



# THE THREE AGRICULTURAL INPUT **MEGA-MERGERS:**

## Grim reapers of South Africa's food and farming systems

**SUMMARY** April 2017



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On 7 April 2015 the African Centre for Biosafety officially changed its name to the African Centre for Biodiversity (ACB). This name change was agreed to by consultation within the ACB, to reflect the expanded scope of our work over the past few years. All ACB publications prior to this date will remain under our old name of African Centre for Biosafety and should continue to be referenced as such.

We remain committed to dismantling inequalities in the food and agriculture systems in Africa and to our belief in peoples' rights to healthy and culturally appropriate food, produced through ecologically sound and sustainable methods, and to define their own food and agriculture systems.

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The three agricultural input mega-mergers: Today the financial and seed and agrochemical news outlets are pulsing with speculative analyses on whether the “big three” mergers in the seed and sector (ChemChina-Syngenta; Dow-DuPont; and Bayer-Monsanto) will get the go ahead in 2017. In the pipelines are three mega mergers.<sup>1</sup>

- Leading the pack in terms of its market capitalization value is the “merger of equals” between US giants Dow Chemical and Du Pont, with roughly equates to US\$130 billion. This merger plan and agreement between DuPont (#2 in the global seed market, #6 in agrochemicals) and Dow Chemical (with DowAgri, the agricultural business of the Dow Group, #5 in the global seed market, #4 the global agrochemical market) was announced in December 2015;
- In November 2015, Swiss Syngenta (#1 in the global agrochemical market and #3 in the global seed market) accepted (state-owned) ChemChina’s (owns the world’s 7th-largest agrochemical company, Adama) acquisition bid, a transaction valued at US\$43 billion;
- Bayer CropScience’s (#2 in the agrochemical market and #7 in the seed crop market) bid to acquire Monsanto (#1 in the global seed market and #5 in the global agrochemical market) was accepted by the latter in September 2016, a transaction worth an estimated US\$57 billion.

The Dow-DuPont and ChemChina-Syngenta deals were announced first and are in the final stages of the regulatory process; an in-depth merger probe is currently underway for the ChemChina-Syngenta transaction in Europe and in the US. The European Union (EU) regulator recently approved the Dow-DuPont merger (Reuters 2017). The verdict from regulators in the United States, Brazil, China, Australia, Canada and South Africa is still pending. According to Diana Moss, president of the American Antitrust Institute non-profit group “The EU approval may be a sign that U.S. regulators would follow suit

because the agencies have traditionally coordinated on reviews and remedies for large multinational mergers”. The EU will announce the outcome of the ChemChina-Syngenta deal in April 2017. At the time of writing, the Bayer-Monsanto merger is still being prepared for filing with the EU regulator but it has submitted the merger application to the Competition Commission of South Africa (CCSA).

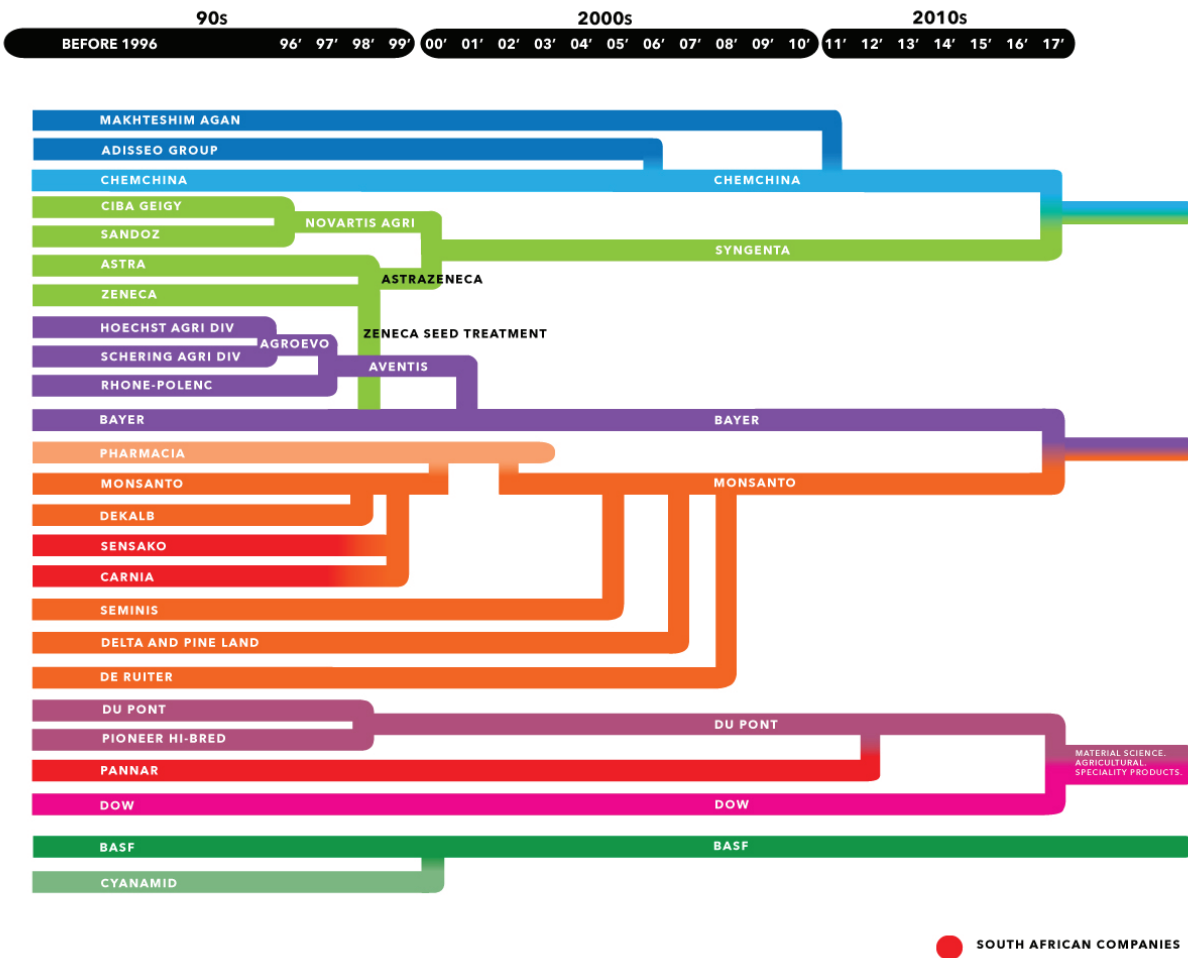
The CCSA has already ruled in favour of the ChemChina acquisition of Syngenta and has completed its investigation of the Dow Chemical-DuPont merger, for which it is awaiting remedies by the parties before it concludes the matter. Bayer and Monsanto filed their submission to the South African regulator (the first of all submissions globally) on 7 February 2017; the CCSA has sixty days to conduct its investigation. This paper aims to provide the CCSA and other interested parties with further insights into the issues at stake, beyond purely competitive considerations.

These mergers are driven by a multitude of factors, such as the need to secure and expand into new markets. Through these mergers, some firms can access patents that they wouldn’t otherwise have access to and which have constrained their market expansion. Although this aspect is debatable, as illustrated by the myriad of stratagems devised by these firms to overcome R&D constraints, such as cross-licensing agreements to access transgenic traits and R&D alliances, which proliferated just in the past year (Agrow 2016b).

The underlying currents driving these mergers are far more complex that meets the eye. But let’s first begin with some history. Consolidation in the sector goes back to the 1970s, when a first wave of mergers involving the seed and chemical industry took place. This was based on the extension of plant variety protection laws that allowed private companies to protect their investments for a time. A second wave of consolidation followed in the 1990s after a decision in US courts to allow patents

1. All merging parties have developed dedicated websites describing the mergers and their ‘benefits’, accessible here: Syngenta-ChemChina <https://www.syngenta-growth.com/en/home/>; Dow-DuPont [www.dowdupontunlockingvalue.com/](http://www.dowdupontunlockingvalue.com/); Monsanto-Bayer [www.advancingtogether.com/Bayer-Monsanto](http://www.advancingtogether.com/Bayer-Monsanto)

## TIMELINE OF MERGERS AND ACQUISITIONS



on living organisms and the growth of the agricultural biotechnology industry. In this wave, biotechnology, seed and agrochemical companies merged.

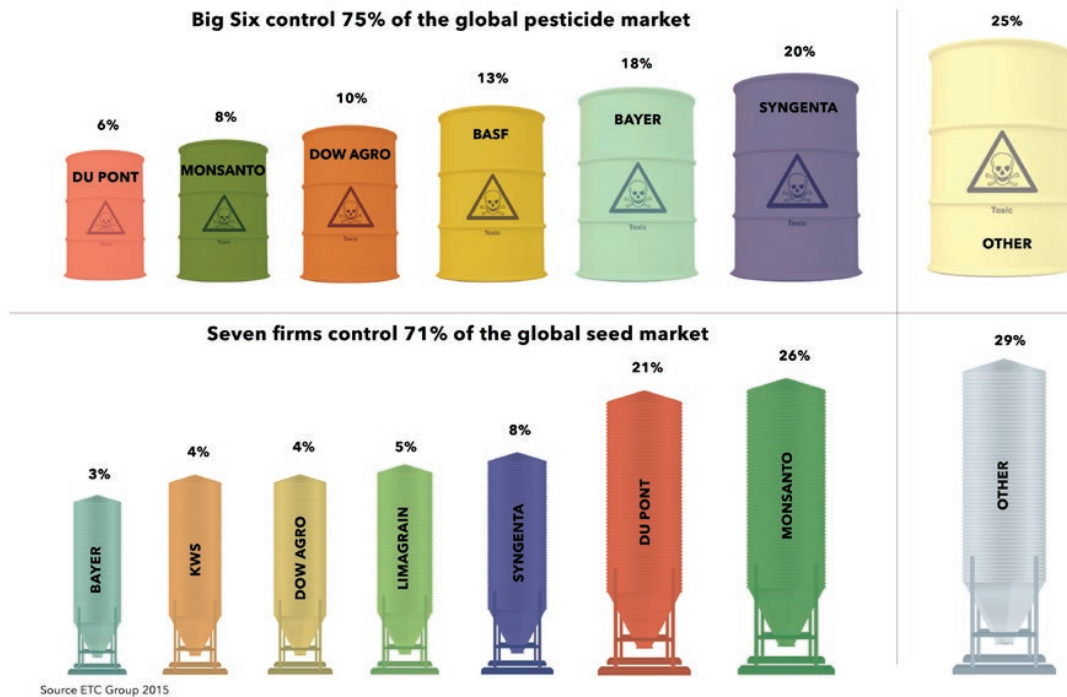
Today's merger talks indicate a potential round three. But existing levels of concentration in the global seed and agrochemical markets already exceed what economists have traditionally deemed to be a ceiling of concentration for the operation of sound competitive markets. The 'four-firm' concentration ratio (CR<sub>4</sub>) rule (i.e. the combined market share of the four largest firms in a given industry) assumes an oligopoly if four firms together hold 40 percent or more of the market. Today, what are commonly referred to as the "Big Six" mega seed and agrochemical corporations -

namely: BASF, Bayer, Dow, DuPont, Monsanto and Syngenta - together control 75% of the global agrochemical market, 63% of the commercial seed market and over 75% of all private sector research and development (R&D) in the sector (ETC Group 2015:4).

If we consider the CR<sub>4</sub> threshold: the top three firms control 55 per cent of the commercial seed market (#1 Monsanto #2 DuPont/Pioneer #3 Syngenta) and 51 percent of the agrochemicals market (#1 Syngenta #2 Bayer Crop Science and #3 BASF) (ETC Group 2015). Should all these mergers be approved, the consolidation in the sector will reach even more perilous thresholds. But this is not how regulators assess merger bids; applications are processed as they trickle in and the state of the market is then analysed in that

## SEED AND AGROCHEMICAL MARKETS

CORPORATE CONCENTRATION IN GLOBAL COMMERCIAL PESTICIDE AND SEED MARKETS



specific point in time. Competition law does not make any provision for the “big picture”, that is to say mega trends surrounding isolated deals, or implications of such deals on broader cultural, socio-economic and food sovereignty issues.

This concentration trend is indeed not limited to the seed and agrochemical sector, and this is a very important part of the equation. The grip of a few huge corporations is tightening over inputs into the global food system: the animal health, animal genetics/ breeding and farm machinery sectors are equally dominated by the largest four players active in these respective sectors (Fuglie et al. 2012). We are also seeing concentration in the fertilizer sector with the looming merger of Agrium and Potash Corporation. The same is happening throughout agro-food chains, with domination by a dense corporate core consolidating in primary processing and storage, commodity trading, food manufacturing, supermarkets and food distribution, and not least in finance which facilitates the cycle.

If we look at these historical consolidation trends and cross them with current dynamics

in the “Big Data” game, another narrative explaining these mergers emerges. The “Big Data” market in agriculture refers to the digitalization and crossing of off-farm information with satellite imagery and analytics to inform farming decision: this is the new age of precision agriculture. In this new paradigm, biotechnology and industrial agricultural production are brought together. The machinery sector (tractors, combines, planters, sprayers, etc.) is the hardware (“the box”) in which this data is captured, and then interpreted through “deep science” platforms (such as the FieldView platform, owned by the Climate Corporation, which was bought by Monsanto in 2013) to “provide prescriptions” to farmers as to what to farm, when and how (ETC Group 2016).

This trend is spearheaded by the US firm Deere & Company, the world’s biggest farm equipment company, which has entered into strategic data deals with all the merging firms, except for ChemChina, but including BASF. All the merger contestants have also invested in similar digital precision planting technologies, which are always developed in partnership with the farm equipment industry. This trend goes hand

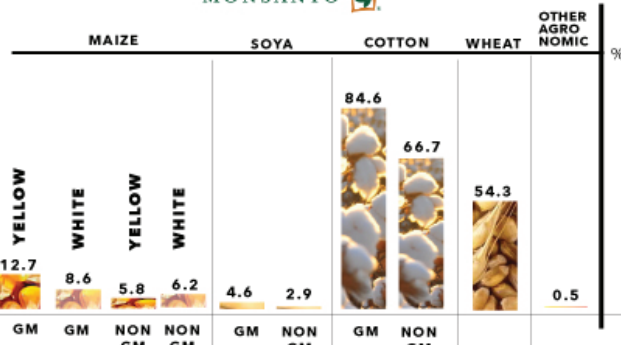
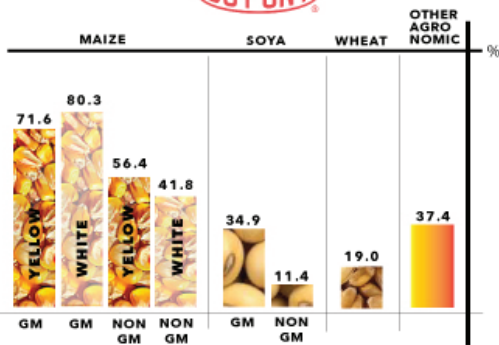
in hand with another major phenomenon. These multinational corporations are making major strides in new generation biotechnology that will supersede 'aging' technologies such as transgenic crops: CRISPR (Clustered Regularly Interspersed Short Palindromic Repeats) genome editing technology and synthetic biology, which are cheaper and quicker to develop, and for now unregulated. Depending on how and when they enter the market, these will certainly form part of this convergence between genomics, agrochemical players and data players (machinery) made possible through digitalisation.

Should this third round of mergers in the sector go through, regulators will have to be on the lookout for a fourth round of mergers - maybe on the horizon of 2025 - between the agricultural biotechnology/seed/ agrochemical giants and the farm machinery sector. In this future scenario, the assumption is that the hardware (machinery) sector, the capital power of which by far exceeds that

of the commercial biotechnology, seed and agrochemical sector, will acquire the smaller biotechnology, seed and agrochemical sector. Henceforth the jitteriness observed today in the seed and agrochemical sectors may be symptomatic of a much broader attempt of these firms to position themselves in this future and far more concentrated global agricultural market.

And what about the financial players pulling the puppet strings? The research uncovers how the world's genomics resources may in fact rest in the hands of a few global financial firms. The world's biggest financial asset management company, BlackRock, features as a prominent shareholder in all the mega-mergers underway. Another global financial behemoth, the Vanguard Group, is also a major investor in many of the merging firms. The shareholding in the Big Six is concentrated in the hands of two financial firms, which makes the bigger picture of even greater concern.

### PERCENTAGE OF REGISTERED SEED VARIETIES OWNED BY MERGING PARTIES IN SOUTH AFRICA



These mergers will no doubt tremendously affect the African continent, as the Big Six - Syngenta, Bayer, BASF, Dow, Monsanto and DuPont - also dominate the African commercial seed and agrochemical markets. ChemChina has significant operations in South Africa through Adama South Africa which it owns. The ChemChina-Syngenta deal might be the merger that holds the greatest impact on Africa, because ultimately the direction of Chinese capital's strategic interests will play a part in shaping the agricultural technologies pushed onto Africa.

The state of consolidation in the global seed and agrochemical markets transpires strongly in our South African context: DuPont Pioneer owns 23 percent of the country's registered seed varieties and Monsanto owns 8 percent (although this does not indicate market share, information which companies keep private). In the genetically-modified maize seed market – which covers 89% of all maize planted in South Africa – Du Pont Pioneer holds 80% of white maize varieties (for human consumption) and 72% of yellow maize varieties (for animal feed). Monsanto has a significant share of the rest of the GM maize seed varieties. The two companies

hold 73% of registered wheat seed varieties between them, and they are also active in other agronomic crops, soya, cotton, horticulture (fruit and vegetables) and forage seed.

In agrochemicals the merging parties hold an important portion of the hundreds of registered active ingredients. Adama/ Makhteshim-Agan (ChemChina) is a clear leader among the suppliers of generic agrochemicals on the South African market. Syngenta, DowAgri, Bayer and BASF feature as important players. These firms all distinguish themselves from domestic companies such as Villa Crop Protection and Volcano Agrosience – because they are original research/discovery companies that hold many products under patent, while the domestic companies tailor, manufacture and distribute ingredients under license from the multinationals.

The dominating narrative put forward by the merging candidates is that by joining forces they can more efficiently scale (and rationalize) their research and development budgets and henceforth bolster their capacity to innovate. This is questionable, as

## REGISTERED CHEMICAL ACTIVE INGREDIENTS



SOURCE: COMPILED FROM AVCASA DATABASE OF REGISTERED ACTIVE INGREDIENTS

regulators throughout the world have raised strong concerns based on the logic that the mergers pose a risk of declining research, and decreasing innovative releases will lead to a drop in yields (EU Competition Commission 2016). The corporate sector dominates R&D in this field and the Big Six allocation to R&D is on average over 10% of sales, making it the most important R&D investment in the whole of the agricultural value chain (Agrow 2016a). Despite these volumes, R&D spending in the sector has dropped over the past decade, which analysts see as happening at the same time as the wave of consolidation and concentration in the sector during that time.

However the issue at stake is not that less transgenic crops or agrochemicals would be released on the market, but rather that a shift from the Big Six to the Big Three as a result of these mergers will further skew R&D towards high-profit proprietary products, as opposed to appropriate products for Africa and South Africa's farmers. The real challenge for farmers lies in building resilience to climate change, increase diversity and to remain viable in the context of a very costly input market (ACB 2017).

Research looking at consolidation in the agricultural input sectors has indicated that it is associated with a decrease in the number of available cultivars, a shift in focus to crops and hybrids most profitable to companies, and the termination of breeding programs for regionally relevant crops (Solberg and Breian 2015). Intellectual property rights holders will not invest in agronomic and integrated solutions to pests, diseases and climate change if these will not generate large and continuous profits. Their interest lies in deepening solutions requiring the proprietary seed traits and toxins they hold in their existing chemical portfolios.

Should the proposed mergers go through, they will further entrench a research path dependency skewed towards a few crops they are good at producing (maize, soya, cotton), agrochemical inputs, transgenic crops and other proprietary resources that will further lock farmers into a narrow high input model, whilst compromising the resource base of future generations.

The paper contends that ultimately, the issue at stake is how our food systems are being shaped, how big multinationals influence the way we farm and the crops that are grown. A transition from a Big Six to a Big Three – and eventually maybe just a Big One? – will squeeze global productive and food systems, placing them on a narrow technological path, characterised by a dependence on proprietary seed and agrochemical inputs. This path dependency entails further entrenching the tendency towards highly processed, standardised, input-intensive staple crop varieties, to the detriment of traditional foods, and resulting in the loss of nutrients and diversity (IPES-Food 2016). Such a phenomenon is already visible in South Africa – with the strong bias towards growing maize, a crop that accounted for 60 percent of the country's commercial seed sales in the 2015-16 growing season.

Concentration from six to three also means that farmers may pay higher prices for purchased inputs, as the firms will carry over the cost of their R&D investments into the products that they sell (Fuglie et al., 2012). The concentration trend is driven by the need to realise economies of scale and save costs, and the prediction is that once the market "picks up" after the recent downturn in the sector, then the industry will drive prices up again, exposing farmers to price shocks. At the same time, smallholder farmers will be further marginalised from the process of growing food, as they will be unable to realise the economies of scale needed to stay in production. The issue of land tenure and ownership in the country cannot be overlooked. The concentration of ownership and control of land in the country strongly accommodates and therefore intensifies the "Big Data" approach to farming, further cutting smallholder farmers out of the picture.

The mega-merger debate is about food sovereignty, a dimension that competition regulators worldwide overlook, because their mandate is only to look at public interest issues caused by restricted competition in segmented markets. For example, if Bayer does not produce maize seed and Monsanto does not produce insecticides, then there are no apparent competition issues in those two markets, even though the merger has



significant implications on the broader agro-food system and supply of seed and crop protection products.

It is important to consider the wider implications of these mergers beyond a narrow view of competition in segmented product markets. These include the entrenchment of a dominant technological platform in agricultural inputs, broader

impacts on the agro-food system, agricultural biodiversity, input prices for farmers and knock-on effects on food prices, domestic innovation, and implications for just economic transformation and widening the base of productive activity. What is at stake is food sovereignty and the ability of the country to make its own decisions about food production.

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