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THE ELECTRONIC MARKETPLACE AS THE ELEMENT OF THE AGRICULTURAL MARKET INFRASTRUCTURE

Abstract

The article discusses the issues of conducting transactions for agricultural products via the Internet between businesses. In particular, it is dedicated to the so-called electronic agricultural commodity marketplaces that are virtual meeting places of buyers and sellers of agricultural commodities. The purpose of this article is an indication of the changes taking place in the agricultural market under the influence of electronic marketplaces for agricultural commodities. The research method that was used to write this article was a case study. Three foreign electronic agricultural commodity marketplaces were analysed. Information on electronic marketplaces described came from their websites and scientific studies. The presented three examples of foreign electronic agricultural marketplaces show how complex issue is the development of electronic markets for agricultural commodities and how they induce profound changes in the functioning of traditional agricultural commodity markets.

Introduction

The Internet is used for agribusiness needs to an increasingly wider degree. This phenomenon is manifested, *inter alia*, in the growing number of websites thematically connected to agricultural production and broadly-conceived food economy. Participants of agricultural markets have the opportunity to search for and, at once, publish information and communicate via the Internet. The Internet is also exceedingly more often used to transact in the agricultural markets. The increasingly more common use of the Internet in agribusiness stems from many processes. The most important among them include such changes in the business environment as:

- increasingly better access to the Internet for society, also in rural areas,
- growing share of people having computer and Internet skills,
- as a result of technological development the Internet technologies work better and more efficienthy, and are easier and easier to use.

The presented paper concerns transactions in agricultural commodities via the Internet carried out between entrepreneurs. It is principally devoted to the so-called electronic marketplaces of agricultural commodities, i.e. websites being the virtual meeting places for buyers and sellers of agricultural commodities. The paper aims at pointing to changes taking place in the agricultural market under the impact of e-marketplaces of agricultural commodities. In the beginning of the paper, the essence and specificity of electronic marketplaces is explained. Next, the author of the paper refers to the theoretical aspects of the impact of electronic marketplaces on the economy. The further part of the paper covers a discussion on the exemplary electronic marketplaces and their impact on the functioning of the markets of agricultural commodities.

Although in Poland there are Internet-based electronic marketplaces, in the presented paper the author focuses on the selected foreign electronic marketplaces of agricultural commodities.

Case study was the research method used to write the paper. Three electronic marketplaces of agricultural commodities were discussed. Information on the described electronic marketplaces was derived from their websites and scientific studies.

The essence of the electronic marketplaces

Different definitions of the electronic marketplaces appear in the academic literature. Three of them will be discussed:

- "Electronic marketplace is such a market in which both the buyers and sellers are organisations, and transactions are conducted via electronic channels"[1] (Ganesh J. et al. 2004).
- "E-marketplaces can be defined as a virtual online market where buyers (…) and sellers find and exchange information, conduct trade and collaborate with each other via an aggregation of information portals, trading exchanges and collaboration tools" (Statham P. 2001).
- "E-marketplace is an interorganisational information system that allows multiple buyers and sellers, and other stakeholders, to communicate and transact through a dynamic central market space, supported by additional services" (Stockdale R., Standing C. 2004).

The first of the above definitions underlines the fact that the e-marketplace functions based on electronic information transmission channels and emphasises the purchase and sale of commodities. The second of the above-cited definitions extends the meaning of the electronic marketplace and indicates that it is not only a virtual place to conclude purchase and sale transactions, but also a place where marketplace participants can get market information and cooperate with each other. The third definition emphasises that the e-marketplace is an interorganisational system, i.e. an information tool existing between organisations and combining them in information exchange and effecting transactions. On the grounds of the three aforementioned definitions, it can be stated that the

[1] Own translation – translator's footnote.

electronic marketplaces allow for both conducting purchase and sale transactions and obtaining information, and for communication and cooperation between marketplace participants.

The e-marketplaces, created in the 1970s, operated based on the so-called private networks. Only in the mid-1990s they have started to move to the Internet (Chaffey D. et al. 2000). A feature which especially distinguishes e-marketplaces from the traditional markets is their intangible virtual character.

The e-marketplaces may support each transaction phase which include: designing, information, negotiation and supply (Oppel K. et al. 2001). In the designing phase, the e-marketplaces can support planning supplies or preparation of the description of goods in the sales offer. They support information phase by providing a possibility to browse through and compare purchase and sale offers, and through decision-making support systems. In the negotiation phase, the e-marketplaces allow their users to communicate with each other, negotiate exchange conditions, participate in auctions and tenders, and enable order handling. In the supply phase, the e-marketplaces may support their users in such areas as, e.g., payment servicing, risk management, transport, storage, product tracking, information exchange between ERP systems of businesses (Oppel K. et al. 2001).

Because electronic marketplaces operate on the basis of websites, establishing a simple e-marketplace requires securing space on the server; building up a website, allowing marketplace participants to publish purchase and sale offers for commodities; creating an Internet database integrated with the website to store offers; and enabling the users to browse through the offers in an electronic catalogue. This type of e-marketplace, making it possible to the users to publish offers and browse through purchase and sale offers for commodities, is very limited in its functions and services. The e-marketplaces that are much more complex and expensive are markets offering a wider range of services such as, e.g.: enabling transactions, security of transactions and data, logistics and transport support, financial support (e.g. crediting), inspection of marketplace participants, standardisation of goods and information portal. Provision of such services by the e-marketplace entails substantial costs and a need to coordinate many activities, as well as cooperation with external organisation such as, e.g. IT companies, financial institutions, transport companies, market survey companies, quality inspectors, labs, etc. (Strzębicki D. 2014).

The e-marketplaces of agricultural commodities work at the level of primary wholesale. Thus, their role and functions are similar to those of traditional institutions at the very level, such as, e.g. some wholesale markets of unprocessed goods, marketplaces for trading agricultural commodities, and commodity exchanges. The participants of the e-marketplaces of agricultural commodities most often include, on the part of sellers, agricultural companies and, on the part of buyers, food industry enterprises or intermediaries in sales of agricultural commodities. The difference between e-marketplace and traditional wholesale market is that in the traditional market the commodity offered by

the sellers is physically present and the potential buyers can inspect it before buying. Extended technical infrastructure allowing to store and present large batches of commodities to the potential buyers is the main discriminant of traditional wholesale markets and auctions of agricultural commodities. The commodity is not physically present in the e-marketplace since the marketplace exists in the virtual space. Through the e-marketplace its participants interact with each other and communicate at a distance. The sellers can present the offered product to the buyers in the form of descriptions, photos and videos. Therefore, in case of the e-marketplace there is no physical transport of commodities to the marketplace by the sellers as it is the case for wholesale markets (Henderson D.R. 1981).

When the paper refers to the electronic agricultural marketplaces it means marketplaces which exist to allow sale and purchase of agricultural commodities and their physical transfer from sellers to buyers. Hence, their character is different than that of commodity exchanges such as, e.g. the Chicago Board of Trade. The share of real transitions in developed commodity exchanges is ca. 2% of all transactions. The major part of transactions were unreal transactions, not involving the transfer of the commodity, i.e. speculative and hedge transactions (Drewiński M. 1997). Whereas, transactions made in the e-marketplaces are real. But the identification of the above differences does not rule out the increasingly common use of the Internet and e-commerce by traditional market institutions:

- Traditional wholesale markets and auctions have their own websites where they publish commodity prices. For example, the website of the Bronisze Wholesale Market. They also implement electronic solutions which allow for better cooperation between wholesale marketplace participants. For example, as for the Wielkopolska Wholesale Market in Franowo the processors can inform, via the Internet, the agricultural producers on the planned demand for commodities for the future (Szymanowski W. 2008).
- Some traditional auctions are held with the support of electronic devices. For instance, the bidding at the largest Dutch flower auction, named Flora Holland, takes place with the use of electronic screens, mounted in the auction hall, which display information on the commodity currently under bidding and its price (Flora Holland 2014). Bidding is also organised via the Internet for bidders from other places all around the world, but they cannot bid from any computer with the Internet access because they have to have relevant posts especially prepared for the bidding.
- Commodity exchanges all over the world more and more often transfer to electronic systems of transacting resigning from the traditional open outcry system. Many exchanges in the world hold simultaneous open outcry and electronic trading sessions (Shah S., Brorsen B. 2011).

It should be also added that some traditional wholesale markets transferred completely to the Internet, resigning from existing physical infrastructure and thus becoming typical electronic marketplaces (Karasiewicz G. 2001).

Impact of the electronic marketplaces on commodity markets

The e-marketplaces, emerging in the Internet, take over the functions implemented by the traditional intermediaries of agricultural commodities. As a result, many traditional intermediaries may disappear from the market. The e-marketplaces, by enabling direct interaction between businesses and buyers, limit the traditional role of intermediaries. The very fact that the e-marketplaces appear creates the so-called "new intermediaries" in the market, who fulfil the market functions such as aggregation, finding out prices and matching sellers with buyers (Zwass V. 1998). The phenomenon of eliminating the traditional intermediaries because of the Internet is termed disintermediation, and the phenomenon of appearance of new forms of virtual intermediation, such as e.g. e-marketplaces, is referred to as reintermediation (Turban E. et al. 2006). However, it can be assumed that the traditional intermediaries will not be completely crowded out by the electronic marketplaces since they provide other significant services in the market which include: stockholding, reducing the information asymmetry in the markets, and gathering and organising information scattered across the market (Borenstein S. and Saloner G. 2001).

Attracting a large number of participants is the key problem for the creators of the e-marketplaces. Appropriately large number of businesses, which would like to buy and sell products using a given e-marketplace, is beneficial both to the creator of the e-marketplace and, at the same time, to all its participants. To the creator of the marketplace it ensures high revenues, covering the costs of running the marketplace and generating profits. The marketplace participants, on the other hand, benefit from a wide choice of purchase and sale offers, greater probability of finding the relevant commodities, and suppliers or buyers. It should also be mentioned that the very number of marketplace participants does not preordain the success of the given e-marketplace because it is also vital whether or not the participants want to actively benefit from the marketplace services and often enter into transactions via the given electronic marketplace.

To be able to attract a large number of buyers and sellers the electronic marketplace should deal with trade in products of commodity character, which are easy to standardise, as transactions can be concluded without seeing the commodities and the e-marketplace can benefit from greater price transparency (White A. et al. 2007). Additionally, the organiser of the e-marketplace should have extensive knowledge on the industry and offer value to both sellers and buyers (Rasinghani M., Hanebeck H. 2002).

According to M. Porter (2001), the e-marketplace in order to be profitable should be fragmented both on the side of the buyers and sellers. When a given industry is fragmented, in the sense that there are many buyers and sellers, then the e-marketplace has better perspectives for success. Such a market creates value through aggregation of a large quantity of commodities within one Internet commerce site, allowing the buyer and seller to find each other and make decisions concerning buying or selling of commodities. By concentrating

a large number of sellers and buyers, the e-marketplaces efficiently reveal market prices.

Considering the problem of the impact of the e-marketplaces on the commodity markets, it should be stated that reduction of transaction costs is an important advantage. These markets reduce transaction costs linked both to purchase and sale of commodities (Bakos Y. 1997). What is especially emphasised is a reduction in the costs of searching, more information on products available for the buyers before deciding to purchase, and lesser dependence of buyers on suppliers (Dai Q., Kauffman R. 2006). The following also contribute to the reduction in transaction costs: changes in prices and up-to-date information in electronic catalogues can be introduced with great ease and speed; it is possible to hold negotiations between geographically distant buyers and sellers; and it is easier to monitor transactions. Due to the e-marketplaces the geographical distance between buyers and sellers is no longer a barrier as it is in the case of traditional market transactions. The impact of the e-marketplaces on the transaction costs is especially clear when it is possible to include in the Internet full information necessary to make purchase decisions without prior seeing the commodity in person (Mueller R. 2003).

The electronic marketplaces enable easy and convenient comparison of prices of commodities. The buyers in the electronic marketplace can compare prices of different suppliers by contacting the e-marketplace only and not each of the suppliers separately. Thus, the electronic marketplace is a single virtual place of concentration of the offers of many sellers and buyers. The sellers in the electronic marketplace have access to a large group of potential buyers, who can browse through their sales offers in no time, thereby allowing them to significantly reduce the marketing costs. As a result of these characteristics, the electronic marketplaces ensure considerable transparency of prices and information on products and suppliers. Greater price transparency reduces price volatility so common in agricultural markets. It also allows the buyers to compare prices and to make more informed choices when buying. Transactions can be concluded based on a wider and more efficient comparison of potential trade partners and their offers. Price transparency, along with such services of the electronic marketplaces as information on suppliers, rankings of buyers and tracking of commodities, limit information asymmetry and increase efficiency in the implementation of transaction processes.

The electronic marketplaces also enable dynamic price setting via electronic auctions. The electronic auctions are Internet versions of traditional auctions. During the auction the price is set in the bidding process. The online auctions are a common mechanism in the electronic marketplaces as they make it possible to sellers to get the best prices. The online auctions can be also beneficial to the buyers often allowing them to reduce their buying time and supply costs. On the other hand, creators of the electronic marketplaces using the online auctions can attract greater number of participants.

Presentation of the selected foreign marketplaces of agricultural commodities

The first of the discussed markets is the cattle electronic marketplace Live.ex working under the www.fencepost.com. This marketplace was set up on the initiative of the Frontera dairy cooperative seated in New Zealand. This cooperative is the largest worldwide milk processor which has products in over 100 countries (Frontera 2014). The Live.ex marketplace was launched in 2001. Services provided by the marketplace are available only for members of the dairy cooperative and businesses willing to transact with cooperative members. The Live.ex portal covers a newsletter for the farmers, weather forecast service, section for industry news and section for transactions. This marketplace allows to make purchase and sale transactions for livestock between agricultural companies. The Live.ex marketplace covers a wide range of purchase and sale offers which its participants can search for and browse through. Advanced algorithm enables automatic matching of offers based on the set criteria.

New Zealander farmers usually buy and sell livestock using the services of specialised trade agents. Traditional agents play an important role in the New Zealander livestock market. The benefits that the farmers get from cooperation with the agents include, e.g., guarantee of payment for livestock, a possibility to seek advice on choosing a good time to sell livestock, experience in trade and knowledge on the livestock market, presentation of livestock to potential buyers, very good trade contacts, and privileged access to meat processing companies. Using the services of a familiar and trusted agent, a farmer devotes less time to purchase and sale of livestock than if he had to perform the trade operations on his own. Consequently, a farmer can concentrate to a greater extent on production activity.

On the other hand, a drawback of the traditional intermediaries is that they collect high transaction fees per one livestock unit, which in the case of large herds is linked to high costs. Another downside of agents is that they replace mutual contacts between sellers and buyers and thus limit the possibilities of establishing durable links with the other transaction side. Apart from that, the traditional agents sometimes press the farmers to sell the commodities quickly on a given day, which generally results in an unfavourable price for the selling farmer (Brush G., McIntosh D. 2010).

Using the Live.ex, farmers can omit the disadvantages liked to cooperation with a traditional agent but, at the same time, they have to incur all the costs and face all the difficulties related to their omission and using an e-marketplace. These difficulties include: the need to devote a lot of time to trade operations (time to learn how to use the electronic marketplace, time to describe commodities and publish the offers on the website, time to search for and compare offers); the need to overcome some weaknesses of the electronic marketplace, such as, e.g., coming across invalid sales offers (which becomes known to potential buyers only after phoning the seller); the risk of failure to pay for the commodity; and inability to see the commodity in person before buying (Brush G.,

McIntosh D. 2010). Because of the above-mentioned difficulties many farmers are unwilling to switch from the traditional transaction model to the electronic marketplace. However, more and more farmers use this e-marketplace. As the main advantages of using it they name elimination of the agency fees and improvement in the market range, since due to the electronic marketplace farmers get new trade contacts and have the possibility to transact with farmers from other regions of the country (Brush G., McIntosh D. 2010).

Another e-marketplace discussed in the paper is the Internet auction of pigs – Showpig.com, kept by a private company which also runs traditional livestock auctions (Roe B., Wyszynski T. 2010). The e-auction is used by several hundred sellers from 24 states of the USA. The traditional pig auctions are held in Ohio and Indiana. The Midwest region (Middle and Eastern states) upholds a tradition of organising spring pig auctions and summer trade shows (The Blade 2012). The two events are interconnected because at the spring auctions young animals are bought so that they can reach the right age to be presented and rated during the summer pig shows. The top rated animals are recognised as high quality genetic material which is translated also into their high monetary value. Animals born too early or too late to be at the right age during the pig show are sold based on individual agreements between sellers and buyers, and not on the above-mentioned traditional spring auction.

The emergence of the e-auction of pigs opened up wider possibilities for the sellers of livestock. The electronic auction works on the basis of the Internet and uses the information system enabling to automatically bid on offers of those participating in the bidding. The buyer plans the maximum price that he can offer for the commodity and saves it in the system. If in the bidding process a competitive offer rises the offered price then the electronic system will bid a higher price and it will bid until it reaches the declared maximum price. Each e-auction is for individual animals, it ends at a predefined time and is not prolonged. The auctions are held at 2-minute intervals. The buyer and the seller together agree upon the transport from the place of sales to the buyer's farm. The sellers incur the costs of the auction fee. It consists of a fixed part – USD 20 per livestock unit, and a changing part – 10% of the sales price. The buyers pay the 10% fee charged on the sales price. Half of the buyer's fee is transferred to the seller to cover the transport costs (Showpig.com 2014).

Apart from the auction fees, the costs of photographing each animal separately (time for photographing is ca. 15 minutes per animal) and the time devoted to describe each animal separately, should be also recognised as costs which are incurred by the sellers (Roe B., Wyszynski T. 2011). Both the photos and the descriptions are published in the online auction catalogue. But the costs of using the e-auction are lower than the costs of using the traditional auction. At the traditional auction the sellers incur the costs of renting facilities to conduct sales at the auction. There are also the high costs of transporting the animals to the auction, travel costs of the employees to the auction, and costs of stay of the employees at the auction. It should be also added that some costs are associated

with risks such as stress of animals related to transport and presence of animals at the auction, and also the possibility of contracting diseases from other animals sold at the auction. The buyers at the traditional auction incur only the costs of time devoted to participate in the auction, which is much longer than in the case of the e-auction (Roe B., Wyszynski T. 2011).

According to the conducted research, the sales prices at the traditional pig auction are, on average, higher than at the e-auction Showpig.com (Roe B., Wyszynski T. 2011). It is also visible that the e-auction took over a part of the share in the auction market from the traditional auctions because of sales on working days between the weekend sales at traditional auctions. It was also shown that the e-auction extended the auction season for the sellers from the Midwest region, who – due to the e-auction – had the opportunity to sale via auction also to the buyers of animals from other regions of the USA where the peak demand season for pigs falls to other periods of the year than in the Midwest region (Roe B., Wyszynski T. 2011). Apart from that, the Internet auctions replace private agreements in livestock trading out of season.

Another of the presented markets is the egg marketplace Ex-Trade. Just like in the case of other of the above-mentioned markets, the users have access to Ex-Trade via the Internet browser and it does not require installation of any additional software on the user's computer. The Ex-Trade was launched in 1999 as a consortium of 5 Danish and 5 Swedish businesses of the egg packaging industry. The e-marketplace was established to create a European egg marketplace allowing efficient formation of egg prices. The Ex-Trade was opened to many European entrepreneurs interested in membership therein. Soon after it was established, it became the property of all of its members. You have to be a member to use the e-marketplace. Membership is available to egg producers and processors (Ex-Trade 2014), and it has to be approved by the e-marketplace authorities. The Ex-Trade members are charged with one-off membership fee amounting to EUR 4 thousand. The marketplace is known all over Europe and attracts new businesses interested in use thereof. Apart from the one-off membership fee, the members of the marketplace pay also a monthly administrative fee amounting to EUR 90 (Ex-Trade 2014). There is also a transaction fee charged per number of units or number of kilograms and it is paid by both the seller and the buyer, fifty-fifty. It can be claimed that the market is not aimed at generating high income because it is owned by its participants, i.e. businesses selling and buying commodities via the e-marketplace. The fees were set at such a level to cover the costs and ensure smooth operation and secure transactions. The Ex-Trade has ca. 2% of the total European egg market. However, it needs to be remembered that the European egg market is based, primarily, on contracts and Ex-Trade is for open trade transactions which are concluded not on the basis of prior agreements and contracts. Therefore, it can be stated that the e-marketplace is very significant in the segment of the open egg market in Europe (Rask M. 2006). The Ex-Trade allows its members to buy eggs if their businesses record very high demand for eggs, or sale eggs when their businesses have surpluses of the good.

The main functions of the market include publishing purchase and sale offers by its participants, and bidding for commodities. After publishing purchase or sale offers on the website of the marketplace, the offers are automatically sent via e-mail to other participants thereof. Apart from that, the marketplace ensures its members with access to market information thus giving them the picture of the market price for eggs of a given quality at all times.

The Ex-Trade has impact on the formulation of the European standards on the egg market. The standards introduced by the marketplace became the common standards. For example, the PRO eggs mean a standard introduced by the Ex-Trade for eggs intended for processing. The marketplace introduced also new standards in transaction settlement in the open European egg market. Payment guarantees were introduced and the sellers get payment after 25 days, only. Before the Ex-Trade it was common in the industry to pay after 2-3 months from the moment of supply (Rask M. 2006).

Conclusions

The electronic marketplaces, operating in the Internet, are a new method of sales and purchase for many entities of food economy. The Internet enables running the marketplaces organised in the virtual space. The emergence of the e-marketplaces changes the shape, structure and rules of operation of the markets. The e-marketplaces are recognised as the so-called "new intermediaries". They can influence the decrease in the significance or elimination of the traditional intermediaries from the agri-food market. The e-marketplaces in a simpler form constitute sets of purchase and sale offers for commodities that can be quickly and efficiently compared by their participants. More complex electronic marketplaces can support many or all stages of transactions concluded between enterprises and enable support to information exchange and cooperation between entrepreneurs in the supply chain.

Apart from the emergence of the e-marketplaces in the Internet, a parallel process of increasingly intensive use of e-commerce technologies between businesses in the market is taking place and a process of more and more wide use of the Internet and e-commerce technologies by the traditional market institutions such as wholesale markets and commodity exchanges. Because the traditionally organised markets base increasingly greater scope of their operations and process on the Internet, they become more and more similar to typically electronic marketplaces.

Important advantages of the e-marketplaces from the perspective of businesses include, e.g.: ease and speed of browsing through and comparison of offers and trade partners; possibility of extending the database of buyers and suppliers; possibility of remote negotiations and transactions without the need of physical presence of sellers and buyers, and commodities in the marketplace which also reduces costs; great relevance of information; possibility to extend the database of suppliers and buyers (also foreign ones); and reduction of information asymmetry in the market.

However, it is still not easy for the e-marketplaces to replace traditional transactions in personal contacts between participants of agricultural market. It is also difficult for them, to fully replace traditional intermediaries in trade in agricultural products. A considerable barrier to the development of the e-marketplaces is the impossibility to personally inspect the goods before purchase and difficulties with using the Internet technologies by businesses and farmers. The traditional intermediaries often implement difficult to be replaced by electronic marketplaces functions in the distribution channels. Moreover, the very traditional intermediaries often use the e-marketplaces and other Internet technologies thus strengthening even more their position in the agricultural markets.

The three examples of foreign e-marketplaces operating in the Internet, which are presented in the paper, show how strong their impact on the functioning of the agricultural commodity markets is. The first of them, referred to the e-marketplace initiated by a world-known dairy cooperative to facilitate transactions for livestock between New Zealander farmers. The marketplace contributes to weakening of the very strong position of the intermediaries in the New Zealander livestock market. Despite that, the position of the intermediaries is still strong in the market because they largely unburden the farmers from handling trade operations and ensure transaction security. For farmers who want to use the electronic marketplace it gives the possibility to omit high commissions paid to intermediaries and opens up new market possibilities for the farmers in the form of new buyers and suppliers of animals and possibilities of establishing more durable ties with trade partners.

The second of the discussed cases concerned the American pig marketplace in the USA Midwest region. This marketplace has its specificity due to seasonality of pig sales at an auction. The introduction of the electronic auction into the market allows the farmers to considerably reduce the costs of sales of animals at traditional auctions. The e-auction also supersedes the traditional sales between farmers in the out of season period and opens up new possibilities of sales of animals to buyers from other parts of the Unites States where the peak demand falls to other periods of the year than in the Midwest region.

The last of the discussed cases was the electronic egg marketplace of Danish origin. The emergence of the e-marketplace at the end of the 20th century had a great significance for the European egg market which is based primarily on contracts. The open market transactions represent a much smaller percentage than transactions based on contracts. However, the open egg marketplace is very significant on two accounts. First of all, an efficient process of price formation and dissemination of information on prices, which are also considered in contracts. Secondly, easiness of supplementation of shortages of the given good in businesses and possibility to quickly sale surpluses. The discussed e-marketplace for eggs substantially facilitated the functioning of the open market on the continent scale because of the ease and speed of comparing the sale and purchase offers, and by improving market information, increasing security and speed of transactions, and also by introducing product and trade standards.

The presented three examples of foreign electronic marketplaces of agricultural commodities show how complex issue is the development of electronic marketplaces of agricultural commodities and how they induce profound changes in the functioning of traditional agricultural commodity markets. The role and functions of the e-marketplaces largely depend on the customs, institutions and structure of the given commodity markets. Although the presented three marketplaces differed greatly from each other, it can be stated that each of them played a very important role in its commodity market. The common features of the e-marketplaces included making it possible to quickly compare offers thus providing an efficient price formation method and ensuring new market possibilities for sellers and buyers.

Literature:

1. Bakos Y.: Reducing buyer search costs: implications for electronic marketplaces. Management Science, no. 43/12, 1997, 1676-1692.
2. Borenstein S., Saloner G.: Economics and Electronic Commerce. Journal of Economic Perspectives, vol. 15, no. 1, 2001, 3-12.
3. Brush G., McIntosh D.: Factors influencing e-marketplace adoption in agricultural micro-enterprises. International Journal of Electronic Business, 8 (4/5), 2010, 405-432.
4. Chaffey D., Mayer R., Johnston K., Ellis-Chadwick F.: Internet Marketing. Pearson Education Limited, Essex 2000.
5. Dai Q., Kauffman R.: To be or not to B2B: Evaluating managerial choices for e-procurement channel adoption. Information Technology and Management, no. 7/2, 2006, 109-130.
6. Drewiński M.: Giełdy towarowe. Polskie Wydawnictwo Ekonomiczne, Warsaw 1997.
7. Ganesh J., Madanmohan T.R., Seshadri J., Seshadri S.: Adaptive Strategies of Firms in High-Velocity Environments: The Case of B2B Electronic Marketplaces. Journal of Global Information Management, vol. 12, no. 1, 2004, 41-59.
8. Henderson D.R.: Electronic Markets for Agricultural commodities: Potentials and Pitfalls, "Electronic Marketing of Agricultural Commodities Seminar" Agriculture Canada, Winnipeg, Manitoba, 1981.
9. Karasiewicz G.: Systemy dystrybucji artykułów rolno-spożywczych na rynku polskim, Diagnoza i koncepcja zmian. Wydawnictwo Naukowe Wydziału Zarządzania Uniwersytetu Warszawskiego, Warsaw 2001.
10. Mueller R.: E-commerce and Agricultural Commodity Markets: E-Commerce and Entrepreneurship in Agricultural Markets. American Journal of Agricultural Economics, no. 83/5, 2003, 1242-1249.
11. Oppel K., Hartman E., Lingenfelder M., Gemuenden H.: Electronic B2B Marketplaces – Impact on B2B Transactions Relationships? 17th IMP Conference in Oslo, IMP, Oslo 2001.
12. Porter M.: Strategy and Internet. Harvard Business Review, March, 2001, 63-78.
13. Rasinghani M., Hanebeck H.: Rethinking B2B E-Marketplaces and Mobil Commerce: from Information to Execution. Journal of Electronic Commerce Research, vol. 3, no. 2, 2002, 86-97.
14. Rask M.: The Internationalization Process of E-marketplace Ex-Trade. Aarthus School of Business, Aarthus 2006.

15. Roe B., Wyszynski T.: Pigs in Cyberspace: A Natural Experiment Testing Differences between Online and Offline Club-Pig Auctions. Ohio State University, Ohio 2011.
16. Roe B., Wyszynski T.: The Market for Club Pigs: This Little Piggy Sold Online. Financial Management, no. 9, 2010.
17. Shah S., Brorsen B.: Electronic vs. Open Outcry: Side-by-Side Trading of KCBT Wheat Futures. Journal of Agricultural and Resource Economics, no. 36(1), 2011, 48-62.
18. Statham P.: The emergence and impact of the e-marketplace on SME supply chain efficiencies. Prime Faraday Technology Watch, http://www.primetechnologywatch.org.uk/, 2001.
19. Stockdale R., Standing C.: Benefits and barriers of electronic marketplace participation. The Journal of Enterprise Information Management, vol. 17, no. 4, 2004, 301-311.
20. Strzębicki D.: Funkcje międzynarodowych horyzontalnych rynków elektronicznych. Polityki Europejskie, Finanse i Marketing, no. 11/60, 2014, 217-230.
21. Szymanowski W.: Zarządzanie łańcuchem dostaw żywności w Polsce. Wyd. Difin, Warsaw 2008.
22. Turban E., King D., Viehland D., Lee J.: Electronic Commerce. Pearson Education, Upper Saddle River, New Jersey 2006.
23. White A., Daniel E., Ward J., Wilson H.: The adoption of consortium B2B e-marketplaces: An exploratory study. Journal of Strategic Information Systems, no. 16, 2007, 71-103.
24. Zwass V.: Structure and Macro-Level Impacts of Electronic Marketplaces [in:] Emerging Information Technologies (ed. K.E. Kendall). Sage Publications, California 1998.

Websites:

1. Ex-Trade: Membership. http://www.ex-trade.com/Static/Public/Membership.aspx, access on: 10.9.2014.
2. Ex-Trade: Trading on the Ex-Trade. http://www.ex-trade.com/Static/Public/Trading Conditions.aspx, access on: 10.9.2014.
3. Flora Holland: Florists clock. https://www.floraholland.com/en/buying/auction-clock/florists-clock, access on: 10.09.2014.
4. Frontera: http://www.fonterra.com/global/en/About/Our+Locations, access on: 5.9.2014.
5. Showpig.com: Bidder FAQs. http://www.showpig.com/2012-11-20-06-43-56/2012-12-12-17-23-11/bidder-faqs, access on: 5.9.2014.
6. The Blade: State, county fairs in drought-stricken Midwest may see skinnier pigs, smaller produce. The Blade, no. 7/30, 2012, http://www.toledoblade.com.

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