

工業局94年度農業生技產業化策略推動計畫 國外農業生技成功案例分析報告



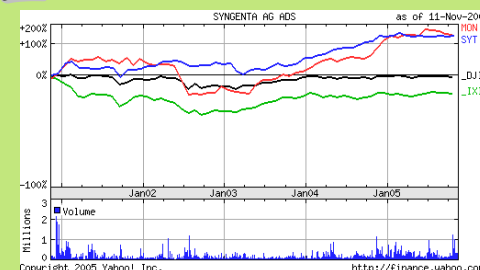
Monsanto Company



台灣經濟研究院

生物科技產業研究中心

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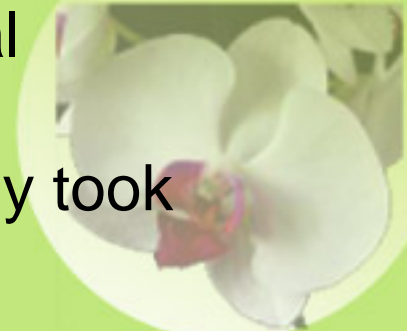
Monsanto Company 基本分析

- **產業發展前景：**孟山都專注於農業生技發展，依目前全球人口激增，糧食供給不足，且對於基因改造食品接受度日益增加，前景十分看好。
- **公司規模：**孟山都現企業規模達近200億美元市值，且成立跨國之企業分公司。
- **營運內容：**主要以基因改造種子及農藥相輔相成。
- **研發策略：**以植物為基本研發主軸，並開始涉及動物等基因改造工程研發領域。
- **行銷策略：**行銷以基因改造的便利性及產量為主要訴求，進一步配合化學藥劑減量等優勢，及法規審核通過的安全性等為主要策略。
- **財務結構：**孟山都的股價已與日遽增，伴隨著市值的增加，進行財務運作將更為有利。
- **經營所面臨的困難（風險）：**農業生技的經營風險主要在於法規制度以及大眾對於基因改造的接受程度，不同的地區有不同的影響程度。



History of Monsanto 1

- Monsanto was founded in St. Louis, Missouri, in 1901, by John Francis Queeny, a 30-year veteran of the pharmaceutical industry.
- He funded the start-up with his own money and capital from a soft drink distributor, and gave the company his wife's maiden name.
- Monsanto's first product was the artificial sweetener, saccharin, which it sold to the Coca-Cola Company. It also introduced caffeine and vanillin to Coca-Cola, and became one of that company's main suppliers. In the 1920s, Monsanto expanded into basic industrial chemicals like sulfuric acid.
- In 1928, Queeny's son Edgar Monsanto Queeny took over the company.



History of Monsanto 2

- In the 1940s, it became a leading manufacturer of plastics, including polystyrene, and synthetic fibers. Since then, it remained one of the top 10 US chemical companies. Other major products have included dioxin (in the herbicides 2,4,5-T and Agent Orange), aspartame (NutraSweet), Bovine somatotropin (bovine growth hormone; BST), and PCBs.
- In the 1940s, Monsanto operated Oak Ridge National Laboratory for the Manhattan Project, the development of the first nuclear weapons.
- In 1947, ammonium nitrate fertilizer made by Monsanto and loaded on the French ship S.S. Grandcamp was responsible for the Texas City Disaster in Galveston Bay. It is considered the largest industrial accident in US history, with the highest death toll.

There are two primary choices in life: to *accept* conditions as they exist, or accept the responsibility for *changing* them. Monsanto Dr. Denis Waitley



History of Monsanto 3

- In 1967, Monsanto enters into a joint venture with IG Farben, the key supplier of poison gas to the Nazi racial extermination program.
- Through a process of mergers and spin-offs between 1997 and 2002, Monsanto has made a transition from chemical giant to biotech giant.
- In 1999, Monsanto sold their Phenylalanine facilities to Great Lakes Chemical (GLC) for \$125 million.
- In 2001, retired Monsanto chemist William S. Knowles was named a co-winner of the Nobel Prize in Chemistry for his research on catalytic asymmetric hydrogenation, which was carried out at Monsanto beginning in the 1960s until his 1986 retirement.



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Key Executives of Monsanto

Name; Age; Position of Monsanto	Pay	Exercised
Mr. Hugh Grant , 46 Chairman, Chief Exec. Officer, Pres and Chairman of Exec. Committee	\$ 2.14M	\$ 1.85M
Mr. Terrell K. Crews , 50 Chief Financial Officer and Exec. VP	\$ 796.00K	\$ 0
Mr. Robert T. Fraley , 52 Chief Technology Officer and Exec. VP	\$ 907.00K	\$ 2.13M
Mr. Charles W. Burson , 60 Exec. VP, Sec. and Gen. Counsel	\$ 764.00K	\$ 0
Mr. Carl M. Casale , 43 Exec. VP - North and Central American businesses	\$ 758.00K	\$ 1.82M

Monsanto Stock Information 1

Market Cap (intraday): 市場價值	177.14億
Enterprise Value (9-Sep-05)³: 企業價值	197.93億
Trailing P/E (ttm, intraday): 追蹤本益比	53.05
Forward P/E (fye 31-Aug-06): 預估本益比	27.02
PEG Ratio (5 yr expected)[±]: 本益比/ 成長率比值	2.58
Price/Sales (ttm): 股價 / 營收比	2.83
Price/Book (mrq): 總市值 / 淨資產	3.04
Enterprise Value/Revenue (ttm)³: 企業價值/ 營收	3.15
Enterprise Value/EBITDA (ttm)³: 企業價值/ 利息稅金折舊前利潤	11.888

今日價格幅度:	65.52 - 66.12
52周價格幅度:	34.15 - 69.23
成交量:	1,180,000
平均成交量(3個月):	1,830,630
市值:	177.14億
市盈率(12個月):	53.05
每股收益(12個月):	1.24
股利和股息:	0.66 (0.99%)
預期市盈率(1年):	27.02
P/S (12個月) 股價與每股銷售額比:	2.83
配息日:	2005-10-28
除息日:	2005-07-06

Monsanto Stock Information 2

股份統計	
Average Volume (3 month): 平均交易量 (3個月)	1,830,630
Average Volume (10 day): 平均交易量 (10天)	無
Shares Outstanding: 已發行股本	2.69億
Float: 流通股	無
% Held by Insiders: 內幕人士持股	0.24%
% Held by Institutions: 法人持股	84.20%
Shares Short (as of 12-Jul-05): 融券持股	352.83萬
Daily Volume (as of 12-Jul-05): 日交易量	無
Short Ratio (as of 12-Jul-05): 融券比例	1.5
Short % of Float (as of 12-Jul-05): 融券對流通股比率	1.30%
Shares Short (prior month): 融券持股 (前月)	297.28萬

Financial Years Reports 1

PERIOD ENDING 計算截止日	31-Aug-04	31-Aug-03	31-Dec-02
Total Revenue 總營業收入	5,457,000	3,373,000	4,673,000
Cost of Revenue 營業支出	2,890,000	1,796,000	2,493,000
Gross Profit 總毛利	2,567,000	1,577,000	2,180,000
Operating Expenses 營運費用			
Research Development 研發費用	511,000	330,000	527,000
Selling General and Administrative 銷售管理費用	1,145,000	741,000	1,023,000
Non Recurring 非常規支出	112,000	(5,000)	103,000
Others 其他	178,000	40,000	208,000
Total Operating Expenses 全部營運費用	1,946,000	1,106,000	1,861,000

Financial Years Reports 2

PERIOD ENDING 計算截止日	31-Aug-04	31-Aug-03	31-Dec-02
Operating Income or Loss 營運收入或損失	621,000	471,000	319,000
Income from Continuing Operations 基本面（本業）收益			
Total Other Income/Expenses Net 其他所有收入或淨支出	(128,000)	(452,000)	(36,000)
Earnings Before Interest And Taxes 利息及稅前收益	493,000	19,000	283,000
Interest Expense 利息費用	91,000	57,000	81,000
Income Before Tax 稅前收益	402,000	(38,000)	202,000
Income Tax Expense 所得稅費用	131,000	(27,000)	73,000
Minority Interest 少數股東權益	-	-	-
Net Income From Continuing Ops 基本面淨利	271,000	(11,000)	129,000

Financial Years Reports 3

Period Ending 計算截止日	31-Aug-04	31-Aug-03	31-Dec-02
Non-recurring Events 非尋常事件			
Discontinued Operations 已終止經營業務	(4,000)	-	-
Extraordinary Items 非常損益項目	-	-	-
Effect Of Accounting Changes 會計變動影響	-	(12,000)	(1,822,000)
Other Items 其他項目	-	-	-
Net Income 淨利	267,000	(23,000)	(1,693,000)
Preferred Stock And Other Adjustments 優先股和其他調整	-	-	-
Net Income Applicable To Common Shares 適用普通股淨利	\$267,00	(\$23,000)	(\$1,693,000)

Monsanto Company

Product & Strategy

<http://www.monsanto.com>

以下內容節錄自孟山都公司網頁的產品說明



Monsanto invests \$1.5 million per day in research. Our integrated approach to solving agricultural problems is unique.



Monsanto Products

Chemical Brands

- Family of Roundup® herbicides
- Harness® herbicide (corn)
- Machete® herbicide (rice)
- AquaMaster™ herbicide (aquatic environments)



Monsanto Products

Benefits from Chemical Products

- Improved weed control
- Increased productivity
- Lower costs
- Higher yields



Monsanto Products

Monsanto Branded Traits

- Bollgard[®], InGard[®], Roundup Ready[®] and YieldGard[®]

Benefits from Traits

- Simplifies farming operations
- Reduces the need for insecticides and other pesticides
- Increases farmer yields
- Increases farmer profits



Monsanto Products

TRAITS

Weed Control

- Roundup Ready[®] cotton, corn, soybeans and canola—built-in tolerance of Roundup[®] brand herbicides.



Conventional canola



Roundup Ready[®] canola



Monsanto Products

TRAITS

Insect Protection

- Bollgard[®] cotton — season-long control of budworms and bollworms
- YieldGard[®] corn — protection against corn borers & corn rootworm



YieldGard[®] Corn Borer corn

Conventional corn



Monsanto Products

TRAITS

Weed Control, Insect and Disease Protection in a Single Plant (Stacked Traits)

- Bollgard[®]/Roundup Ready[®] cotton
- YieldGard[®]/ Roundup Ready[®] corn



Conventional cotton

Bollgard[®]/Roundup Ready[®] cotton



Monsanto Products

Seeds

- Asgrow[®], DEKALB[®], Hartz and Quantum brands
- Virtually all the important food crops, including corn, soybeans, grain sorghum and wheat
- Benefits
 - Maximize grower profits
 - New seed varieties with higher yields
 - Reliable supply of high quality, best performing seeds available



Monsanto Products

Animal Agriculture

■ Dairy

- Posilac[®] bovine somatotropin, a major tool for the U.S. dairy industry
 - Enhances milk productivity and reduces costs

■ Swine — Monsanto Choice Genetics[™]

- EB[™] sire lines and Genepacker[®] maternal lines
 - Improve animal health and performance



Monsanto Products

Alliances and Future Products

- Alliances such as Renessen to create value downstream
- Investments such as Monsanto Protein Technologies to develop plants as pharmaceutical factories



MONSANTO PRODUCT PIPELINE

	Discovery	Phase 1	Phase 2	Phase 3	Phase 4
	Gene/trait identification High-throughput screening	Proof of concept Test gene in plants	Early product development Field trials and pre-regulatory studies	Advanced development Efficacy and regulatory data	Final regulatory submission Produce seed and launch plan
Duration	24–48+ months	12–24+ months	12–24+ months	12–24+ months	12–36+ months
Input Trait Candidates Farmer Productivity	<ul style="list-style-type: none"> • Grain yield • Environmental stress tolerance • Insect control • <i>Roundup Ready</i> 	<ul style="list-style-type: none"> • Higher-yielding corn • <i>YieldGard II</i> insect-protected corn • Specialized corn 	<ul style="list-style-type: none"> • Enhanced <i>Roundup Ready</i> cotton • Higher-yielding soybeans • <i>Roundup Ready</i> and insect-protected soybeans 	<ul style="list-style-type: none"> • <i>Roundup Ready/YieldGard</i> rootworm-protected corn • <i>Roundup Ready</i> wheat • Hybrid <i>Roundup Ready</i> canola 	<ul style="list-style-type: none"> • <i>YieldGard</i> rootworm-protected corn • <i>Bollgard II</i> insect-protected cotton • Conservation tillage elite germplasm
Output Trait Candidates Consumer Benefit	<ul style="list-style-type: none"> • Protein enhancements • Lipid enhancements • Carbohydrate enhancements • Bioactive compounds 	<ul style="list-style-type: none"> • Improved-oil soybeans for feed • Improved-energy corn III for feed • Healthier oil for food uses 	<ul style="list-style-type: none"> • Improved-protein soybeans for feed 	<ul style="list-style-type: none"> • High starch/ethanol corn • Improved-energy corn II for feed 	<ul style="list-style-type: none"> • <i>Processor Preferred</i> soybeans • Improved-energy corn I for feed



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Agonomic Traits— give plants the ability to increase production with fewer inputs such as applications of insecticides

Quality Traits— higher quality food, such as soybeans with higher protein content and a canola plant that adds nutritional benefits to fight night blindness.

Plants as Factories— seeds as energy efficient, environmentally friendly resources to make new products.

F I R S T W A V E S E C O N D W A V E T H I R D W A V E



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