



# Chile: Biotechnology Industry

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## Summary

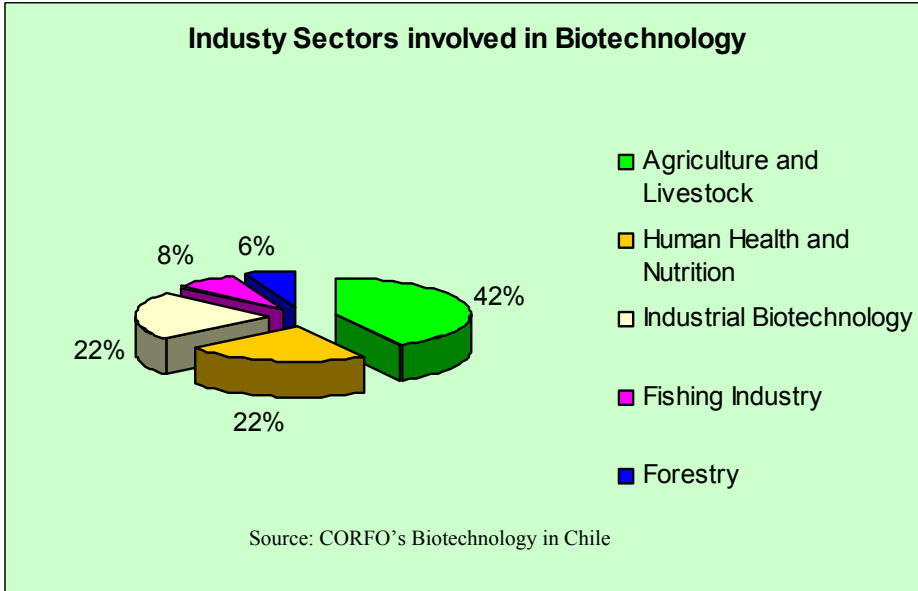
During the last decade, one of the priorities of both the Chilean government and private sector has been the implementation of programs to foster the development of biotechnology in the country.

Biotechnological applications in the various projected industries are expected to increase not only the production in each of the selected sectors, but the country's economic performance as well. The sectors involved in such applications include, but are not limited to, the following: fruit varieties, forestry genomics, dairy applications, wine industry, mining and industrial applications, and applied biomedicine.

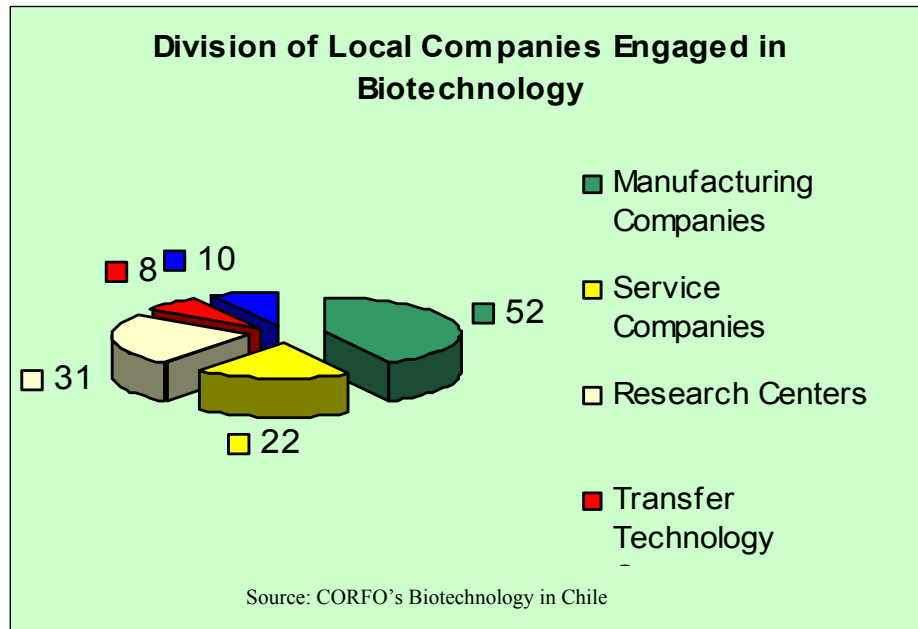
## Market Demand

- Chile's current biotechnology policy includes: a) strengthening the development of the local biotechnology industry and promoting the implementation of biotech processes, b) generating and strengthening scientific, technologic, managerial, and infrastructural capabilities for the country's biotech industry, c) establishing the legal framework to secure safe, sustainable, and responsible development of biotechnology, and d) designing and implementing an institutional framework for an adequate coordination between the local regulatory agencies.
- In 2005, a joint effort between the public and private sector created nine entrepreneurial consortiums – for the dairy, fruit, wine, health, and aeronautic industries – as a new step towards the integration of the scientific activity in the industry to foster investigation and application of cutting edge technology in Chile's productive development. This initiative also encourages patenting of new technologies and applications and the sale of these new inventions and or generated products. This initiative was designed by the National Commission for Technologic and Scientific Research, Conicyt, the Chilean Economic Development Agency known as Corfo and the Foundation for Agriculture Innovation FIA.
- The aquaculture sector poses an interesting challenge for biotechnological applications. For example, by producing vaccines for the salmon industry and other species. Additionally, researching molecular biology of marine and freshwater microorganisms, industrial processes, and marine pollution and bioremediation.
- In the mining and industrial sector, bioleaching is a successful biotechnological application, by which the numbers of copper deposits are significantly increased. There is also bioremediation activity and industrial waste treatment in chemical processing.
- Chilean universities carrying out research and development in biotechnology include: Universidad de Chile, Pontificia Universidad Católica de Chile, Universidad de Santiago, Universidad de Talca, Universidad de Concepción, Universidad Austral de Valdivia, and Universidad Católica de Valparaíso.

**Market Data**



According to the Chilean Economic Development Agency (CORFO), the Chilean biotechnology industry is represented by some 123 organizations focusing on improving the competitiveness of the export sectors and the creation of innovative products in the existing and emerging markets.



The development of biotechnology is strategic for the increase in Chile's productivity, reduction of production costs, and will report a value added quality in its products. Foreign companies are encouraged to consider Chile as a platform for new developments in this sector.

## Best Prospects

- In agriculture, genomics and genetic engineering may help improve the quality of fruit exports to remote destinations that arrive in inadequate conditions. Additionally, molecular markers to genetically improve vegetal varieties are another biotechnology application being used.
- In the aquiculture sector, biotechnology applications include the production of vaccines for the salmon industry and other species.
- In the forestry sector, the developments of biotech applications are used for pine and eucalyptus transgenic plantations.
- In the mining sector, bioleaching technology for specific ores increasing the number of mine deposits.
- In the industrial sector, development of new techniques for environmental cleanup and integral solutions in the operations and control of water and wastewater processes.
- Research centers and universities are eager for technology transfer and open to partnering with foreign organizations and academia that understand the uniqueness of Chile's advantages not only in terms of economic growth, low level of corruption, and political stability, but also Chile's natural geographic pest barriers, namely, the Andes Mountains and the Pacific Ocean.

## Key Suppliers

Foreign biotech players with presence in the Chilean market include: Pioneer, Monsanto, Seminis, Genzyme, Rare Diseases Therapeutics, Davis University, University of Wisconsin, InterLink Associates, Silvagen Inc., Aqua Bounty Farms Inc., Ag-West Biotech, BioAtlantech, Agri-Food Technologies, AgrEvo Canada, Microtek International, and others.

## Prospective Buyers

Research, development, innovation, and entrepreneurialship are all key concepts for Chile's economic growth and future. However, setting the foundations for their implementation is a totally different story. Chile's biotechnology private sector is open to technology transfer and innovation with U.S. companies that recognize the advantages of doing business in Chile. At the same time, universities and technical institutes are looking for opportunities and new experiences for their students and teachers that will result in highly specialized education.

Currently, Chile invests only 0.7% of its GDP in research, development, and innovation, which according to recent studies compares poorly with an average of 2.2% for OECD (Organization for Economic Cooperation and Development) countries and even higher in some emerging economies with which Chile competes in export markets. The Government of Chile plans to augment this percentage and boost public spending on R&D by 50% through initiatives in science, human resource development, and technology development and transfer. According to President Michelle Bachelet, Chile should be assigning 1% of its GDP to R&D by 2010.

## Market Entry

Establishing a local subsidiary or branch office in Chile is the appropriate strategy for a U.S. exporter who is convinced that sales volume will be large and/or local service support or localized inventory are keys to success. Any corporation legally constituted abroad may form, under its own name, an authorized branch in Chile. Another practical and more common market entry strategy, especially for new-to-market exporters, is to appoint an agent or representative with good access to relevant buyers and solid technical expertise.

Various Chilean Government agencies contribute to the local biotechnology industry, namely CONICYT through its programs FONDECYT and FONDEF, and CORFO, through incentives for investment projects. These incentives consider: a) Investment Incentives that include: pre-investment studies, project launch facilitation, employee training, and fixed assets and long-term leases; and b) Innovation Incentives.

## Market Issues and Obstacles

Chile has very few barriers to imports and/or investment allowing, in most cases, foreign firms to enjoy the same protections and operate under the same conditions as those for local firms. As a result of the U.S. – Chile Free Trade Agreement, in place since January of 2004, 90% of U.S. imported products enter Chile duty free, the remaining ten percent is to phase out by 2015.

Chile's institutional efforts to protect intellectual property rights (IPR) are inadequate in several important respects. These shortcomings have kept Chile since 1989 on the U.S. Trade Representative's Special 301 Watch List of countries with deficient IPR protection regimes.

Chile, as a member of the WTO, chose to qualify as a developing country for meeting its obligations as a signatory of the Trade-related Aspects of Intellectual Property Rights (TRIPS) agreement. As a result, the final deadline for harmonizing national legislation to the multilateral organization's norms was January 1, 2000. Chile's Congress finally approved the Miscellaneous Law in November 2003 to bring the country into compliance with its TRIPS copyright obligations and address some concerns about copyrights and authors' rights. Chile signed the World Intellectual Property Organization (WIPO) Treaty on Copyright and Performances and Phonograms in April 2001. Chile did not approve legislation to bring the country into compliance with TRIPS obligations related to industrial property until December 2004. The new 2004 law provides for, among other things, expedited civil court proceedings and the authority to seize illegal copies of patented products.

## Resources & Key Contacts

Chilean Economic Development Agency, CORFO, [www.corfo.cl](http://www.corfo.cl)  
Chilean Association of Biotech Industries, ASEMBIO, [www.asembio.cl](http://www.asembio.cl)  
Red de Información Silvoagropecuaria, [www.redagrochile.cl](http://www.redagrochile.cl)  
Association of Chilean Industries, SOFOFA, [www.sofofa.cl](http://www.sofofa.cl)  
American Chilean Chamber of Commerce, AMCHAM CHILE, [www.amchamchile.cl](http://www.amchamchile.cl)  
Fundación Chile, [www.fundacionchile.cl](http://www.fundacionchile.cl)

## For more information

The U.S. Commercial Service in Santiago, Chile, may be contacted via e-mail at: [veronica.pinto@mail.doc.gov](mailto:veronica.pinto@mail.doc.gov) Phone: (56-2) 330-3369; Fax: (56-2) 330-3172 or visit our website: [www.buyusa.gov/chile](http://www.buyusa.gov/chile)

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