



Scientific quarterly journal ISSN 1429-7264

Agricultural Engineering

2014: 4(152):15-21

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



DOI: <http://dx.medra.org/10.14654/ir.2014.152.077>

PROVIDING MILK AGRICULTURAL FARMS WITH PRODUCTION MEANS

Andrzej Borusiewicz^{a*}, Krzysztof Kapela^b

^aFaculty of Computer Studies, The Academy of Agrobusiness in Lomza

^bDepartment of Agronomy, Siedlce University of Natural Sciences and Humanities

*Contact details: ul. Studencka 19, 18-402 Łomża, e-mail: andrzej.borusiewicz@wsa.edu.pl

ARTICLE INFO

Article history:

Received: April 2014

Received in the revised form:

May 2014

Accepted: September 2014

Keywords:

milk production

agricultural farms

logistics

providing with production means

ABSTRACT

A survey concerning provision of milk farms with production means in Warmińsko-Mazurskie Voivodeship was carried out in 2013 in the group of 80 farmers. Based on the survey, it should be stated that farmers define themselves their purchase needs and they start with planning the material needs. They search the market for possible suppliers and then place an order with a selected contractor. In the end, after they receive goods, they evaluate the quality of the service. Farmers more eagerly place orders via Internet. The research shows that farmers have high negotiating skills because they always ask for discounts when ordering. They also negotiate terms concerning orders, when they order big batches and control the received raw materials in order to evaluate the service. In milk farms maintaining the liquidity of supply in production means is significant. The research shows that more than half of farmers place orders a month before the stock depletes. Only a few farmers declared that they place orders for particular goods only when they need it. Some of them even were in favour of purchasing bigger batches in order to store the remaining part and avoid cyclic smaller orders.

Introduction

Logistic farm management consists in performing specific activities in a specific time, for example: ordering fodder, seeds for insemination, products for hygiene and disinfection of milking devices. Information is indispensable for both agricultural producers as well as the producers and suppliers of production means and consumers of farm products. (Kuboń, 2007c). However, in order to make it possible, one should start from the stage of providing and ensuring a farm with materials for production in the moment when they are really needed. The farm size and the production type in the said region have an impact on the structure of production means purchase (Owsiak et al., 2013). Production specialization gives an opportunity to reduce the number of agricultural equipment and its better use (Kowalczyk, 2009). Execution of logistic processes requires a specific infrastructure in the form of inventory buildings, storages, technical production means and tele-informatics means (Kuboń, 2007b).

Many times, in case of placing a bigger order, materials are not used entirely at the same time and their surplus forms the so-called stock, which should be later stored, which limits the costs of raw material flow (Kuboń, 2006). Such stock may occur at the supply, production and distribution stage. In farms, which specialize in milk production a stock is created during the supply and the surplus which follows from production. Then, it is considered differently than in big production establishments, because maintaining stocks in a farm generates lower costs. For example, materials which come from a direct purchase, such as: mineral fertilizers, crop protection chemicals, fodder, spare parts for milking machines or other machines and devices, disinfectants, fuel, etc. On the other hand surplus of dry volumetric fodders, such as straw and hay, as well as grains, silage or root crops and even manure may be a stock. Rational storing of stocks allows maintaining the production rhythm, while their lack may cause stoppage and generate unnecessary expenses (Kuboń, 2008; Ficoń, 2008).

Costs of maintaining stocks incurred by farms are quite essential. Therefore in order to reduce them, the most adequate solution is a logistic method of completing stocks Just in Time (JIT). This method consists in supplying materials and raw materials for production in strictly determined amounts and precisely on time, when it is required to be used. It allows reduction of the number of employees and stoppages in production and what is the most important minimization of stocks costs and incurred damages or losses as a result of storing. Main assumptions of the just-in-time method, include minimization of the amount of stocks, short cycles of realization of orders, frequent completion of particular goods and their high quality (Sarjusz-Wolski, 2000). Kuboń stated in his research that with the increase of the size of farms and the distance from the supply markets, the storage potential of the investigated farms increases (Kuboń, 2007a).

Methodology of research

The objective of the paper was to evaluate manners of providing milk agricultural farms from Warmińsko-Mazurskie Voivodeship with the production means. The research was carried out based on the survey carried out among 80 farm owners. Selection of people taking part in the survey was purposeful in nature and concerned the units selected with the help of an employee of the Polish Federation of Cattle Breeders and Milk Producers Branch in Olsztyn. Farms, which have not less than 25 cows and covered with the evaluation of the utility values of milk cattle constituted the criterion for selection. The survey included in total 25 questions, the first one related to the general characteristic of the respondent i.e. sex, age, education; the next 6 questions referred to the data on a farm and milk production, the next 10 related to the manner of orders, contacts with suppliers and manners of supplying agricultural farms.

Research results

The most numerous group included farms with the area from 51 to 80 ha (48%) then 28% used the area from 31 to 50 ha. Farms below 30 ha constituted approx. 13%, and big-area farms – above 121 ha. Also, one farm with the area from 81 to 120 ha was reported.

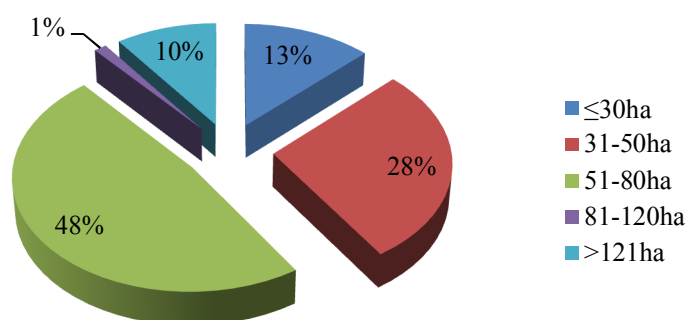


Figure 1. The used area of agricultural land

Among the land use structure, meadows and pastures (which are the basic juicy roughage for ruminants) covered from 50% to 100% of the area of arable land, as declared by 23 respondents. In case when meadows and pastures constituted from 60% to 100% of crops (12 respondents). Maize cultivation for silage in 8 farms covered as much as 50% of the land. Grains cultivation was similar because in any farm it did not exceed 50% of sowing. More and more farmers sow smaller areas.

In milk farms, frequency of reception of this raw material is significant. In order to eliminate this problem, milk is collected in cycles. Among the researched group, 70% of the surveyed persons have milk collected every second day whereas 30% of the questioned declares that this cycle is repeated every day.

The research shows that there are two popular cow herds sizes. 31 farms have from 36 to 45 cows and 25 farms have herds which amount from 25 to 35 cows. Further analysis shows the trend for co-dependence, namely along with the increase of the herd size, the number of such farms decreases. Five respondents declared that they have from 46 to 55 cows and 11 maintained from 56 to 65 cows. Only two farms had from 66 to 75 cows. Subsequently 3 farms with the herd of 86 to 95 cows and 3 farms with 96 cows appeared.

For a decisive number of farmers (66%) a dairy which collected milk was located in the distance up to 50 km. 125 respondents cooperates with dairies located from 51 to 100 km whereas the remaining 2% of respondents had the longest distance, because over 101 km.

Presently computer availability is no longer a problem. 98.75% of people declared that they have a computer in a farm.

Each year the number of users of the internet portals increases and the use of a computer with the internet creates more opportunities. 92% of respondents claim that having the Internet connection is as necessary as having a computer. They appreciate the number of functions and information which they may obtain from the Internet. 8% of the researched people claimed the opposite. They did not have the Internet connection.

When questioned on which source they use to follow current prices of raw materials, farmers provided two sources: the internet (26%) and the specialist press (25%); then, television (22%), radio (12%), agricultural advisers (10%) and the remaining sources – 5%. It

proves the IT development in rural areas and shows the scope of possibilities, which are provided by the Internet concerning following the newest information on animals feeding and breeding, prices of raw materials, technological solutions, placing announcements and exchange of experiences in production. Still, the specialist press is still an important source of information among farmers.

Among people who have the Internet connection, as much as 41 respondents prefer to order products via the Internet. The second group consisted of farmers, who placed orders via telephone and farmers who preferred placing direct orders that is in the point of sale. Only a few farmers considered distributor's suggestions when ordering production means.

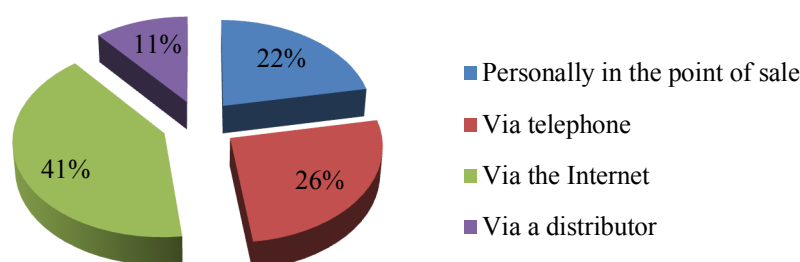


Figure 2. Manners of placing orders by farmers

In each production, supply is an inseparable element and its significant part is good planning. Therefore, farmers were asked how much time earlier they place orders for specific goods. The highest number of respondents (64%) admitted that they place orders with a one-month advance. Another big group (20%) orders with a 6-month advance. On the other hand, 8% prefers to purchase greater number of products to store them. The same number of farmers (8%) uses the just-in-time method, namely only when the products are really needed.

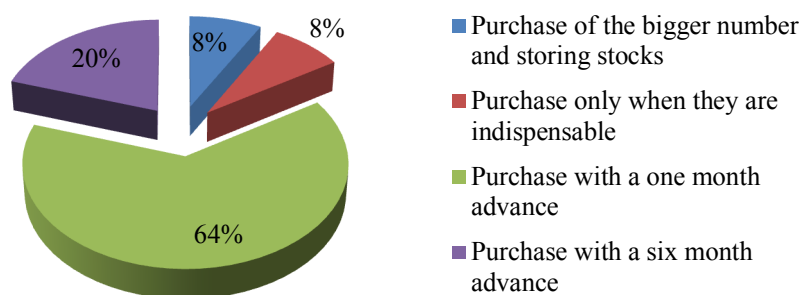


Figure 3. The time limit for placing orders

Among the surveyed, all buy mineral fertilizers, crop protection chemicals and disinfectants. 66 farmers buy the qualified sowing material obtained from the Seed Central Station. The next raw material, which improves the health condition of cows and influences the quality and amount of milk are fodder additives and industrial fodders, which are purchased by 64 respondents. 5 farmers buy grain from other farmers.

In the next question concerning a desire to obtain new contractors by a farmer, as much as 82% of respondents aim in their activities to settle permanent relations with potential suppliers in order to obtain discounts. Whereas, the remaining farmers (18%) prefer to change suppliers.

A supplier is related to the buyer only by the concluded contracts of sale or purchase but also with evaluation of cooperation. 725 of farmers evaluated such cooperation at the sufficient level, and 20% of the investigated persons graded suppliers as very good with regard to the quality of services rendered. 8% of respondents were not satisfied with services.

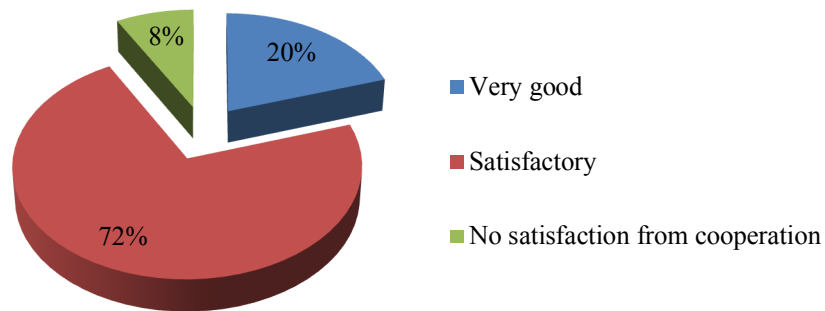


Figure 4. Evaluation of cooperation with suppliers

A decisive majority (66%) during placing orders asks contractors about possible discounts.

Research on the negotiating skills of respondents with regard to the conditions and prices of ordered raw materials, shows that farmers are reasonable in this issue. In 62% of cases, respondents start negotiations when they need to order often and big batches, whereas a numerous group (34%) are farmers, which always negotiate and independently from the circumstances of orders. 4% of respondents were quite the opposite. They never initialize negotiations.

Among the questioned, 68% implements one of the main objectives of the supply logistics, namely, the maximum satisfaction of material needs at the simultaneous minimization of costs of material supplies. Whereas the remaining (32%) farmers do not apply this objective during farm supply.

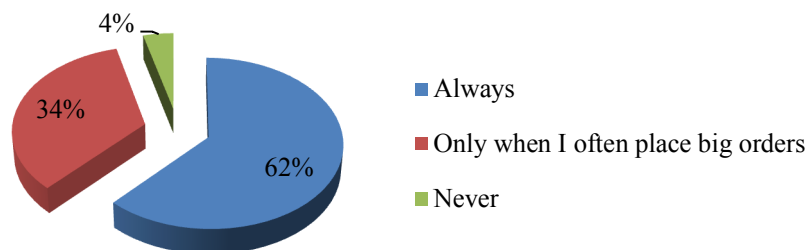


Figure 5. Starting negotiations of conditions and prices of orders

Conclusions

1. A computer with the internet connection in a farm positively influences frequent on-line orders. 42% of respondents use this manner of ordering from among those who have the internet connection.
2. Planning orders by farmers takes place most frequently with a one-month advance before the stock depletes. Whereas only a few place orders for particular goods only when they need it.
3. Cooperation of contractors was evaluated by farmers as satisfactory and very good, because they always choose diligent suppliers and aim at obtaining permanent suppliers among the possible ones.
4. Farmers' negotiating skills are at a very high level, because they ask for discounts and conditions of orders.
5. Farmers implement supply logistics objectives at a high level in farms, which specialize in milk production, which results in the maximum satisfaction of material needs at the minimization of supply costs.

References

- Ficoń, K. (2008). *Logistyka ekonomiczna – procesy logistyczne*. Warszawa. Wyd. Bel Studio. ISBN 978-83-61208-11-2.
- Kowalczyk, Z. (2009). Wyposażenie i wykorzystanie wybranych technicznych środków produkcji w gospodarstwach warzywniczych o różnej intensywności produkcji. *Inżynieria Rolnicza*, 6(115), 163-168.
- Kuboń, M. (2006). Kryteria wyboru odbiorców produktów rolnych w gospodarstwach o wielokierunkowym profilu produkcji. *Inżynieria Rolnicza*, 13(88), 241-250.
- Kuboń, M. (2007a). Logistyka zaopatrzenia gospodarstw rolniczych o wielokierunkowym profilu produkcji. *Inżynieria Rolnicza*, 6(94), 113-119.
- Kuboń, M. (2007b). Miejsce i rola infrastruktury logistycznej w funkcjonowaniu przedsiębiorstw rolniczych. *Inżynieria Rolnicza*, 9(97), 87-93.
- Kuboń, M. (2007c). Poziom wyposażenia i wykorzystania elementów infrastruktury informatycznej w gospodarstwach o różnym typie produkcji rolniczej. *Inżynieria Rolnicza*, 9(97), 95-102.
- Kuboń, M. (2008). Koszty infrastruktury logistycznej w przedsiębiorstwach rolniczych. *Inżynieria Rolnicza*, 10(108), 25-136.

- Owsiak, Z.; Płócienniczak, M.; Biskupski, A.; Weber, R.; Włodek, S. (2013). Logistyka zaopatrzenia gospodarstw rolnych w wybrane środki produkcji. *Inżynieria Rolnicza*, 3(146), 275-284.
- Sarjusz-Wolski, Z. (2000). *Sterowanie zapasami w przedsiębiorstwie*. Warszawa. PWE. ISBN 83-208-1272-0

ZAOPATRZENIE W ŚRODKI PRODUKCJI GOSPODARSTW ROLNYCH SPECJALIZUJĄCYCH SIĘ W PRODUKCJI MLEKA

Streszczenie. Badanie ankietowe dotyczące zaopatrzenia w środki produkcji gospodarstw specjalizujących się w produkcji mleka w województwie warmińsko-mazurskim, przeprowadzono w 2013 roku w grupie rolników liczącej 80 osób. Na podstawie przeprowadzonych badań ankietowych należy stwierdzić, że rolnicy sami określają swoje potrzeby zakupowe rozpoczynając od zaplanowania potrzeb materiałowych. Śledzą rynek w poszukiwaniu potencjalnych dostawców, a później decydują się złożyć zamówienie u wybranego kontrahenta. Na zakończenie, po otrzymaniu towaru oceniają jakość wykonanej usługi. Rolnicy coraz chętniej dokonują zamówień i zleceń przez sieć internet. Z badań wynika, że na wysokim poziomie kształtują się umiejętności negocjacyjne rolników, ponieważ zawsze dopytują o rabaty i upusty cenowe podczas zamówień, negocjują również warunki zamówień, gdy zamawiają duże partie oraz kontrolują otrzymywane surowce w celu oceny wykonanej usługi. W gospodarstwach specjalizujących się w produkcji mleka istotne jest utrzymanie płynności zaopatrzenia w środki produkcji. Z badań wynika, że więcej, niż połowa rolników dokonuje zamówień z miesięcznym wyprzedzeniem, zanim zapas ulegnie wyczerpaniu. Zaledwie nieliczni oświadczyli, że dokonują zamówień na dany towar dopiero wtedy, gdy jest on potrzebny. Niektórzy nawet skłaniali się do zakupów większych partii, aby pozostała część magazynować i uniknąć cyklicznych mniejszych zamówień.

Słowa kluczowe: produkcja mleka, gospodarstwa rolne, logistyka, zaopatrzenie w środki produkcji