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**"Managing New Risks Faced by International Traders
in the European Grain Sector"**

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ABSTRACT

The international trade of grains faces new challenges in the European Union due to low-level and low-volatile prices of grains, increased forwarding risks, increased market segmentation, and the difficulty to implement traceability and guarantee "non-GMO" foodstuffs.

These changes also open up perspectives for value creation, requiring new knowledge and skills in a trading service.

OBJECTIVES

The objectives of the paper are:

1. to raise and assess new challenges faced by traders in the European grain sector and
2. to show new management ways to face these trading risks in identifying perspectives for value creation.

Focus is put on financial risks, coordination risks along the agri-food chain.

The paper presents 1/ theoretical and empirical considerations, 2/ methodology and data, 3/ results and 4/ conclusions that are inferred in order to adapt knowledge and the organization of international trading to the new environment.

THEORETICAL AND EMPIRICAL CONSIDERATIONS

The liberalization of the Common Agricultural Policy (CAP) from 1992 increased domestic price instability during most the 1990s in the European Union (Thompson *et al.*, 2000). But, price volatility strongly decreased since 1998 because the US government loan program have led US and world prices to go down to 30 year lows after five consecutive high supply of grains from 1996 to 2000 (USDA-ERS, 1999-2000; TFC Commodity Charts, 2000-2001; Moser, 1999). Since 1998, prices are also at historic lows in the European Union (EU-Eurostat, 1999-2000; Euronext Paris, 2000-March 2001). Analyzing the exports of cereals from Rouen, the major EU cereal harbor, Hautin (2000) noticed changes in the type of shipments with smaller lots.

Competition among international firms trading grains is heating up. Major international players include Cargill, Toepfer International whose major shareholders are ADM (Archer Daniels Midland Co.) and SIGMA (French cereal co-operatives), Louis-Dreyfus, Glencore, Tradigrain and Bunge. The major European trading firms are SIGMA and Soufflet. The Swiss André was an important company before stopping its European business in March 2001 and asking for legal protection of bankruptcy proceedings at its head office in Lausanne, Switzerland.

METHODOLOGY AND DATA

The Delphi method is used through interviews with traders in the European grain sector at major international trading companies.

A survey was done to reach the objectives in order to know the following items:

- What are the new risks faced in trading grain from the European Union?
- How is it possible to manage such risks and constraints?
- What suggestions and key factors of success can be inferred in order to open new perspectives for value creation?

Forty companies were contacted. Twenty of them answered the interview and discussions have been done to improve the study.

RESULTS

Results concern the management of new risks:

1. financial risks induced by lower market prices and volatility for cereals, resulting in reduced margins;
2. increase in the number of trading risks (logistics, commercial and financial risks), in the European Union due partly due to the new reform of the CAP “Agenda 2000” and the full application of the GATT agreements;
3. market segmentation risks that traders are managing in creating new marketing tools toward customization of products and services to add value;
4. GMO risks along the grain chains: the feasibility of the “non-GMO” guarantee of foodstuffs and traceability is assessed.

These changes also open up perspectives for value creation, requiring new knowledge and skills.

1. LOWER MARKET PRICES AND VOLATILITY FOR CEREALS RESULTING IN REDUCED MARGINS

Large trading companies are currently suffering from weak margins, of about 1% to 2% of sales turnover. Pressure on the margins is all the stronger since market prices of cereals have been weak since 1998, and their volatility is currently low.

Prices of grains traded on international markets fell strongly (by at least 30%) in 1998 with supply crisis. For instance, high levels of production have swollen heavy existing stocks in the exporting countries, mainly the USA whose agricultural policy has favored corn and soybean production. Other factors have reduced demand:

- the Asian crisis in 1998,
 - repeated announcements have been made of decelerating American growth, following the risk of overheating due to a rise in inflation, in turn controlled by a raising of interest rates,
 - limited European demand is due to a weak Euro and decelerating growth in Europe.
- Because prices are listed in dollars and the Euro has depreciated by 30% compared to the dollar in less than two years, invoices are high in European currency. Thus, European purchasers limit their orders, all the more so since they anticipate a rise in the Euro compared to the American dollar.

The majority of grains have world market levels that are at a historical low. For example:

- corn, which is mainly used as a source of energy in animal feeds and which is also included in many manufactured products (food products, paper pulp, adhesives...), is worth approximately \$2 a bushel as compared with \$3 dollars generally and even \$5 dollars a bushel in 1996-97;
- wheat is worth approximately \$2.50 a bushel, generally, in relation to \$3.5 to \$4 and \$5 or even \$6 dollars a bushel in 1996-97;
- soybeans are worth approximately \$5 a bushel as compared to nearly \$9 a bushel in 1997;
- soybean oil is worth approximately 0.16 US dollar per pound against approximately \$0.24 to \$0.28 per pound between 1994 and 1998.

In contrast, the price of sugar went up recently because of smaller harvests and its links with the oil market, due to the Brazilian use of sugar cane as a source of energy. Oil is an exception because OPEC has recovered part of its monopolistic capacity to limit production and let prices rise. It should be noted that Iraqi oil is still forbidden on world markets because of the United Nations embargo.

In addition, the volatility of many raw materials has decreased considerably. Over the past few months, prices have varied little. Companies thus have fewer opportunities for margins in traditional trading. However, the US dollar - Euro volatility is high. At its launching on the 4th of January 1999, the Euro rose from \$ 1.1675 to \$ 1.185. Then, it has declined during the year 1999 and was worth \$ 1 for €1 at the end of December 1999. It went down to \$ 0.823 on the 26th of October 2000, that was an 18 % decrease from the 1st of January 2000 and a 30 % decrease from the 4th of January 1999.

Thus, the price weakness and lower volatility of markets have led to weaker margins for the traditional trading of undifferentiated raw materials. Even though new communication and information technologies (NTIC) may contribute to improving effective B to B relations, the execution of contracts must be managed more skillfully to preserve margins that have become weaker.

2. INCREASE IN THE NUMBER OF RISKS TO BE MANAGED IN THE EUROPEAN UNION

The trader's profession consists in managing risks by buying goods in places of surplus production and transporting and selling them in markets where demand exceeds local capacity.

Trading agricultural raw material involves many risks:

- those related to the raw materials themselves: logistics involving the non-respect of delivery dates, risks of quantity when it is difficult to collect the goods, risks of quality not conforming to contract specifications. Logisticians and specialists in quality control manage this type of risk.
- commercial risks: those concerning countries, counterparts, export licenses from the EU, restitution from the UE.
- purely financial risks: price fluctuations, interest rate variations, exchange rates, those related to operations to hedge risks. Financial tools, such as forward or futures contracts, options, swaps... can be used to hedge these price fluctuation risks.

In a sector with weak margins and little recourse in the event of customer non-payment, the risk of loss is very significant and contributes to increasing the risk of bankruptcy.

These risks are changing:

1 / Evolution of risks related to raw materials

Goods are less often commodities, i.e. undifferentiated products, but are increasingly products or ingredients sold directly to manufacturers and adapted to the specificity of their trade. The final price includes an increased share of costs for quality, related to the observance of specifications, as well as logistic costs, related to lower volumes.

2 / Increase in the commercial risks of exporting from the EU

It is not enough to find a solvent customer to export from the European Union. Starting this year, the risk of non-delivery of export licenses by the European Commission has worsened. Indeed, following 8 years of negotiation, the Uruguay Round was completed on April 15, 1994, by the signature of GATT agreements in Marrakech. These agreements have been fully applied since the July 1, 2000. Whereas the European Union exported 34.1 million tons of cereals in 1999-2000, these agreements limit subsidized cereal exports from the European Union to third party countries to 25, 280 million tons from 2000-2001 to 2005-2006, that is, a reduction of 26% compared to last year.

Authorized cereal exports break down as follows:

- 14,438 million tons for wheat and its derivatives (flour),
- 10,843 million tons for cereals intended for animal feed.

Export subsidies theoretically compensate for the difference between the price on the world market (measured by prices for "Soft Red Winter Wheat" (SRW) quoted in Chicago) and the price in the EU. In 1999, these export subsidies rose from 14 and 32 Euros per ton, that is, from 92 FF to 256 FF per ton. The fall of 7.5 % in the intervention price of cereals, i.e. minimum prices in the EU on July 1, 2000, will bring European prices closer to very depressed world levels. In the European Union France is the principal cereal exporter.

Therefore cereal operators will have to adjust their practices: reduce their costs and find new outlets on the domestic market. International trading companies will have less to export with export subsidies, hence a loss of earnings.

3 / Changes in purely financial risk management

Trading on futures markets can prove very risky if control procedures are not rigorous on the positions taken. Exceptional losses on unauthorized operations can be caused by a single trader, such as, for example, that generated by Nick Leeson at Barings for \$1.3 billion or the loss of \$1.8 billion on copper by Sumitomo. It is now possible to be protected from a trader who carries out unauthorized operations, for example in trying to correct his errors. Indeed, the American insurer, Chubb & Son, has launched on the French market an insurance contract covering losses incurred by unauthorized trading operations. Maximum coverage is set at \$100 million with exemptions of \$10 to 25 million. However, the payment of insurance premiums to guarantee losses on unauthorized operations is very costly. Trading desk managers usually prefer to eschew that approach. They may have in place an effective system of surveillance and ensure that monitoring measures are implemented for the prevention and control of transactions made by traders. So, trading desk managers prefer vigilance to insurance and must be aware of trading risks on every market used by their work team.

Trade developments generate an overall increase in risks. However, they open up new opportunities, that are sources of value for whomever can benefit from the fact that:

- bringing European prices closer to world levels will open up European export opportunities without restitution, when these world levels rise again;
- market segmentation is accelerating with industrial customers demanding products and services that are ever more personalized;
- consumer demand is growing for a guarantee of foodstuffs that are not genetically modified, and new distribution channels need to be organized.

3. MARKET SEGMENTATION: TOWARDS A "CUSTOMIZATION" OF PRODUCTS AND SERVICES TO CREATE VALUE

The profession of trader is changing. Markets organized by governments, where price is the decisive criterion, hardly exist any more. Large contracts negotiated with Russia, China, North African countries (for example wheat export to Egypt, Tunisia, Algeria, Morocco, barley to Libya) and the Middle East have disappeared. Some agreements may be negotiated to finance export credits.

More and more, new markets related to the liberalization of economies emerge with primarily private companies. These operators want to satisfy more specific needs, with qualitative requirements differentiated in smaller batches. Markets are more segmented. In the Mediterranean Sea, grains are transferred onto cargo carriers weighing 25,000 tons or less.

Operators are often processors of agricultural raw material:

- for cereals, these are millers, starch manufacturers, malt processors, manufacturers of animal feed;
- for oil seeds, from which are extracted oil and an oil cake that is rich in proteins, the operators are grinders and manufacturers of animal feed;
- and so forth.

The trader must bundle together batches of a specific quality from a physical and technological point of view, but the goods are not of a standard quality. He wants to meet purchaser specifications where needs are related to the use of the products and thus to the properties of the goods. Traceability requirements go along the same line.

The entire logistic chain is affected by this segmentation into smaller batches that are individualized as well. Ships of lower capacity, from 2,000 to 5,000 tons, are adapted to carrying these smaller batches.

The capacity of a trader to satisfy specific customer needs provides a chance to create value and therefore customer loyalty. It becomes a question of personalizing the product and services offered to customer preference.

4. FEASIBILITY OF THE "NON GMO"FOODSTUFFS GUARANTEE AND TRACEABILITE

The question of batch segmentation for non genetically modified material remains a challenge for professionals in most food distribution channels, in particular because of limits to testing and the industrial surcharges explained below. Organizing the traceability of products may be the answer.

To be specific, French regulations define an organism that is genetically modified as “an organism whose genetic material has been modified in a manner not carried out by natural multiplication and/or recombination”. In the case of transgenic plants belonging to the GMO category, the transfer of genetic inheritance from one organism to another is carried out by introducing a DNA sequence comprising one or more “useful” genes, giving a desired characteristic, such as resistance to disease or insects. Let us point out that part of the debate is not only centered on the useful gene itself, but also on another gene, called the “marker” gene, that is resistant to a specific antibiotic, introduced to facilitate locating transgenic plants having absorbed a “useful” gene. All the cells of the plant include this new genetic inheritance with the “useful” and the “marker” genes. Therefore, seed producers seek to eliminate the “marker” gene.

In the article, the expression GMO, genetically modified organism, refers to genetically modified plants, i.e. transgenic plants. According to the definition of the International Standards Organization (ISO 8402), traceability is “ability to trace the history, the use of an article or process, or similar articles or processes, by means of a registered identification procedure”.

Consumers worry about food safety. Retailers drawing up specifications when they buy products processed by food manufacturers take their expectations into account. The latter in turn pass along these requirements to suppliers of raw materials and thus to trading companies. It is generally a question of being able to guarantee the absence of genetically modified organisms (GMOs). Since April 10, 2000, every foodstuff containing more than 1% of GMO for one or more ingredient is subjected to a labeling obligation to mention “product containing GMO”. In practical terms, semolina processors ask for less than 0.1%, in order to have a safety margin and guarantee their product as GMO free.

Guaranteeing the absence of GMO at a level of 1% or 0.1% poses two practical problems:

- detecting a genetic construction that the analyzing laboratory is not familiar with,
- sampling reliability for analyses.

Very often, laboratories are familiar with the genetic construction (i.e. the DNA sequence) that they are looking for: in such a case, current techniques are sufficiently powerful to detect the presence of one gram of seed in 1 kg, that is, a detection rate of 0.1 %. In contrast, when analyzing laboratories are unaware of the genetic construction they are looking for, they cannot detect this structure, even when it is present in more than 1% of the given sample. Indeed, the weak point of detection by techniques for DNA analysis is that it is necessary to know before hand what one is looking for. Such a concept presumes that the laboratories are informed of genetic constructions of all the varieties authorized for production and marketing. At the beginning of 1998, a consumer journal revealed divergences among laboratories. Thus, according to the laboratory, bot positive or negative results were obtained based on analysis of the same product. Varying results were explained by the techniques used by the different laboratories: for example, the type of sampling, the weight of the sample (varying from 100 mg to 2 g), the intensity of crushing, the levels of temperature employed during the analysis - all affected the sensitivity of tests. Therefore, to correct this situation, the authorities set up a national network for detecting GMOs, made up of five French laboratories that also work with national (AFNOR) and international (European Committee for Standardization CEN, ISO) standardization centers. This network aims to standardize methods for detecting GMOs, in order to obtain concurring results among laboratories.

Moreover, tests are carried out on 100 mg to 2 g of products extracted from a sample of 3 kg taken from a 25-ton truck. It is quite possible to miss a seed on a hundred or a thousand coming from a transgenic plant. To get samples that are representative of large lots may be very difficult and costly in order to manage risks of any fortuitous presence of GMO, for example because of unexpected pollination of non-GMO plants by transgenic pollen.

Only the installation of separate, independent production channels (GMO and non-GMO) will make it possible to produce reliable labeling. However, there is an additional cost involved to separate and store non-GMO and doubtful products in separate silos.

Moreover, industrial procedures for processing products in continuous flows do not allow for the easy separation of batches. The surcharge is very significant. However, until now, operators have not been able to convince consumers that they should pay a premium to guarantee the presence of less than 1% of GMO material and thus to cover this additional cost.

Moreover, current regulations are often incoherent, whether in the USA or the EU:

- for example, the USA authorizes the “Starlink” transgenic variety of corn by Aventis for animal consumption, but not for human consumption. It is almost impossible to avoid errors of destination, such as the one observed last October;
- as another example, France authorizes the consumption of transgenic corn of type BT11 insofar as the presence of GMO is clearly indicated on the product label, but it does not authorize the *production* of this corn.

The traceability of products is a possible response to the imperfections of current tests, or surcharges related to technological processes. Traceability is about the follow-up of all agricultural and industrial practices for a given product. Traceability should cover everyone from seed-producers who sell to farmers, to food retailers who sell to the ultimate consumers. Today, this traceability makes it possible to set up a non-GMO channel, insofar as pollen from plants resulting from transgenic seeds cultivated in most countries of the world do not fertilize plants from areas known as “GMO free”.

For plants that are strictly autogamous, i.e. those which are naturally self-pollinating, there is no environmental risk, theoretically speaking. For allogamous plants, that is different. An allogamous plant requires pollen of another plant in order to be fertilized; its seeds are formed by cross-fertilization. Fortunately, studies undertaken on an allogamous plant like rape showed that pollen seldom drifts more a few hundred meters.

Consequently, it is not enough to declare that “GMO plants should be prohibited in the European Union” to solve the problem. Product traceability is a realistic solution in many cases. It mitigates the failures and unreliability of current detection procedures; it guarantees agricultural and industrial practices throughout the channel. In all cases, installing traceability of material flows requires solid coordination of the participants in the agri-food chain. IT can facilitate this implementation. However, traceability is expensive. Until now, the consumer has not agreed to pay this “non-GMO guarantee” that he has been asking for.

EU consumers think that the setting up of transgenic plants benefits only multinational companies, which have created them. EU consumers do not perceive any environmental advantage due to some decrease in the use of pesticides. Above all, they are afraid that

their health might be at risk with transgenic plants. EU consumers are shocked by consecutive food crises, mainly by the bovine spongiform encephalopathy (BSE disease also called “mad cow disease”), but also by dioxin problems with poultry and now the foot-and-mouth disease (FMD) which has been detected in pigs, sheep and cattle. So, EU consumers want to protect themselves in avoiding GMO stuff in food: “prevention is better than cure”. They accept GMOs in medication because medicine brings relief and cure. A new generation of transgenic products, like nutraceuticals providing desirable attributes for better food under the guarantee of legal health claims, might modify their current opinion in favor of GMO products. To reach that goal, communication efforts are required among participants throughout the food chain, including consumers.

CONCLUSION

Trading agricultural raw material is becoming more complex. Risks have greatly increased, requiring new procedures and skills to open up new opportunities:

- reducing cereal exports subsidized by the European Union by 26% involves a loss of earnings for trading companies in Europe since activity will decrease. Moreover, it is not possible to cover the risk of non-delivery of a license to export on term markets. However, prices of raw materials in the EU tend towards parity with prices on world markets, as is already the case for oil seeds (soybeans, rape oil...). That situation creates opportunities for the promotion of European products in the rest of the world.
- the segmentation of markets requires a more-detailed knowledge of customer requirements to make suppliers satisfy these requests. Managing the portfolio of suppliers and customers becomes essential. Industrial provisioning implies increasingly sharing the costs of logistics and quality, including the costs of traceability. These developments open new opportunities to create value for whomever can adapt to the more personalized needs of manufacturers by proposing a more differentiated offer of products and services.
- the “non-GMO” food guarantee will be better implemented by the traceability of products throughout the chain than it will be by simply multiplying detection tests. It becomes a question for all participants of an agri-food chain, including consumers, to get to know each other better and to coordinate in order to maintain confidence in the goods exchanged - an essential point when carrying out transactions. It seems that only a new generation of transgenic products bringing desirable attributes for better food with the guarantee of health claims might modify EU consumers’ opinion in favor of GMO products in the forthcoming years.

Developments towards ever more specialized knowledge also have consequences on the organization of trading teams. International trading companies will find it beneficial to distinguish the risk on managing prices (risks that are purely commercial and financial) and the risk of managing raw materials. On the one hand, experts in finance, who use adapted tools, such as term contracts and options, manage price risks. On the other hand, risks related to raw materials are managed by logisticians and quality specialists who manage specifications that are coherent among the participants of a given agri-food chain.

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