, but having customized interpretations of their results can provide a springboard from which to make crucial decisions.

This tool has been online since 2006 and it has been of value to agricultural producers, acreage owners, real estate groups, and professionals such as water specialists, health officials, and veterinarians.

KEY DRIVERS Water specialists from Alberta Agriculture & Forestry, and Agriculture and Agri-Food Canada were responsible for developing this tool. It was driven by the need for more effective and consistent interpretation of data from the testing of samples from private water supplies.

Most laboratories that analyze water samples do not provide interpretation of the data they provide. If they do, it's usually rudimentary. Instead, it's up to producers to interpret the analysis. Most of the time, this involves seeking out further assistance to assess suitability.

The data supporting the RWQIT reports comes from the most credible information available, including the Canadian Water Quality guidelines. The information was peer reviewed to assure quality of information. Ultimately, it helps producers get more value from their water tests and in the process educates them on the factors they should be aware of concerning their water and water systems.

The RWQIT was designed to be as comprehensive as possible, accounting for variables such as end use and the needs of specific commodities. The first question producers are asked is if the water is used for human drinking, livestock, irrigation, or spray water. The users then enter the water quality analysis parameter values provided by the laboratory which performed the water analysis. Further information is entered on the particular type of animals or crop if the livestock section or irrigation section are selected.

COLOUR-CODED BENCHMARKS The program then identifies areas of risk on a parameter specific level. Risks are reported to the user through a colour code of red, yellow and green symbols. Red lights indicate definite risks, yellow symbols that they may be approaching a risk, and green lights signify acceptable risks. The symbols are also designed by shape for those who are colour-blind. Summary comments as well as detailed comments are also provided for each parameter.

A blue diamond icon indicates that there may be insufficient accepted science to come to a definite conclusion. Often these blue diamonds identify parameters that are not of great concern for the particular use selected or that there are no thresholds available for them. A description is still given for these parameters.

SAMPLING, TESTING AND TREATMENT INFORMATION If the water is found to be of poor quality, some information on treatment is also available within the tool. Information about sampling and testing of water is also provided in one section of the tool.

The tool was developed primarily for Alberta and Saskatchewan however it can be used Canada wide in conjunction with other appropriate sources of information. The tool is located on the Alberta Agriculture and Forestry website at:

<http://www.agric.gov.ab.ca/app84/rwqit>