

## Estimating How Much DRINKING Water a Hypothetical Dairy Herd Uses

The following is prepared to help calibrate Silver Lake residents on the estimated volume of **drinking** water used by a **hypothetical** dairy cow herd. There are no provisions made beyond drinking water needs (i.e., wash water used to liquefy manure for pumping is not part of this calculation).

According to Michigan State University a milking dairy cow drinks 30 to 50 gallons of water each day. During periods of heat stress dairy cow water intake may double. [https://www.canr.msu.edu/news/drinking\\_water\\_for\\_dairy\\_cattle\\_part\\_1](https://www.canr.msu.edu/news/drinking_water_for_dairy_cattle_part_1)

<u>Environmental Conditions</u>	<u>Gallons of Water / Cow / Day</u>
Normal	30 – 50
Stressed	60 – 100

According to the 2023 NYS DEC CSLAP report Silver Lake is 823 acres in size.

An acre inch of water represents 27,000 gallons.

Thus, 1 inch of Silver Lake water represents ~22.2 M gallons (~22,200,000 gallons).

Now, let us consider a hypothetical **1,000 cow dairy herd** under “Normal” and “Stressed” conditions. (The estimate may be easily scaled to larger or smaller herd sizes.)

<u>Environmental Conditions</u>	<u>Gallons of Water / Herd / Day</u>
Normal	30,000 – 50,000
Stressed	60,000 – 100,000

From here we can estimate the annual drinking water volume used for this hypothetical 1,000 cow-sized dairy herd under different conditions.

<u>Environmental Conditions</u>	<u>Gallons of Water / Herd / Year</u>
Normal	11 – 18 Million
Stressed	22 – 36 Million

Finally, we can estimate how many inches of Silver Lake water are used to provide drinking water to this hypothetical 1,000 cow-sized herd under different conditions.

Environmental Conditions Annual Inches of Silver Lake Water Used

Normal 0.5 – 0.8

Stressed 1.0 – 1.6

**So, the drinking water needs for a hypothetical 1,000 cow-sized dairy herd requires between 0.5-1.6” of Silver Lake water.**