Agribusiness – a scope as well as an opportunity for contemporary agriculture

Agrobyznys – rámec i příležitost pro současné zemědělství

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Abstract: The contribution deals with the key issues of contemporary food economy development as a system and its economic implication in regard to changing position of agricultural enterprises. It explicates why globalisation and integration processes have changed the structure and the interrelationships along the food commodity chains and have created completely the new economic environment for production agriculture. Based upon the economic theory outcomes the essential topics related to the problems why agriculture is largely influenced by the final stages of agri-food commodity chains are explained there. The active response on the demand structural changes include is perceived as a needful precondition of competitiveness of agricultural enterprises for future in general.

Key words: agribusiness, agricultural enterprises, commodity chains, food markets, integration, monopsony, value added

Abstrakt: Příspěvek se zabývá klíčovými otázkami současného rozvoje potravinového hospodářství jako systému a jeho ekonomickými důsledky ve změnách v postavení zemědělských podniků. Vysvětluje, proč globalizační a integrační procesy mění strukturu a vzájemné vztahy v rámci potravinových komoditních řetězců a vytvářejí zcela nové prostředí pro rozvoj produkčního zemědělství. S využitím ekonomické teorie vysvětluje základní příčiny rostoucího vlivu finalizujících článků komoditních vertikál na rozhodování o rozměru, struktuře i podílu zemědělství v konkrétních podmínkách. Aktivní reakci na poptávku včetně strukturálních změn považuje za nezbytnou podmínku konkurenceschopnosti podniků do budoucna.

Klíčová slova: agrobyznys, zemědělské podniky, komoditní řetězce, potravinové trhy, integrace, monopson, přidaná hodnota

Massive structural changes are presently being observed within the agricultural sector across most developed countries. Recent agriculture has became a part of the considerably wide-ranging complex that has determined not only the conditions of its success in selling products of the future food markets but the nature and dimensions of the producer agriculture in the concrete area as well. The existence of concentrated markets creates the incentive and the capacity for such firms to engage in conduct aimed at exploiting those participants with limited options and to entrench existing market power against the threat of deconcentrating and effective competition. The position of agricultural enterprises has been changing from a relatively independent farms to one of components more tightly aligned across the food (and non food) production and distribution chains. Most of agricultural commodities undergo some form of preservation or transformation before final sale. That implies the that success of primary agriculture entrepreneurs in achieving their operational goals is influenced by the other "links" of the agri-food chain. The problem however is that many agricultural firms are still trusting to the government assistance rather than attempting to implement necessary structural changes and find convenient partners that will be required their real competitiveness examined by new highly uncertain food markets.

Present-day agriculture is substantially depended on commodity chains and food nets that embodied

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all parts of agribusiness from input suppliers through producers, processors, traders to end users. The identification of critical dimensions of those chains formation as well as the forces and barriers influenced each of the food chains' member cognition shape up necessity to make use the economic theory for evaluation the new dimensions of the agricultural sector development.

REVIEW OF LITERATURE

Since 1980th the substantial changes have occurred in the agricultural sector in most of developed countries. That has got pressed to shift from the traditional static commodity based business of pushing homogenous products to a more of consumer driven market requiring differentiated products, continuous process innovation, and highly specialized product delivery, and customer support systems (Boehlje et al. 1999; Bečvářová 2002, 2003; Ahm 2002; Dobson Consulting 1999; Gardner 1983; Sonka 2000, etc.).

As far as primary production agriculture concerned, the change has affected a technology, economic climate, institutional structure and notably a way of doing business. New concepts to successfully survive in changing economic environment have been determined by a close knowledge refer to *agribusiness* development and its influence on all industries that have been interested in food production.

But what is the agribusiness' label?

The broad concept of agribusiness has been formulated in the middle of last century by Davis and Goldberg (1957). According to their definition agribusiness includes the sum total of all operations involved in the manufacture and distribution of farm supplies; production operations on the farm and the storage, processing, and distribution of farm commodities and items from them. In revised definition that reflects contemporary situation, Sonka and Hudson (1999) defined agribusiness as a sequence of interrelated sub sectors made up of: (1) genetic and seedstock firms, (2) input suppliers, (3) agricultural producers, (4) merchandisers or first handlers, (5) processors, (6) retailers and (7) consumers. The agribusiness sector can be visualised as a vertical "slice" of an economy comprising many parts where consumers a producers of goods and services related to agriculture operate.

Based upon applying the definition of agribusiness to global data, the food and agribusiness system is the largest economic sector in the world economy representing 50 percent of global assets, 50 percent of the global labour force and 50 percent of global consumer expenditures (see e.g. Boehlje, Doering 2000; Boehlje, Akridge 2002; Cramer, Jensen 1994; Goldberg 1998). Even in the developed countries, with agriculture being a relatively small part of economy, the agribusiness sector generates significant economic activities.

By Kinsey (2003), O'Keeffe (1998), Nickel (1996) etc. agribusiness activity can be represented in a two dimensional manner:

(1) as a continuum from producer to consumer (traditional, supply oriented chain), by the authors' appraisal - irrelevant and misleading approach for current stage of development analyses, and
(2) as a three dimensional sphere of business activity, in which firms interact with each other in markets along the whole chain reflected the real relationships implying the consumer as a decisive factor (demand driven chain or nets).

The essence of structural and economic changes that have occurred in agribusiness during last decade was expressed by Connor (2003) like a transformation in which suppliers and customers are inextricably linked throughout entire sequence of event that bring raw materials from their source of supply through different value adding activities to the ultimate consumer. That imply, success is no longer measured by a single transaction; competition is evaluated as a network of co-operating companies competing with other firms along the entire food chain.

Dunne (1999) identifies three basic forces that drive change in modern agribusiness sector for (this stage of development in general:

(1) the globalisation of markets,
(2) the rapid advances in technology and
(3) the greater involvement of people in what is produced and how it is produced.

Boehlje (1999) claims, that these changes effect the competitive environment of the agricultural firm and influence their choice of structural and conceptual decisions for future. The market access, the competitive intensity and the market power have been identified among the main (external) factors that determine economic prosperity of contemporary producers within agribusiness. The entrepreneurial environment formation and its impact on the agricultural firms can be depicted as in Figure 1 (by Dunne and Collins 2001):

That imply, the contemporary agriculture prosperity and the competitiveness of agricultural producers could been derived neither from the quality of local natural conditions related to produce only even nor from the productivity of basic production factors (land, labour, capital). All component parts of the global economy, with some specifics that represent

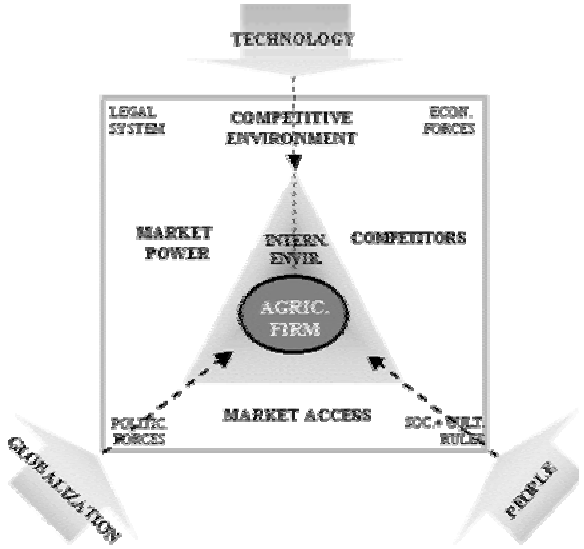

Figure 1. Main forces that influence contemporary agricultural enterprises in their behaviour and choices of a structure related to the commodity production

Source: Dunne, Collins (2001)

the vertical "slice" related to the food economy and markets of course, have influenced the dimensions of structural changes as the preconditions of agricultural enterprises' competitiveness for future in general. Productive agriculture should make business into agribusiness. Decision-making and problem solving is much more complex deeper than to know how to obtain more subsidies, that requires mastery of information for strategic solution the best way how to enagage in the whole new food economy system.

METHODS

The contribution belongs to the theoretical and methodological framework elaboration refers to the research of the food economy and the agribusiness development questions. Based upon the social welfare maximising theory as a principal methodical approach, the changes within the agribusiness up and downstream of the commodity chains and their influences on the market power exercise possibility have been evaluated. It means the change both the prerequisites of the agricultural enterprises competitiveness and the other linked economic subjects of the agri-food chain impact on economic efficiency have been generalised there.

RESULTS AND DISCUSSION

It is not necessary to underline, most of agricultural commodities in the capacity of raw materials for the food industry and/or for the other manufacturing industry undergo some form of preservation or transformation before the final sale. Connections to consumers are not largely immediate.

Bulk commodity chains, perceived as the traditional agri-food chains in the last century, have not been accomplished to evaluate demand for agricultural producers decision needs. Signals cannot be sent from consumers (or more accurately, the processor or retailer) to producers.

Bulk commodity (raw agricultural materials) markets are also characterized by instability, structural oversupply, massive global competition and historic downward price trends. Moreover, trade in bulk commodities is characterised by the flexible sourcing from diverse locations. A small number of firms control the key elements of production, trade processing and marketing.

More than 70 percent of the world agrarian market is intermediate processed and fully finalised foodstuffs. That demonstrate a success of agricultural enterprises in achieving their operational goals is influenced by the other "links" of the agri-food chain. The significant changes that are occurring today in the types of products produces by agricultural producers are in part of function of changing end-use markets and the development of different strategies to carry out demand those (end-use) markets. The obvious structural changes during last two decades are documented by Figure 2.

Connections to consumers are not largely immediate. The significant changes that are occurring today in the types of products produces by agricultural producers are in part of function of changing end-use markets and the development of different strategies to carry out demand those (end-use) markets. Under the *traditional/supply oriente/approach*[1] the crucial part in the agri-food chain was played by the agricultural enterprises as a decisive factor, where commodities (raw materials) were produced.

The result of perfect competition is limited opportunity to earn more than a minimal return of profit as if a firm in a perfectly competitive market is earning extra profit, another firm will begin to produce a similar product and compete for a share of the market. Free and open markets are generally the best institutional structure for achieving all

[1]More in Bečvářová (2002)

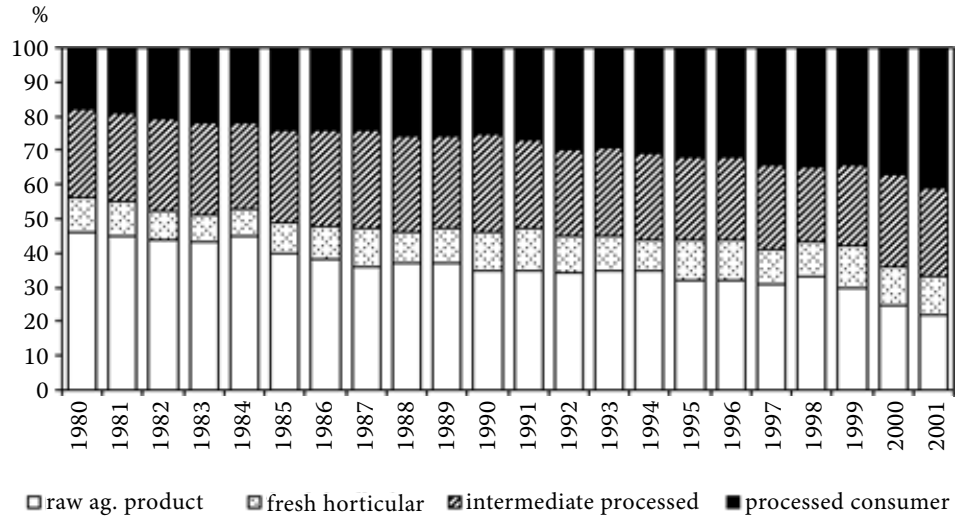

Figure 2. Composition of world agricultural trade

Source: FAOSTAT

the important goals of economic policy: efficiency, dynamic growth, equitable allocation of resources, opportunity for all participants.

The contemporary *demand oriented approach* reflect the real relationships and implies the consumer as a decisive segment changing relationships up and downstream the whole chain. Frequently the nature of changes is interpreted as a demand for safe food, quality standards in tastiness and agricultural production methods, and with respect for environmental standards.

The essence and the economic nature of those changes (that does not replace the supply chain evalution, namely from a product flows technology as well as economy point of veiw) are based more deeply and as those related to undergoing the greatest structural transformation and development of the world food economy, agri-food markets and agribusiness. Food retailing and final processors behave as "spokespersons" of consumer influencing demand for food not only from the food security, quality and availability point of view, but from the price formation and other conditions policy overall the upstream and downstream parts of the agri-food chain.

Considerations of size and scale as well as who is to manage, control and finance farming and agribusiness operations it resembles mono(bi)poly in processing stages and retail rather than originally pure competition in primary agricultural production. Mergers, alliances and various other types of arrangements are reducing the number of players in output processing and handling and increasing the level of concentration and a buyer power exercise.

Some remarks in theory

Agriculture itself is usually used like an typical example of the *perfect competition*, matching up to typical traits as follows:

– many buyers and sellers,
– mobile resources (inputs can be shifted from producing one product to another if it enhances profit),
– homogenous product (competing firms produce nearly identical products so they readily substitute for one another),
– normally equal access to production technology and market information in general
– ease of entry and exit (for a firm to acquire or dispose of resources needed to produce agricultural commodities).

The theory as well as the economic realty have also long recognised that markets are not inherently fair, efficient or open. Where markets are unconcentrated, there are many buyers and sellers, and there is a strong tendency for efficient, workable and fair methods to develop as the inevitable outcome of the interaction of many participants all seeking a neutral and open market place.

Other links of agri-food chain can be characterised an industry with *imperfect competition*, i.e. firms often enjoy opportunities to earn higher rates of return because potential competitors are in some manner blocked from entering the market. If one side of the market has significant and persistent advantages (in information or some other important elements) related to the transactions between buyer and seller, then too such a market is unlikely to expe-

rience much pressure for desirable conditions. This imposes immediate burdens on the disfavored part of participants and ultimately on consumers and the economy as a whole as less efficient production and market transactions take place.

The most straightforward case of buyer power is that of a single buyer facing competitive sellers - *pure monopsony.* The economic analysis of this case is analogous to that of pure monopoly (single seller facing competitive buyers). The welfare losses arising from their market power exercise are demonstrated in Figure 3.

Although the competitive equilibrium is where D and S intersect (Q_C quantity and P_C raw material price), we are dealing in an agricultural commodity market where product is used by buyers in later stages of processing (finalisation). So that demand curve D represents the average revenue obtained from the product which is used to produce the foodstuffs, referred to as the *derived demand* for the raw material (agricultural products) and denoted dD which is equal to average value (revenue) product of agricultural output (AVP). If the monopsonist restricts purchased below competitive level, so that less raw material are utilized (there are unrealised gains from potential trade), as well as their prices paid falls below the competitive level (P_M). The associated welfare loss from this scenarion is representing by the shaded triangular *abd*.

In the situation, where monopsonist is also monopolist in the downstream market[2] , as contemporary large food processors try to be, then would be a downwardsloping derived demand for the input along with a second curve, marginal to the derived demand curve, that reflects the marginal revenue product of the input as MRP as Fig. 4 ilustrates. The intersection of the MRP and MFC curve indicates the profit maximising input quantity for the monemporist. Equlibrium levels of both purchased price (P_{MM}) and quantity (Q_{MM}) in the agricultural raw materials market are below the competitive equilibrium. In this case, the welfare loss from exercising market/buyer power is compounded by the presence of seller power. The welfare loss is represented by the shaded area in Figure 4.

The above principles presented in terms of monopsonists are easily applicable to situation where some buyers (individually or in common) recognize their ability to *influence market prices.* Three necessary conditions for exercise of market power in that circumstance are indicated in general:

– the buyer's capability have a substantial share of market under control,
– there are barriers to entry into the buyer's market,
– the supply curve is upward slopping.

Under these circumstances it is simple to apply the principles of oligopoly/oligopsony theory. In a dominant buyer framework, the greater the market control by the key buyer, in terms of its market share with respect to that of the competitive smaller enterprises in a last share of the market, the grater is its ability to exert power to reduce price below the

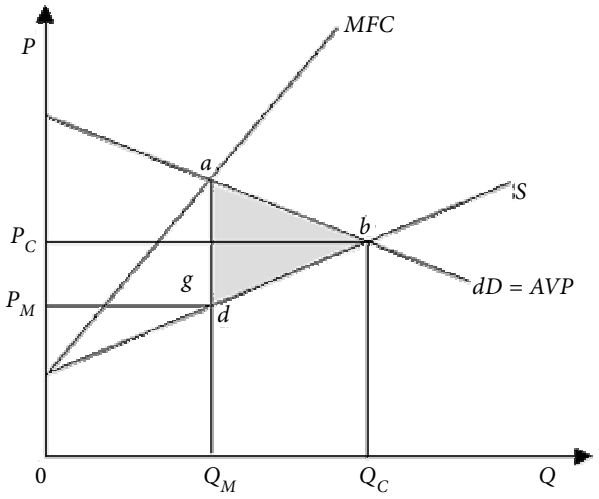

Figure 3. Monopsony Welfare Losses

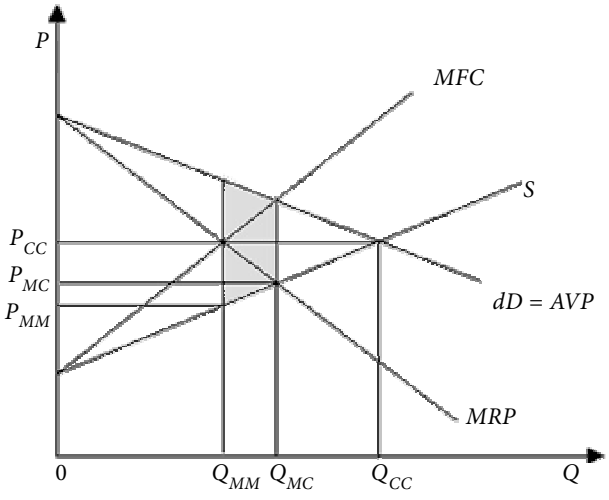

Figure 4. Welfare Losses from Monopsonist Possessing Monopoly Power

[2]For that event the term monemporist (i.e. a monopsonist-monopolist) can be used.

competitive level. That influences both competitive sellers (agricultural enterprises) from the supply side point of view and other (competitive) buyers from the demand side of food market point of view.

The rising tide of concentration in food retailing leads to consolidation by food processors to match the buying power of the retailers. The division of revenue from production shift in favor of the other segments of the agri-food chain over time. Firms that are price setters[3] are expected to act differently from those in a price-taker industry. And they ordinarily have the market power and can use this to weaken or eliminate their competitors.

Implications for contemporary agriculture

The agribusiness formation process raises critical issues concerning efficiency and effectiveness of agricultural markets and required restructuring of traditional agriculture. Food processing and retailing firms coming under the agricultural commodity chains are the typical cases in point *imperfect competition.* Considerations of size and scale as well as who is to manage, control and finance farming and agribusiness operations it resembles mono(bi)poly in processing stages and retail rather than originally pure competition in primary agricultural production. Mergers, alliances and various other types of arrangements are reducing the number of players in output processing and handling and increasing the level of concentration. They often enjoy opportunities to earn higher rates of return because potential competitors are in some manner blocked from entering the market. Their market power has raised. The position of processing and distribution links and their associated costs has become more important as the consumer´s demand has preferred "fresher" food presentation of high quality and wide assortment. In this type of market, food processors and retailers brand and advertise their wares as they try to maximize the share of the food markets on national as well as world markets.

Pointing to three main incentives for chains/market coordination of systems formation i.e:
- *capturing efficiencies* and controlling costs (including standardised technology and management),
- *reducing or managing and allocating risk* (reducing risk related to (a) prices fluctuation of inputs by contracting for suppliers and outputs – contracting product sales; (b) quantity and /or quality features and safety/health risk in food production),
- *responding to consumers* (as a reaction on change and diversity in consumer demand and consumers expectations),

we should find the main inducements for productive agricultural firms why it is necessary to incorporate into those types of the present food economy aggregate. There is evidential, downstream buyer power influences agricultural product markets.

Concentration and coordination in join links of agribusiness create incentives to exercise the resulting market power.

In surveying our analyses, four domain of problems are necessary for study:
- influence on market prices to ensure lower costs to the buyer on the contractual side of the market;
- direct depression of producer prices increasing spread between the farm gate price and the wholesale or retail price of the product;
- discriminatory contracting practices that avoid the open market;
- imposing inequitable burdens on the producers.

Agricultural producers should answer the new economic environment**.** An interface in the framework of the whole agribusiness sector move production agricultural firms from one of perfect competition to one of imperfect competition to participate in some of advantage earning extra profit, for example:
- *by adopting technology* when farmers are no longer using identical information about production practices mediated the better competitive position among a large number of producers or groups of them,
- *by contractual arrangements* which provide farmers with production technology that is available to only a limited number of producers eliminates equal access to information and offers an advantage to those who possess and control it, as well as unequal access to market information and market opportunities information,
- *by interface with value added* processing firms that eliminates the characteristic of homogenous products; farmers involved in processing their commodities are no longer limited to selling that in an open market filled with ready substitutes.

The main motives for changes of traditional agriculture and its more active position in a process of integration in the agribusiness market place support could be characterised as follows:
- *globalisation* of world markets that generally affects growth performance positively by allowing an

[3]Price setters are whose can determine their selling prices or the quantity of output they sell.

expansion of markets (considerable market permits the specialisation of country in industries, that have scale economies, raising productivity; increasing the potential market size also raises the prospective returns to a successful innovation), by increasing outside competition (open market main lead to improving the allocation of resources towards more productive activities) and allows more rapid diffusion of new products, processes and research output;

– *added value increasing*: producers start to be focused on dealing with technological innovation and product specialisation include downstream activities and attempting to form producer alliances and value-added cooperatives to capture some of margin from further processing by increasing functionality through product features or service and by lowering cost for specific set of products and service features carrying out standards by first processors and customers that support their better position as a more demanding producer at the competitive market;
– *efficiency improving and risk treatment*: cost reduction by (1) more accurate usage of inputs and systematic measurement on yield and profitability demanded product (i.e. structure related to great and realizable demand) based upon the precision farming and soil cultivation technology utilisation at the farm level, (2) coordinating influence of the market include transaction costs restrictions through participation in vertical integration and/or the substitution of market transaction by contracts; those related to information costs (detection of potential suppliers and customers, their conditions include price level), negotiation costs related to all aspects of the sale (quantity, quality, time, terms of sale etc.), monitoring costs that embodied activities, such as monitoring of the other party, checking deliveries against specifications and enforcement cost;
– *competency of people* to understand new trends, expect and embrace change, identify and defining strategy for agricultural and agribusiness firms; the quantitative and qualitative analyses utilise into concrete decisions and recommendations to capture the qualitative as well as the quantitative dimensions of the concrete problem and pick up the adequate solution.

We should to realize, the whole agriculture meet up the quite new economic model. Not traditional supporting stabilization policy but globalisation and integration process the conversely have changed a structure and interrelationships in the framework of the global food markets and have transformed significantly an economic environment for production agriculture. From this point of view the developed and the highly effective food industry is a negligible condition for the competitiveness of agricultural enterprises for future.

CONCLUSION

With the influential changes occurring in the agribusiness it is critical for agricultural enterprises to develop and maintain competencies that will enhance a competitive position in this rapidly evolving market. The "demand driven agriculture" implying both quantitative and qualitative criteria such as food safety and precaution, favourable method of production, environmental impact etc., are largely influenced by the final stages of agri-food commodity chains. Markets and well-established processors are those "translate" the consumer's demand to agricultural enterprises in practice. Those significantly decide about the dimension, structure and market share of agricultural production and its producers in concrete locality. The contemporary trends indicate that the agricultural output will not depend on the prospects for commodity prices only, but also on improvements in productivity and competitiveness in the whole agri-food chain. Greater emphasis needs to be placed on developing higher value added products and export markets. Enhanced efforts need to be made to improve quality from all its points of view. If the industry and the enterprises are in a period of profound change, success will be difficult to achieve if the firm and its management and employees are not willing to expect and embrace that change.

REFERENCES

Ahn S. (2002): Competition, innovation and productivity growth: A Review of Theory and Evidence. OECD ED Working Papers No 317.

Bečvářová V. (2001): Finalizace výrobků a konkurenceschopnost podniků. Faktory podnikovej úspešnosti, FEM SPU Nitra, Liptovský Ján.

Bečvářová V. (2002): The changes of the agribusiness impact on the competitive environment of agricultural enterprises. Agricultural Economics – Czech, *48* (10): 449–455.

Bečvářová V. (2004): Changes of the agricultural enterprises economic environment originated by the agribusiness development. Acta Universitatis Agriculturae et Silviculturae Mendelinae Brunensis, *LII* (3): 7–16.

Boehlje M.D., Hofing S.L., Schroder R.CH. (1999): Farming in the 21st Century. Staff Paper 99-9, Purdue University.

Boehlje M.D., Doering O. (2000): Farm Policy in an Industrialized Agriculture. Journal of Agribusiness, *18* (1): 53–60.

Boehlje M.D., Akridge J.T., Kalaitzandonakes n.g. (2002): Preparing for Success in the Agribusiness Market Place. Journal of Agribusiness, *20* (1): 1–30.

Connor J.M. (2003): The Changing Structure of Global Food Markets: Dimensions, Effects, an Policy Implications. In: Changing Dimension of the Food Economy, Conference paper, Hague.

Cramer G.L., Jensen C.W. (1994): Agricultural Economics and Agribusiness. University of Arkansas, Montana State University.

Davis J.H., Goldberg R.A. (1957): A Concept of Agribusiness. Harvard, Business School, Cambridge, MA.

Dunne A.J. (2002): Supply Chain Management: Fad, Panacea or Opportunity? Agribusiness Perspectives, Paper 48.

Dunne A.J., Collins R.J. (2001): The Marketing and Fibre Products: Evaluation or Eevolution? RIRDC, Canberra.

Dobson Consulting (1999): Buyer Power and its Impact on Competition in the Food Retail Distribution Sector of the European Union. Nottingham.

Gardner B.L. (1983): The Farm-Retail Price Spread in a Competitive Food Industry. American Journal of Agricultural Economics, *65* (2): 225–234.

Goldberg R.A. (1998): Why the International Agribusiness Management? Global Agribusiness for future, Boston, IAMA.

Kinsey J. (2003): Emerging Trends in the New Food Economy: Consumers, Firms and Science. Paper from Conference on Changing Dimensions of the Food Economy, Hague.

Nickel S.J. (1996): Competition and corporate performance. Journal of Political Economy, *104* (4): 768–805.

O'Keeffe M. (1998): Establishing Supply Chain Partnersips: Lessons from Australian Agribusiness. Supply Chain Management, *3* (1): 38–58.

OECD (2001): The Width of the Intra-European Economic Border. ED OECD.

Rausser G.C. (1982): Political Economic Markets in Food and Agriculture. American Journal of Agricultural Economics, *64* (5): 821–833.

Saxowsky D.M., Duncan M.R. (1998): Understanding Agriculture's Transition into the 21st Century. Agricultural Economic Report No 181, North Dakota State university.

Sonker S.T., Hudson M.A. (1999): Why Agribusiness Anyway? Agribusiness an International Journal, *14*: 305–314.

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