



Scientific quarterly journal ISSN 1429-7264

## Agricultural Engineering

2014: 3(151):15-22

Homepage: <http://ir.ptir.org>



DOI: <http://dx.medra.org/10.14654/ir.2014.151.052>

### INTERNET MARKET OF SPARE PARTS FOR AGRICULTURAL MACHINES

Tatiana Buchwald\*, Żaneta Staszak

Institute of Biosystems Engineering, Poznań University of Life Sciences

\*Contact details: ul. Wojska Polskiego 50, 60-627 Poznań, e-mail: [buchwald@up.poznan.pl](mailto:buchwald@up.poznan.pl)

#### ARTICLE INFO

##### Article history:

Received: July 2014

Received in the revised form:

August 2014

Accepted: August 2014

##### Keywords:

spare parts

agricultural tractors

technical service

on-line shop

#### ABSTRACT

*The objective of the paper was to analyse and assess the internet market of spare parts for agricultural machines. The research was carried out in the group of the selected servicing centres, which offer sale of spare parts on the web sites. Differences in the assortment of specific on-line shops and the manner of presenting information concerning sale in the Internet was analysed. Assortment offer of on-line shops is varied. Possibility of selling spare parts through the Internet constitutes an asset of an enterprise. On this basis, present directions of development of the web site department and sale of spare parts for farm tractors in Poland were determined.*

### Introduction

Technical service of farm tractors aims at maintenance of machines in an up-state for use so that it can correctly fulfil tasks; it should be constantly improved and extended (Rybacki, 2011). One of possible and applied changes within this system is facilitation of the contact with customers through the use of web sites.

Increase of IT awareness of consumers and development of the telecommunication market, which enables access to the Internet, results in formation of new trade possibilities. Knowledge and experience of entrepreneurs and recognition of needs of the agricultural machines branch induce technical services to introduce innovative solutions, including sale of spare parts through the Internet. At the same time it is an evidence of social changes, which determine direction and pace of development of the entire economy in Poland and around the world. Presently, competitive advantage plays a significant role and the advanced technical infrastructure favours dynamic development of the market (Babuchowska and Marks-Bielska, 2010).

Creation of enterprises web sites, which deal with technical service of farm tractors, constitutes a chance for obtaining new customers, even from distant regions of the country. On-line shops are so constructed that although a client has no physical contact with a product, he or she may obtain all essential informations.

Data bases are a basic IT tool used in e-shops. The biggest asset is a possibility of access of many people in real time (Sojak et al., 2007).

Despite existing barriers, resulting from individual beliefs concerning purchases in the Internet or due to the lack of proper telecommunication infrastructure, which enables access to the assortment in internet catalogues of spare parts, growing interest of such services among farmers is visible (Sieczko and Sieczko, 2010). Creation of the sale system of parts in the Internet constitutes an integral part of the decision taking process made by a client. Possibility of browsing through the catalogue of parts on the web site is a great simplification of traditional procedures related to the purchase. Each year sale through services of the web site increases by few dozens percent in comparison to the previous year. Moreover, number of servicing centres, which offer internet sale of spare parts, increases (Cupiał and Szeląg-Sikora, 2013).

A farmer, who buys a farm tractor, must take economic effects into account, which in future will be generated by technical service of a machine, inter alia, replacement of parts (Durczak and Rzeźnik, 2011). Immediate availability of spare parts on the web site influences shaping positive relations between a servicing agency and clients. Possibility of performing some activities through the Internet related to servicing machines results in better assessment of a servicing centre by farmers (Durczak et al., 2011). Logistic activity of enterprises which carry out an e-shop depends on appropriate cooperation of the following departments: trade, sale and maintenance. Success guarantees their mutual completion in order to ensure the best possible customer service (Juściński and Piekarski, 2009b). Presently, web sites which offer sale of parts for farm tractors are conducted by dealers and importers and smaller business entities (Rybacki and Durczak, 2010). Seasonal nature in agriculture with the use of farm tractors causes fluctuations of demand for spare parts. The third quarter of a year is a period, where demand is the highest (Juściński and Piekarski, 2009a).

### **The objective of the paper**

The objective of the paper was to analyse the use of the Internet for trade of spare parts for farm tractors in terms of available assortment and advancement of the e-sale system by an enterprise. Having analysis results will allow determination of present directions of development of the web site and sale of spare parts for farm tractors in Poland.

### **Materials and methods**

In order to carry out the objective of the paper, market offers of spare parts for farm tractors, presented on the web sites of enterprises which deal with technical service of farm tractors, were analysed. All web sites are modern and enable sale of spare parts with the use of the Internet. On this basis, actual state related to present internet offer of spare parts was presented. Web sites of servicemen and bookmarks related to the sale of parts were the object of the research. During research, availability and prices of parts selected from a catalogue offer were compared. The scope of the paper included also a manner of placing information concerning sale of parts in the Internet. Customers may shop on-line directly on the web site of the servicing centre on the independent web site of an e-shop selling spare parts or ordering a part by calling a shop to a telephone number provided on the web site. A manner of purchasing parts in servicing centres was investigated through analysis of 15

servicing enterprises from around Poland, which declare possibility of sale of spare parts through the Internet. The selected enterprises took part in the competition "Serwis na medal" ["The best servicing centre"] in 2013. Servicing agencies from around Poland entered for the contest, which was organized by the Polish Economic Chamber of Farming Machines and Devices in Toruń, held under the patronage of the Poznań University of Life Sciences.

## Results and analysis

Research on e-sale of spare parts for farm tractors was carried out based on information included on the web sites of servicing agencies. Each of them has a working web site with bookmarks, among which, there is one related to sale of spare parts. Names of bookmarks used by servicing agencies are presented in figure 1.

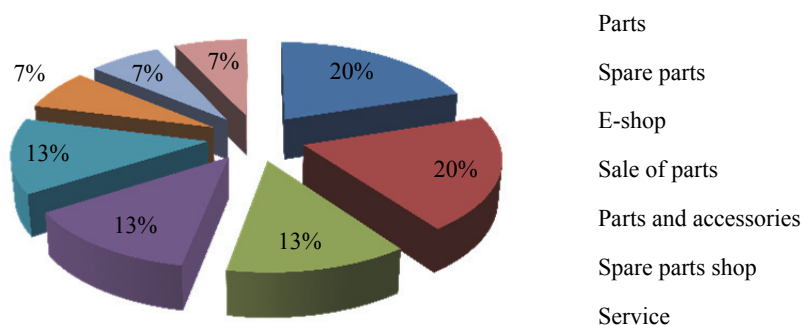


Figure 1. Name of a bookmark on the web site of a servicing agency, which provides information concerning sale of spare parts

The most frequent names of bookmarks, which indicate a place, where information on sale of spare parts is included, are: "parts" and "spare parts". Servicing centres use such names as: "e-shop", "shop", "sale of parts". Rarely are used: "parts and accessories", "spare parts shop" and "service". The names used, through closeness of meaning, facilitate the use of the web site and finding information which are interesting for a user. These are communicative definitions; however in future one should aim at unification of names using for example the name "e-shop".

When analysing web sites of servicemen selected for the research, four manners of placing information on the sale of spare parts for farm tractors may be distinguished. They were collected and presented in figure 2.

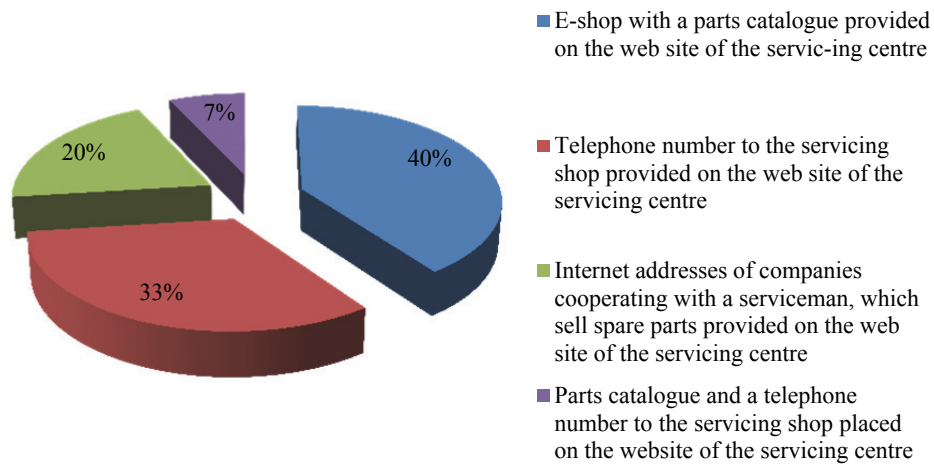


Figure 2. Manner of placing information on sale of parts through the Internet by a servicing centre

Having an e-shop, which provides a catalogue of parts offered for sale, is a manner of sale of parts through the Internet used by the highest number of technical service centres. However, manners of sale are varied. Providing a telephone number of a service shop is also a popular solution but less advanced. It enables direct conversation with a shop employee. Some servicing centres place on its website, an Internet address of a company which cooperates with a serviceman, which sells spare parts. A catalogue of spare parts and options related to the purchase of the selected assortment are in this case on the company's website. These usually are Internet addresses of the agricultural machines producers known and functioning on the territory of the entire country. The lowest number of servicing centres uses a manner, which consists in providing a telephone number to a serviceman shop and catalogue of sold parts without the possibility of buying through the Internet.

An e-shop with available catalogue of parts is the most appropriate solution. All enterprises which offer spare parts should aim at such solution. Opportunity to complete a request form on spare parts by a client on the web site of the selected farm machines servicing centres is an additional solution.

Research on the internet sale of spare parts for farm tractors allowed noticing that depending on the analysed service, the offered assortment is varied. Information on the assortment was presented in table 1.

Data included in table 1 show that despite carrying out activity in the same branch, assortment offer of e-shops is varied. Some e-shops enable only purchase of spare parts for agricultural machines, other also sell operational liquids and tools. Spare parts and operational liquids, for which demand is the highest during a year, occur the most frequently in the e-shops offer. At the same time, these are operational materials used in farm tractors, which require to be exchanged with determined frequency during operation. Filters in farm tractors, which are exchanged during the planned technical inspections are an example. Sale

offer should be the widest. The analysis shows that operational materials and other basic tools for performance of technical inspections prevail.

Table 1  
*Selected assortment offered by e-shops of service establishments of agricultural machines*

Item number	Selected assortment of e-shops	Participation of the assortment in e-shops (%)
1	Batteries	20
2	Oil pressure sensors	60
3	Fuel level sensors	20
4	Tubes	20
5	Engine block nozzles	20
6	Filters of hydraulic oil	80
7	Filters of motor oil	80
8	Fuel filters	60
9	Air filters	80
10	Universal agricultural foils	60
11	Draw hooks	20
12	Driving wheels	20
13	Cross wrenches	20
14	Bearing	60
15	Manometers	40
16	Oil gauges	20
17	Hydraulic oils	60
18	Gear oil	40
19	Gear and hydraulic oils	60
20	Engine oils	80
21	V-belts	60
21	Piston ring	20
22	Coolants	40
23	Front covers of a timing gear	20
24	Hydraulic pumps	20
25	Fuel pumps	20
26	Potentiometers	40
27	Reflector	40
28	Ball studs	40
29	Cab panes	20
30	Clutch plates	80
31	Tape measures	20
32	Transmission main shaft	60
33	Fuel filter elements	60
34	Air filter elements	60
35	Cross screwdrivers	20
36	Flat screwdrivers	20
37	Sets of socket wrenches	40
38	Bulbs	20

Research on the e-sale of spare parts for farm tractors showed that there is no assortment, which would be sold by all services through web sites. Even in case, when an offer includes the same type of a spare part, not necessarily it comes from the same manufacturer. Tables 2 and 3 presents the selected assortment of e-shops stating also prices.

Table 2  
*Price of the selected products in e-shop of the service enterprise A*

Item number	Selected assortment of e-shop A	Gross price (PLN)
1	Oil pressure sensor New Holland	60.00
2	Filter of motor oil Steyr	45.00
3	Fuel filter New Holland	75.00
4	Air filter New Holland	154.00
5	Ball bearings of BR series	249.12
6	Hydraulic oil Ambra Hydrosystem 46 HV, 51	120.00
7	Motor oil Aral Traktoral 10W 40, 201	335.00
8	Grooved V-belt Case IH JX 60,70	140.00
9	Clutch disc New Holland	700.00
10	Fuel filter element New Holland	45.00

Table 3  
*Price of the selected products in e-shop of the service establishment B*

Item number	Selected assortment of e-shop B	Gross price (PLN)
1	Oil pressure sensor Same Deutz-Fahr	98.00
2	Motor oil filter Same Deutz-Fahr	50.00
3	Fule filter Zetor Proxima	39.00
4	Air filter Donaldson	140.00
5	Ball bearing 2RS Same Deutz-Fahr	149.64
6	Hydraulic oil Akcela HY-TRAN, 5 l	125.00
7	Motor oil Ambra Mastergold 15W 40, 20 l	450.00
8	V-belt AV 15 x 1465 Same Deutz-Fahr	90.00
9	Clutch disc Zetor Proxima	480.00
10	Fuel filter element Same Deutz-Fahr	75.00

Spare parts and operational materials available in the internet catalogue of the servicing centre A in majority are designated for New Holland and Case farm tractors. The second e-shop offers, on the other hand, assortment of Same-Deuts Fahr and Zetor manufacturers. It is, inter alia related to cooperation of technical services of farm tractors with manufacturers. It proves relations which take place between a manufacturer and a serviceman. Some of servicing agencies are of a factory service centre nature; some function based on franchise principles.

Data included in tables 2 and 3 prove diversification of spare parts and operational materials offered in the e-sale system. Price of the same spare part may differ depending on the service. For example, the same sensor of oil pressure Same Deuts Fahr is available in three e-shops. Depending on the shop offer it costs PLN 63.06, 74.00 and 98.00. Thus, it is important at the moment of purchase to compare offered prices and check whether the select-

ed spare part is of appropriate make. These activities are easy to perform, because internet catalogues include descriptions of parameters of spare parts and operational materials. Because all internet catalogues of parts include prices, a potential client may compare assortment and prices of the selected e-shops.

## Conclusion

Review of the activity carried out in servicing agencies allowed noticing a common tendency for enabling purchase of spare parts through the Internet. It proves, inter alia, a progress within the scope of rendering services in the Polish agriculture. It also proves that the society is more aware of the meaning of the technical service. Thus, enterprises should prepare suitable service offers and invest in equipment and adjustment to growing customers' requirements, by inter alia, opening e-shops. The research also confirmed that each service establishment offers parts of other companies. Most frequently these are materials coming from the agricultural machines manufacturer, with which the service centre cooperates, which constitutes a link of distribution logistic of the manufacturer on the market.

## References

- Babuchowska, K.; Marks-Bielska, R. (2010). Wspieranie przedsiębiorczości na obszarach wiejskich ze środków PROW 2007-2013. *Acta Scientiarum Polonorum Oeconomia*, 9(2), 5-15.
- Cupiał, M.; Szelaąg-Sikora, A. (2013). Koncepcja internetowego systemu wspomagania zarządzania w przedsiębiorstwie rolniczym w zakresie decyzji o zakupie sprzętu. *Zarządzanie i finanse. Zeszyty Naukowe Nr 1 - Tom 1*, 93-102. Pozyskano z: [http://zif.wzr.pl/pim/2013\\_1\\_1\\_7.pdf](http://zif.wzr.pl/pim/2013_1_1_7.pdf).
- Durczak, K.; Rybacki, P.; Staszak, Ż. (2011). Wyniki badań jakości obsługi posprzedażnej maszyn rolniczych. *Inżynieria Rolnicza*, 8(133), 101-108.
- Durczak, K.; Rzeźnik, C. (2001). Badania procesu zakupu maszyn rolniczych. *Inżynieria Rolnicza*, 11(31), 53-59.
- Juściński, S.; Piekarski, W. (2009a). Naprawy pogwarancyjne ciągników rolniczych jako element autoryzowanego systemu dystrybucji. *Inżynieria Rolnicza*, 8(117), 23-30.
- Juściński, S.; Piekarski, W. (2009b). Systemy zarządzania logistycznego w przedsiębiorstwie prowadzącym autoryzowaną dystrybucję pojazdów i maszyn rolniczych. *Zarządzanie Przedsiębiorstwem*, 2, 42-48.
- Rybacki, P. (2011). Badania jakości serwisu technicznego maszyn rolniczych metodą SERVQUAL. *Journal of Research and Applications in Agricultural Engineering*, Vol 56(2), 122-125.
- Rybacki, P.; Durczak, K. (2010). Badania wykorzystania Internetu w dystrybucji części wymiennych maszyn rolniczych. *Journal of Research and Applications in Agricultural Engineering*, Vol 55(2), 85-87.
- Sieczko, A.; Sieczko, L. (2010). Wykorzystanie portalu Allegro w e-biznesie skierowanym do rolników. *Acta Scientiarum Polonorum Oeconomia*, 9(2), 211-222.
- Sojak, M.; Głowacki, S.; Krawcewicz, M. (2007). Zastosowanie internetowej platformy wymiany ogłoszeń z wykorzystaniem baz danych w inżynierii rolniczej. *Inżynieria Rolnicza*, 2(90), 287-292.

## **INTERNETOWY RYNEK CZĘŚCI WYMIENNYCH DO MASZYN ROLNICZYCH**

**Streszczenie.** Celem pracy była analiza i ocena internetowego rynku części wymiennych do maszyn rolniczych. Badania przeprowadzone zostały w grupie wybranych zakładów serwisowych, oferujących sprzedaż części wymiennych za pośrednictwem stron internetowych. Analizowano różnice w asortymencie poszczególnych sklepów internetowych oraz sposób zamieszczania informacji dotyczących sprzedaży w Internecie. Oferta asortymentowa sklepów internetowych jest zróżnicowana. Możliwość sprzedaży części wymiennych za pośrednictwem Internetu stanowi atut przedsiębiorstwa. Na tej podstawie określono aktualne kierunki rozwoju działu serwisu internetowego i sprzedaży części do ciągników rolniczych w Polsce.

**Słowa kluczowe:** części wymienne, ciągnik rolniczy, serwis techniczny, sprzedaż internetowa, sklep internetowy