

Chapter 18

Importance of Biotechnology in the Development of Functional Foods in Emerging Countries: The Case of Chile

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ABSTRACT

This chapter seeks to highlight the qualities of functional foods, in relation to those called traditional foods and, from this perspective, the contribution that the use of techniques based on biotechnology can provide to increase the quality of foods, while seeking to reduce diseases derived from a bad or insufficient nutrition in the population. To that end, a brief overview has been prepared on the diverse categories of healthy foods, before delving deeper into the definitions of functional foods. This paper addresses the existing relation and impact of using biotechnology for processing them and, at the same time, it provides a short description of the potential market for functional foods in Chile.

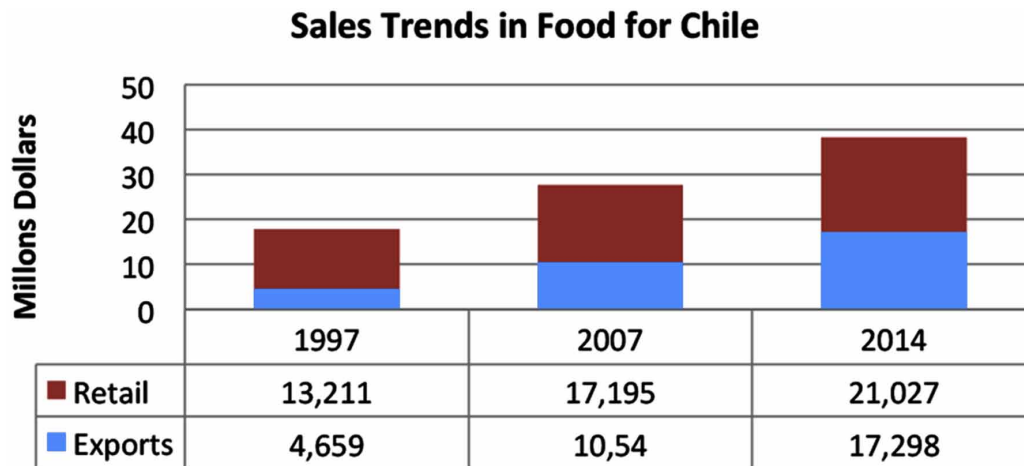
INTRODUCTION

Chile is an emerging country that has historically based its economy on mining and food. This last sector has had a more sustained growth over time. According to the Central Bank of Chile, in 2014, food accounted for 18% of the GDP, constituting 25% of the total exports of the country. It has more than 1,500 export products, accounting for more than 800,000 jobs and, as shown in Figure 1, an evolution in sales which went from USD \$17,870,000 in 1997 to \$38,325,000 in 2014. It is worth noting that Chile is positioned within the top ten exporters of food in the world.

For many years, Chile's economic development strategy has focused on areas with greatest potential in natural resources, such as mining and the food industry, among other things due to its climatic advantages and geopolitical situation. However, in recent decades, other areas with high growth potential, investment opportunities and international competitiveness have identified, such as the generation of renewable energy, global services and biotechnology (CIEChile, 2013).

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Figure 1. Sales trends in food for Chile



**For a more accurate representation see the electronic version.*

Chile, beyond basing its economy on natural resources, began to glimpse more explicit efforts to promote the use of biotechnology since 2003 (Government of Chile), when the “National Commission for the Development of Biotechnology” stated that the purpose of their biotechnology policy was: “... promoting the development and application of biotechnology, especially in the productive sectors based on natural resources, in order to increase the welfare and quality of life for all Chileans and thereby contribute to the generation of wealth in the country, ensuring the protection of health and environmental sustainability”. This statement reaffirms the importance given to the exploitation of natural resources as a factor of economic development, setting aside the use of this and other more promising technologies from the perspectives of income and innovative breakthroughs.

However, it is necessary to not set aside the World Health Organization’s warning that, in the coming decades, there will be a worldwide increase of chronic diseases related to poor nutrition. This has raised the collective awareness of consumers, which has pushed states and companies to develop new techniques for innovation in the food industry, as well as to implement new food categories related to health and wellness. The traditional food industry involves some technology, but its level does not compare to the advances offered by the use of biotechnology to increase the amount of high quality food produced. Today the challenge lies not just in meeting basic nutritional needs, but in providing additional protective ingredients to help prevent the major chronic diseases associated with obesity. Biotechnology has become an important tool in recent years and scientists are now investigating advanced and novel strategies for the improvement of the functional aspects of food and food ingredients in an effort to manage the current and emerging health care challenges.

This has prompted the industry to look at the horizon from another perspective, starting with greater security, harmlessness, nutrition and quality. To do this, a subcategory of healthy food industry has been created, called “functional foods”, which can be defined as “any food or food ingredient that may provide a health benefit beyond the traditional nutrients it contains” (IOM/FNB, 1994). This concept emerged in Japan in the 1980s as an important part of developing its health policy, based on the large amount of evidence that food might play an important role in the physiological and biochemical functions of the human body (Vasiljevic & Shah, 2008).

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