Fundación Chile

Who we are

Fundación Chile is a privately owned, non-profit institution, created in 1976 through an agreement between the Government of Chile and ITT Corporation. The Founder and cofounder partners are the government of Chile, ITT Corporation and Escondida a subsidiary of BHP Billiton.

Our Mission

To add economic value to Chile's products and services by promoting innovation and technology transfer activities, aimed at taking better advantage of Chile's natural resources and productive capacity.

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Fundación Chile – Areas of Specialization

Focus

- **Agribusiness**
- **Biotechnology**
- **Marine Resources**
- **Forestry and Wood processing**
- **Environment and chemical metrology**
- **Education and Human Resources**

Products

- **Technology Services**
- **Diffusion & Training**
- **Product & Process Innovations**
- **Business Incubation**

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Fundación Chile – Biotechnology Program

<1997	1997 Strategic Assessment

- Introduction of new species, varieties
- New products and processes
- Food technology
- Quality control
- Modeling
- Environmental technology

- Decision to implement biotechnology program
- Program Objectives:
  - Add value to Chilean natural resource-based industry
  - Promote development of biotechnology-based industry in Chile
  - Strengthen R&D and human resources in Chile
  - Develop global networks of collaboration in Biotechnology

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Biotechnology Program – Strategic Sectors

	Exports (US$MM)	% of Total Exports	Share US Imports (%)
		1998-2005	
Forestry:	**1.9**	3,3	**11%**
Fresh Fruit:	**1.4**	**2,9**	**8%**
- Grapes	0.7		62
- Apples	0.3		35
- Stone fruit	0.2		95
- Berries	0,2		
Aquiculture:	**1.2**	**1,6**	**7%**
- Salmon	1.0	1,5	50

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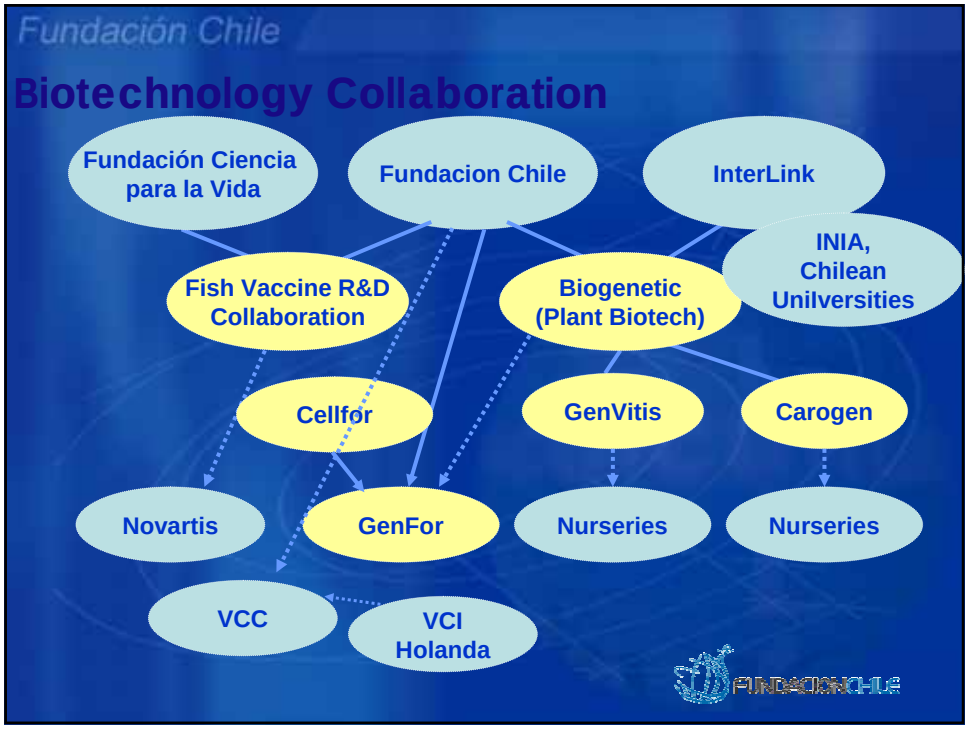
Biotechnology Program – Strategic Sectors

- Chile has 36% of the global plantations of radiata pine
- Chile is the No.1 exporter of table grapes from the Southern hemisphere and major counter-season provider in the US
- Chile dominates exports of stone fruit to the US, despite quality problems caused by prolonged cold storage
- Chile produces 35% of farmed salmon and is the major supplier to the US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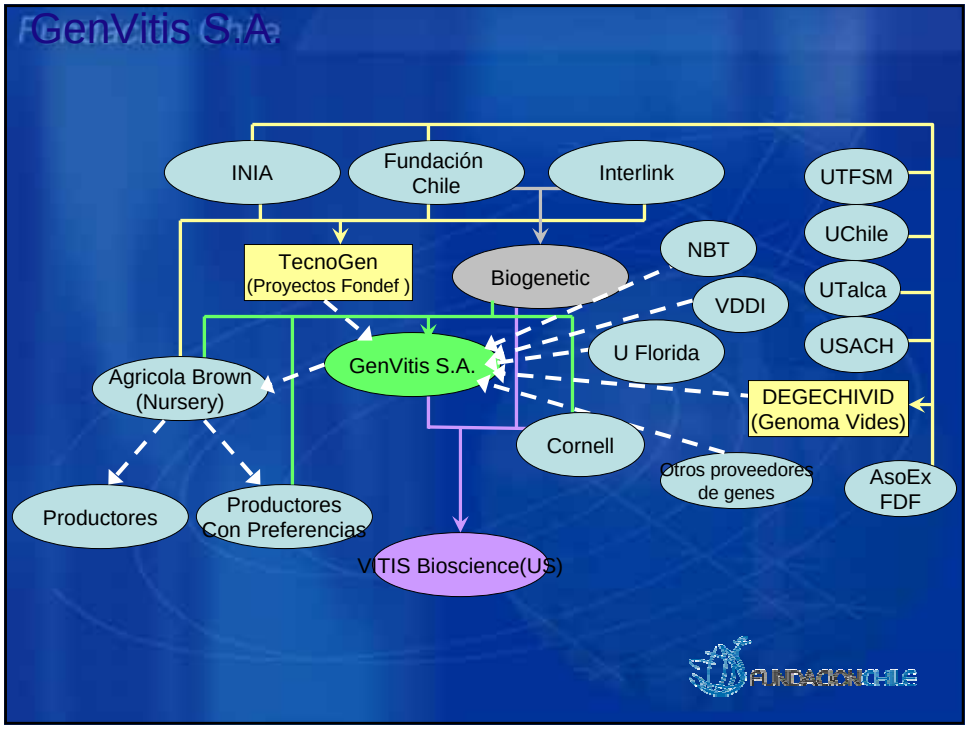
Biotechnology Collaboration
Fundación Ciencia para la Vida
Fundacion Chile
InterLink
INIA, Chilean Unilversities
Fish Vaccine R&D Collaboration
Biogenetic (Plant Biotech)
Cellfor
GenVitis
Carogen
Novartis
GenFor
Nurseries
Nurseries
VCC
VCI Holanda


GenVitis S.A.
INIA
Fundación Chile
Interlink
UTFSM
UChile
UTalca
USACH
NBT
VDDI
U Florida
TecnoGen (Proyectos Fondef)
Biogenetic
GenVitis S.A.
Agricola Brown (Nursery)
DEGECHIVID (Genoma Vides)
Cornell
Otros proveedores de genes
AsoEx FDF
Productores
Productores Con Preferencias
VITIS Bioscience(US)

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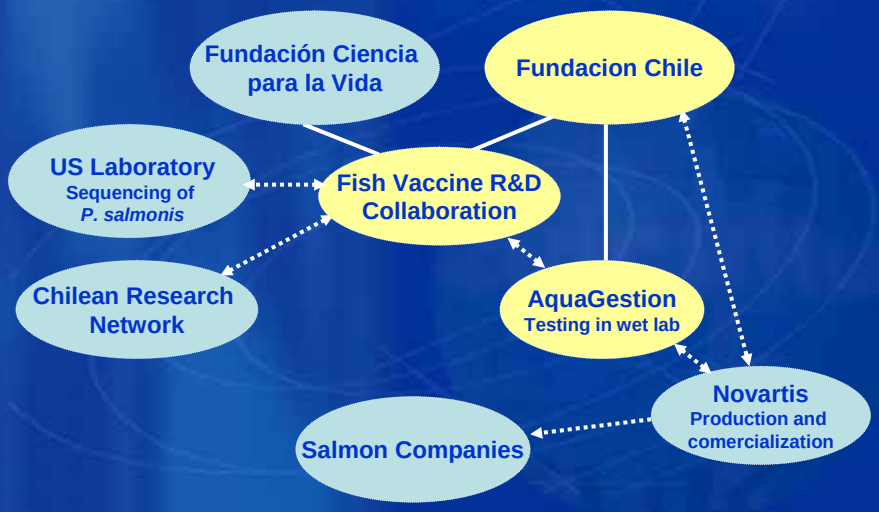
Recombinant Vaccines for Salmon



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Plant Biotechnology Program

Strategic alliances:

1998 - Joint venture in biotechnology, Biogenetic S.A, with InterLink Associates
1999 - Alliance in grape and stone fruit biotechnology R&D with INIA
2000 - Commercialization agreement for transgenic apples with Okanagan Biotechnology
- R&D agreement in grape biotechnology with Agricola Brown
- Joint venture in radiata pine biotechnology, GenFor S.A., with Silvagen (now CellFor)
2002 - Joint R&D program in stone fruit transformation with Okanagan Biotechnologies
- R&D agreement in stone fruit biotechnology with the Andes Nursery Association
2003 - Participation in Chilean Genomics Initiative Projects in functional genomics of grapes and nectarines
2005- Participation in Grapes and Stone Fruit Biotechnology Consortia including JV with Cornell Research Foundation

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Plant Genetic Projects

- *Radiata Pine*
  - 1999 - Insect resistance
  - 2000 - Modification of lignin and increased cellulose content
  - 2000- Field Trial of SE clonal pines
  - 2001- Field trial for Bt pine in New Zealand
  - 2001 - Resistance to fungal diseases
  - 2002 - Herbicide tolerance
  - 2005 - Biotechnology Forestry Consortia
  - 2005- First selection of clones from Radiata Pine
  - 2005- Forestry Biotechnology Consortia
  - 2005- Final positive evaluation of Bt pine from NZ

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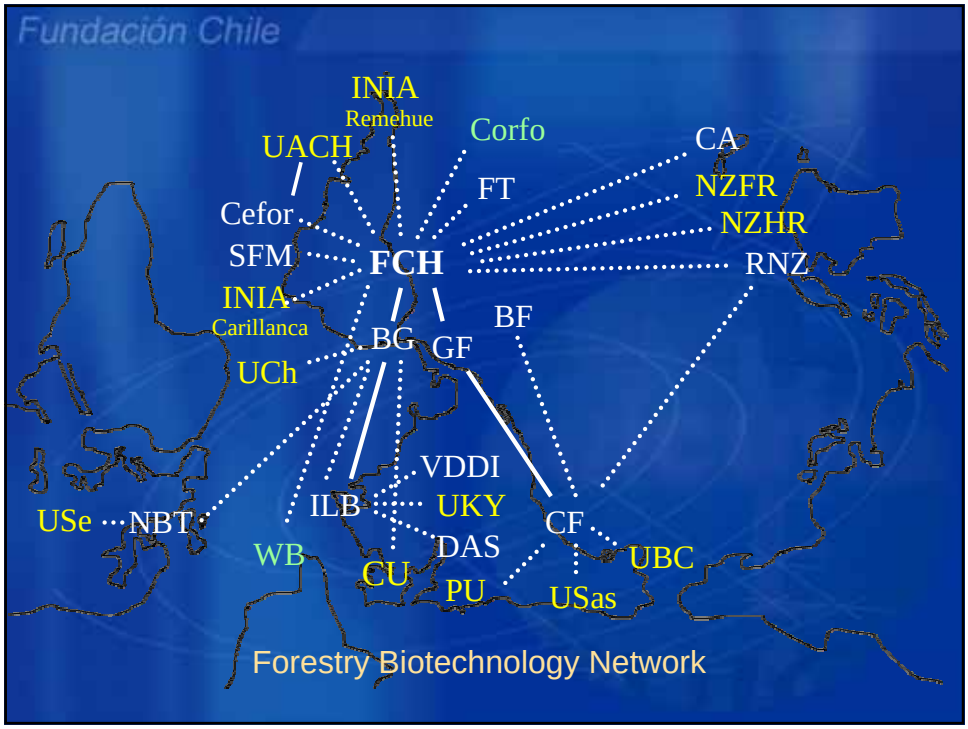
Plant Genetic Projects

- *Fruits*
  - 2000 - Fungus resistance in grapes
  - 2002 - Genetic engineering and regeneration of stone fruit
  - 2002 - Agreement on PPO Apples with OBI
  - 2003 - Genomics in grapes and stone fruit(quality traits)
  - 2004- Field Trials in fungal resistance grapes
  - 2005- Field trial in virus resistance grapes
  - 2005- Multivirus resistance in grapes
  - 2005- Successful regeneration transformation in Stone fruit(low efficiency)



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Radiata pine somatic embryogenesis established in Valdivia lab

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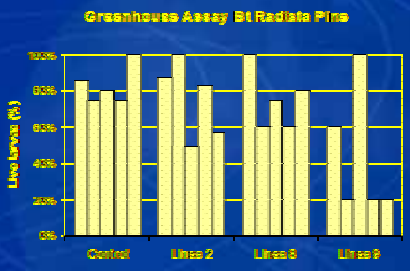

Insecticidal activity of Bt protein against shoot tip moth in transgenic radiata pine demonstrated in greenhouse assays

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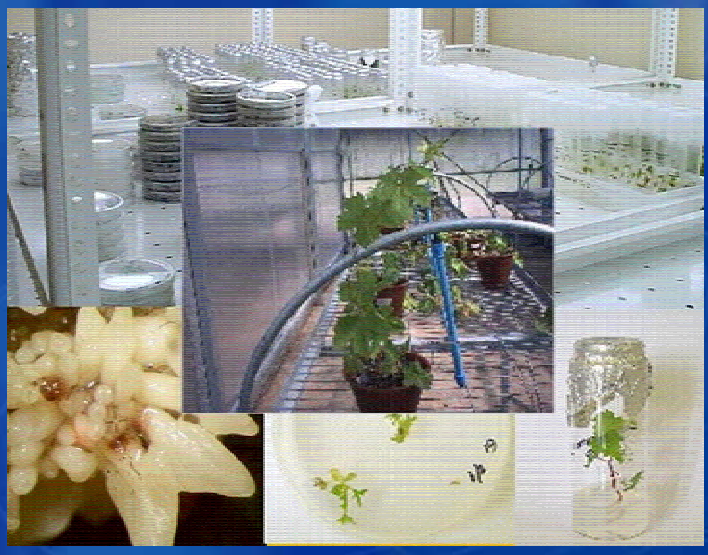

Grape somatic embryogenesis technology transfered to INIA

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Transgenic grape plants established in greenhouse

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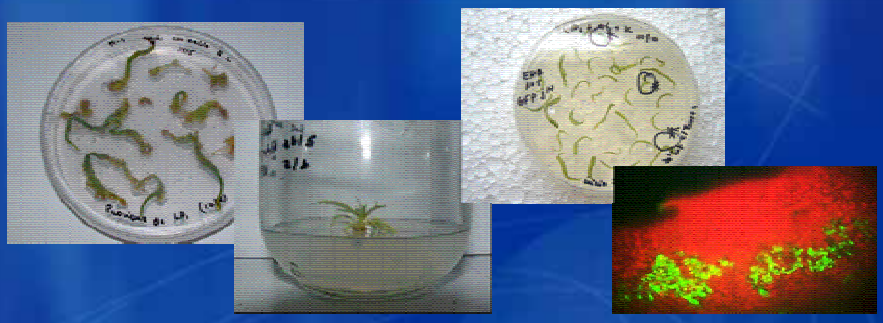
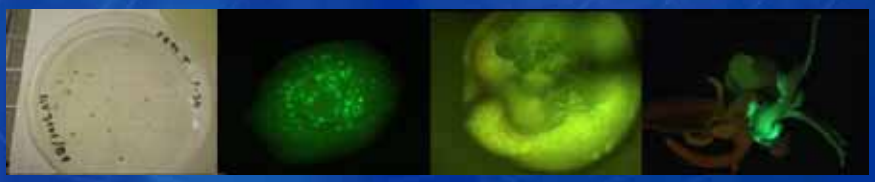


Peach leaf explants regeneration and transformation



Plum hypocotyl transformation system (USDA protocol)

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Transgenic apples under evaluation in Chile

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Keys to Success

- Perserverence – in the long term biotechnology will drive a dramatic shift in comparative advantages in natural resources
- Global perspective – strategic alliances, technology transfer and applied research are required
- Freedom to operate - biotech IP is a minefield, and IP issues must be addressed in R&D planning
- Regulatory issues – advocacy and education role
- Commercial focus – must add value for producers and consumers
- Incorporation of key actors in sector – breeders, nurseries, producers, exporters
- Business driver – create focused biotech companies with clear business targets and strong incentive to pursue commercialization
- Leveraging private investment through public grants

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The End

Thank you very much!