

IMPLEMENTATION OF NEW AND USED TRACTORS IN REGIONS OF POLAND DURING THE YEARS 2006-2013

Summary

This paper presents the results of investigation of agricultural tractors implementation in four Polish regions in the period from 2006 to 2013, made on the grounds of the source data of their first registration in the country. It is shown that the highest number of new and used tractors was implemented consecutively in south-east and north-east regions and significantly less in the other two. Generally, in all regions the number of new tractors was higher by 15 to 30% than the number of used ones. Also, in further years, the purchases of new agricultural tractors in all regions had upward tendency, whilst the used ones remained at a stable level of purchases and fleeting, with quite significant growth between 2007 and 2008, particularly in the south-east region.

Key words: new agricultural tractors, used agricultural tractors, implementation, Poland, regions

DOPOSAŻANIE REGIONÓW POLSKI W CIĄGNIKI NOWE I UŻYWANE W LATACH 2006-2013

Streszczenie

Przedstawiono wyniki badań wprowadzonych ciągników rolniczych w czterech regionach Polski w okresie 2006-2013, dokonanych na podstawie danych źródłowych pierwszej ich rejestracji w kraju. Wykazano, że najwięcej ciągników rolniczych nowych i używanych wprowadzono kolejno w regionie południowo- i północno-wschodnim oraz znacznie mniej w regionie północno-zachodnim i południowo-zachodnim. Ogólnie we wszystkich regionach ciągników nowych przybyło o ok. 15-30% więcej niż używanych. Zakupy ciągników rolniczych nowych we wszystkich regionach i w kolejnych latach były na ogół wzrostowe, natomiast ciągników używanych dość stabilne z okresowym dość znacznym wzrostem w latach 2007-2008, szczególnie większym w regionie południowo-wschodnim.

Słowa kluczowe: ciągniki rolnicze nowe, ciągniki rolnicze używane, doposażenie, Polska, regiony

1. Introduction

Knowledge concerning the product market as well as the services market in the country and particular regions is a very important matter for the purpose of academic researches and practical goals. In that field, investigation of agricultural machines and tractors is particularly important, as they remain to be one of the main factors of agricultural output intensification [6]. Hitherto analysis of agricultural tractors market in Poland involve the period ending in 2010, and are based mostly on source data taken from the Central Statistical Office GUS and the European Statistical System EUROSTAT. Subject literature clearly shows a dynamic growth of agricultural tractors supply, especially new ones, from the year of 2000 up to 2007, generated mostly by increased import [7, 8, 9, 14]. In the papers based on the data taken from the General Agricultural Census in 2011, growing implementation tendencies occurring in previous years were also proved.

Between 1996 and 2010, farms gained 168k tractors, which constitutes 12.9% of the 1996 state [8]. In another papers it was shown that from the beginning of 2005, up to the mid-2010, farmers bought jointly 184,3k tractors including 131.5k (about 71,4%) used ones [11]. One needs to emphasize that source data did not particularize tractors whose owners were changing and did not allow full evaluation of tractors implementing and enriching machines in Poland. Recent updates based on the Central Vehicle and Driver Register (CEPiK) data analysis shows that in the

years 2007-2013 the implementation of all tractors was quite stable [1]. Little is known about the Poland's regional markets of agricultural tractors in recent years. In the works, based on source data derived from 2001 general agricultural census, it is stated that in the period 2002-2010 the supply of new tractors in the Polish provinces varied [10]. According to the above, the main reason of this differentiation was the size-diversity of farms. Continuation of the researches for implemented agricultural tractors is important and needed for the purpose of actualization and deepening of the knowledge concerning regional market in Poland. Especially since in recent years two factors have had significant influence on the market: the intentional and institutional market support by consecutive programs financed from the resources of the first pillar of EU Common Agricultural Policy, and the economic crisis which took place in Poland in the summer of 2008.

In view of the foregoing, the main goal of herein paper is the analysis of the numbers of implemented agricultural tractors – new and used ones- in the period between 2006 and 2013, in all four regions of Poland. This work is based on source data derived from the Central Vehicle and Driver Register (CEPiK) of the Ministry of Internal Affairs and Administration.

2. Material and methods

At the beginning of the analysis of this work, there was a discussion and evaluation of researches results concerning

supply of agricultural tractors, based on the data derived from various sources. The number of the tractors in Poland implemented for usage between 2006 and 2013 had been investigated. The results based on the data derived from CEPIK, were analyzed and compared with the results of Pawlak's research [7] which concerned tractors supply in Poland up to the year 2010 and elaborated on the grounds of GUS and EUROSTAT. Results of these researches are presented on figure 1 and 2. Afterwards, the following analyses in the regions of Poland were performed:

- overall number of new and used tractors, implemented in the period 2006-2013,
- changes of the number of new and used tractors, implemented in consecutive years from 2006 to 2013. These results are presented in figures 3-8.

In this paper one took into account only the tractors registered in Poland for the first time and considered to be purchased and implemented for usage in accordance with the Traffic Law Act [3]. Research lasted from 2006 to 2013, because of the integrated IT system CEPIK data accessibility. Data concerning the number of tractors, their production year and the place of first registration, set the basis for the elaboration of the research results. In this paper new tractors are defined as tractors produced in the year of their registration or the previous year, whereas used tractors are defined as having been produced at least two years before their registration.



Source: self-elaboration on the base of the map:

[<http://encyklopedia.interia.pl/>] / Źródło: Opracowanie własne na podstawie mapy [<http://encyklopedia.interia.pl/>]

Fig. 1. Regions of Poland sectioned for the purposes of researches

Rys. 2. Regiony Polski wydzielone do badań

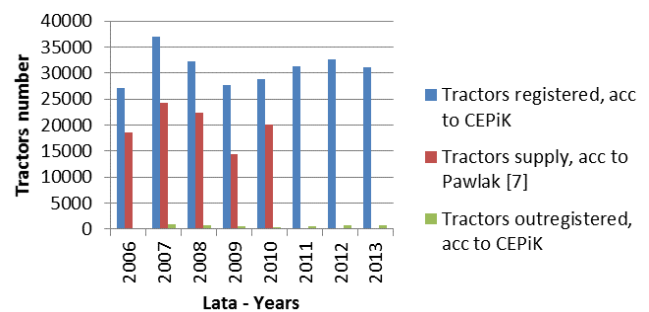
For the purpose of hereby paper, the administrative map of Poland was divided on the basis of economic diversity and marketing objectives into four regions (north-west, south-west, north-east, south-east), according to the scheme shown in the figure 1. Analyses were conducted also with the use of data published by the Central Statistical Office and literature.

3. Research results and discussion

The comparative analysis of the research results, presented in the figures 1 and 2, clearly shows quite consistent process of changes for overall number of tractors and new

tractors, registered for the first time and implemented in Poland in following years 2006-2010 - with the range of supply given by Pawlak [7], assessed on the basis of the GUS and the EUROSTAT data. Figure 1 expressly shows that the overall supply of tractors (evaluated on the basis of CEPIK data) is higher by 30% up to even 50% than the numbers given by Pawlak. Higher overall supply of tractors according to the CEPIK data (figure 1) results mostly from decidedly higher supply of used tractors registered for the first time, even for about 80%, than the supply assessed on the basis of GUS and EUROSTAT data (figure 2). The supply for new tractors presented by Pawlak is, on the whole, higher by 10-20% on average (figure 2) than the one taken from the data of their first registration. It is justified to assume, that the shown differences in the research results, presented in the figures 1 and 2, come from incomplete GUS statistical data based on partial information delivered by Customs Services concerning mostly used tractors implemented in Poland. Customs Services hold statutory obligation to record and report to GUS the information concerning new and used tractors brought to the country by the companies with turnover exceeding 1.5 mln PLN and also about all tractors from outside European Union. The remaining turnover in tractors is not recorded and concerns mostly used tractors brought in large amounts individually by recipients based on the same rules as in the case of cars.

The conclusion of the above analysis is that the results of this paper, based on CEPIK data, document quite well the implementation of tractors for the purpose of usage in particular districts and regions of Poland. Figure 1. shows also the tractors deregistered at the time of the analysis, derived from CEPIK [13], whose number was less than 3% of tractors registered in every analyzed year. Deregistration concerns only small number of tractors, mostly old and wrote off – without economic significance, so these data were excluded from further analysis in the present paper.



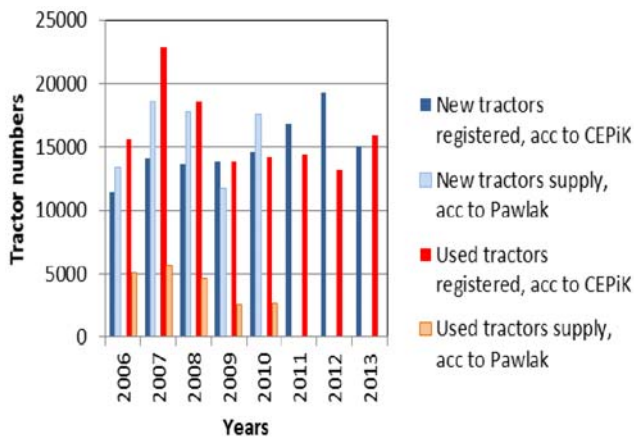
Source: Own elaboration on the basis of CEPIK source data and literature / Źródło: Opracowanie własne na bazie danych źródłowych CEPIK i literatury

Fig. 2. Comparison of tractors supply in Poland (overall number) according to the data of their first registration between 2006-2013 and the data given by Pawlak [7], prior to the period: 2006-2010

Rys. 2. Porównanie podaży ciągników rolniczych w Polsce (razem) według danych ich pierwszej rejestracji w latach 2006-2013 i według Pawlaka [7] w latach 2006-2010

The comparison of the equipment in tractors in the four regions of Poland was done on the grounds of the research presented in figures 4-8. For full depiction and supply comparison only chosen research results, concerning region north-west, elaborated beforehand by the authors of present paper, were presented in the figures 6-8 [2]. Figure 4 clear-

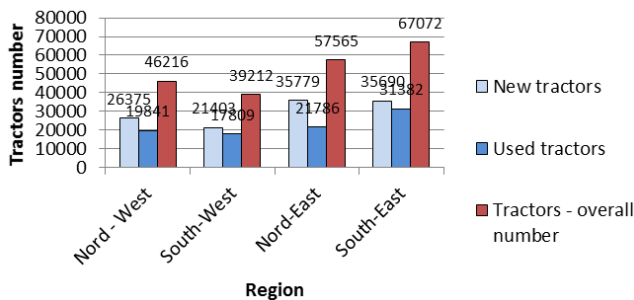
ly shows that in the analyzed regions very different number of tractors was implemented in the time between 2006 and 2013. Established differences may amount to up to 70%. Generally, it is fair to notice that much more tractors were implemented in eastern Poland (about 125k), than in the western Poland (about 85k). The highest number of tractors arrived to north-east region (about 58k), and the smallest to the south-west – 39k, with just a little bit more to north-west – 46k.



Source: Own elaboration on the basis of CEPIK source data and literature / Źródło: Opracowanie własne na bazie danych źródłowych CEPIK i literatury

Fig. 3. Comparison of the supply in agricultural tractors in Poland, according to the data of their first registration – between 2006 and 2013, and the data given by Pawlak [7], concerning the period between 2006 and 2010

Rys. 3. Porównanie podaży ciągników rolniczych w Polsce według danych ich pierwszej rejestracji w latach 2006-2013 i według Pawlaka [7] w latach 2006-2010



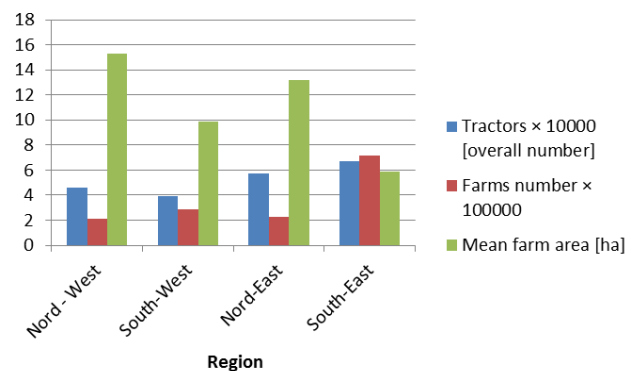
Source: Own elaboration on the basis of CEPIK source data / Źródło: Opracowanie własne na podstawie danych źródłowych z CEPIK

Fig. 4. Agricultural tractors – overall number, new ones and used ones, implemented in the given regions of Poland between 2006 and 2013

Rys. 4. Ciągniki rolnicze razem, nowe i używane, wprowadzone w badanych regionach Polski w latach 2006-2013

The data comparison in Figure 4 shows that in all four regions the implementation of new tractors was 15% up to 30% higher than the implementation of used tractors. The reasons for the diversity in tractor coverage is difficult to explain, and, as presented in Figure 5, the number of implemented tractors is not strictly dependent on the number of farms and their average area [5]. Only in the south-east region, large number of implemented tractors may result from bigger number of farms with smaller average area.

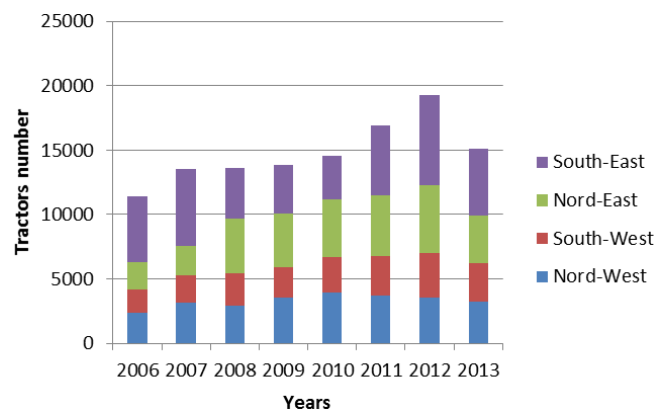
However, the number of implemented tractors is also quite high in the north-east region, where the number of farms with large average area is the lowest.



Source: Own elaboration on the basis of CEPIK source data / Źródło: Opracowanie własne na podstawie danych źródłowych z CEPIK

Fig. 5. Number of tractors, number of farms and average area of agricultural farm in analyzed regions of Poland
Rys. 5. Liczba ciągników, liczba gospodarstw i średnia powierzchnia gospodarstwa rolnego w analizowanych regionach Polski

On the grounds of the analysis of figures 6 and 7, one should state that the dynamics of implementation concerning new and used tractors was in consecutive years decidedly different. Generally, from 2006 up to 2012 the purchases of new agricultural tractors in analyzed regions were increasing (figure 6).



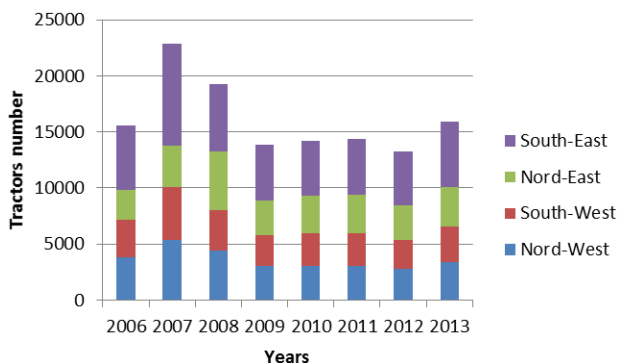
Source: Own elaboration on the basis of CEPIK source data / Źródło: Opracowanie własne na podstawie danych źródłowych z CEPIK

Fig. 6. New tractors implemented in investigated regions of Poland in consecutive years 2006-2013

Rys. 6. Ciągniki rolnicze nowe wprowadzone w badanych regionach Polski w kolejnych latach od 2006 do 2013

Only in the south-east region purchases of new tractors in 2006 and 2007 were the highest, and after periodic decreases in following years - they increased again. Such growth in the purchase of tractors can be explained by higher purchasing power of accounts, coming from the financial support of EU Sectoral Operational Program 2004-2006 (SPO 2004-2006), but mostly from Agricultural Development Support Program 2006-2013 (PROW 2006-2013), which had much more resources on its disposal [12]. In this respect, support given by the resources dedicated for young farmers had arguably high significance. Figure 6

clearly shows that in 2013, purchases of new tractors in all regions slightly decreased, which can be explained by the exhaustion of 2006-2013 PROW subventions program in the final years of its activity [12]. The lack of subventions was a probable cause of increased number of cheaper used tractors purchases, which can be observed in the same year in figure 7.



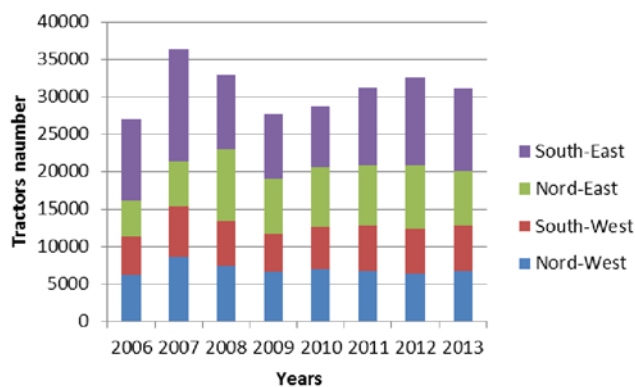
Source: Own elaboration on the basis of CEPiK source data /
Źródło: Opracowanie własne na podstawie danych źródłowych z CEPiK

Fig. 7. Used tractors implemented in investigated regions of Poland in consecutive years 2006-2013

Rys. 7. Ciągniki rolnicze używane wprowadzone w badanych regionach Polski w kolejnych latach od 2006 do 2013

As observed in figure 7, the purchases of used tractors in all regions periodically raised only in 2007 and 2008, then dropped and during following years their stability was moderate. That periodical increase of purchases can be explained by higher supply of used tractors from Western Europe with very attractive prices, which lasted up to 2008. After 2007 one can notice the drop of used tractors purchases – the influence of the economic crisis which began in 2008, that caused significant decline in commodity circulation in range of agricultural gear in EU, including in Poland [4]. The stabilization of purchases in the following years is however difficult to explain unequivocally, and needs further analysis of the factors influencing the market. Their balanced impact is the only conclusion that can be made. Different dynamics of the purchases of new and uses tractors determined the overall number of agricultural tractors implemented in following years in the analyzed regions of Poland (figures 6-8). In this range, the dominant factor included the proceeding of used tractors purchases during the time between 2006-2013, which is proven by quite similar structure of both categories of tractors (figure 8) and used tractors (figure 7).

Certain significant differences should also be emphasized. Figure 8 shows that overall implementation in Western Poland remained at low-versatile level during the entire analyzed period. Clear increase in the number of tractors appeared only in 2007-2008 in the north-west region. On the other hand, significant fluctuations of implementation in time, can be observed in the Eastern Poland, especially in the south-east region. In 2007 this region recorded the highest implementation, which then dropped and during the years 2009-2010 was the lowest, after which period it raised again. In the period between 2007 and 2008, the lowest number of tractors was implemented in the north-east region. However, in 2008, the implementation number raised rapidly by approx. 70% and remained at this considerably stable level.



Source: Own elaboration on the basis of CEPiK source data /
Źródło: Opracowanie własne na podstawie danych źródłowych z CEPiK

Fig. 8. Tractors (new and used ones together), implemented in investigated regions of Poland in consecutive years 2006-2013

Rys. 8. Ciągniki rolnicze (nowe i używane razem) wprowadzone w badanych regionach Polski w kolejnych latach od 2006 do 2013

In conclusion, one needs to emphasize that gaining full explanation and unambiguous interpretation of the course changes concerning presented research results, with the conditions of varied factors influencing the regional country market, would need further deepened researches and analysis.

4. Summary and conclusions

On the grounds of presented research results concerning the coverage with tractors of four regions in Poland in the time between 2006 and 2014, and prepared on the basis of source data of their first registration and literature, following general statements and conclusions were enunciated:

1. Overall number of tractors implemented in Poland between 2006 and 2013 and the number of used tractors estimated on the basis of their first registration CEPiK, is much higher than the number estimated on the basis of source data of GUS and EUROSTAT.
2. Performed analysis of research results proved higher credibility of the CEPiK source data, rather than the GUS and EUROSTAT data.
3. On the grounds of the first registration data, it was proven that between 2006 and 2013 the highest number of new and used tractors arrived to the Eastern Poland – especially to the south-east region, and the smallest to Western Poland – south-west region in particular.
4. In analyzed regions of Poland, in general the number of new tractors implemented was by 15% to 30% higher than the number of used tractors.
5. The analysis shows that the implementation of new tractors had usually growing tendency; however, the implementation of used tractors was quite stable between 2009 and 2013 with significant temporary growth between 2007 and 2008, especially in the south-east region.

To sum up, one can indicate that the stable growth of the purchases of new tractors was stimulated by stable institutional financial market support provided from EU resources, whereas the purchases of used tractors were influenced by other factors including those arising from economic crisis and beneficial supply from Western countries.

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