

## **Waste water storage capacity in dairy farms: the milk parlor water use**

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Dairy producers in California have the opportunity to review the information submitted on December 2007 to prepare a new Dairy Facility Assessment to comply with the Waste Discharge Requirements (Order No. R5-2007-0035). The next reporting requirements include updating information on waste management plan (WMP) and nutrient management plan (NMP). The WMP and NMP are the most important objectives for dairy producers. In the next years they must be prepared to have sufficient storage capacity to contain all manure, avoiding any possible illegally discharge (on or offsite), and applying manure according to crop requirements.

An important input to estimate storage capacity in each dairy farm is the milk parlor water use. The purpose of this newsletter is to give some benchmarks on milk parlor water use for those dairy producers without information about how much water are they using. Due to the importance of these numbers it is highly recommended to install flow meters to obtain more precise data.

A survey carried out on 16 California dairies in the Central Valley in California (from August 1998 to August 1999) by the UC Cooperative Extension estimated that milk parlor water use represents an average of 56% of all the components that contribute to liquid storage requirements. This article indicates that parlor water use ranged from 45 to 194 gallons/cow/day with an average of  $77 \pm 39$  gallons/cow/day. Herd size ranged from 125 to 2829 milking cows. The study indicates that parlor water use was relatively consistent throughout the year on each dairy farm with an average seasonal variation of 10%. However, between farms water use varied an average of 48%. The authors concluded that the high variability of parlor water use and the lack of sufficient correlation between any dairy characteristics and water use limit the use of standardized values for engineering and regulatory purposes.

Early this year (2008), and for short periods of time (64 days in total), electronic flow meters were installed in three high scale well managed dairy farms in Merced County. Cows in these farms are normally clean throughout the year and water is closely monitored to minimize its use. The results of this evaluation are presented in Table 1. The values observed in this study are similar to the lower values obtained by the study on the 16 California dairies previously mentioned and might serve as an orientate baseline of water use in California milking barns until more precise numbers are determined for each dairy farm.

These results show an overall average daily water use. However, to evaluate water use efficiency a more useful benchmark would be gal/cow/trip. In many large dairy farms cows are milked 2 (low yielding), 3 (high yielding), or 4 (fresh cows) times per day. Finally, cleaner stalls and alleys, and good bedding management are essential to maintain clean animals and allow producers to forego udder rinsing sprinklers at the entrance to the parlor and/or before milking, thereby reducing water usage.

**Table 1.** Estimation of milk parlor water use in three Merced county dairy farms <sup>(1)</sup>

Dairy	Lactating herd size	Parlor type	Stalls #	Milking per day <sup>(2)</sup>	Udder rinsing sprinklers	Hygiene when necessary	Re-use water cooling-plate	Total water use (gallons/cow/day)		
								average	min	max
A	1400	rotary	50	3,2	no	yes	yes	44	41	46
B	2400	herringbone	76	3,2	some times	yes	yes	51	49	53
C	2500	parallel	96	4,3,2	no	yes	yes	49	46	53

(1) Information collected in 2008

(2) milkings per day, 3,2 for high and low strings and 4,3,2 for the fresh, high, and low strings