

Rousselot® Reformulation



Improvement
by nature



RHC

Rousselot Healthy Choice



Rousselot

Food reformulation

Reformulation of foods is considered to be one of the key options for achieving population nutrition goals. The composition of many foods is modified to help the consumer bring their daily diet more into line with dietary recommendations.

Health concerns

Public health (obesity, diabetes and heart disease in particular) is becoming such a high priority both politically and with consumers that we are now observing a big shift from excess and over indulgence towards healthier eating.

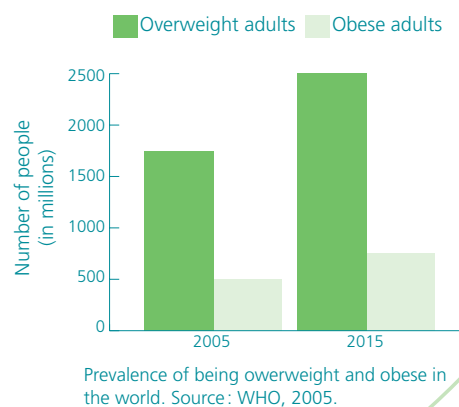
Issues related to obesity and overweight are causing increasing problems worldwide. Changes in lifestyle involving the pursuit of more sedentary occupations, and the inability to balance dietary requirements and exercise patterns, have contributed to the expansion of waistlines.

According to the latest figures from the World Health Organization, approximately 1.6 billion adults (over 15 years old) were overweight in 2005, and 400 million were obese. The forecasts for 2015 are not very optimistic: approximately 2.3 billion adults will be overweight and more than 700 million will be obese.

It is mainly in developed countries that the pandemic is growing, although urban populations of low- and middle-income countries have also begun to suffer.

This problem is greatest in the United States where 41.8 % of the population was obese in 2005, and forecasts suggest that 53 % will be obese by 2015, followed closely by Europe. This major health problem has, however, begun to affect various areas within the Asia Pacific zone. The impact of commercialization and adopting a western diet and lifestyle has resulted in an increase in body weight in Asian populations.

Solutions for healthier food



The "Better-for-you" trend

Consumers are becoming increasingly conscious of their dietary habits. Fuelled by changing social demographics (notably aging populations), more columns in the press are devoted to health issues and the very real problem of trying to counter obesity. Messages regarding the potential benefits and risks of certain foods and nutrients are having an effect on consumers.

This has created a strong trend towards "moderation and avoidance" regarding food and drink. In the last few years, we have seen a significant increase in the demand for healthier food. Consumers looking to improve their diets due to poor health and/or obesity, or those simply looking to remain or become more health-conscious are seeking enjoyable foods, without the negative consequences. They are demanding healthier foods in all categories, ranging from candy to cereals, and bars to beverages. Today's consumer focuses on both "good" nutrient content and moderation of "bad" nutrients, but they are not willing to sacrifice taste. Moderation of "bad" nutrients has led to

the development of a new trend: the "better-for-you" concept.

The food industry has strong connections with consumer health, hence mega trends related to health and the taste of food products will continue to have a strong impact on the global market. The main objective for food manufacturers and ingredient suppliers is to look for ways of making healthy foods with a reduced calorie, fat and/or sugar content that taste good. They could thus satisfy consumer needs by developing "better for you" products using a product reformulation strategy. Over the past few years the number of reformulated foods introduced onto the market has increased and it is expected that this trend will continue in the years to come. Initiatives on food reformulation should preferably focus on basic foods normally eaten by all socio-economic classes of a population. This is achievable if consumers as well as manufacturers accept the use of multifunctional ingredients i.e. ingredients that fulfill several functions at the same time - and gelatine has a major contribution to make.



Make consumers' Healthy Choice the Easy Choice

To allay future health concerns, such as overweight, consumers want to take preventative action now and are looking for products that fit conveniently into their daily diet. Taking care to consume of a variety of foods in appropriate amounts as part of the daily diet may imply a substantial change in consumer dietary behavior. This could be achieved through education, information and advertising to promote the consumption of more fruit, vegetables, and proteins and to encourage people to eat less salt, sugar, fat, saturated fat and "empty calories".

An additional way to help the consumer make the healthy choice the easy choice is to improve the composition of frequently eaten foods by greatly reducing the quantity of sugar, fat and calories in the finished products. The potential impact of reformulated foods on the intake of key nutrients and health is obvious.

Consumers have an increasingly strong appetite for nutritional information. When checking labels, eliminating or reducing fat is the most important and frequently practiced dietary approach.

Consumer survey: proportion of consumers who "regularly" check labels for various contents, by content and region.

	Asia Pacific	Europe	North America	Latin America	Global average
Fat	45 %	49 %	57 %	55 %	49 %
Calories	42 %	42 %	48 %	59 %	43 %
Sugar	39 %	42 %	47 %	52 %	42 %
Preservatives	47 %	36 %	28 %	44 %	40 %
Coloring	43 %	34 %	19 %	42 %	36 %
Additives	42 %	33 %	29 %	34 %	36 %
Protein	30 %	22 %	31 %	50 %	28 %
Carbohydrates	28 %	24 %	37 %	44 %	28 %
Fiber	28 %	23 %	28 %	51 %	27 %
Salt/Sodium	26 %	22 %	39 %	28 %	26 %
Gluten	12 %	10 %	9 %	19 %	11 %
Low GI	11 %	9 %	8 %	22 %	11 %

Source: AC Nielsen, 2005 - Datamonitor, 2007

In the context of healthier food choices, food reformulation may be defined as reformulating existing foods to remove (e.g. trans fatty acids) or reduce (e.g. sugars, saturated fat, salt) certain ingredients whereas characteristics such as flavor, texture and shelf life are retained to meet consumers' expectations.

Discover new possibilities for Healthier food with Rousselot® Gelatine

By exploiting the functions and properties of its Gelatine to a maximum, Rousselot® is able to provide support for potential projects and helps customers create innovative and healthy foods while maintaining their taste, texture and shelf-life.

Rousselot® Gelatine is available as Gelling Gelatine or Hydrolyzed Gelatine. Hydrolyzed Gelatine has no bloom and is incorporated into the food matrix for its protein content.

Low calorie products with high acceptance

Reduction of energy intake is the objective, but consumers want to eat the same amount of food as they normally do. This can be achieved by

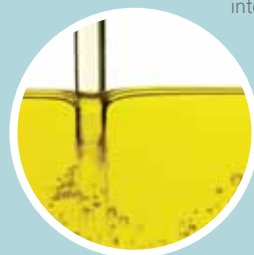
adding Gelatine to the food and replacing nutrients rich in calories with more water or by introducing air into the food matrix. Gelatine helps to bind water and is a good candidate for whipping to produce and stabilize foam. An increase of water or air in a food preparation therefore leads to fewer calories for the same size portion.



Ideal to reduce fat content

One important aspect of health improvement is a reduction in the fat content of food. Whereas a reduction in fat may lower the calorie count and saturated fat content, it may also affect processing, texture, and taste in ways that are not desirable and which require resolutions. Even the solidifying or melting point of fats influences the texture of food products. They also have an important contribution to make to sensory attributes and influence the interactions between taste, smell and texture of

both food products and beverages. Fats may be considered as taste carriers, especially in the case of fat-soluble flavors, and are involved in the release of aromatic substances in the mouth. The perception of flavor is closely related to mouthfeel properties.



Gelatine is a good candidate for improving texture, providing creaminess and enhancing mouthfeel in low- or reduced-fat products because it melts at body temperature. Gelatine can be used to substitute fats with a less calorific functional protein able to bind 5 to 10 times its own weight of water.

A full taste with less sugar

Health conscious consumers see the reduction of sugar intake as an important component of either dieting or a more moderate and healthier pattern of eating and drinking.

Gelatine can significantly reduce levels of sugars to meet market needs while maintaining taste.

Gelatine can help bridge the gap between appealing and healthier products.



Protein for healthier products

Proteins are the nutrients that provide the greatest impression of satiety, higher than that of carbohydrates or fat for an equivalent calorie intake.

Hydrolyzed Gelatine, because it is entirely protein, can help increase the protein content of your product and/or act as a binding agent. Rousselot® Hydrolyzed Gelatine does not have a bitter taste and has an outstanding mouthfeel.

These properties make it a powerful ingredient for protein fortification, which has many applications such as nutritional bars, meal replacement, soups, ready-to-eat products...



Designing innovative reformulated products

Designing healthier products with Rousselot® Application Laboratories

Leveraging the powerful functionalities and properties of its gelatine, Rousselot® offers innovative solutions in food reformulation. Our team is dedicated to help food manufacturers create value-added and cost-effective products while maintaining taste and texture.

With its extensive work in formulation, Rousselot® has developed a catalogue of recipes to help you get attractive solutions to market faster.

Rousselot® Gelatine in dairy:

Gelatine is a good candidate for texturizing and enhancing mouthfeel in low- or reduced-fat products. The substitution of fats with a less calorific, functional protein that can bind 5 to 10 times its own weight in water is achievable with gelatine. In addition, the viscosity of gelatine below melting point gives a smooth consistency and a fat-like mouthfeel.

Low calorie spreads

Low calorie spread products have reduced fat content and are either exclusively milk fat-based, vegetable fat-based, or a combination of both. A stable emulsion requires the presence of stabilizers and emulsifiers. The stabilizer must ensure good water binding and improve the structure, consistency and spreadability of the finished product. Good stabilization can be obtained with high Bloom gelatine, added at doses varying from 1 to 2%, because the melting point of that type of gelatine (31-33°C) is very near the melting point of the different fats present. Other hydrocolloids (e.g.: pectin, carrageenan and xanthan) may be used in association with gelatine to improve water binding.

Cheeses

Gelatine can be used in cheese production to increase water binding and achieve better yields with a lower fat content. Gelatine will also strengthen the product texture and enhance flavor release.



Rousselot Geleese™

Rousselot Geleese™ is a fat-reduced cheese specialty for use as a dip or as spread. Reducing the fat content has positively impacted the calorific value and saturated fat content of this food product.

Rousselot® Gelatine in confectionery:

For many years, the aim of the confectionery industry has been to reduce or even totally replace sugar and corn syrup in products to create non-cariogenic confectionery suitable for diabetics and reduced the calorie content, wherever possible. Because of its unrivalled gelling properties, gelatine is the ideal ingredient to reformulate healthier confectionery and still provide a texture similar to that of traditional products.



Fruity Delight™ Pulp Gummies

Fruity Delight™ Pulp Gummies contain 9% less added sugar/glucose syrup than standard jelly confectionery. This sugar has been replaced to 4% with fruit.

Rousselot® Gelatine in snacks:

On the back of extensive formulation work, Rousselot has developed and patented a savory snack with a texture similar to marshmallow using the Rousselot® GUBE platform. Rousselot® **AperoMallow™** is a low energy density savory snack. It is available in many flavors (cheese, paprika, peanut, etc.) and is perfectly compatible with on-the-go eating.



Rousselot® Healthy Choice

A pragmatic way to reposition your product in accordance with the better-for-you trend.

Rousselot® Reformulation assets

At Rousselot, we understand the central role the food industry plays in what people eat. Our strategy is to focus on new developments in the field of health in response to a number of long-term societal trends. Our goal is to provide the food industry with Gelatine solutions for their reformulation projects combining healthiness and taste appeal.

Some of our specific objectives are to provide our customers with a systematic and effective new product development approach for their key projects :

- Innovation through customer focus
- Improve health profile with no impact on taste
- Select the right Gelatine, whatever the application
- Clean labeling
- Cost effective solutions

Combining a forward thinking approach with a high level of expertise in food technology, Rousselot will be your partner for reinventing your products so they deliver both great taste and healthier eating.

Rousselot can contribute to creating even healthier products and work in close and confidential collaboration with customers to develop tailor-made solutions.

Rousselot® Gelatine, an ingredient of choice :

- Provides the same sensation as the original product
- Helps to rebalance reformulated products that lack consistence

Rousselot is committed to helping food manufacturers develop tailor-made more appealing and healthier formulae. Formulation guidelines for product reformulation are available on request.

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Rousselot® Gelatine : a quality food ingredient...

A natural food

Gelatine is a protein derived from animal collagen. It is composed of more than 85 % protein, less than 13 % is water and less than 2 % minerals. Gelatine, as a natural ingredient, has no E number and can be easily incorporated in clean labeled products.

Nutritional value

Gelatine is an easily digestible protein. It is particularly rich in glycine, proline and hydroxyproline, which together represent almost 50 % of the composition of the ingredient.

Compatible food

Gelatine is water-soluble and compatible with most other hydrocolloids, including vegetable colloids such as agar-agar, alginates, carrageenans and pectins. It is also compatible with sugars, corn syrups, edible acids and flavors.

Pure product with a high bacteriological standard

Gelatine is almost pure protein. The quality of the product is achieved and controlled on the production line. It conforms to the most stringent food standards and pharmacopoeia information. Dry Gelatine retains its properties when stored at room temperature.

...easy to dissolve and use

The preparation of gelatine solutions presents few difficulties for concentrations below 10 %. Four methods, however, are used to prepare Gelatine solutions with concentrations of up to 33 to 40 % water :

1. Conventional method : swelling in cold water, followed by dissolving and homogenization in hot water.
2. High-speed method : Gelatine is dissolved directly in hot water.

3. Intermediate method : swelling in cold water, followed by dissolving directly in other raw materials.
4. Mixing : Gelatine is mixed with other ingredients. Dissolving then occurs during pasteurization or sterilization of the finished products.

Factors such as grain size, gel strength, viscosity, concentration and dissolving time determine the most appropriate method.

Rousselot®

With a worldwide staff of 2,400 people dedicated to our customers, Rousselot® is recognized as a world leader in gelatine and collagen peptides production and support. Although global in location, Rousselot® remains a family united by a single network of manufacturing facilities, sales offices and technical experts. Diversity of nationalities, strong corporate identity and team spirit are our leading core values.



Customer-driven solutions

Rousselot combines the strength of a global company with the dedication and commitment of a close reliable partner. The goal of each Rousselot team is to supply the best services and products available, each and every day.

The right Gelatine, whatever the application

Based on its technical know-how, Rousselot's particular strength is to develop products and services in order to find new solutions to suit international, local or individual environments and needs.

No compromise with Quality

Rousselot's approach is driven by customer focus, in which all our teams play a pro-active part. This ensures that our customers receive the fit-for-use product they expect, at the right time. Rousselot® Gelatines are safe and fully traceable. They meet or exceed most international, local and regional quality and environmental standards.

A company built on a belief: Integrity

At Rousselot, integrity is not just a word but a belief. Integrity, according to Webster's, is "the uncompromising adherence to moral and ethical principles". This is a way of life at Rousselot and the primary reason why we have set the standards for gelatine since 1891. Rousselot is a reliable partner. That is the reason why more global food and pharmaceutical customers put their faith in a partnership with Rousselot than any other gelatine and collagen supplier. Rousselot is recognized as a world leader in the production of safe, high quality collagen peptides and gelatines. Rousselot's commitment to these standards has provided the security, trust and reliability that customers have come to expect.

Compliance with international standards

Overweight Facts and Protein Quality Excellence are at the heart of Rousselot's approach. Rousselot® Gelatines comply with most international food and pharmaceutical standards. They are manufactured on ISO 9001-2000 certified sites, in conjunction with strong hygiene and safety programs, i.e. HACCP and GMP procedures. Aware of diverse needs, Rousselot manufactures Kosher and Halal approved Rousselot® Gelatines.

Rousselot®

Rousselot is the leading manufacturer of gelatine and collagen peptides to the food, pharmaceutical and technical industries. With a staff of 2,400 people, the company benefits from a global sales and production network of 13 plants and 10 sales offices located in Europe, North America, South America and Asia. Rousselot is part of VION N.V., an international food company with production and sales facilities on all continents.

VION

With two international divisions Food and Ingredients, the company is active in the field of high quality foodstuffs and health products for humans and animals. Rousselot is part of the Ingredients division. VION has annual sales of EUR 9.0 billion and provides employment for 27,000 people worldwide. VION's head office is in Eindhoven, The Netherlands. www.vionfood.com

Rousselot® Headquarters:

Kanaaldijk Noord 20-21
5691 NM SON The Netherlands
Phone +31 (0)499 364100
Fax +31 (0)499 364972
gelatin@rousselot.com
www.rousselot.com

