



Biotechnology

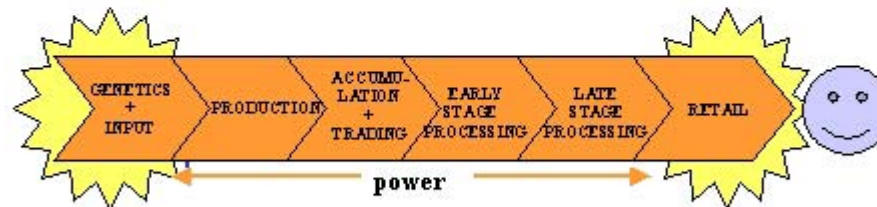
**Managing Risk and Financing in
Agribusiness Value Chains**

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Global agribusiness is changing rapidly

- ▶ Competition between value chains
- ▶ Power in value chains evolving to genetics and brands

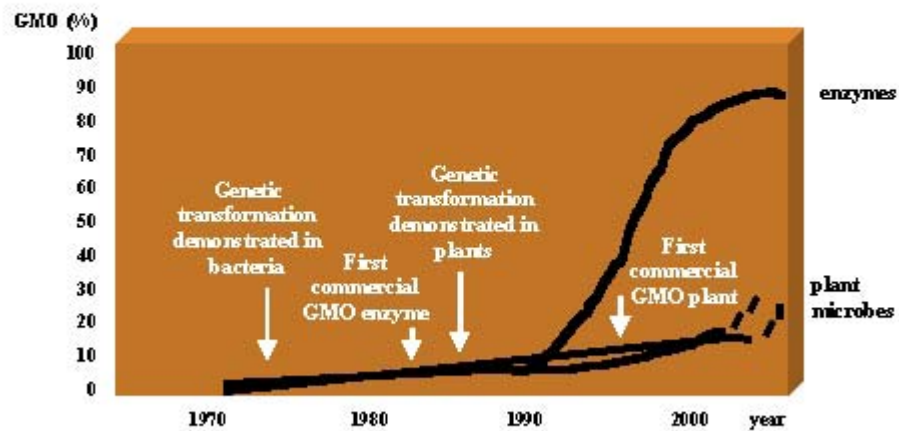


Momentous year for biotechnology, globally and in Australia

Developments include:

- ▶ Cargill and Monsanto global biotech joint venture “Renessen”
- ▶ Australian labelling of GMO foods
- ▶ Consumer concerns: Australian Consensus Conference
- ▶ Australian Office of Gene Technology Regulator
- ▶ GMO “audits” for supermarket chains
- ▶ Media images of GMO crop destruction

Progress of modern biotechnology





Rabobank global trends in food and fibre value chains

- Deregulation
- Trade liberalisation
- Privatisation
- Demand sophistication (decommodification)
- Market transparency
- Scientific and technological innovation

Definition of biotechnology

“The primary aim of modern biotechnology is to make a living cell perform a specific useful task in a predictable and controlled way”

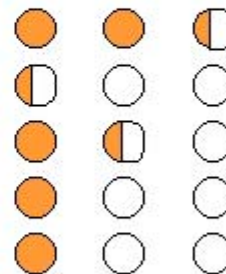
- ▶ **Input traits** supply and producer oriented
- ▶ **Output traits** demand and consumer oriented



Value drivers of biotechnology

- ▶ Strong scientific knowledge base
- ▶ Mature capital base
- ▶ R&D pipelines
- ▶ Product portfolios
- ▶ Superior management

Australia's position
globally



Comparative industries for biotechnology

- ▶ Pharmaceutical, chemicals, IT&T
- ▶ Partnership along value chains essential
- ▶ Is science not marketing itself to consumers?
Is capital base not supporting science?



Anticipate the unexpected

- ▶ “Pandora’s Box” and “Frankenstein”
- ▶ What industry are you in?
- ▶ Not your direct competitors !
- ▶ Firm boundaries: own, control or influence?
- ▶ The “Honda Factor”

Growth from the R&D pipeline

- ▶ **Value Firm** = Value Present Assets + Value Growth

$$V_f = V_a + V_g$$

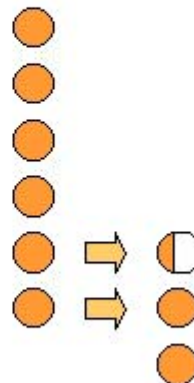
- ▶ **Biotech** = risk + equity + debt + time

- ▶ **Biotech** = $\begin{matrix} \uparrow & \uparrow & \downarrow \\ \text{pressure for} & \text{funding} & \\ \text{= Australian funding base immature} \end{matrix}$

Biotech funding sources according to risk

- ▶ Internal cash flows
- ▶ Individual equity
- ▶ Venture capital
- ▶ Institutional investors
- ▶ R&D syndicate
- ▶ Public listing
- ▶ Debt finance

Equity / Debt





Difficult to price risk in biotechnology

How do financiers price risk?

- Valuing intangible assets
- Securing intangible assets
- Relationship risk along a value chain
- Regulatory risk
- Consumer risk
- Environmental risk



Implications for food and fibre value chains

- ▶ Understand the end-user customer
- ▶ Understand the value chain
- ▶ The “Flav Savr” story
- ▶ Financiers with sectoral knowledge
- ▶ Successful biotechnology through partnerships