

Cassia County Regional Project Pesticide Detections and Idaho's Pesticide Management Plan

This fact sheet summarizes pesticide detections in ground water found by the Idaho State Department of Agriculture (ISDA) in the Cassia County regional project, which covers the north-central portion of Cassia County in south-central Idaho (Figure 1). The Cassia County regional project began in 1998 as a result of previous monitoring by the Idaho Department of Water Resources (IDWR).

The Cassia County regional project encompasses an expanse of irrigated agricultural land in north-central Cassia County, approximately 16 miles by 30 miles in size. The project area is adjacent to the Snake River. Local irrigation practices include both flood and sprinkler irrigation. Major crops in the area include alfalfa hay, potatoes, sugar beets, wheat, barley, beans and oats (USDA National Agricultural Statistics Service, 2009).

There are two aquifers within the project area; a shallow alluvial aquifer and a deeper fractured basalt aquifer (Carlson et al., 2005). The Cassia County regional project was designed to assess the ground water quality of the first encountered aquifer. The project involves sampling domestic wells completed in the shallow alluvial aquifer and testing for various constituents. The shallow aquifer is made up of layers of alluvial deposits, primarily sand and gravel with interbedded layers of clay (Carlson et al., 2005). Recharge to the shallow aquifer is mainly from infiltration of irrigation water, canal leakage, surface water interaction and precipitation. The typical depth to first encountered ground water is less than 50 feet below land surface, based on well driller's reports from domestic wells in the project area. Ground water flow within the project area is variable (Carlson et al., 2005).

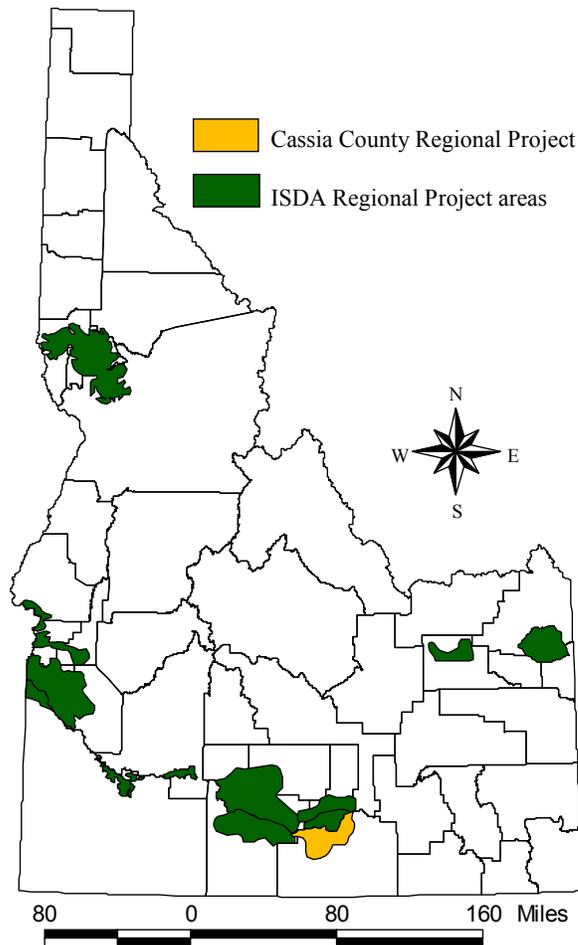


Figure 1. Location of Cassia County regional project and other ISDA regional project areas.

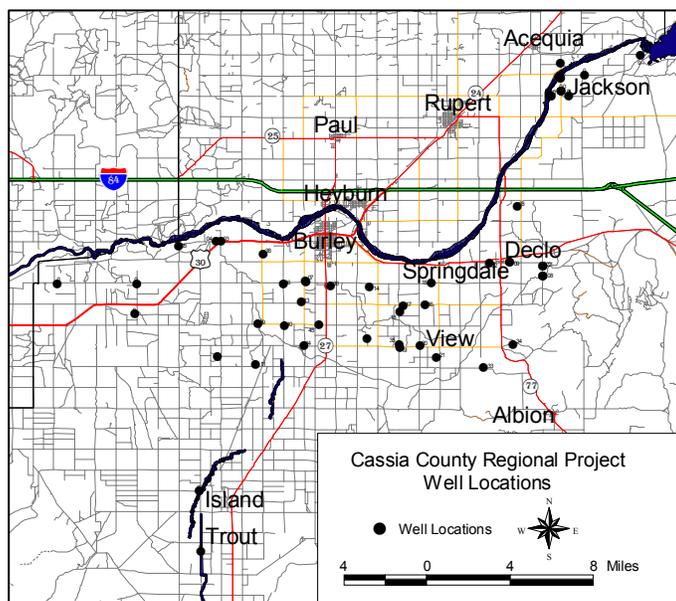


Figure 2. Location of project wells.

To establish this regional monitoring project, the ISDA randomly selected domestic wells in the area. ISDA statistically determined that sampling 46 randomly selected domestic wells would provide adequate data to evaluate overall ground water quality within the project area (Figure 2). All sampling was conducted after a quality assurance project plan (QAPP) was established and followed established ISDA protocols for handling, storage and shipping. Permission was gained from the land owners prior to sampling.

Nutrients, and common ions were evaluated 11 out of the 12 years (1998 through 2009) of ISDA's testing of the Cassia County regional project. Pesticides testing was conducted every three to four years. Pesticides analysis was conducted by the University of Idaho Analytical Sciences Laboratory (UIASL).



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2006 ISDA Pesticide Detections

In 2006, a total of 46 wells were sampled for pesticides; 21 wells had one or more positive pesticide detections (Figure 3). Desethyl atrazine, a breakdown product of the pesticide atrazine, was detected in 17 wells. Atrazine was detected in 11 wells, diuron and hexazinone were each detected in three wells, diazinon and simazine were each detected in two wells, and 2,4-D was detected in one well. All detections were below any health standards set by the EPA or the State of Idaho and were within the Level 1 category established by the Idaho Pesticide Management Plan (PMP).

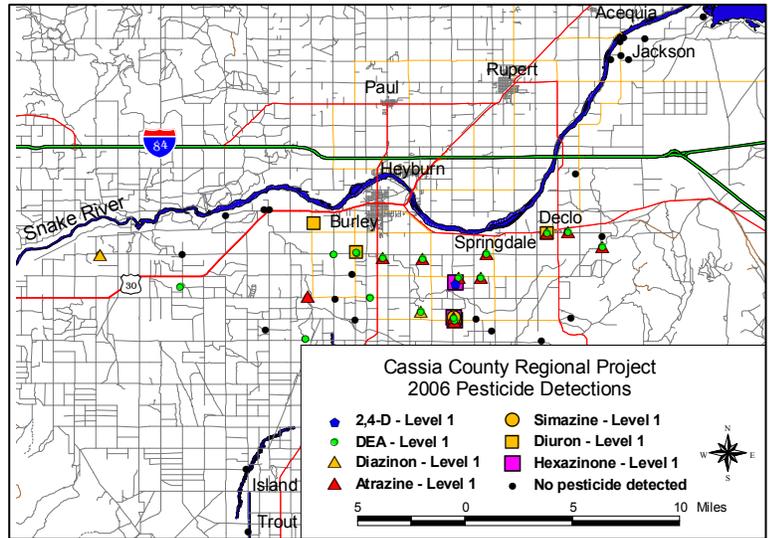


Figure 3. Pesticide detections from 2006 sampling.

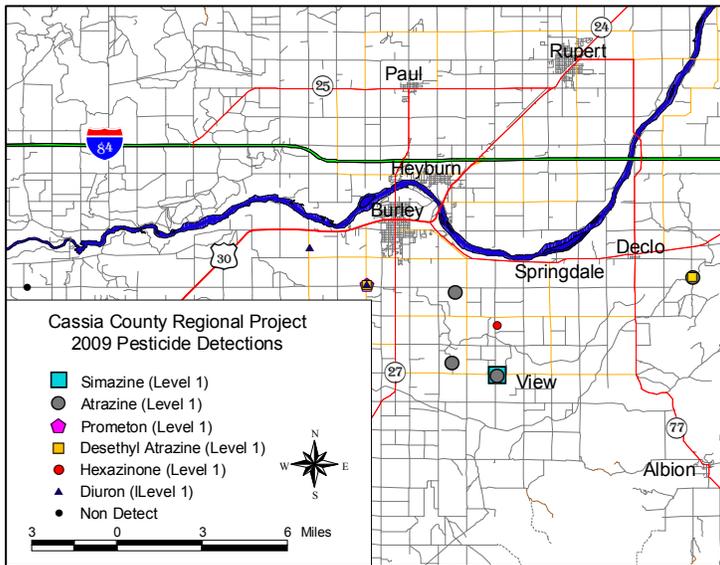


Figure 4. Pesticide detections from 2009 sampling.

2009 ISDA Pesticide Detections

In 2009, a total of eight wells in the regional project were tested for pesticides as a partial sampling of the project area and follow-up to detections from the monitoring conducted in 2006. The pesticides detected were atrazine, DEA, diuron, prometon, and simazine (Figure 4). All detections were below any health-based standards set by the EPA or the State of Idaho and are defined as Level 1 detections based on the Idaho PMP.

Before using any pesticide,



READ, AND FOLLOW THE LABEL!

Idaho Pesticide Management Plan (PMP)

The Idaho State Department of Agriculture (ISDA) is the lead agency in developing the *Idaho Pesticide Management Plan (PMP) for Ground Water Protection*. ISDA has the authority to implement pesticide programs through a cooperative working agreement with the Environmental Protection Agency (EPA), Idaho state laws, and department rules. The Idaho PMP outlines processes to protect ground water from pesticides and defines pesticide detections based on the concentration of the detection compared to a reference point. The reference point refers to health based concentrations. Idaho has adopted the EPA's Maximum Contaminant Levels (MCLs) in the Idaho Ground Water Quality Rule (1997). Where no MCL exists, ISDA will use EPA Lifetime Health Advisories (HAL) first if they exist, and then an EPA Reference Dose (RfD) number.

The PMP categorizes detection levels into the following levels:

- Level 1:** Detection above the detection limit to less than 20% of Reference Point.
- Level 2:** Detection at 20% to less than 50% of Reference Point.
- Level 3:** Detection at 50% to less than 100% of Reference Point
- Level 4:** Detection equal to or greater than 100% of Reference Point.

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REFERENCES:
Carlson, R., J. Fox, and C. Tesch, 2005. Ground Water Quality Monitoring Results for Northern Cassia County, Idaho. Idaho State Department of Agriculture Technical Results Summary #24.

United States Department of Agriculture (USDA), National Agricultural Statistics Service, Idaho Field Office, 2009. 2009 Idaho Agricultural Statistics...including Idaho State Department of Agriculture's Annual Report, pp. 36-59.

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