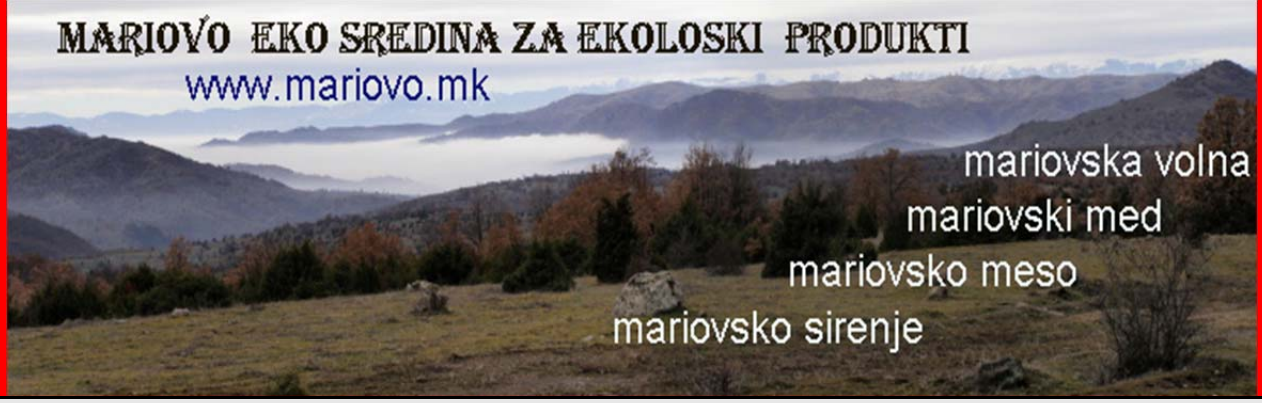


Emmentaler cheese

Characteristics:

Swiss (Emmentaler) cheese, which is a large, hard, pressed-curd cheese with an elastic body and a mild, nut-like, sweetish flavor, is best known because of the holes or eyes that develop in the curd as the cheese ripens. The eyes often are 1,2-2,5 cm 1/2-1 inch in diameter and from 2,5-7,5 cm 1-3 inches apart. The cheeses are about 15 cm 6 inches thick, frequently more than 90 cm 36 inches in diameter, and usually weigh between 72-104 kg 160-230 pounds.

Switzerland is famous for this so-called King of Cheeses, and a large part of the milk produced in Switzerland is used in its production. It was first made, probably about the middle of the 15th century, in the Canton of Bern in the Emmental Valley (which accounts for its native name Emmentaler). The industry was well developed and cheese was being exported by the middle of the 17th century. Only the best cheese is exported, and it is commonly called "Switzerland Swiss."

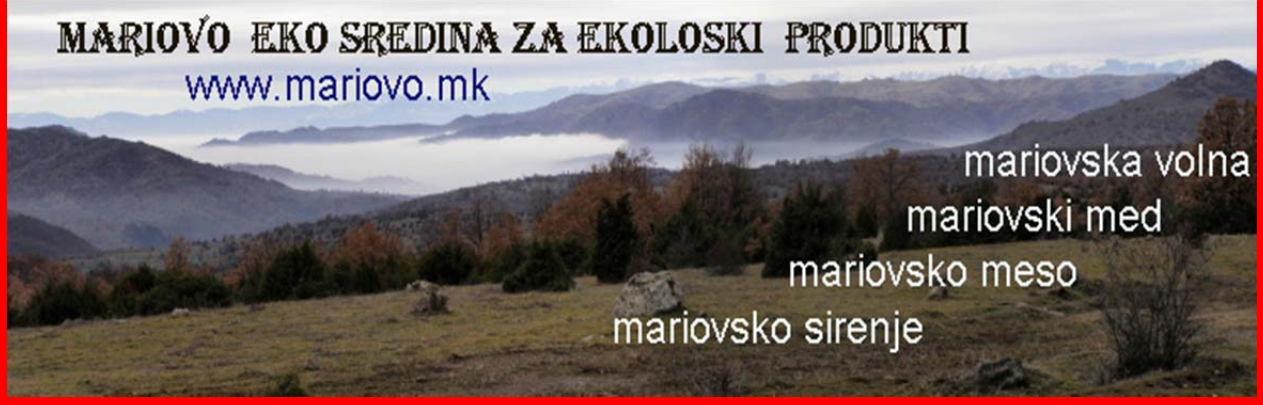
Swiss cheese is made in many other countries besides Switzerland, including France, Denmark, Germany, Italy, Austria, Finland, Russia, Argentina, and the United States. Allga"uer Emmentaler, Bellunese, Formaggio Dolce, Fontina, Fontine d'Aosta, and Traanen are local names for similar cheeses made in Switzerland and nearby countries. Gruye're, made mostly in France, is similar to Swiss but is smaller and cures somewhat differently. Danish Swiss is called Samso.

Swiss cheese is one of the most difficult kinds of cheese to make. Control of the quality and composition of the milk, propagation and use of the essential bacterial starters, and the details of manufacture are complicated procedures that require the services of a skilled cheesemaker, and its successful manufacture is a factory operation that requires special equipment.

Three species of bacteria are used as starters: ***Streptocuoccus thermophilus***, called the coccus culture; a lactobacillus - ***Lactobacillus bulgaricus*** or ***L.lactis*** - called the rod culture; and ***Propionibacterium shermanii*** (a propionic-acid-forming micro-organism), called the eye-former. The lactobacillus and streptococcus produce lactic acid, which aids in expelling the whey, and they probably contribute to the breakdown of the curd during ripening. The propionic-acid bacteria are largely responsible for the characteristic flavor and eye formation.

The Method of Making:

www.mariovo.mk info@mariovo.mk marijovo@t-home.mk
+389 47 203 900 ul,Braka Mingovi br.18 P.fax.Br 52 Makedonija



Swiss cheese is made in round copper kettles that hold at least 900 kg 2,000 pounds of milk, and frequently 1,350 3,000 or 1,440 kg 3,200 pounds. The kettles are double-jacketed or have a steam chamber in the bottom. Good-quality fresh milk is essential. It is advisable to clarify and standardize the milk at 3.0-3.1% fat. Clarification increasese the elasticity of the curd in the cheese and improves eye formation. Standardizing the fat content of the milk assures cheese of uniform composition; usually slightly more than 10% of the fat is removed.

As the milk flows from the clarifier into the kettle, steam is turned on in the jacket or steam chamber under the kettle, and the milk is warmed to setting temperature 31-34°C 88-94°F. Stirring is begun, the starter is added, and shortly thereafter enough rennet extract is added so the curd will be firm enough to cut in 30 minutes (the first indication of thickening appears in from 20 to 22 minutes).

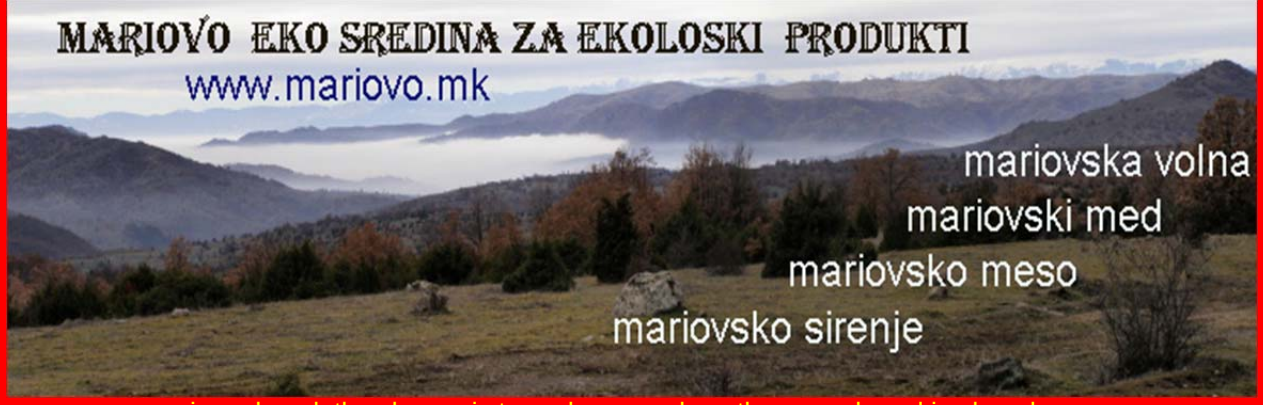
As soon as the curd is firm enough to cut, the surface is "turned under" - that is, the creamy top layer is skimmed off with a wide, flat scoop and pushed to the back of the kettle, in order to mix this creamy layer with the rest of the curd. The curd is cut with a Swiss-cheese harp - from back to front and from side to side - into long rectangular strips about 2,5 cm 1 inch square. Then the curd is turned under from top to bottom with a scoop, so that which was underneath will be on the surface, and the pieces are cut into 2,5 cm 1 inch cubes. About 5 minutes after cutting is completed, the curd is harped (cut and mixed) until the particles are about 3 mm 1/8 inch in diameter. This usually requires about 15 minutes.

Then the curd is "foreworked" - that is, stirred slowly, either continuously or at intervals - for 30 minutes to an hour or more as it acquires firmness. When it is sufficiently firm, steam is turned on and the curd is heated, usually in 30 minutes, to a temperature between 49-53°C 120-127.5°F. It is stirred continuously while it is being heated, and stirring is continued for at least 25 minutes and sometimes for an hour or longer after the final cooking temperature is reached. This is called "stirring out." As soon as the particles of curd can be broken apart easily without sticking when compressed in the hand, the curd is ready to be dipped. Some cheesemakers add several gallons of cold water at this point. Stirring is discontinued, so the curd will settle, and some of the whey is drawn off.

The curd is enclosed in a large, coarsely woven dipping cloth, and it is hoisted slowly over the kettle with a block and tackle, and the excess whey drains into the kettle. The bag of curd is then lowered into a circular wooden or stainless steel hoop, which rests on a circular pressboard on a drain table. The curd is pressed gently down into the hoop, the edges of the cloth are smoothed over the curd, a circular pressboard is laid on top of the curd, and the curd is pressed from above with a screw- or lever-press.

About 5 minutes later, the hoop is removed; a clean light cloth and a clean, heavy burlap cloth are substituted for the dipping cloth; the hoop

www.mariovo.mk info@mariovo.mk marijovo@t-home.mk
+389 47 203 900 ul,Braka Mingovi br.18 P.fax.Br 52 Makedonija



is replaced; the cheese is turned over and another pressboard is placed on it; and it is pressed again. This process is repeated at definite intervals for 24h.

Then the cheese is removed from the press and, still in the hoop, it is taken to the so-called cold room (temperature about 13°C 55°F. and relative humidity 80-85%), where it is salted in brine. The cheese may be removed from the hoop and placed in the salt tank at once; or, still in the hoop, it may be placed on a shelf to cool for a day or so before it is salted. It is left in the brine for 2 or 3 days, the time depending on the size of the cheese, the amount of salt absorbed, and the rind formation desired. It is turned over and sprinkled with salt daily. Then it is placed on a circular board on a shelf in the cold room for a week or 10 days; it is washed, turned and sprinkled with dry salt daily.

Then it is transferred to a clean board on a shelf in the warm room (temperature 18-22°C 65-72°F. and relative humidity 80-85%), where the principal ripening process takes place. The cheese is washed with salty water, it is turned and placed on a clean board, and salt is rubbed on the surface every few days. The eyes begin to form when the cheese is about 3 weeks old; eye formation is controlled to some extent by regulating the temperature of the room. The cheese usually remains in the warm room for 4 to 6 weeks; then it is returned to the cold room for further but slower curing, or to a storage room where it is held at about 4,5°C 40°F.

Much of the cheese made in the United States is marketed after curing for 3 to 4 months (the minimum period is 2 months). Most of the cheese exported from Switzerland is cured for 6 to 10 months and has a more pronounced flavor.

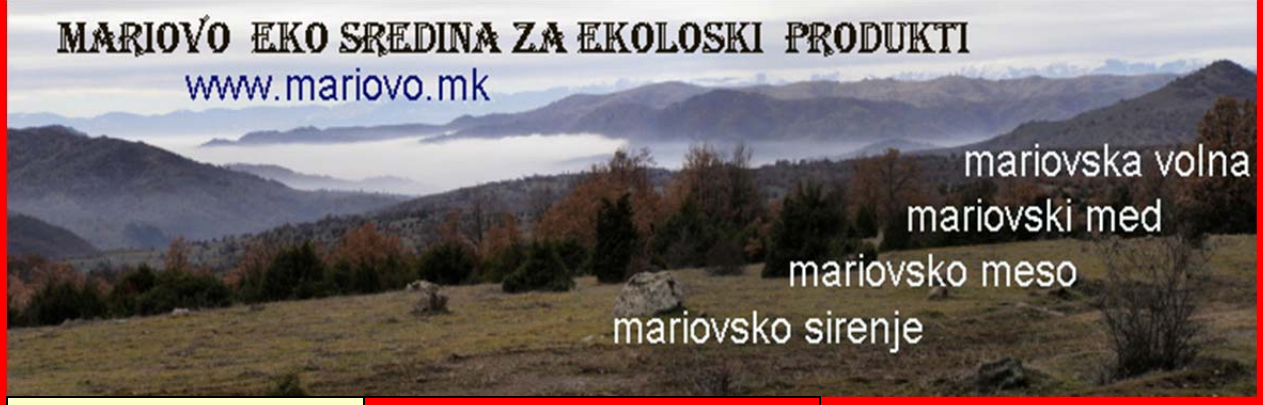
A cheese weighing between 83-95 kg 185-210 pounds can be made from a 1,125 kg 2,500-pound kettle of milk. Several cheeses are packed in a round, wooden box for shipment; the box may contain more than 450 kg 1,000 pounds of cheese. Swiss cheese is also made in rectangular blocks, about 70 cm 28 inches long and 20 cm 8 inches square, that weigh 11,2-12,6 kg 25-28 pounds.

So-called rindless Swiss cheese is made by a somewhat modified method. The milk (in some instances as much as 4,500 kg 10,000 pounds) is set in a rectangular vat, and the curd is pepared in the usual way. The curd and whey are transferred to a so-called press vat. Then, in a procedure similar to that used in making Herrgardsost, the curd is pressed under the whey into a flat, rectangular block. The block of curd is subdivided into sections, each of which makes a cheese. Each cheese is placed in a cloth-lined box and pressed, then removed form the box, salted in brine, and dried. Then it is wrapped in film and placed in a box to cure.

Analysis:

Composition:	%

www.mariovo.mk info@mariovo.mk marijovo@t-home.mk
+389 47 203 900 ul,Braka Mingovi br.18 P.fax.Br 52 Makedonija



Moisture	39,4 (not more than 41)
Fat	27,5(not less than 43 in the solids)
Protein	27,4
Salt	1-1,6

Go: **Home**

www.mariovo.mk info@mariovo.mk marijovo@t-home.mk
+389 47 203 900 ul,Braka Mingovi br.18 P.fax.Br 52 Makedonija