

CHEMICAL REACTIONS

Seeds of Consolidation

When Monsanto was rebuffed by Syngenta it was only a matter of time before it too received a bid. Its single product chemical business could fit with most players and its seed portfolio is attractive to all with enough cash. The leading competitors are modifying their strategy “Focus” to “Bundling”, bringing plant biotech, traditional agrochemical (“Ag”) companies and generics. The merger of Dow and DuPont, the takeover of Syngenta by ChemChina and the combination of UPL and Advanta reinforce the trend. BASF and Bayer must balance financial discipline with remaining at the top table so all eyes are on St Louis. Bayer has made the first move.

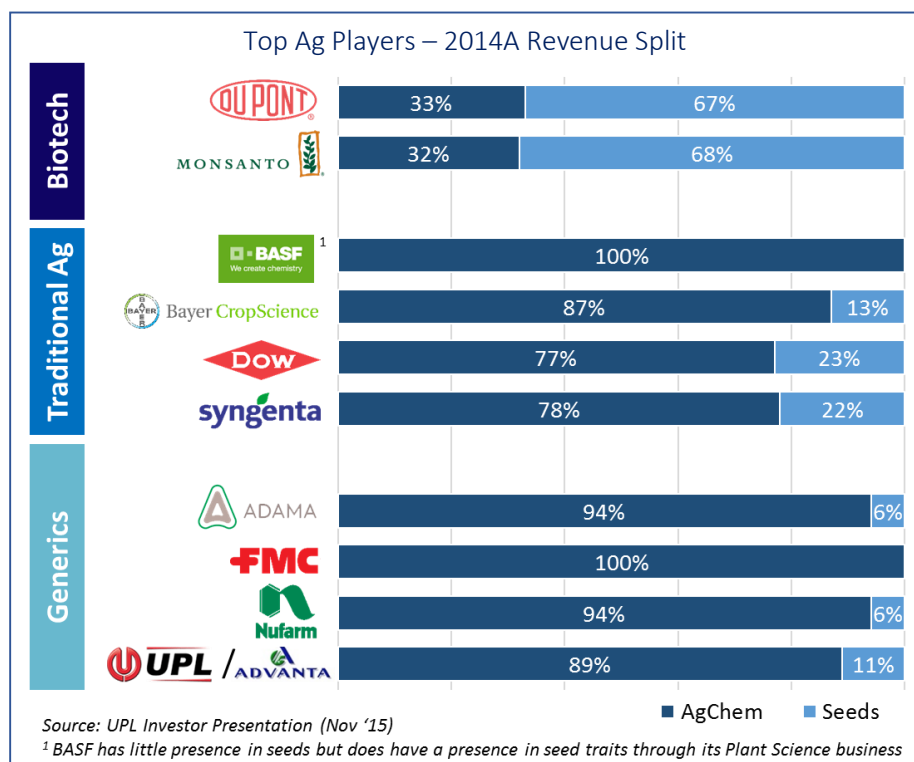
In the last thirty years, Ag companies have become bigger, more focused and independent. Initially they were part of larger chemicals or pharma companies, they provided patented crop protection chemicals to farmers for most of the economic crops. Many had small seeds businesses that were more of a curiosity than a profit generator.

The main challenges to companies were the weather, the seasonality of sales, the cost and effectiveness of new product development and the value of agricultural commodities.

The two new factors, both opportunities and threats, were the successful development of Genetically Modified Crops (“GM Crops”) and the patent expiry of most of the economically valuable crop protection chemicals. Three types of companies developed:

Biotechnology leaders (Monsanto and DuPont (Pioneer)) have consolidated the seeds market (genomics), retaining a selected presence in related products. In Monsanto’s case they have only one, Roundup (glyphosate).

Traditional players (Syngenta, BASF, Bayer and Dow) have strong pipelines of patented crop protection chemicals that are used in conjunction with the biotech favoured products like glyphosate or BT cotton. These companies have focused their biotech research on traits as they lack the seeds. They have done deals with the seed companies to get the traits to the farmers.

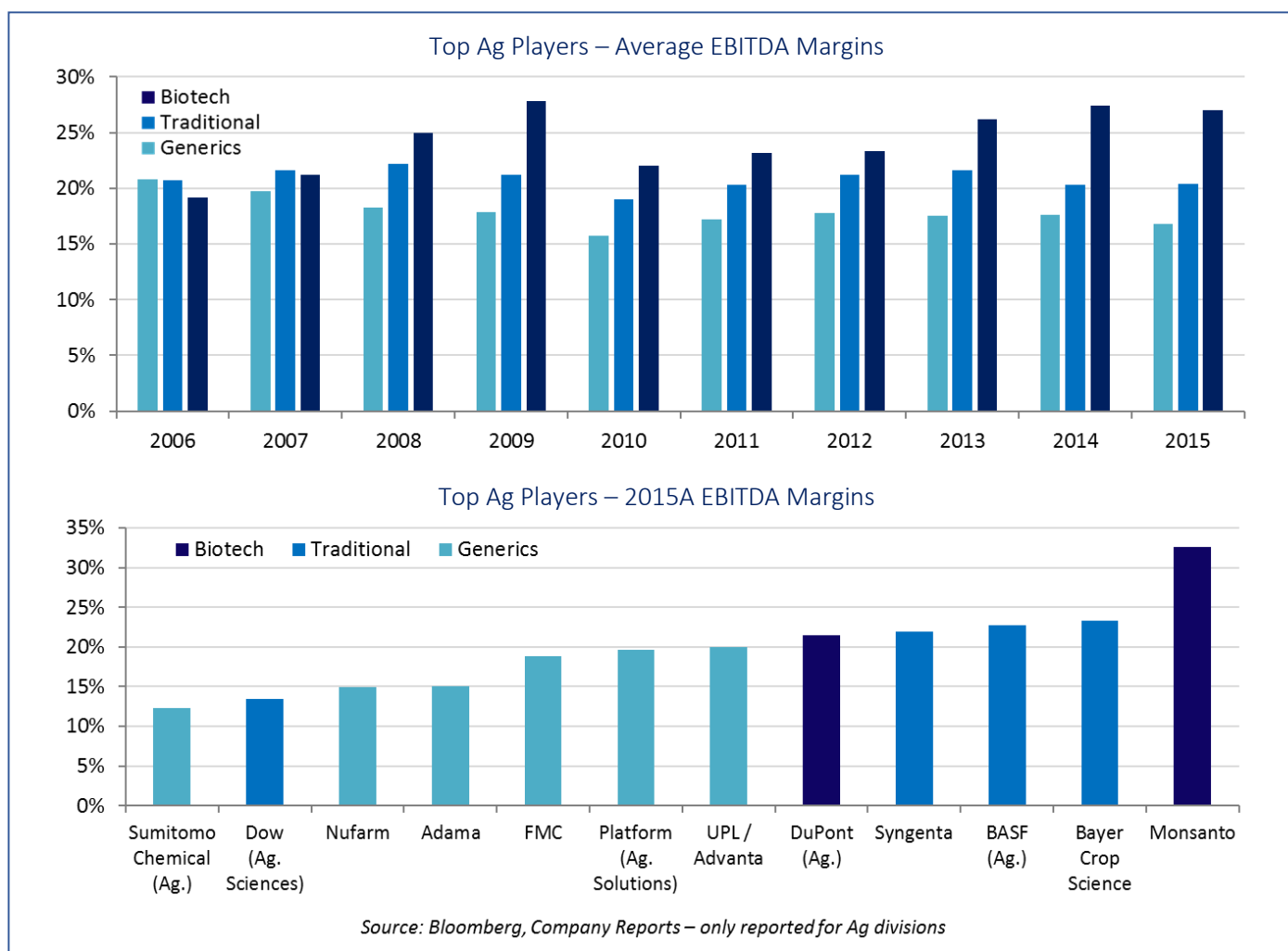


Generic Players (United Phosphorus (India), Nufarm/Sumitomo (Australia/Japan), Adama/ChemChina (Israel/China), FMC and Platform Specialties (USA)): The pure play generic companies, like their pharmaceutical counterparts, have become significant global players. Most major agrochemical products are now off patent and generic alternatives exist. The US patent on glyphosate, the largest agrochemical by volume and value, expired in 2000 and Monsanto has had a roller coaster of earnings since then as competition has developed.

But all is changing:

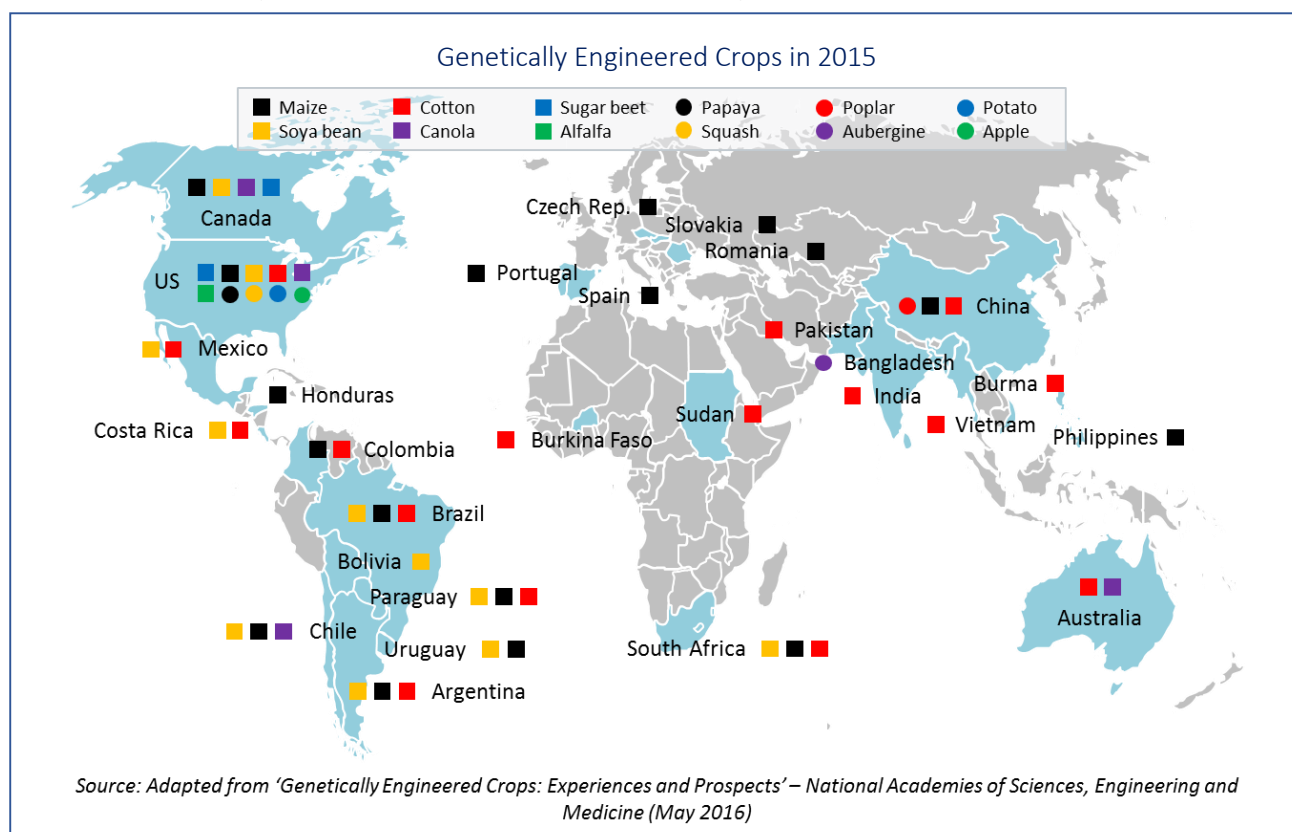
“M&A and restructuring in agricultural chemicals is transforming an industry of specialist companies into a handful of balanced portfolios. As falling crop prices squeeze farmers' spending, they are speculating less on new technologies that promise higher yield. Meanwhile, legacy blockbuster products are losing effectiveness. Seed and crop chemicals companies are scrambling to assemble complex bundles that serve the lifecycle of each crop.”
– Jason Miner, Bloomberg Intelligence

The long term future has not changed, a growing global population needs feeding without using more land. Higher yields require the use of better genes (hybrids or GM) and more effective chemicals. The fundamental economic challenge is making more money for farmers and capturing some of this “added value” for the Ag companies. Seed companies have clearly been effective in doing this. Monsanto's Seeds and Genomics business had a gross margin in 2015 of 61% compared with its Roundup business with a gross margin of 40%.



The penetration of GM Crops is still only 12% of all crops but is reaching its limits in certain crops like soya (80%) and in regions like North and South America. Growth is slowing and will only pick up again if regions like Europe agree to change and allow GM Crops. At present, there is one GM Crop allowed in the EU, a maize variety resistant to the European corn borer which has gained a significant share of the market in Spain and Portugal. But in the major EU countries, there is little progress. Hopefully, the debate will change direction with the new study by the National

Academies of Sciences, Engineering and Medicine which leaves no doubt that GM Crops are safe to humans and the environment, and in many cases are safer due to the reduction of pesticides.



The next challenge is that the biotech patents are beginning to expire. To extend the life of these patents there is a new phase where traits are stacked, adding additional herbicide protection or insect and fungal resistance to Roundup Ready crops and similar crops. Many of these traits are developed by the traditional Ag companies that are keen to get their traits used. This approach extends patents and margins and also slows the rise of herbicide resistant weeds and resistant bugs.

Twenty years ago, the future in plant biotech was not input traits (improving yields) but output traits (synthetic chemicals from grains). The vision of the chemical plant in the field has only really been achieved by the fermentation of sugars from corn, and more recently cellulose, and with mixed economic success. Agriculture has proven a poor source of synthetic chemicals. Fermentation has more potential but there are few commercial chemicals and petrochemicals and the low oil price has undermined their success. There are some varieties with added ingredients that could increase the economic value of the crop but these have proved challenging to commercialise. Syngenta, for example, has taken over ten years to bring Golden Rice, modified to contain vitamins, to the market.

So the bottom line, the pool of profit for Ag companies, be they from seed or chemicals, remains what farmers around the world will pay. Deep down farmers like killing weeds and bugs but they want to do it cheaply. Farmers are being squeezed by low commodity prices and as margins shrink farmers turn to their suppliers to make savings and the uptake of new technology is slow.

Ag companies are rethinking their strategy and “Bundle” not “Focus”, expanding by mergers, offering combinations of seeds and chemicals, generics and higher margin patented chemicals. Premium growth is achieved by optimising channels to market and cross selling existing products. Margins are improved by cost cutting and the long term future is secured by better geographic coverage, developing new products and managing the maturing portfolio.

Having had a reasonable period of success, Generic companies are in the spotlight. UPL has consolidated its Advanta Seeds business and ChemChina is buying Syngenta to extend their seed and biotech portfolio. It remains to be seen whether this is sufficient to remain at the top table. The other companies risk losing out to the major players unless they can identify and defend niche positions and opportunities.

Agrochemical Trading Multiples

Company	Local Currency	Share Price	Market Cap (US\$m)	Net Debt (US\$m)	EV (US\$m)	EBITDA Margin %	EV/Sales				EV/EBITDA				P/E				Dividend Yield		Net Debt / EBITDA	LTM Share Price Perf.
							2014	2015F	2016F	2017F	2014	2015F	2016F	2017F	2014	2015F	2016F	2017F	2014	2015F		
Pure Play																						
UPL Ltd	INR	561	3,558	413	3,977	21%	2.1	1.8	1.6	1.5	9.9	8.5	7.6	7.2	18.5	14.4	12.5	10.5	0%	1%	1.0	8%
Monsanto	USD	102	44,689	7,978	52,666	28%	3.5	3.8	3.7	3.5	12.4	13.6	12.0	10.7	19.3	21.9	18.6	16.2	1%	2%	1.9	-15%
Nufarm	AUD	7	1,369	669	2,041	8%	1.0	1.0	1.0	1.0	12.3	8.2	7.3	6.8	43.9	18.9	13.9	12.0	1%	2%	4.0	-4%
Syngenta	CHF	395	37,060	2,589	39,668	18%	3.0	3.0	2.9	2.7	16.5	14.4	13.2	12.1	27.7	22.7	20.3	18.3	3%	4%	1.1	-3%
Average Pure Play						19%	2.4	2.4	2.3	2.2	12.8	11.2	10.0	9.2	27.4	19.5	16.3	14.2	2%	2%	2.0	
Median Pure Play						19%	2.5	2.4	2.2	2.1	12.4	11.0	9.8	8.9	23.5	20.4	16.3	14.1	1%	2%	1.5	
Diversified																						
BASF	EUR	67	68,457	14,306	83,471	15%	1.1	1.3	1.2	1.2	6.9	7.6	7.0	6.4	15.3	14.3	13.1	11.6	4%	5%	1.2	-25%
Bayer	EUR	89	82,335	18,779	102,402	21%	2.0	1.9	1.9	1.8	9.5	8.5	8.0	7.6	17.9	12.3	11.3	10.3	2%	3%	1.7	-35%
Dow	USD	51	56,815	10,366	68,016	17%	1.4	1.5	1.4	1.4	8.4	7.5	7.0	6.8	7.4	14.7	13.0	12.4	3%	4%	1.3	-0%
FMC	USD	46	6,112	2,036	8,192	2%	2.5	2.4	2.3	2.2	N/A	11.8	10.6	10.3	12.5	17.0	14.9	13.7	1%	2%	31.1	-20%
Platform Chemicals	USD	9	2,089	5,078	7,348	13%	2.9	2.1	2.0	2.0	22.8	10.0	9.0	8.0	-6.8	11.3	9.1	6.5	N/A	N/A	15.7	-66%
Sumitomo	JPY	492	7,414	6,326	16,689	13%	0.9	0.8	0.8	0.9	6.5	7.0	6.5	8.1	10.0	9.1	8.1	14.8	1%	3%	2.5	-29%
Average Diversified						13%	1.8	1.7	1.6	1.6	7.9	8.7	8.0	7.9	12.6	13.1	11.6	11.6	2%	3%	1.7	
Median Diversified						14%	1.7	1.7	1.6	1.6	7.7	8.0	7.5	7.8	12.5	13.3	12.1	12.0	2%	3%	1.5	
Average						16%	2.0	2.0	1.9	1.8	10.3	9.7	8.8	8.4	19.2	15.7	13.5	12.6	2%	3%	1.8	
Median						16%	2.0	1.9	1.7	1.7	9.7	8.5	7.8	7.8	17.9	14.6	13.0	12.2	1%	3%	1.5	

Note: Averages & Medians exclude any outliers – 19/05/16

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