Dairy Starter Cultures – General Characteristics

**Definition and Culture Selection**

Dairy starter cultures are microorganisms that are intentionally added to produce a desired outcome in the final product, most often through their growth and “fermentation” of the dairy food. The most common use of starter organisms is to produce lactic acid from lactose, which in most cases causes or assists in the coagulation of milk protein. Starter organisms can influence the flavor and texture of cultured and/or aged products. Most recently, probiotic cultures are being added to cultured milk products.

The type of starter culture used depends on the desired product. Suppliers have a variety of cultures that can be tailored to an operation. Generally, dairy cultures are classified as mesophilic cultures with optimum growth at 70–90°F or thermophilic cultures with optimum growth at 100–115°F. Varying the incubation temperature of certain cultures can influence the flavor profile and other attributes of the final product.

**Factors Affecting Culture Activity**

Slow acid development by starter cultures can result in an inferior product or the discarding of a vat full of milk. Starter activity can be influenced by:

- Age of the culture
- Handling and storage practices
- Incubation temperature
- Quality of the raw milk
- Presence of inhibitors (e.g., drugs or sanitizer residues)
- bacteriophage (i.e., viruses that attack and destroy bacteria)

Want more information on starter cultures and the MQIP? Contact Nicole Martin (nicole.martin@cornell.edu) in the Milk Quality Improvement Program or visit our website [https://foodsafety.foodscience.cornell.edu/mqip/](https://foodsafety.foodscience.cornell.edu/mqip/)

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