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Outlook for EU Starch: Crops, Products and Trade

The EU starch industry processes around 24 million tons of raw materials into just under 11 million tons of native and modified starch and starch-based sweeteners. It is unusual in that it processes roughly equal volumes of corn, wheat and starch potatoes, while most other large starch industries process either corn or cassava. This level of production makes it the fourth largest regional starch industry in the world. While it is undoubtedly a significant industry by international standards, it is also an industry that grows slowly. Fifteen years ago starch output was some two million tons less than it is today, suggesting annual average growth of less than 1.5%. Over that same period the Chinese starch industry has more than doubled in size, to a level of output that is now more than twice the size of the EU industry. This implies that if the EU starch industry is to grow significantly in the future it must look outside its own borders to find opportunities. Put simply, we may think in terms of supply side factors and demand side factors.

End of sugar quotas disappointed starch producers

On the supply side, the principal factor affecting EU competitiveness is raw material cost. To this we may add the impact of the regulatory framework in the EU, observing that this has changed dramatically in recent years. Perhaps the final nail in the coffin of what was once an extensive system of support for EU starch producers was the opening up of isoglucose quotas at the end of September 2017. This should have been an exciting event for processors, in contrast to the earlier reforms that removed most of the subsidies given to the starch industry. In fact, it arrived too late.

The EU sugar industry had already undergone a period of rapid reform, increasing competitiveness, while at the same time world sugar prices collapsed under the weight of global supply, tak-

ing most of the shine off starch-based sweeteners, at least for processors facing thin margins.

Industry moves away from native starch

On the demand side, much has happened. The forces behind these changes are the fast evolving trends in the food industry. The starch industry is trying hard to move away from production of native starch, because the margins are so tight for this most basic of starch products. Nevertheless, native still accounts for a little under one third of EU sales by volume, and to the extent that its production keeps plants operating at capacity, it remains an important product in the fight to keep utilisation levels high and costs competitive. This is a major challenge for the industry: transforming a bulk, low margin product into higher value derivatives.

Isoglucose, or high fructose syrup, as it is known in the rest of the world, should have been an interesting new opportunity for the EU starch industry. While the factors mentioned above have put a break on EU expansion, at least for now, new opportunities may emerge if and when sugar prices start to climb again.

This leaves modified starch as the main area of interest, alongside some standard products that are showing new and increased potential. These include partial hydrolysis products such as maltodextrin that fit well into emerging high growth niches for low sweetness bulking agents. The reason for this is quite simple: if the food industry wants to take most of the sugar out of modern food it faces an almost insurmountable problem in that removing sugar removes not only sweetness but also bulk. The sweetness is relatively easy to replace with high intensity sweeteners. The removal of bulk is a much more pressing problem, at least outside the beverage sector where water is the simplest substitute for bulk. This is clearly an emerging opportunity for the starch industry, which is capable of

producing lots of sugar free, relatively low sweetness bulking agents, and this development has revitalised some well-established products.

Consumers demand clean label starches

The other main force driving starch product development is the clean label trend. While this is not new it seems that it has not yet reached its logical conclusion. Let's recall for a moment the history behind this trend. Post war the food industry was very successful in formulating a wide range of products that increased shelf life, as well as stability, when carbohydrates must be stored in challenging environments such as high acid, low temperature, or freeze-thaw. These are all conditions that strain the technical abilities of even the most innovative of food formulators. Many of the new products to emerge from this application of food science were modified starches and at the time food scientists were applauded for their innovations. This is no longer the case. While there have been no real safety concerns with any of these products, which have solved many technical problems in modern food processing, they tend to suffer a severe image problem in the current market. This is understandable once you acquaint yourself with the chemical names for these modified starches, which do not sound like things you should put in your mouth. This has led to the clean label trend, whereby the industry has tried increasingly to replace modified starch with simple native starch.

Of course, native starch cannot solve the food industry problems modified starches were developed to address, unless the starch itself has special properties. As a consequence, there has been increased use of naturally occurring starches that have a high amylopectin content or a high amylose content, configurations of starch molecules that mimic many of the diverse properties of chemically and physically modified

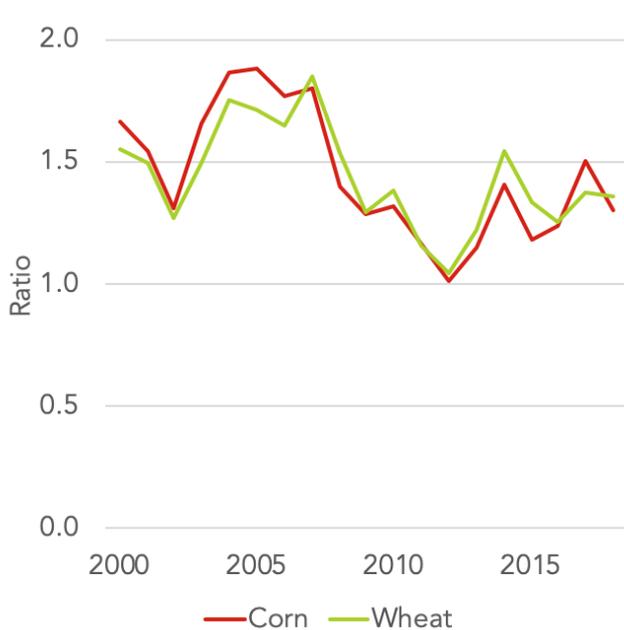


Fig. 1: Ratio of EU grain prices to US price of corn

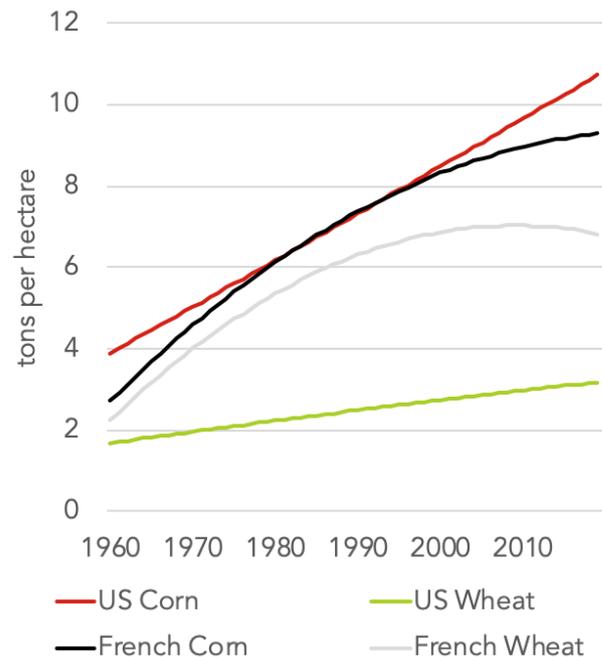


Fig. 2: Yield trends US and EU grains

starches.

Waxy maize, a very stable, high amylopectin starch is at the forefront of this trend, followed rapidly by tapioca and some rice starches. It is not yet entirely clear where this development is leading. On the one hand, the starch industry gets most of its margin from modified starch, so replacing these products with native starches, that typically have very low margins, is not a path the industry willingly wants to follow. On the other hand, the limited availability of naturally occurring “modified starch,” or clean label starch, and the very high demand for these products by the food industry has created an opportunity that the starch industry is unable to resist.

The logical outcome of these developments may eventually be flour, or, rather, “flour”. This is a name that sells very well to customers and the starch industry is increasingly trying to sell some of its product without having to first separate it from the grain. This “cycle of simplification” is probably the most pressing issue facing the industry today.

Europe is at the forefront of food development

While these food trends are a fascinating reflection on human evolution, we believe there may be a more pressing but

less newsworthy issue developing in the background: the competitiveness of the EU industry. Europe is undoubtedly at the forefront of the many of the trends in global food use, and its regulatory system often defines what these trends are. However, this focus on regulation can sometimes obscure a deeper, more fundamental trend that determines the success of all raw material processing industries, namely: is your raw material competitive in world markets?

Europe has some of the oldest and best producing grain regions in the world. Despite this, it seems to have developed a severe aversion to some of the technologies that support grain productivity. Whether or not this is having an impact on competitiveness is something we wish to explore. The advocates of climate change and GM technology are rarely seen as partners, but these groups may increasingly have to talk to one another.

Wheat is preferred raw material in Europe

Figure 1 depicts the ratio of corn and wheat prices in France to the price of corn in the US. Wheat is relatively competitive in the EU, priced similarly to corn. Netting out the high value by-product, vital wheat gluten, from the cost of wheat, explains to a large extent why wheat is generally the most

competitive raw material in the EU for starch production, and particularly sweetener production. Sweeteners do not require any special functional properties of the starch molecule, after it has been hydrolysed, properties more common in potato or corn. This is generally why incremental expansion of EU starch capacity has favoured wheat.

It is also clear from Figure 1 that EU grain prices have converged on US prices as support has been withdrawn from EU grains. Nevertheless, evidence is emerging that this convergence has come to a stop. Since around 2012, US corn prices have fallen more quickly than grain prices in the EU, so the ratio of prices depicted in Figure 1 has risen. There is insufficient evidence in these prices to say whether this is a structural change or a temporary one, but we believe other evidence suggests it might be structural.

Grain yields key to competitiveness

Grain yields are very volatile, but they tend to have well defined increasing trends. Allowing for a non-linear component, Figure 2 plots the trend yields of grains in France and the US. What is striking is that while US grain yield trends are very linear, French grain yields appear to be levelling out. This is most noticeable for wheat, which is also the increasing choice of starch proces-

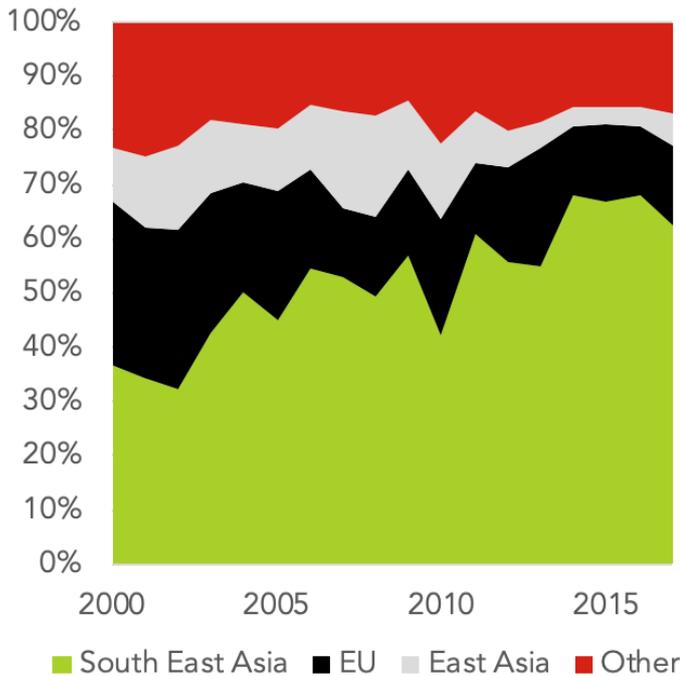


Fig. 3: Share of extra-EU markets for native starch by exporter

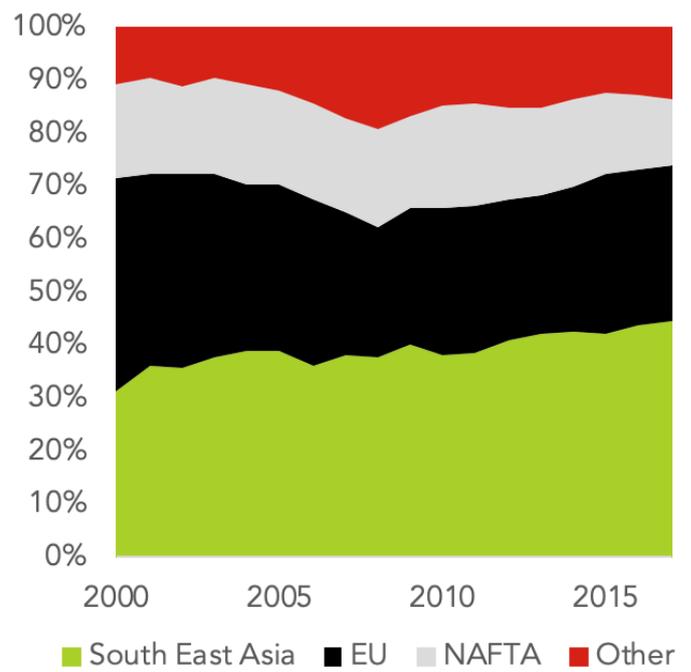


Fig. 4: Share of extra-EU markets for modified starch by exporter

sors in the EU. If this is truly the case then it is quite alarming for the EU industry: yield determines grain cost, and grain cost drives starch competitiveness.

To explore competitiveness, the evolution of the share of EU exports into world markets is examined. The EU internal market is the main outlet for the EU starch industry, absorbing close to 70% of EU production of both native and modified starch and more than 85% of EU production of sweeteners. Nevertheless, the main growth markets are outside the EU, and for EU exporters

of native starch, East and South East Asia, the rest of Europe, and NAFTA account for 80% of the remaining export market. For modified starch, the rest of Europe is also the main market, followed closely by East Asia. Adding in NAFTA and the MENA region covers 85% of remaining EU exports of modified starch. The logistical issues involved in shipping liquids means that sweetener markets develop closer to home and the rest of Europe accounts for nearly 70% of extra-EU exports. Africa and MENA cover most of the remaining market.

Tapioca starch takes away export market shares

To determine how the EU competes in these, its main external markets, we can examine its share of exports into these markets against its main competitors. Figure 3, 4 and 5 present the situation for native starch, modified starch and starch sweeteners respectively. The data tell a clear story: in dry starch markets, South East Asia, with its tapioca-based exports, is the main competitor for the EU and it has captured a serious chunk of what was the market for EU exports.

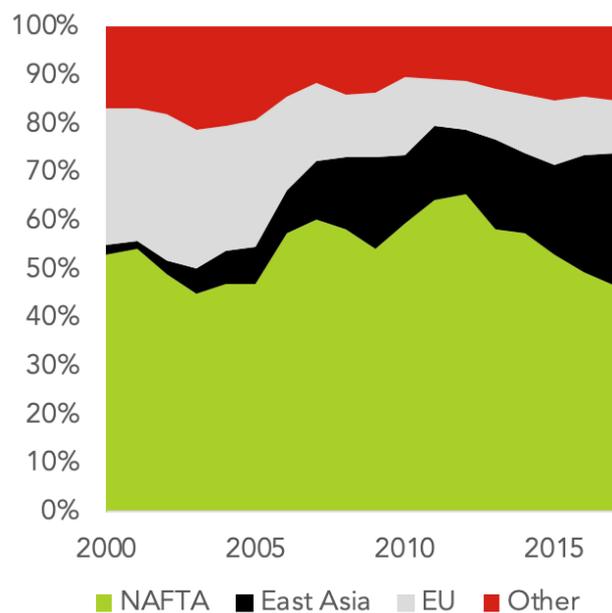


Fig. 5: Share of extra-EU markets for starch sweeteners by exporter

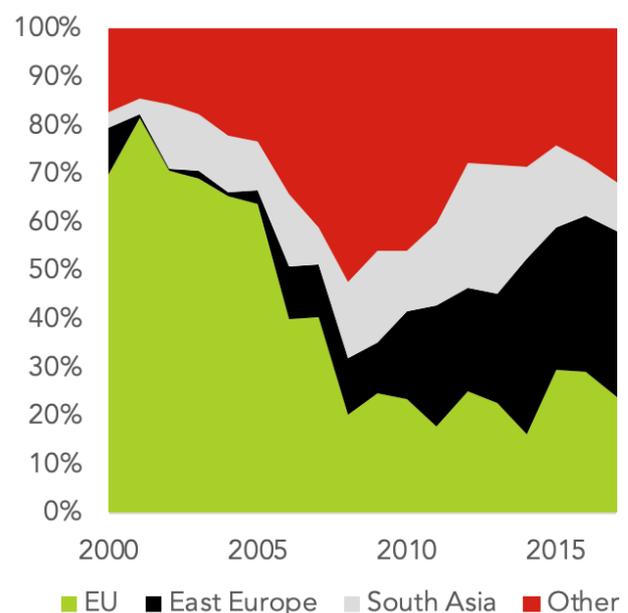


Fig. 6: Share of MENA market for starch sweeteners by exporter

In sweetener markets East Asia is the main threat, and Chinese exports of starch sweeteners have flooded not only the domestic Chinese market but any other market within reach of China. We do not have space to explore the nuances of all the regional changes but Figure 6, finally, gives a sense of some very specific regional developments. In the MENA market for starch sweeteners, a key target for EU exporters, and a market in which they used to command an 80% share, both East Europe (which in this case means Turkey) and South Asia (mainly India) have captured most of the market from the EU. Neither of these regions have particularly competitive raw material costs.

EU industry must gain market share in growth markets

These findings present a real challenge for EU producers and which should

force them to think long and hard about the basics of their industry, when often the temptation is to get lost in the rapidly evolving news about food trends. If the EU industry is to grow, it must be able to gain share in these regional world markets. Sceptics may argue that since it is largely the EU and US majors that control starch exports from India and Turkey, through their overseas acquisitions, there is little to worry about. Still, EU producers derive most of their profits from their EU operations and depend on continued growth in their core markets and across their main assets.

Isoglucose will not expand

These findings suggest that it will be hard to seriously expand isoglucose production, even in a world of high sugar prices, if the EU cannot compete in neighbouring markets against Turkey

and India, not to mention the growing presence of Saudi Arabia as a producer of starch sweeteners. This will force more product back into the domestic market. It will also mean that most new investment occurs in locations outside the EU, and this is clearly the case as both EU and US producers look increasingly for tapioca-based processing sites in South East Asia and other locations, sites that may eventually export some product back into the EU.

The EU is a leading innovator in the starch world, often being at the forefront of product development; it is also an increasingly uncompetitive producer of its basic raw materials. The future of the industry depends on continued innovation and low-cost production.