

# START COLD STAY COLD:

## The Facts on Building Better Milk Foam



The next time you prepare a rich and creamy latté or cappuccino, take a closer look at the amount of milk used in that beverage. Milk and milk foam constitute over two-thirds of your most popular coffeehouse beverage formulations!

Recognizing the important role of milk in the retail coffee market, the Dairy Management Inc.<sup>™</sup> (DMI) *Extraordinary Dairy*<sup>™</sup> research and technology program, with funding from America's dairy farmers, initiated a study of milk performance factors. The study reinforces that milk foam enhances coffeehouse beverages with luscious body and rich texture. This comprehensive study also helped identify common foaming pitfalls, which are often (incorrectly) attributed to milk and its components.

This summary provides the background on how to make milk the perfect complement for your coffeehouse beverages.

### **Building a Better Foam**

The key to achieving full, creamy, yet sturdy foam is related to how the milk is handled prior to aerating. Our research determined the following handling guidelines to assure optimum foaming.

#### **START COLD:**

Keep milk cold. Cold temperatures (less than 40°F) are required for milk handling safety guidelines and to enhance the performance of milk during frothing or foaming.

#### **STAY COLD:**

Maintain in-store refrigerators at less than 40°F to ensure milk is held at acceptably cold temperatures. Each 5°F increase in storage temperature reduces the shelf life of milk by one-half.

Use thermometers regularly to track temperatures of in-use milk. Avoid using milk that has exceeded 45°F. Milk this warm will not form proper foam and may take longer to build the desired whipped texture.

To achieve superior froth or foam for coffee drinks, use milk held below 40°F for steaming and aerating—the colder, the better.

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## Ending Flat Foam: Fact vs. Fiction

DMI's milk research included investigations of commonly held theories about poor foam performance. These investigations are helping to dispel some misconceptions and define areas of legitimate concern. For instance:

Because milk processing can involve a variety of conditions and exposures, there was some suspicion these different processing techniques altered milk's ability to foam. Temperature exposures and valve pressures used in procedures like homogenization were thought to contribute to "flat" milk foams. Our research included correlation studies of milk exposed to these different processing techniques and resulting foam development—with no significant differences detected between milk samples.

The breakdown of milkfat does appear to decrease foaming capabilities of milk. In laboratory comparisons, milk exposed to fat breakdown exhibited reduced foaming capacity. Keeping fresh milk at the proper temperatures will help combat this problem.

All types of milk produce foam. Contrary to some popular misconceptions, fat content is not the downfall of successful foams. However, different milk will result in different foam characteristics:

<i>Fat-free milk</i>	<i>produces large volume, fluffy, airy foam</i>
<i>Reduced-fat milk</i>	<i>produces medium volume, creamy, thick foam</i>
<i>Whole milk</i>	<i>produces heavy, creamy, thick foam</i>

## Foam's Future: A Wrap Up

So now you've got the whole story: successful milk foam is a function of temperature and handling. Research has helped to define the parameters that will produce optimum foam capacity—while squelching the theories previously held responsible for poor foam performance.

Our work to enhance foam capacity continues with both research and application innovations. For instance, ongoing research investigations of value-added milk treatments (such as whey protein additions or increased pasteurization temperatures) suggest that foam dissipation can be significantly reduced. Also, DMI's Applications Programs, based in Wisconsin and California, provide additional technical expertise and pilot plant facilities to evaluate other product development and research opportunities. Stay tuned for future milk performance developments that may impact the success of your product line.



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For more information on DMI's research regarding milk performance characteristics or to learn more about the Applications Programs, contact our toll free Technical Support Hotline at **1-800-248-8829** or visit our Web site at [www.extraordinarydairy.com](http://www.extraordinarydairy.com).