



Measuring and Estimating Water Withdrawals at Cranberry Operations

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Measuring or estimating water withdrawals at cranberry operations can be challenging. This factsheet contains instructions along with approved methods for meeting Wisconsin's new water withdrawal registration and reporting requirements. If you have a more specialized measurement or estimation approach not mentioned in this factsheet or any questions, please contact Water Use at 608-266-2299 or DNRWaterUseRegistration@wisconsin.gov.

Goal – Measure and report your monthly volumes of withdrawal by source.

Withdraw or withdrawal means the taking of water from surface water or groundwater. There are many different methods for withdrawing water including wells, pumps, and water control structures. When someone withdraws water, it is taken out of or redirected from its natural course making it unavailable for other purposes, even if only temporarily.

STEP 1. IDENTIFY ALL OF YOUR WATER SOURCES.

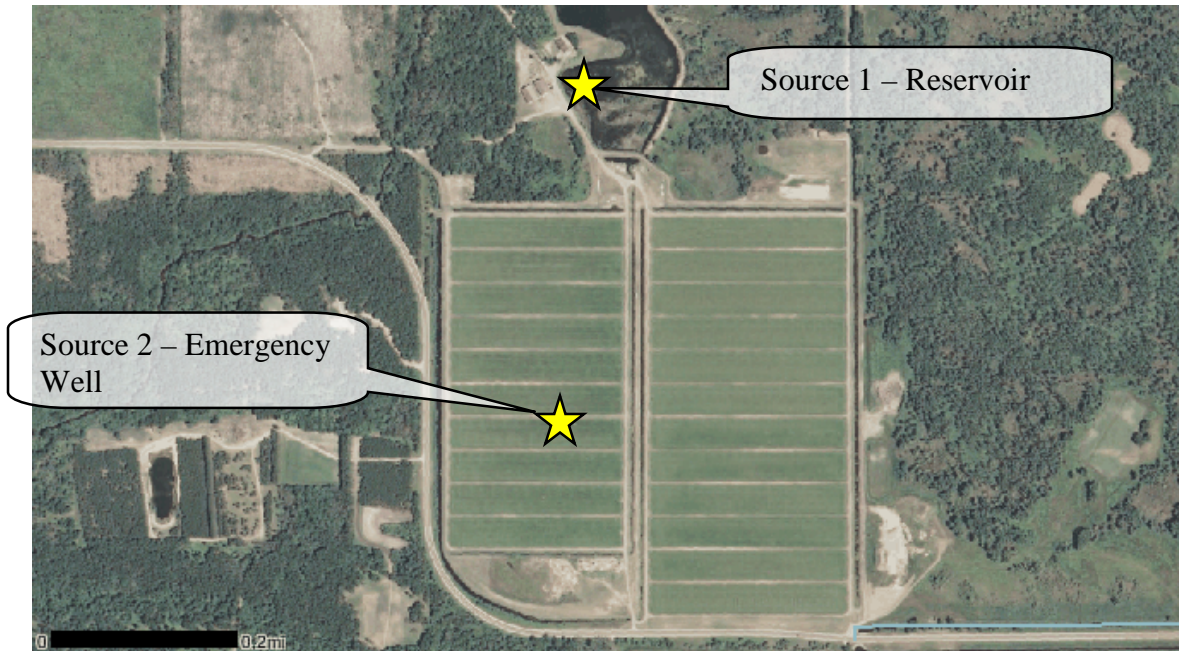
You will likely have more than one water source at your property including surface water sources and groundwater sources (pumped through wells). Identify your water sources by identifying each individual well and each **major** surface water source that has the withdrawal capacity of greater than 100,000 gallons per day. Examples of major surface water sources include streams, reservoirs, ponds, and lakes. You do not need to identify each individual location of a pump, or water control structure at a cranberry bed or group of beds.

When you initially register your withdrawal, you will list each of your water sources that have a capacity of 100,000 gallons per day or more. Each year, you will be required to report how much water you withdrew from each of these sources.

The following are examples of the sources of water for two cranberry operations.

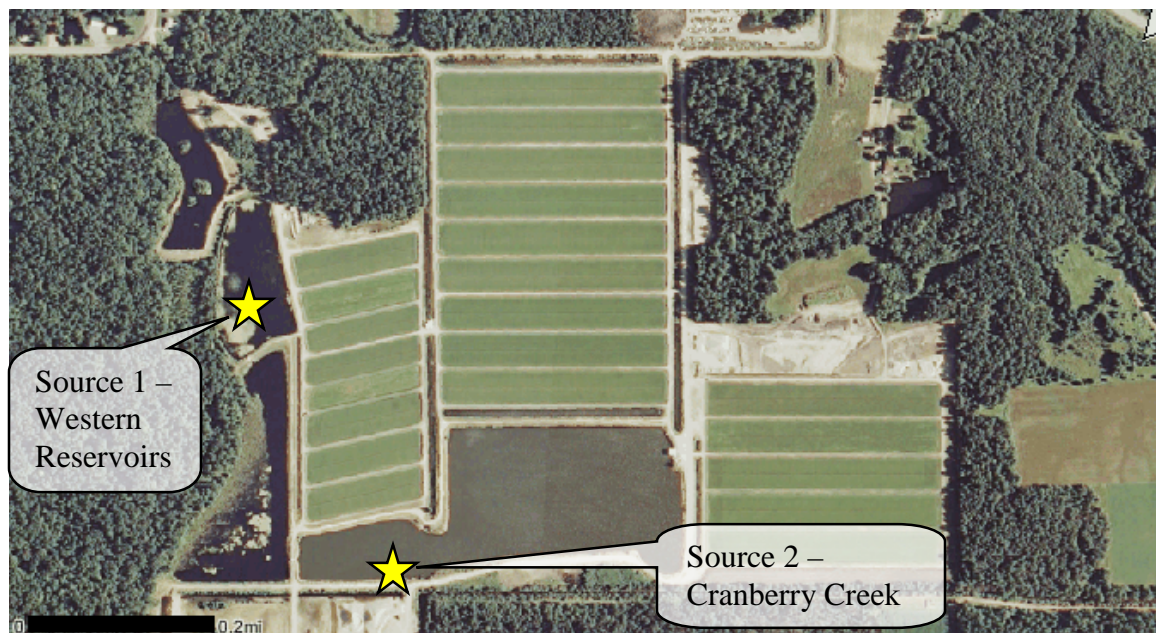
Example A

- Source 1 is a reservoir that supplies water through two main ditches.
- Source 2 is an emergency well.



Example B

- Source 1 is a series of connected reservoirs that supplies water through several ditches. Because the reservoirs are all connected they are listed as one source.
- Source 2 is a direct connection with Cranberry Creek. Water is pumped from Cranberry Creek into the reservoir system when needed.

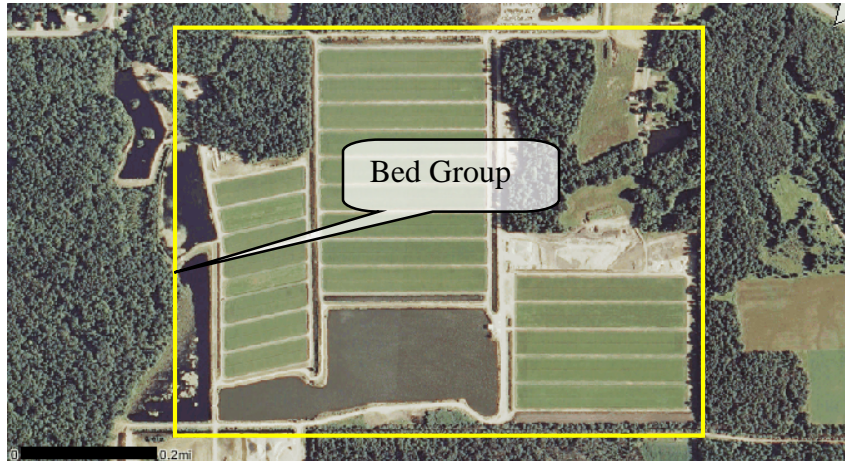


STEP 2. IDENTIFY BED GROUPS TO TRACK YOUR WITHDRAWALS.

Create a system that allows you to easily track your withdrawals by month. It is recommended that you track your withdrawals by withdrawal events (flooding and irrigation events) for each “bed group”. This method is explained in greater detail in the worksheet prepared by the Wisconsin State Cranberry Growers Association (WSCGA).

A “bed group” consists of one or more cranberry beds that are adjacent to each other and that collectively rely on the same surface water source(s).

For both examples on the right, all of the cranberry beds at each operation can be combined into one “bed group” because they rely on the same surface water sources.



STEP 3. ESTABLISH A METHOD TO MEASURE OR ESTIMATE YOUR WITHDRAWAL FROM EACH WATER SOURCE OR WITHDRAWAL EVENT.

You may use different methods to measure or estimate the amount of withdrawal from each of your sources. The easiest method for estimating or measuring your cranberry operation withdrawals is by tracking your withdrawal events. The following are approved methods for measuring or estimating for each type of withdrawal event – flooding and irrigation. (**When you register and report you will be asked for the method code to identify how you measured or estimated your withdrawals.)

Methods for Flooding Events	
METHOD (CODE)**	DESCRIPTION AND REQUIREMENTS
Calculations Based on Known Withdrawal Events (COTH)	Estimate your withdrawal by calculating the amount of water withdrawn for a specific flooding event. For example, you can estimate the amount of water withdrawn for a flooding event if you know the number of acres flooded and the depth of the flooding. Additional information can be found in the WSCGA worksheet.

Methods for Pumped Water Withdrawals for Irrigation (Includes both surface water and groundwater sources)	
METHOD (CODE)**	DESCRIPTION AND REQUIREMENTS
Totalizing Flow Meter (HFM)	Totalizing flow meters measure and record flow through time and are the best method for measuring withdrawals from variable speed pumps. Flow meters must be read and documented each month.
Hour Meters (HHM)	Pump operation is timed with an hour meter and the pumping capacity is used to calculate total pumpage. This method is appropriate for constant rate pumps. Constant rate pumps do not pump at a constant rate when the pressure of the water system varies. You will need to initially determine the actual flows from your pump under anticipated pressure scenarios. An average of these flows can then be used to calculate the total pumpage based upon the time the pump has been operated. The hour meter must be read and total pumpage calculated for each month.
Calculations Based on Known Withdrawal Events (COTH)	You may estimate your withdrawal by calculating the amount of water withdrawn for a specific irrigation event. For example, you can estimate the amount of water withdrawn for an irrigation event if you know the number of irrigation heads, the output of each head per unit of time, and the amount of time the irrigation system was operating.

STEP 4. REPORT YOUR MONTHLY VOLUMES OF WITHDRAWAL BY SOURCE.

The volumes of your monthly withdrawals by source must be reported to the Department annually. The deadline for reporting your previous year's withdrawals is March 1 of the following year. The Department will send information to you annually to remind you of the annual reporting requirements and the process for submitting the information.

Thank you to J&J Cranberries and Fanning Cranberry.
Their operations were used to develop the examples for this factsheet.

