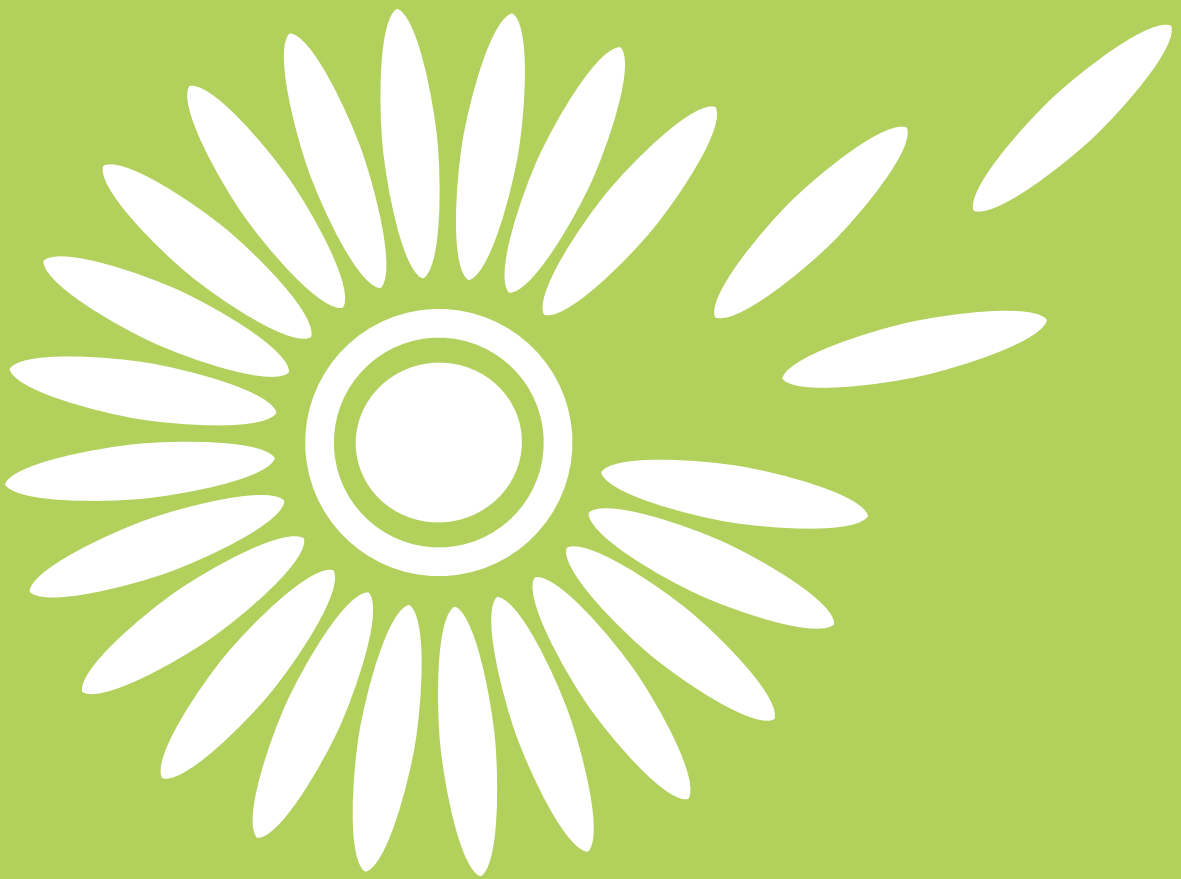


THINK ACT

BEYOND MAINSTREAM



FIELD CROPS

Global Perspectives for French Companies in a Volatile Market

DECEMBER 2014

capitalmind
CORPORATE FINANCE ADVISORY

Roland Berger
Strategy Consultants

THE BIG 3

 **7bn**

French farmers produce EUR 18 billion of Field Crops (market value), transformation creates 27% of additional value, i.e. EUR 7 billion & sugar beet alone represents more than a third of this added value
p. 7

 **50%**

Achieving 50% of value growth would require at least EUR 5 billion of additional added value to compensate EUR 2 billion of subsidy reduction, international completion and additional regulations.
p. 7

 **2bn**

Green Chemistry aims at drastically reducing the environmental impact of chemistry. Biomass conversion, valorization of wastes, bio-based polymers are only a few among the numerous subjects addressed by Green Chemistry
p. 10


**Creating
EUR 3bn of
added value
p. 10**

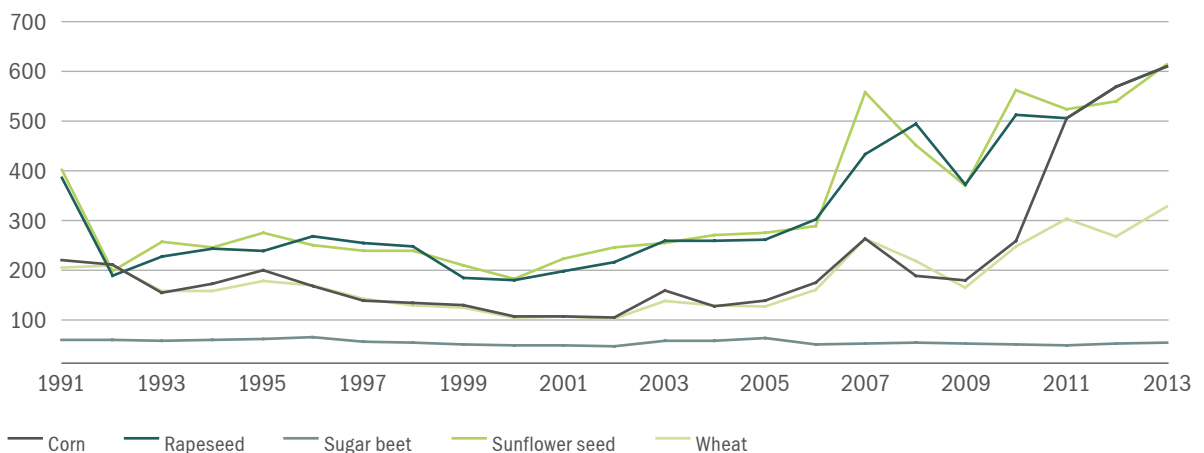
Companies may want to build scale, reinforce downstream, extend their value chain, diversify, excel in operations and collaborate. Winners will be those who can swiftly choose the right strategies, and act.

Volatility is relatively new for Field Crops. After a decade of stability, 2005 triggered booming prices. Underlying assumptions for future growth remain positive and unchanged and, after a drop in price in 2009, a new upward trend cycle is taking shape. Global population is rising, and with it demand for high-proteins. This growth will not be smooth. Growth (and needs) will accelerate in emerging markets, weather patterns are

changing, political instability is increasing in some of the world's key producing areas, (as recently seen in of Ukraine). Important investor return expectations also are driving higher prices. In fact, everywhere across the globe - notably in South America and in Africa - industrial companies are steadily investing to improve to a more seamless flowing supply chain, and these investors expect some return on these capital expenditures. **A**

A

FRENCH FIELD CROPS PRICES [1991-2013; USD/T]



Source: FAO

B

FIELD CROPS GLOBAL LEADERS

A FEW FRENCH AMONG GLOBAL GIANTS

COMPANY	HEAD COUNTRY	SALES [USD BN]	POSITIONING			
1. Glencore Xstrata	Switzerland	232.7				
2. Cargill	USA	136.7				
3. Archer Daniels Midland Company	USA	89.9				
4. Louis Dreyfus Commodities	Netherlands	63.6				
5. Bunge	USA	61.3				
6. CHS	USA	44.5				
7. Wilmar International	Singapore	44.1				
8. Associated British Foods	UK	22.0				
9. Nidera Handelscompagnie	Netherlands	17.5				
10. China Agri-Industries	Hong Kong	12.2				
11. Dansk Landbrugs Grovvarereselskab	Denmark	10.9				
12. Südzucker	Germany	10.6				
13. Sofiproteol	France	9.6				
14. In Vivo	France	8.4				
15. Groupe Soufflet	France	6.8				
16. Fenaco Genossenschaft	Switzerland	6.7				
17. Tereos	France	6.4				
18. Terrena	France	6.4				
19. Ingredion Incorporated	USA	6.3				
20. Vivescia	France	5.8				

Trading Food Feed Biofuel Green Chemistry

Source: Companies' annual reports and websites

All Field Crops do not face similar issues. Ukraine clearly focuses all attention for wheat, while the USA and France supply the world with large stable volumes. The Black Sea grain region –i.e. Ukraine, Russia and Kazakhstan- is the leading supplier for North Africa and the Middle East. Political uncertainty in both producing and consuming regions affects a market already disrupted by climate conditions in Australia’s and the USA. Corn remains by far an American product. Rapeseed is mostly produced in Brazil where there are important challenges to modernize its supply chain infrastructure.

Originally, Field Crops actors enjoyed stability. Smaller local actors are often overly exposed. Regulation turmoil, brutal climate changes or political uproars generally mean supply chain disruptions, unexpected inventory changes, volatility, all factors badly impacting volumes sold, prices and profitability. Larger producers hedge their selling prices, but buying hedging financial instruments such as call/put options has a price, which is also volatile. **B**

But global actors do love volatility. Their strategy is not so much to fight volatility as to learn from it and turn it into their best asset. To do so, many actors

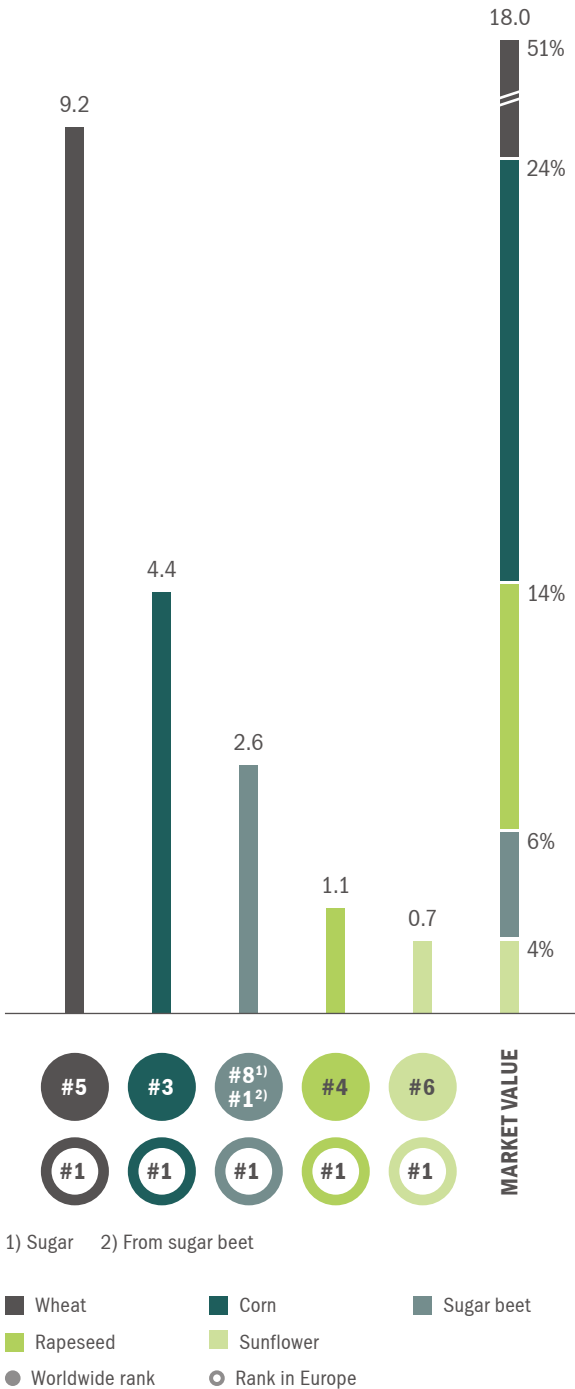
choose diversification: one of the preferred strategies is to consolidate thereby managing larger volumes and becoming less sensitive to price fluctuations, despite many examples demonstrating – as in every industry - that size does not guarantee success. Expansion takes different forms. Large Field Crops players not only develop and improve new seeds but also explore uncharted territories by going downstream, developing innovative products with increasingly added value, or expanding in new and far from home geographies.

Another strategy to better cope with volatility is to improve supply chain efficiency. And it is not only about reducing costly sleeping stocks and increasing reliability. For global leaders, it primarily means acquiring the ability to swiftly buy products from any point on the globe, instantaneously taking advantage of price differences between the world’s regions. The most agile actors create value by arbitrating between regions with real time product allocation, thanks to strong trading competencies internalized in their own highly-professional trading rooms. All this at the expense of traditional local actors condemned to suffer variations they cannot control while watching cheaper (if not better) products taking over their market share. **C**

C
WHICH POSITION FOR FRENCH ACTORS?



D
FRENCH FIELD CROPS MARKET VALUE BEFORE TRANSFORMATION [2012-2013, BN EUR]



Source: CGB (Confédération Générale des Planteurs de Betteraves), Passion Céréales, FranceAgrimer, Unigrains

France: Field Crops snapshot and opportunities

France is Europe's number one producer of wheat, corn, rapeseed, sunflower and sugar beet. Its Field Crops players are well-positioned in the context of worldwide growing demand for cereals, but face market, product and supply chain issues. France is a top exporter of wheat and corn, with good port logistics. It benefits from its proximity to southern Mediterranean countries which increasingly rely on France exports. It enjoys a high yield and stable production in comparison to the Black Sea area or Australia. Land prices are low in comparison to other EU countries and the size of its farming lands tends to increase. France's imports of rapeseed soared by more than 20% per year over the last decade with new transformation capabilities increasing local demand for high value products (Diester, oleochemistry).

But France is a leader facing strong international competition: the country is the third global player for corn production (after China and the United States), fourth for rapeseed production, but only fifth when it comes to soft wheat, and sixth for sunflowers production. Although France is world's leading producer of sugar beet, it only ranks eight in sugar volumes. **D**

All combined, these five Field Crops represent a EUR 18 billion market value for French farmers (before any transformation), with wheat and corn representing three quarters of the total. These two crops also offer the better returns on the farmers' lands, respectively bringing in EUR 1.7K per hectare for wheat and EUR 1.5K per hectare for corn. Soft wheat brings in a quarter more than rapeseed and a third more than sunflower. Sugar beet achieves a record EUR 2.8K per hectare, but its market is regulated by the EU (production quotas, a minimum beet price and trade mechanisms). **E**

Value generated per hectare is not of course the only element considered by farmers. Factors such as local climate, soil nature, soil fertility, and global market price fluctuations all influence the grains chosen in the crop rotations, a rotation which is necessary to

control or suppress pests, improve the soil fertility, increase yields, and so on.

French Field Crops present relatively comparable all have end-market. Almost all are either exported (except sugar beet), prepared for human or animal consumption or, to a lesser extent, transformed into biofuel (37% of rapeseed and 20% of sugar beet volumes) or other industrial products. End-market utilization may be comparable across Field Crops, but its repartition varies greatly from one Field Crop type to another: more than half of the country's wheat is directly exported, almost three quarters of the sugar beet is transformed for human consumption while two third of the French corn production is destined to animal feeding. **F**

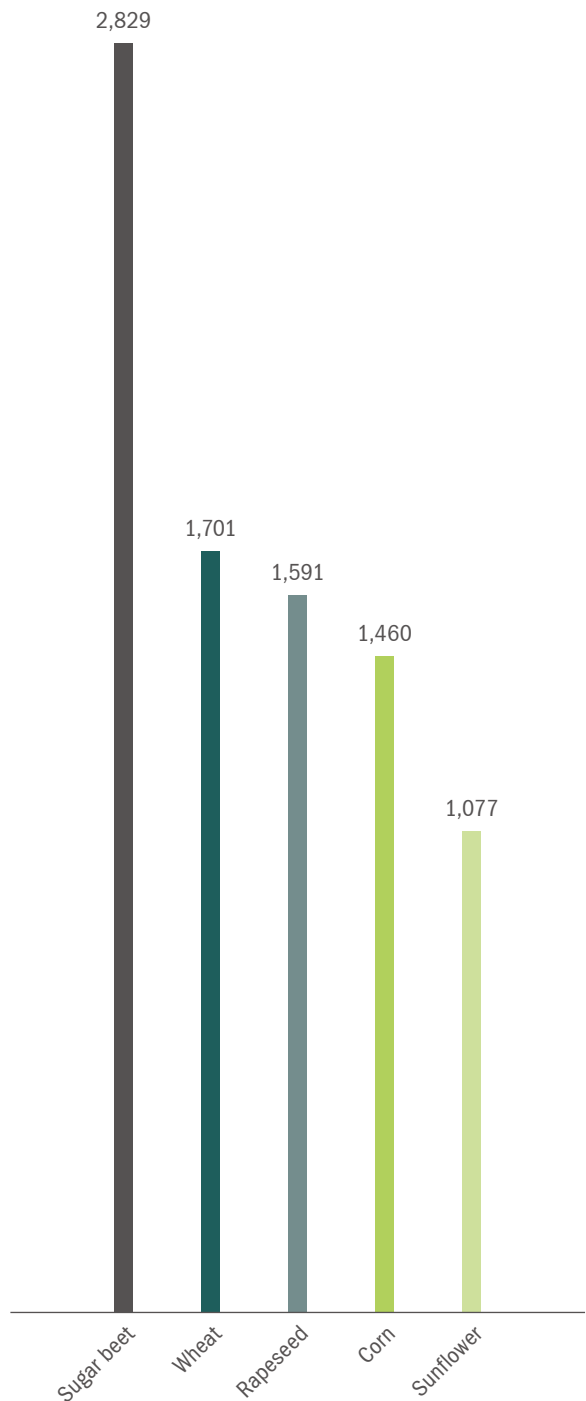
Overall, the added value from French Field Crops first transformation generates almost EUR 7 billion, in addition to the EUR 18 billion already created by farmers, i.e. 27% of total value. **G**

There is a direct link between the nature of the end-user and the added value generated by each Field Crops. The added value generated by the first transformation of sunflower and rapeseed (largely transformed) is respectively 75% and 60% higher than those of corn and soft wheat (heavily exported or directly used for animal consumption). Naturally, the larger the share of exports or direct consumption, the lower the transformation and the added value generated on French territory. **H**

We believe that French Field Crops added value has the potential to increase by 50%, thereby achieving EUR 10 billion, despite the gradual losses of subsidies (biofuel and sugar beet), the growing international competition, and the additional regulations to come that will further burden the French agri-business industry. To do so, French agri-business industrials need to pursue the development of specific winning strategies, combining enhanced control of their value chain, disruptive innovations (notably in green chemistry and ingredients), diversification to better resist volatility, and expand internationally in the relevant geographies and with the right partners. **I**

E

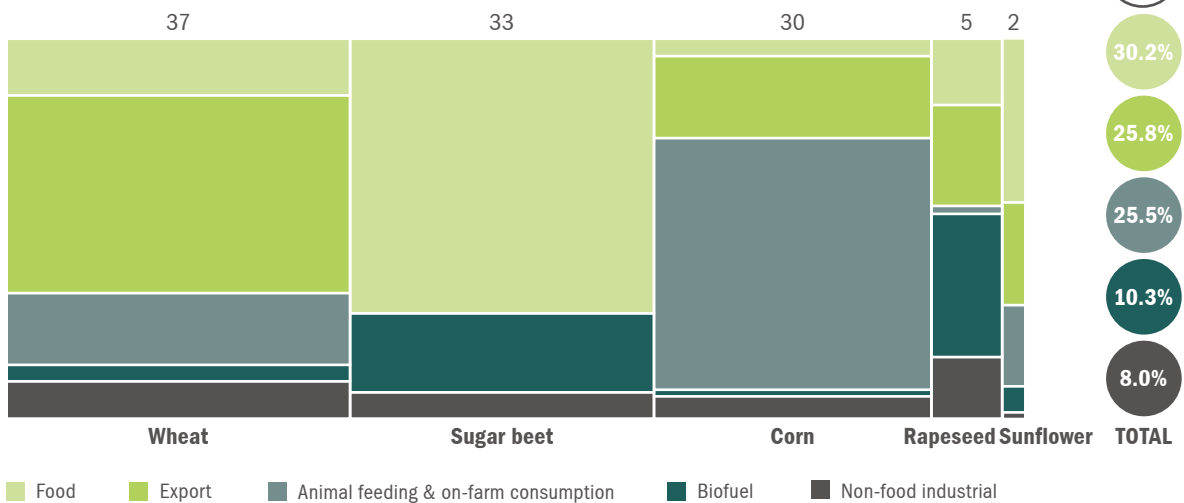
FRENCH FIELD CROPS RETURNS [EUR PER HECTARE 2011]



Source: CGB (Confédération Générale des Planteurs de Betteraves), Passion Céréales, FranceAgrimer, Unigrains

F

END-MARKET UTILIZATION BY AGRICULTURAL CROPS [2012-13; MT; %]



Source: CGB (Confédération Générale des Planteurs de Betteraves), Passion Céréales, FranceAgrimer, Unigrains

Strategic positioning for French Field Crops actors in light of global market considerations

STRATEGY 1: BUILDING SCALE

The agri-business has been driven over the recent years by both large trading leaders and processing industrials further building scale. Controlling the value chain has become the main strategic goal, to further differentiate, limit transaction costs, secure resources and grasp additional transformation value. On the one hand, leading processing groups have gained sufficient size and buying power to source products directly on a global scale, and have developed off-take agreements securing resources from all key regions. Even if most of those players have a strong regional footprint, their supplies come from all regions and market prices are global. On the other hand, trading firms have accelerated acquisition of physical assets, especially processing capabilities to avoid any bottleneck to extract excess profit and to compete with their emerging processing competitors. In order to further compete with their peers, their downstream and upstream integration strategies have led to a vertical disintegration

of the agri-industry, where Cargill and Louis Dreyfus now compete with Südzucker, ABF or French players Sofiproteol, Tereos or InVivo. Hard time for mid-sized players which have not reached critical size!

STRATEGY 2: REINFORCING DOWNSTREAM

Nowadays, market trend is to further expand and reinforce downstream rather than upstream, as owning production and farmland is too asset intensive and do not generate sufficient return on capital employed. Downstream, big players see no limit to extend their core value chain into higher value products so as to catch additional growth and lessen volatility of earnings. Big players thus - invest in more value-added products which prices are less-correlated to crop prices, then hedge prices on crops thanks to visibility on end-market final value. As an example, LD Commodities acquired the US group Imperial Sugar in May 2012, marketing its products under its own brands. LD CEO for North America said “This transaction is an important step forward in our plan to grow and diversify our global sugar activities from sugar cane crushing and international sugar trading into sugar refining and distribution in major consumer markets”.

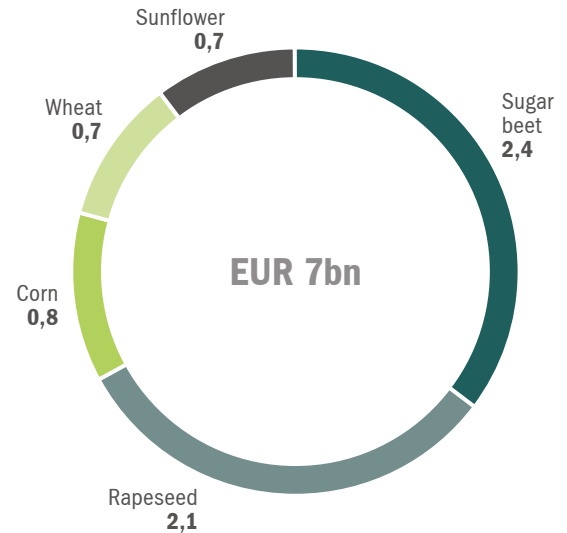
Or Thierry Blandinières, InVivo Group CEO, declaring that “food distribution is a growth driver for InVivo and the next logical step of the brand history. The key is to go further in the integration.”

STRATEGY 3: EXTENDING THE VALUE CHAIN

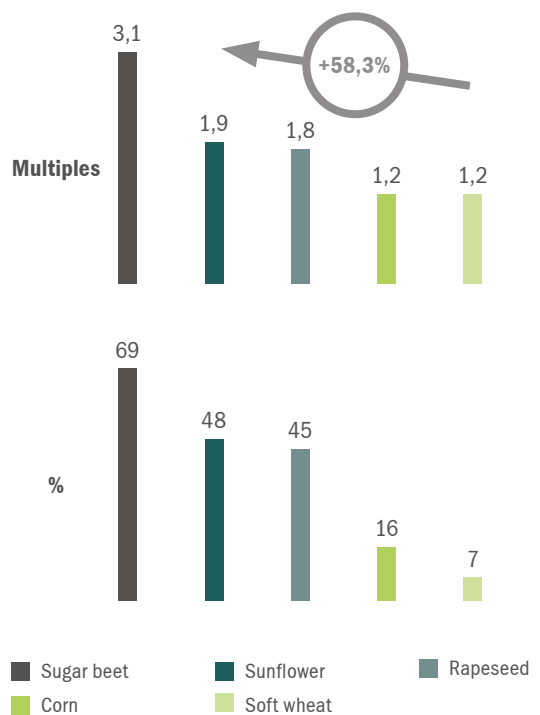
But extending the value chain is also a way to exit low-margin transformation businesses and subsidized energy productions, and to access more international markets through high value added products instead of bulk – and heavy – commodities. And some players, such as Tate & Lyle, a UK based global provider of ingredients, decided to progressively step out of trading and processing activities to focus on downstream value-added markets. Groups have increased their global R&D spending in the past years in order to develop new market applications with differentiated products or technologies, and lessen dependence to first generation biofuels (ethanol and Diester distilled from crops). Very considerable budgets have been oriented towards two main priorities: next generation biofuels and green chemistry. First, biofuels producers were forced to focus their R&D strategy towards 2nd and 3rd generation biofuels considering they were blamed for contributing to volatility in food prices, for leading to loss of biodiversity and lessening farming land available to produce food. Combined with financial difficulties of Western countries, those factors have led to strongly reduced tax subsidies for biofuels, and emergence of 2nd and 3rd generation biofuels that are produced from a wide range of feedstocks, especially non-edible cellulosic biomass from agricultural residues. **J**

Barriers to entry are huge, due to requested R&D efforts and financial amounts required to industrialize productions. As an example, Sofiprotéol is leading and has launched, together with Total, ThyssenKrup, CEA, IFP and Axens, the BioTfuel program, which focuses on producing biodiesel through thermochemistry, concentrating more than EUR 120m capital expenditure to build a pilot unit processing 3 million tons of biomass per hour. Perhaps more importantly: this development is not highly subsidized.

G
VALUE ADDED FROM FRENCH FIELD CROPS FIRST TRANSFORMATION [2012-13; EUR BN]



H
MULTIPLES OF VALUE ADDED BETWEEN RAW MATERIAL AND FIRST TRANSFORMATION; % OF FRENCH VALUE ADDED OVER TOTAL FRENCH VALUE



STRATEGY 4: DEVELOPING GREEN CHEMISTRIES

Green Chemistries are the new Eldorado, concentrating R&D resources from both petrochemical and agricultural market leaders. For example, “white biotech”, a sub-segmentation of green chemistry, consists of using micro-organisms to use crops (and increasingly agricultural residues) into the full range of products made by today’s chemical industry, from bio-based plastics or paints to industrial starches. It enables the production at high yields of specific products, with low energy use and minimal waste generation: in many cases the waste itself can be used as a raw material for further value added processing. We estimate that French Field Crops producers could target a EUR 2bn increase of their added value with Green Chemistries. **K**

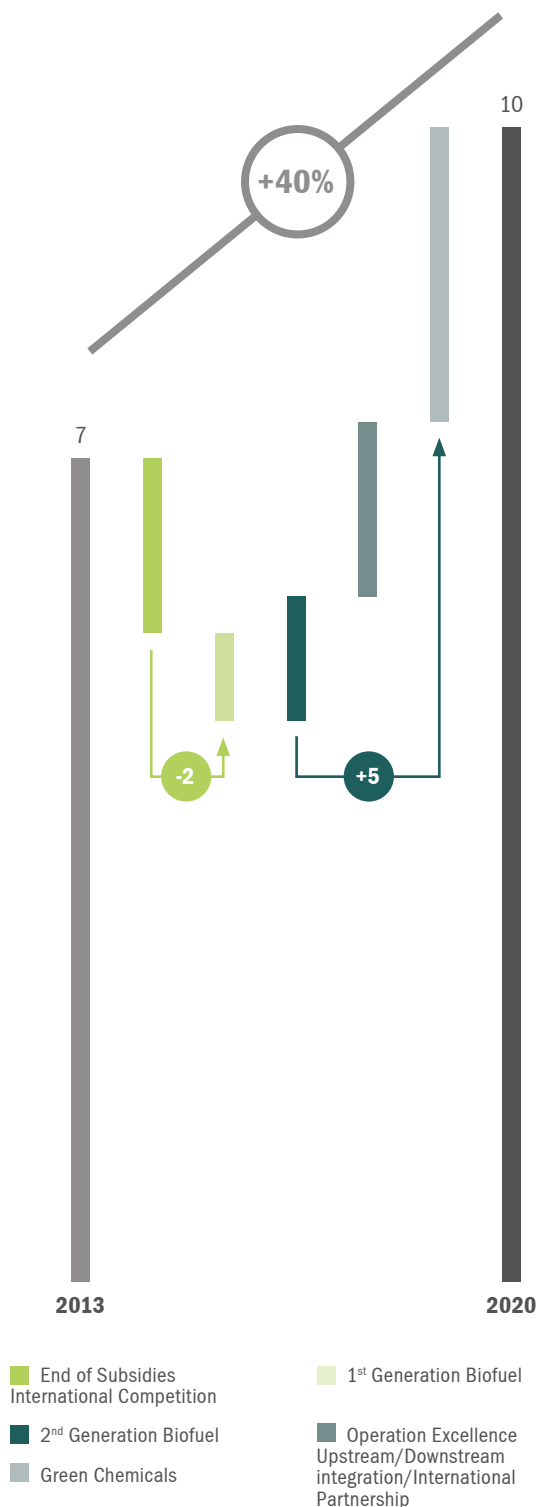
Internal R&D has paid-off for many end-market applications. Some have been largely deployed, such as Cargill transformer oil made from natural esters installed in over 500,000 transformers on six continents. Following a similar logic, Bunge invested in Cobalt Technologies, a producer of n-butanol, an alcohol used in paints and lacquers and a minor product of the fermentation of sugar-cane, thereby gaining position in a global market worth more than \$5bn. In order to accelerate time to market and reinforce positions, mergers and acquisitions are boosting and completing internal R&D efforts. Recent transactions include Cargill’s 2014 acquisition of Polystar, a manufacturer of surfactant and additives used in epoxies, adhesives and coatings, or Tate & Lyle’s acquisition of Biovelop in 2013, a producer of oat beta-glucan.

STRATEGY 5: DIVERSIFYING

Successful investing in R&D typically requires the ability to select the most promising subjects and teams. The largest and richest groups have a different simpler strategy: rely on a statistical approach, which considers that when they invest in a hundred projects, it is all right if some go burst because others may really turn into exceptional successes. Large cooperatives more and more apply the same logic when deciding which crop to focus on.

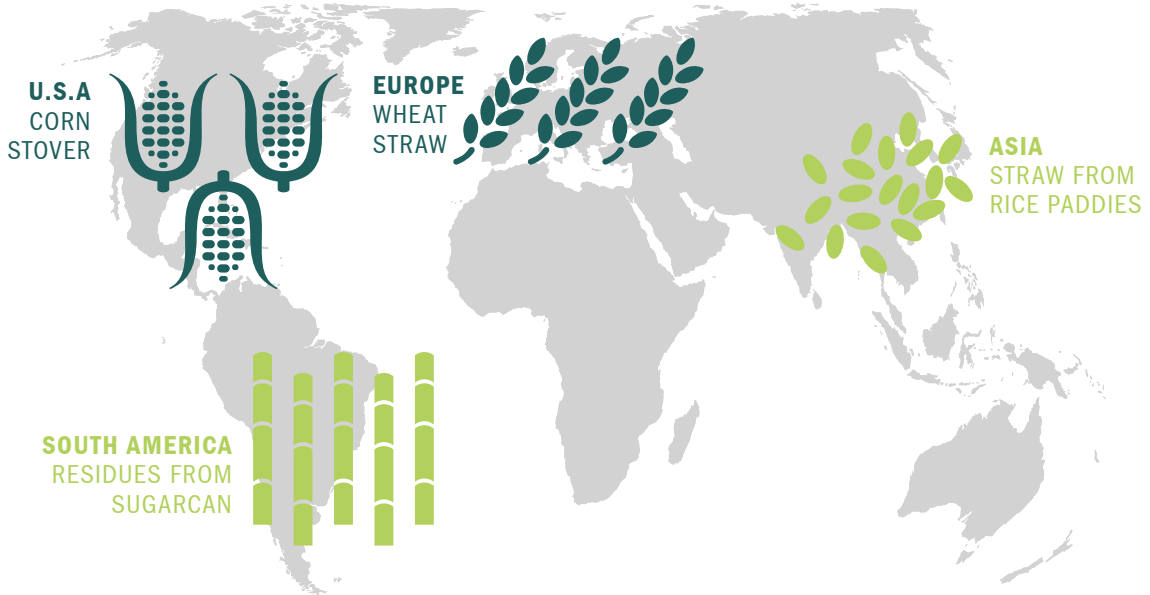
1

CREATING EUR 3 BILLION OF VALUE ADDED [€BN]



J

**AGRICULTURAL RESIDUES AS AN ALTERNATIVE FEEDSTOCK
FOR THE PRODUCTION OF CELLULOSIC BIOETHANOL**

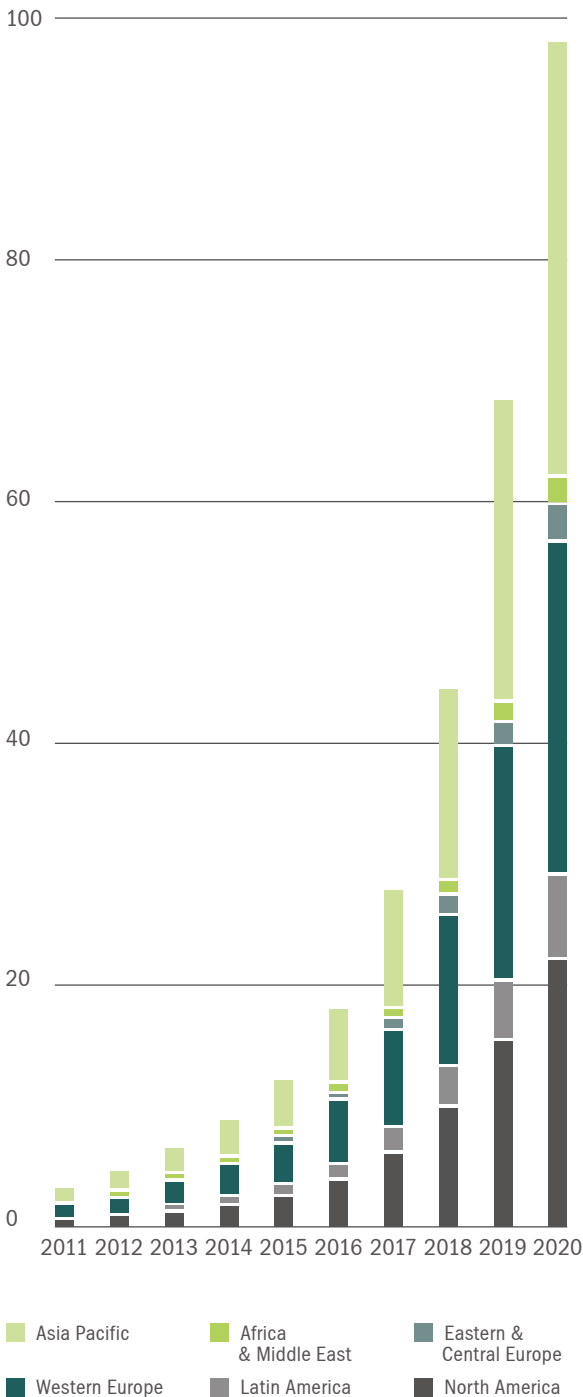


There again, actors may wonder about the right crops for diversification. Crop diversification has two main advantages, allowing not only a better utilization of supply chain assets (storage facilities, port silos...) and distribution networks but also creating natural hedging between products. It is difficult to demonstrate a negative correlation between crops, where, disappointing performances of one crop can be compensated by the successes of another, but a more straightforward diversification is geographical. The success of a geographical diversification strategy is not necessarily only calculated by the increase of exports, but to identify the most attractive geographies where to reach a critical size. To reach this critical size, agri-business groups leverage all possible synergies. When acquiring Total Alimentos in Brazil, InVivo not only tapped the world's most promising petfood market after the USA, but more importantly, France's largest cooperative also acquired a platform for further expansion of all its activities across the region. Synergies can be developed at each step of the

value chain, making better use of the group's logistics, transformation or R&D know-how and selling expertise. Roquette developed its activities in India following a somewhat similar path, focusing its development on the subcontinent by accompanying its clients with value-added products, bringing in specific knowledge and techniques, investing gradually with its local partner Riddhi Siddhi Gluco Biols Ltd. Roquette is now India's number one starch producer. Large Field Crops producers also tend to gain maturity in their trading activities. To do so, international development and strategic alliances are necessary, primarily to acquire real-time critical information. Agri-business cooperatives still have a long way to go before their reach may compare with those of large trading houses. It's Chief Executive Officer, Serge Schoen, presents Louis Dreyfus Commodities as "a global, diversified Group with major presence in 13 commodities and now [with] a strong footprint in all key countries involved in agricultural production".

K

GREEN CHEMISTRY DEVELOPMENT
[\$ BN]



Source: Pike Research

STRATEGY 6: EXCELLING IN SUPPLY CHAIN

Supply chain excellence obviously is at the center of agri-business. It is all about swiftly and efficiently connecting markets by moving agricultural products from places of surplus to places of demand. Agri-business transformers need to secure their supplies, protecting their volumes in a commodity market, but also creating sufficient local critical mass to save transportation costs and enhance competitiveness. Traceability of raw material and transformed products is another supply chain key issue, in order to meet tighten regulation and marketing standards, and respond to certification specific requirements of the growing market for organic food in Western countries. Controlling infrastructures gives such enormous advantages that players often refer to it as the new “arms race”. Larger players benefit from worldwide grain elevators and transportation network for procurement, storage, cleansing and transportation of agricultural commodities. This allows them to quickly shift productions at minimal costs. Interests at stake to secure supply chain assets can be enormous. This was recently demonstrated in Australia, where a bid by ADM to take over GrainCorp created public and political outrage, as GrainCorp owns seven of the 19 bulk wheat export ports operating around the country. Australia’s concerns are shared by most Field Crops producing countries. Similarly in Brazil, global agri-business actors compete to assist local government in its investment programs.

**STRATEGY 7:
ACCELERATING PRECISION AGRICULTURE**

The development of what is called Precision Agriculture may also contribute to significant value creation. Precision Agriculture first appeared in France more than 15 years ago but remains only rarely implemented. Cutting-edge technologies using remote sensing applications, GPS, drones, and other site specific crop management (SSCM) foster greater traceability and improve real-time decision-making on optimizing outputs, genetics and pricing.

Offer and demand variations can better be anticipated by establishing real-time interconnections with farmers and constantly analyzing often huge amounts of data, feeding unique in-house reports. Cargill is now commercializing in the USA its Cargill NextField System which is organized around data collection, crop planning, nutrition recommendation, planting recommendations and precision farming. The entire organization must adapt to often revolutionary approaches and make good use of the huge amount of generated data, create value and increase agility. Developing Big Data in agriculture is a clear strategic objective of InVivo's 2025 road-map. The generalization of robots, sensors and Big Data analytics is revolutionizing the industrial world, including Field Crop players.

STRATEGY 8: COLLABORATING

The rapidly changing economic and social landscapes appear as great opportunities for agro-industrial groups to adopt structural changes through collaboration. Collaboration can be made either through mergers and acquisitions so as to obtain more control over the value chain or create new barriers to entry, or through joint ventures or alliances, in order to pool complementary resources and interests (e.g. Bunge and Solazyme's joint venture recently led to a commercial agreement with Unilever which aims to use its nutritious oils made from algae in its own lotions or food products). Most of market leaders are accelerating through M&A and collaboration, as illustrated by the acquisition by Switzerland-based Glencore International, the world's largest commodity trader, of Viterra Inc. to directly compete with the leading ABCDs.

Another example is the acquisition by Cofco Corp, China's largest grain trader of a majority stake in Noble Group for \$1.5 billion, thus acquiring high-quality assets in the world's top grain and vegetable oil producing regions, including Brazil, Argentina, Indonesia and the Black Sea area.

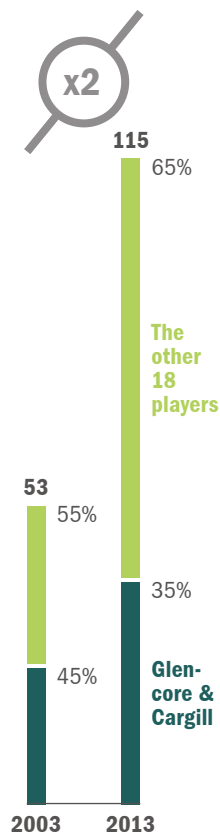
With an acceleration of the number of transactions during the last 10 years, the M&A market in the agri-business industry is very dynamic. When analyzing the M&A activity of the Top 20 players in this industry (cf. table page 4), the number of M&A transactions doubled between 2003 and 2013, especially Glencore and Cargill who performed 35% of all operations.

Looking ahead, collaboration is the key for achieving those strategic paths as it will provide several advantages:

- > Immediate footprint in new geographies or increased market shares in fast developing businesses;
- > Greater visibility, and in some cases foresight along the supply chain;
- > Profit and risk sharing;
- > Greater influence over factors previously beyond an organization's control, providing greater security and possibly reducing costs;
- > Resources sharing, which enhances competition, thus resource optimization to the best interests of each group.

However, collaborations and Joint Ventures are complex to put in place, sometimes difficult to accurately evaluate, and challenging to set up appropriate internal & external skills. First, the right type of collaboration must be selected, either green-field, minority stake, JV, full acquisition, etc. Each market in every region is specific and requires a dedicated solution, taking into account local regulation, competition, logistics issues, return on capital, political acceptance, etc. But also internal factors such as group cultural fit, management capabilities, experience to bolster integration and ability to make positive synergies happen.

L
NUMBER OF TRANSACTIONS IN 2003 & 2013



3 GUIDELINES

TO DESIGN AND IMPLEMENT AN EFFECTIVE STRATEGY FOR FRENCH FIELD CROP ACTORS

#1

RECOMMENDATION 1: DECIDE

This might turn out to be the most difficult part. All the stakeholders of France's cooperatives need to take consciousness of the urgency to appropriately go downstream, accelerate international expansion or take full advantage of available technologies. France was the world's second agribusiness exporter only a few years ago. It is now fifth, and new actors are rising. French Field Crops players need to move and expand fast before competition achieves unrivaled advantages on prices and added value products. In particular, the end of quotas, the lower subsidies and the renewed political will to use land for human food will pose enormous challenges for French beet root, ethanol and first generation biofuel producers. These plants will either be closed or evolved towards new markets which are not yet mature enough. And there is no such thing as a safe and secure position. The pace at which innovation becomes a commodity is increasingly faster.

#2

RECOMMENDATION 2: THINK & PRIORITIZE

It would obviously be counterproductive to run after all potential levers at once. Industrials need to make choices and prioritize between where and how to consolidate, innovate, diversify and expand. Selecting the most relevant strategy on the right basis may complex, in particular, when taking into account potential moves from competition. War gaming approaches are a useful tool to select the best strategy in a highly competitive landscape.

#3

RECOMMENDATION 3: ACT

Once a plan has been designed, it is essential to mobilize the entire organization and rigorously stick to it. Most players will naturally follow similar strategies, so it is important to get there first. Strong and dedicated project monitoring often involving multi-skilled resources are decisive to meet milestones and develop a plan into a reality.

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