

Varieties of Cheese

Cheese is one of the most popular food products consumed in America. It is high in protein, calcium and essential fatty acids. The history of cheese dates back thousands of years - with the techniques and cultures often taken from one society to another by conquering forces. The individual characteristics of each cheese variety are due to the type of milk, the microbial starter culture and the make procedure used. Many American consumers do not realize the difference between natural vs. processed cheese varieties. Natural cheese is produced by the culture of milk to form a cheese curd; through a series of steps to remove moisture, this curd becomes the finished cheese. However, processed cheese begins with natural cheese that is blended with water, stabilizers and other components. Processed cheese is cooked to form a uniform product that is sold in

slices (e.g., American) or cheese loaves (e.g., Velveeta™). Natural cheese is most often classified according to moisture content with the higher moisture content of the cheese correlated with a shorter shelf-life. Very high moisture cheeses, such as cream and cottage, are not aged and, thus, are often called “fresh cheeses.”

There are hundreds of varieties of natural cheese now produced and available to the American consumer. However, the vast majority of cheese consumed in the U.S. remains limited to only a few varieties such as Cheddar, Swiss, and processed American cheese. Cheddar cheese manufacture originated in the town of Cheddar in Somerset, England in the 16th century. Natural Cheddar cheese has a creamy yellow color. In the late 1800’s and early 1900’s, dairy

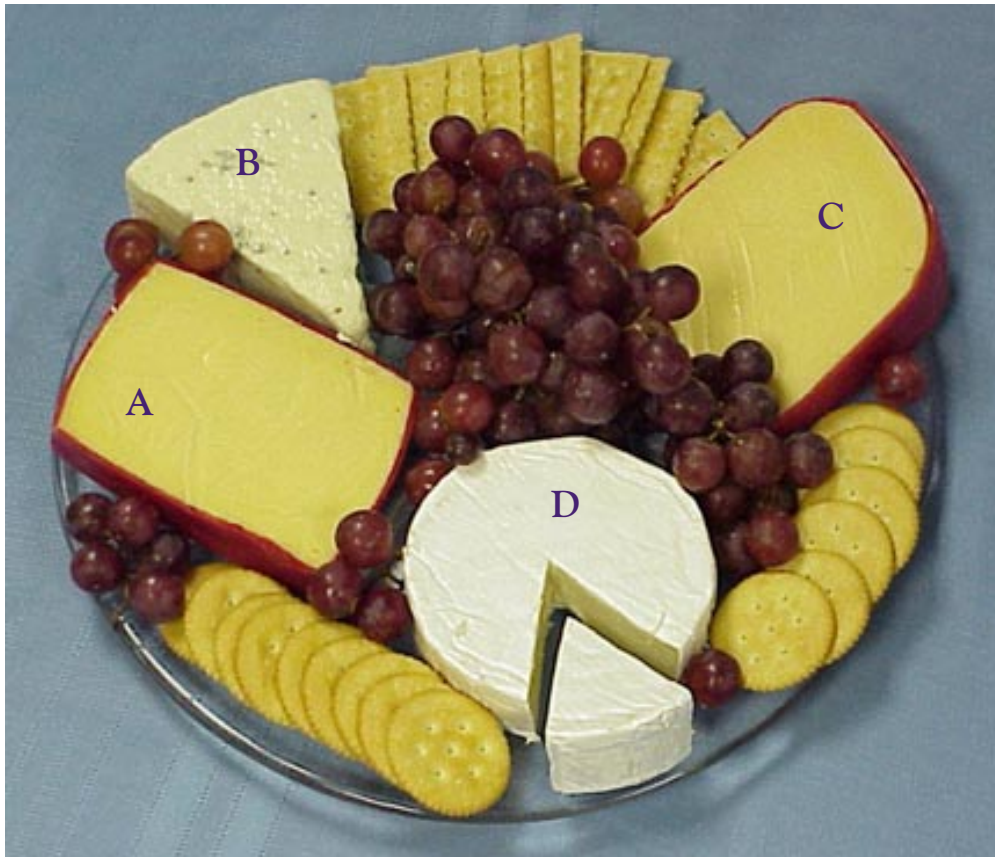


Figure 1. Varieties of Cheese.
A = Edam
B = Gorgonzola
C = Gouda
D = Camembert

farming techniques changed such that animals became more confined indoors. As the diets of the dairy animal were converted from primarily fresh grass to primarily grain-based diets and preserved forages, the levels of carotene in the milk decreased. In addition, certain breeds of dairy cattle such as Holsteins, that have become increasingly popular, have lower carotene levels in their milk. As a result, the cheese made from this milk was paler than typical and consumers began to complain. To remedy this, cheesemakers began adding annatto – a food-grade dye. Annatto is an extract of the annatto seed, a small seed similar in appearance to a sesame seed. Gradually the cheesemakers began adding more and more dye to the point that Cheddar became recognized by the bright orange color typical in today’s market. In recent years, a trend toward natural, non-colored foods has led to a market for white Cheddar. Currently, both orange and white Cheddar varieties are available in the marketplace. Cheddar cheese aging greatly affects the body and texture and flavor of the product. A young cheese, aged approximately 3 months will have a fairly firm texture and mild flavor. An aged cheese will become more and more pungent and the body and texture will soften and/or become crumbly. A sharp cheese is typically aged 6 months or longer. An extra sharp Cheddar can be aged for greater than 9 to 12 months.

Swiss cheese, or Emmental cheese, is produced in huge wheels – often weighing hundreds of pounds each. Swiss cheese is unique because of the “eyes” or holes produced in the curd. These eyes are formed by the action of the bacterial starter culture, *Propionibacterium shermanii*, producing large

amounts of carbon dioxide gas. The pressure of this gas causes formation of the eyes by physically forcing the curd apart. In cheese grading, a Swiss cheese with round, uniform eyes is most desired. Any shape other than round is an indication of a defect in the cheese. For example, “slitty” is a defective condition whereby insufficient carbon dioxide was formed and the eyes are not round. Slitty cheese is commonly considered low quality cheese. A cheese with no eyes is described as “blind,” and a cheese with one enormous eye is called “blowhole” cheese. These cheese defects have been extensively studied and are correlated with off-flavor development due to starter culture problems.

Many other wonderful varieties of cheese are available in the marketplace. However, although there are approximately 150 varieties of cheese recognized by the USDA, few consumers have ever “risked” trying any of the lesser known varieties available in the marketplace. Each variety has a unique history, manufacture procedure, texture and flavor. We encourage you to try some of these delicious cheeses:

EDAM

Edam cheese originated in Holland in the village of Edam. This cheese is most commonly recognized by its traditional “cannonball” shape and red wax coating. In Holland, Edam production accounts for 25% of Dutch cheese production. This mild flavored cheese has small shiny eyes with a soft, buttery texture and delightful nutty flavor. It is a wonderful appetizer cheese when served with crackers and fresh grapes. Varieties of spiced Edam are also available. Edam cheese is typically consumed at a relatively young age – 6 weeks to 6 months.

| Classification | Percent Moisture | Cheese Texture | Examples |
|--------------------|------------------|----------------|-------------------------|
| Low moisture | 13-34% | Very hard | Parmesan, Romano |
| Medium moisture | 34-45% | Hard | Cheddar, Swiss, Edam |
| High moisture | 45-55% | Soft | Mozzarella, Blue, Brie |
| Very high moisture | 55-80% | Very soft | Cottage, Cream, Ricotta |

GOUDA

Gouda is also a Dutch cheese first made in the town of its name in Holland. Gouda is a wheel-shaped cheese typically ranging in size from 8 to 45 pounds. Gouda is the most popular cheese produced in Holland accounting for approximately 60% of the annual Dutch cheese production. Gouda cheese is a sweet curd cheese with a limited number of eyes. Gouda and Edam cheeses are very similar in flavor and composition; Gouda has a slightly higher fat content and softer texture. Like Edam, Gouda has a mild, nutty flavor. As the cheese ages, the texture becomes progressively drier. Gouda cheeses may also be found in the marketplace with added flavoring ingredients such as cumin, herbs or pepper. Smoked Gouda is also a popular variety of this cheese. Traditional Gouda is also a wonderful cheese accompanying fresh fruit.

GRUYÈRE

Gruyère is a cheese that visually resembles Swiss cheese but with a distinctively different flavor. It is native to eastern France. Gruyère is produced in smaller wheels than typical Swiss cheese. The eyes in Gruyère are smaller than in Swiss cheese. Gruyère cheese has a hickory nut flavor that is much more pungent than Swiss cheese.

CAMEMBERT

Camembert is a mold surface ripened cheese that originated in France in the village of Camembert in Normandy. Today, the cheese is also extensively manufactured in the U.S., Denmark and Germany. During manufacture, the surface of the cheese is coated with mold spores of *Penicillium camemberti*. The mold produces a soft white surface on the thin, round disk of cheese and enzymes produced by this surface culture causes the interior of the cheese to become very soft and mellow. The cheese is typically ripened for a month. The soft interior of Camembert is a soft yellow color. Camembert is an extremely popular cheese and is called the Queen of Cheese in France. Its cousin, Brie, a cheese made by a similar process, is often baked in a crust and served warm as an appetizer.

GORGONZOLA

There are many varieties of blue-veined cheeses produced around the world. The most famous of these is Roquefort, a variety of mold-ripened cheese manufactured in Roquefort, France. True “Roquefort” cheese cannot be made anywhere else in the world since the name is trademarked by processors in a small region of France. Gorgonzola is a blue-veined cheese that originated in the village of Gorgonzola in Italy. This fine cheese was first made in the autumn months when cattle were driven to the region in anticipation of winter. Originally this cheese was named Stracchino cheese from the word “stracco” which means “tired.” The milk used in the cheese came from tired cows that had been driven miles and miles through the Italian Alps. True Gorgonzola is meticulously made by combining curd made from milk obtained from the morning milking with curd made from the evening milk. The cheese is typically made in larger sized wheels than other blue-veined cheeses. It has a softer texture than other blue-veined cheeses with a milder, more subdued flavor.

STILTON

Stilton is the English version of blue-veined cheese. The Stilton Cheese Makers Association now regulates the manufacture of Stilton cheese. The association, which owns the rights to the name, dictates that the milk used to make Stilton must come from herds of cattle in England or Wales and the cheese must be made in a traditional, cylindrical shape. The cheese has a dry, brown surface coat. The interior of the cheese is marbled with blue mold. The flavor is very delicate and mild.

These are just a few of the hundreds of wonderful cheese varieties available in the marketplace. We encourage you to try these and other varieties of cheese. We feel you may find one or more that you will come to love better than Cheddar!

REFERENCES

- ¹ Kosikowski, F.V. and V.V. Mistry. 1997. *Cheese and Fermented Milk Foods. Volume I. Origins and Principles*. F.V. Kosikowski Publisher, Westport, Connecticut.
- ² Robinson, R.K. 1995. *A Colour Guide to Cheese and Fermented Milks*. Chapman & Hall, New York.

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