Market development and competitive forces in emerging markets of rapeseed and oilproducts

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Abstract

- Production and trade of oilseeds and its products has been experienced a tremendous increase in the last years. Serious forecast expect two scenarios:
- Production, trade, and consumption will still increase;
- Consumer demand patterns will be more differentiated, market segmentation and fragmentation will have more influence on the specification of the varieties of oleic acids and the protein fraction of oilseeds.
- These changing quality variations will have a number of interesting implications on the market driving forces especially in the various rapeseed market segments:
- Competitiveness of single oilseed varieties depends not only on price alone but a growing concern has to be put on quality characteristics.
- Because of rapeseed and its oil and protein components are exposed to a growing competition the driving market forces have to be analysed carefully in order to discover alternative and new ways of marketing.

With new varieties, market segmentation, and volatility in markets we want to demonstrate that the way in which marketing, trade, and consumption are being practiced is changing. Additional, we analyse the changing role of consumption patterns. Marketing and trade has changed or is about to change in a way that the relations within the food and non-food supply chains are more and more end-consumer driven. Customers sought not just simple transactions, but wanted relationships, networks, and interactions. The food and non-food supply chain of rapeseed and its oil and protein components will provide an interesting focus for study. We will present first empirical results of an ongoing research work on the driving market forces, the competitive networks and trade relations within various evolving market segments of the food and non-food use of rapeseed and its rival oilseed products in the German and some European markets. Decisive for the international competitiveness of the rapeseed breeding industry and its relations to the oil and protein processing industry is the successful integration of customer requirements (their needs and wants).

1. Introduction

Both, growing and trading of oil seeds and its derivatives, have experienced a large expansion worldwide in the last few years. Especially the increasing incomes together with a growing population in Asia have lead to high increase in the demand of vegetable oils and meal. In addition to that there are worldwide efforts to build up and to extend bio diesel manufacturing capacities (Shwedel et al., 2005). The above-mentioned factors will significantly influence the development of the market in the next years and cause a continuation of the positive trend (OECD/FAQ, 2006, USDA ERS, 2006). The growing markets in Europe and Germany mainly result from the demand in the bio fuel sector due to subsidization in most countries. Contrary to that the growth in demand for edible oil and oil seed meal is considerably slower. In Germany e.g. stagnation in consumption of edible oils and oilseed meals is prevalent (ZMP, 2006). Due to the given possibility to substitute several oils and flours and due to their unproblematic transport, in Germany the domestic resources rapeseed and sun flowers compete with products from Soya or palm oil that are substantially available on the global market. Therefore, under these conditions we will think about how to improve the competitiveness of products from domestic oilseeds in order to create competitive advantages. We are doing this by analyzing how far the value-chain of oil seed production and processing have to meet the consumers´ demand in order to improve consumption and which conditions for a successful cooperation between the involved actors are necessary.

2. Market development and market structure

Table 1 shows the development of the market for vegetable oils and fats for Germany in recent years. With a production of totally 3,16 million t. vegetable oil domestic oil mills in 2005 for the first time processed more than 3 million t. Rapeseed oil included. Also the domestic use reaches with 3,79 million t. a new record level. This development exclusively has to be atrributed to the growth in the bio fuel sector (increase of about 100%) (UFOP 2006).

The future evolution of the oilseed markets heavily depends on the development of the commodity marketing system as the driving force. Two primary distribution systems exist for oilseeds and its derivatives in commercial agricultural systems. One distribution system is focused on commodity crops (like bio-diesel), where the emphasis is on homogeneity. The other distribution system is focussed on high-value traits, but has been utilized primarily for small volumes.

Homogeneity is a fundamental attribute that has permeated the traditional oilseed supply chain. In the commodity value chain, farmers produce generic oilseed crops, all of which are viewed identical, despite the fact that they were produced by a

large number of different peasants. After harvest, farmers deliver their oilseeds to a first-handler. The first-handler receiving the crops is not interested in differentiating these oilseeds for different end-uses, but is interested in blending oilseeds to meet physical limits for certain grades in outbound shipments.

Table 1: Market Development for Oils and Fats (in 1,000 t)

	2000	2001	2002	2003	2004	2005
Production	2,830	2,829	2,813	2,752	2,873	3,160
Imports	1,769	1,940	2,132	2,180	2,296	na
Exports	2,012	2,222	2,296	1,872	1,801	na
Domestic use	2,549	2,563	2,689	3,061	3,383	3,878
Feedstuffs	134	400	405	411	415	na
Industrial Use	714	626	750	1,158	1,576	na
Food processing use	522	524	505	438	420	na
Food consumption	1,179	1,013	1,029	1,054	972	na

Source: BMVEL, various issues; UFOP, 2006

This commodity orientation has important implications. First the capability to coordinate a large and diverse sector such as the oilseed chain with minimal information flow throughout the sector has been a major strenght of the sector. Although commoditiy output meets the general specifications of the customer at the next level, it may not optimally meet the specific needs of any one customer. The associated loss of efficiency at the customer level is offset by the considerable flexibility of supply offered by the commodity system and its low cost. This is one reason that commodity agriculture has been successful. However, one side effect of this structure is that knowledge creation tends to be concentrated within each segment in the chain rather than disseminated throughout the chain.

The traditional supply chain for oilseeds, emphasizing homogeneity, has been in place since the production of oilseeds began in earliest 1970s. An alternate supply chain exist in parallel to the homogeneous commodity market and is used for some differentiation of oilseeds, particular in markets for human consumption and sophisticated industrial use. There are many forces, which independently and combined, are putting pressure on the traditional production and marketing practices in agriculture. Increasing consumer sophistication, technological change, competition, environmental concerns, and biotechnology are some of the factors that are influencing today´s agricultural marketplace.

Consumer sophistication has resulted in interest in foods that go beyond traditional concerns of price and presentation. The enhanced consumer interest primarily involves three aspects if foods they eat: food safety, health isues, and perseptions associated with particular production practices. Consumers also have expressed interest in foods that improve their health, such as products with lower cholesterol or which may reduce their risk of certain cancers. The ability to supply either the attributes that provide the health or nutritional component, or provide the information on production practices, requires an identity-preserved market channel. Consequently, the analysis of the supply chain for oilseeds has to start at the traditional end on the stage of the consumption.

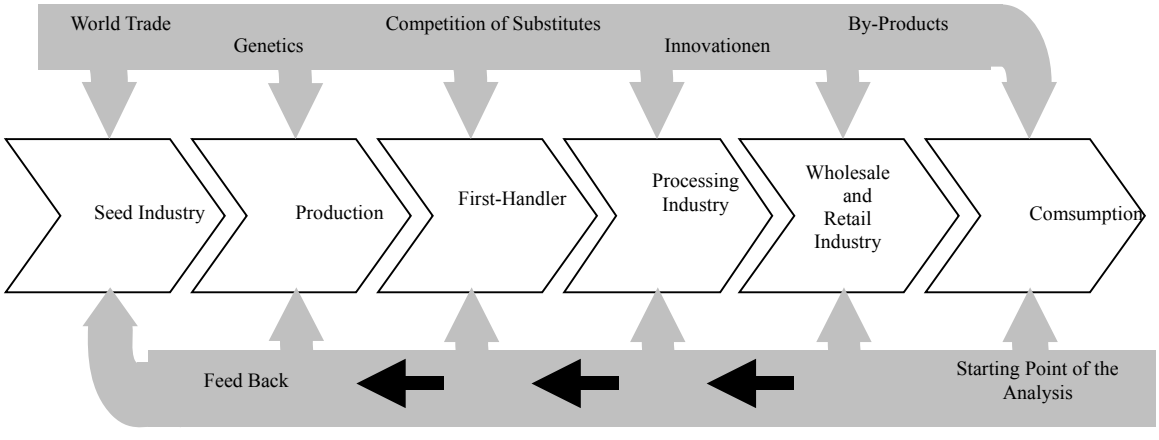

Figure 1: Supply Chain for Oilseeds and its Derivatives

Figure 1 shows the approach to the considerations. The central starting point of the investigation is the assessment of the user and consumer needs in the particular market segments of the food and non-food sector. The different market segments were observed regarding their present development and trends arising from it were derived. These qualitative and quantitative trend developments arising on the side of demand are in turn estimated regarding their repercussions on the whole oil seed chain and the involved actors working in it. In addition to the repercussions from the side of sales the effects of the global environment (socio-cultural, technological, political, ecological) as well as of the competitive environment (competition, industry) were involved. These impacts on the value-added chain are shown by the arrows above the value-added chain.

3. Competitiveness of domestic oil seeds

While hitherto oil seeds with differences only in the agronomic parameters as grain harvest, oil harvest or harvest stability were processed along the supply chain, now it has been increasingly switched over to focussing on special quality parameters in order to create a differentiation advantage. The quality parameters relevant for a product differentiation are modified fatty acid patterns, a modified amino acid composition of the oil meal as well as the accumulaton with secondary plant ingredients (Leckband & Voss, 2001). However, in the following only the modification of the quality parameter fatty acid composition will be investigated.

The domestic oil seeds rapeseed and sun flowers show in their natural fatty acid patterns a comparably high long chain monounsaturated fatty acid (LCMUFA) and long chain polyunsaturated fatty acids (LCPUFA) content. Thus, they compete with palm oil, olive oil, and soybean oil. The introduction of domestic oil plants with new quality characteristics has to be in competition to alternatively usable raw materials linked with a balanced use for all involved actors of the value-added chain. Figure 2 shows the conditions for a successful commercialization of domestic oil plants with new quality characteristics. The most important condition is the acceptance of this new product by the consumer. The consumer has to be able to accept the product as of higher value and to realize a personal additional benefit from the new product. As soon as the consumer demand has been realized also the processing industry will have an increased interest in obtaining the new raw materials in order to extent the existing range of products and thus to open new markets.

The First-Handler and the oil mills will only meet the demands of the industry for the supply with the new raw materials, if the consumers pay for the additionally costs caused by handling the new raw materials' quality through separating from the conventional qualities at processing, storage and transport (Darroch et al., 2002). But the farmer will only cultivate the new product qualities demanded by the industry if he can get assured producer prices and purchase quantities to optimize his profit by contract cultivating (Jefferson-Moore & Trexler, 20059.

The seed breeding companies eventually want to get compensation for the added value of the new breeds in terms of the breeder license. Furthermore the supply with a breed achieving the quality demanded by the industry is connected with obtaining a competitive advantage over the rival businesses (Leckband & Voss, 2001).

However, there is often a lack of fulfilling one or more conditions for the introduction of new qualities. Thus, many consumers doubt the benefits of plants with genetically modified fatty acid pattern (Moon & Balasubramanian, 2003) or the announced higher added value is critically assessed by the market partners (Darroch et al., 2002).

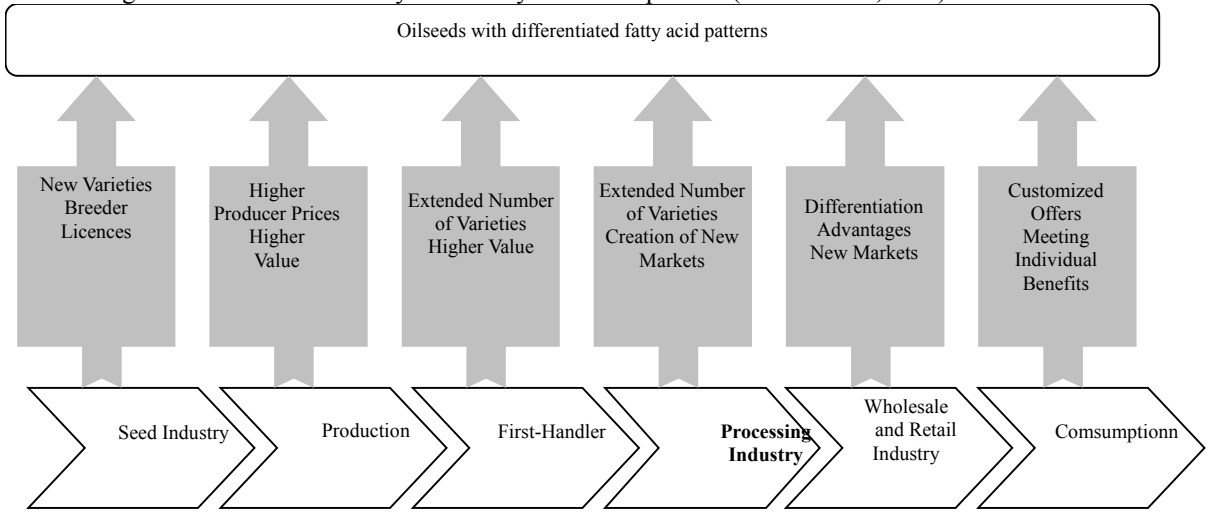

Figure 2: Necessary Conditions for Successful Oilseed Differentiation

The criteria applied by every phase of the value-added chain to domestic oil seeds with modified fatty acid pattern accordingly have to be considered also in the development of new breeds. Thereby, the underlying criteria can be very complex.

Fulfilling these criteria requires an intensive communication between the processing and the seed industry in order to avoid potential differences in starting-phase. An example for such divergent cooperation activities the processing of rapeseed rich in lauric acid. As from the industry's point of view the criteria preparation and processing and the involving criteria price are not fulfilled, the rapeseed rich in lauric acid has not yet succeeded (Sauter/Hüsing, 2005). In contrast, the so called high oleic (HO) oil seeds can be seen as a successful product introduction. They include the breeds rich in high oil acid like sun flowers, rapeseed and Soya having been able to enlarge their share in the world production of the particular oil plants and according to estimates also being able to increasingly enlarge it (Kleingartner, 2002, p. 3; Frauen, 2004; soyatech, 2006).

In the case of HO-sun flowers and HO-rapeseed it can be assumed that in Germany the production increase of these both breeds will be larger than the increases of the particular oilseed. The reason for the success of these oilseeds is not only a result of fulfilling the described criteria and conditions, as the high oleic breeds show a wide spectrum of use both in the food and non-food sector. Because of the multitude of potential consumer the oil mills can gain large batches of these oilseeds and compensate the additional cost for the separate handling of these oils by the generated mark-up. The same applies to the

First-Handler. Especially in customer contractual relations the farmers don't run the risk of not disposing their raw materials. At the same time they will benefit from the mark-ups of the consumers if they compensate possible harvest losses associated with the new breed. The seed breeding companies in turn can catch up with the breeding progress by setting higher seed prices,

Which conclusions regarding development potentials in specific market segments can be drawn on the basis of the analysis? This question will be answered with the development of rapeseed oil in the market segment edible oils (mostly private household consumption). Currently, 9 per cent (173,000 t) of the total edible oil demand by the private households results from rapeseed oil. Since the middle of the 90's this segment has a steady incresse. Numerous efforts of all links of the value-added chain emphasizing the benefits of its nutritional physiological characteristics like a close ω3/ω-6-relation can be viewed as a result to support that product (UFOP, 2006). At the same time the oil mills tried to invest in the improvement of the product qualities (Matthäus & Brühl, 2003). These efforts have helped rapeseed oil to an extremely positive image. In the meantime rapeseed oil can be found in all quality and price segments. Besides the increasingly offered mixtures with other oils an additional growth potential is arising by the emergence of high-oleic special oils for the use in cuisine. In perspective, additional market potential is emerging by the supply of rapeseed oil of genetically modified plants providing the consumer with an additional benefit in terms of ingredients with a high nutritional value (Heinz, 2006).

4. Concluding remarks

The present analysis has shown, that the efforts launching new oilseeds with a modified fatty acid pattern will mainly be successful if they cover a wide spectrum of use and at the same time fulfil some conditions and criteria demanded by the particular actors of the value-added chain. This requires a high degree of networked activities of the involved actors. The global environmental factors like the influence of politics or emerging technical innovations being able to influence market development as the examples genetic engineering or bio fuel have shown, also have to be considered. Finally, for an increased establishment of oilseeds with specific fatty acid patterns the formation of vertical and horizontal alliances and co-operations has to be extended.

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