

THE MANAGER

INDUSTRY GROWTH

By Lee Telega

Water may be the next concern for dairy farms as some watersheds and states begin to require water use reporting and permitting

Water, water everywhere. But do you have enough to grow?

Water use may be the next resource concern for dairy farms. Some watersheds and states now require water withdrawal reporting or water use permitting.

Agriculture is a major user of ground and surface water in the United States. Water needed to produce crops and livestock products account for 80 percent of the nation's consumptive water use. In drier parts of the country, over 90 percent of water use is for food and fiber production.

Both cropping and animal operations on dairy farms require a significant amount of water. In most years, rainfall in many parts of the US is sufficient to produce forage and grains needed for the region's dairies. However, recent years have seen crops wither in dry, cracked and parched soils. Investment in field irrigation has increased as producers seek to mitigate the risk and costs of insufficient feed supplies.

The animal operation of a dairy farm generally relies on ground or surface water supplies. Prolonged drought, however, can reduce the water supplying capacity of these resources. Having reliable sources of high-quality water with sufficient capacity is vital to every dairy farm. As dairy farms grow and expand, it is important to ensure sufficient water is available to meet increased needs.

How much water does a dairy farm use?

Water use on a dairy farm depends on many factors. Number of animals, level of production, ambi-

ent temperature and sodium and dry matter content of rations all directly impact how much animals drink. Size of milking system, milking area to be cleaned, pre-milking udder preparation, use of milk pre-coolers and sprinklers for summer cow cooling all contribute to a farm's water use. Barns with manure flush systems also add to a farm's water use if alley flush water is not from a recycled source.

Estimates of water use on dairy farms are published in many agricultural engineering guides and factsheets (see sidebar). Milking equipment companies also provide estimates of water required for proper cleaning. Regression equations also estimate how much water cows and youngstock drink.

Water monitoring studies in Ohio, however, have questioned the accuracy of some common book-value estimates. They also suggest great variability between farms. The most accurate way to know a farm's actual water use is to install water meters and monitor use.

Water use is significantly greater in warm months than in cold times of the year. Though a herd may drink up to 70% more water in the summer than winter, the real jump in farm water use occurs when cooling sprinklers are used to keep cows comfortable. Depending on the severity of heat and humidity in a season, sprinklers can more than double a farm's monthly water use.

In recent years, many watersheds and states have implemented water use reporting or withdrawal

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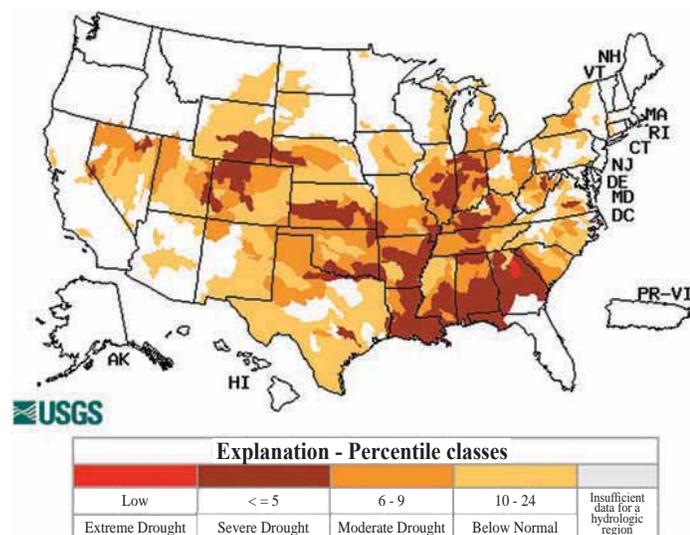
permit requirements for industries, including agriculture. The severe drought experienced in many southern regions has increased concern about the amount of water used by dairy farms. Check with your state agricultural or environmental office for reporting or permitting requirements in your area.

Practices to conserve water use

Common sense management and reuse strategies can help conserve water:

- Fix leaks. A leaky pipe fitting or dripping faucet can lose up to 10 gallons per day.
- Pay attention when filling tubs or tanks. Use float shut-offs.
- Capture pre-cooler water, store in tanks for cattle drinking or washing milking center.
- Divert CIP wash water to a storage tank and reuse to wash milking center.
- Tune up your CIP system to assure the air injection system is working properly.
- Check settings to ensure proper amount of water is being used by the CIP system.
- Use barn fans in conjunction with cooling sprinklers. Ensure cow hair coats are soaked without excessive dripping and adequate evaporative time is allowed before sprinklers come on again.
- Manually clean milking area floors before washing down.
- Finally, do not try to conserve water by limiting the amount of water your animals drink.

USGS Drought Map, July 5, 2012



Water is the most precious resource for life. Per capita water use in the US has declined since the 1970's. Also, dollars of gross domestic product (GDP) produced per unit of water used has steadily increased. But concerns over efficient management of fresh water supplies will continue to grow. Being responsible users of water will continue to be an important part of operating a dairy farm business. □

Definition of Consumptive Water Use:

Consumptive water use is water that is evaporated, transpired, incorporated into products or crops, consumed by people or livestock, or otherwise removed from the immediate surface or ground water environment.

Estimates of Water Use on Dairy Farms

Drinking Water Needs

Milking Cows	25-50 gal/head/day
Dry Cows	20-30 gal/head/day
Heifers	10-15 gal/head/day
Calves	6-10 gal/head/day

Milking Center Cleaning

Bulk Tank*	30-75 gal/wash
Milking Equipment*	75-125 gal/wash
Tank Room/Parlor Cleanup*	200-1200 gal/wash
Pre-milking udder prep	0.25-10.5 gal/cow/milking

Milk Pre-Cooling

2 gal/gal milk cooled

Cow Cooling Sprinklers*+

0.05 inches in ½ -3 minute intervals during 15 minute cycles

Flushing manure alleys*

60-120 gal/cow/day

Miscellaneous

20-100 gal/day

*Equipment and facility size dependent

+Regionally dependent