

DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ)  
ANNUAL REPORT OF WATER WITHDRAWALS

INSTRUCTIONS FOR REPORTING RAW WATER IRRIGATION

**Method**

For sprinkler irrigation, if you keep track of the depth of irrigation water you apply to your fields in inches then you can record this value each month. For each month, from the number of acres irrigated and depth of application, your Extension Agent can help you figure your total irrigation water use. Several inexpensive rain gages located in the irrigated field can give you the most accurate measure of inches applied.

WATER USE (Million Gallons) = (ACRES IRRIGATED X DEPTH IN INCHES APPLIED) / 37

**Method**

A second method which can be used is to record the operating time of the pump and power unit during each month of the irrigation season. Later, with the design GPM of the pump known, your Extension Agent can assist you in deterring total gallons pumped by month. A timing meter installed at your pumping station can give you exact operating time although taking note of elapsed running time with a clock or wristwatch is an adequate measure.

WATER USE (Million Gallons) = (PUMPING HOURS X PUMP GPM) / 16,667

**Method**

A recording flow meter will provide the most accurate measure of water use. Your recorded use may be either in gallons or cubic feet.

WATER USE (Million Gallons) = GALLONS METERED / 1,000,000 OR  
CUBIC FEET METERED / 135,135

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**INSTRUCTIONS FOR REPORTING RAW WATER WITHDRAWALS FOR AGRICULTURE**

**Method**

For livestock water withdrawals, use the chart below to estimate monthly water consumption according to livestock type. Please record the consumption amount(s) used in your estimation on the water withdrawal form.

WATER USE (Million Gallons) =  
 $((\text{livestock consumption in gal/day} \times \# \text{ of livestock}) \times \# \text{ days in the month}) / 1,000,000$

**Livestock water consumption for various animals.** (From Virginia Cooperative Extension Service Publication Number 442-755, May 2001)

<b>Livestock</b>	<b>Avg. Consumption (gal/day)</b>	<b>Hot Weather (gal/day)</b>
Milking cow	20-25	25-40
Dry cow	10-15	20-25
Calves	4-5	9-10
Beef	8-12	20-25
Sheep	2-3	3-4
Horse	8-12	20-25

\*\*The information in the chart above is provided for your reference. If you have a better way to estimate your farm's livestock water consumption, please provide a description on the water withdrawal form as to how the consumption rate was determined.

**Additional withdrawals to be included in the total agricultural withdrawal calculation:**

Additional water withdrawal amounts may need to be added to the total livestock consumption water use in order to obtain a complete agricultural water withdrawal number. Read the questions below to determine if these withdrawals need to be added to the livestock consumption withdrawals.

- Is water used for livestock cooling? If so, estimate the amount of water used for cooling on a monthly basis and add it to the agricultural total for each month.
- Is water used for dairy operation washing? If so, estimate the amount of water used on a monthly basis in dairy operation washing and add it to the agricultural total for each month.