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CHARACTERIZATION OF TABLE EGGS-PRODUCING ORGANIC FARMS IN LUBLIN VOIVODESHIP

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Abstract. The aim of this study was to analyze organic farms involved in the production of table eggs in the Lublin Voivodeship. The survey was performed by the use of a questionnaire in 5 farms located in the counties of Łęczna, Puławy, and Ryki. The analysis of the data shows the main reasons for undertaking organic poultry production included the low cost of purchase of animals, adaptability of buildings and chicken runs and marketability of the products (eggs and meat). The age of the owners of the surveyed farms ranged from 30 to 40 years (80% of respondents) and from 40 to 50 years (20% of respondents). The farms are run by men with families. 80% of respondents had secondary education, and 20% higher education with a specialization in agri-tourism. The average area of the farms was 14.2 ha. The crops were mainly grain, from 46.7 to 100%. There were farm-gate sales of vegetables, fruit and eggs. Some also offered milk and dairy products, as well as processed fruit and vegetables. All the farms focused on the production of chicken eggs, though. Greenleg Partridge was among breeds of chickens managed in all farms. New chicks for all the surveyed farms were purchased in a hatchery or from another organic farm. In most of the farms the flocks were at the level of 100 to 300 hens. Egg production ranged from 90 to 125 eggs per hens. Hens were fed in the traditional way, using organic, on-farm produced feeds. Birds had access to chicken runs. Hens were kept in brick chicken houses on litter bedding. All respondents answered that the marketing of the produce (eggs) is promoted through customer recommendations. They stressed that regular customers, who were from 70 to 90% of the buyers, often bring in new people willing to buy

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organic produce. All the organic farm operators replied that poultry production was profitable.

Key words: organic farms, poultry, Greenleg Partridge, table eggs

INTRODUCTION

Organic farming is defined as an economic system of sustainable plant and animal production. The system integrates environment-friendly farming practices, supports biodiversity and protection of natural resources, and ensures welfare of farm animals. Organic food is produced without the use of synthetic fertilizers, chemical pigments, chemical pesticides, or preservatives. The organic food market is highly fragmented and the supply does not hit the location of the demand.

The eastern regions of Poland (Lublin, Mazowian, Subcarpatian, Podlaskie, Świętokrzyskie, and Warmian-Masurian Voivodeships) host Poland's significant concentrations of organic production (56% of Poland's organic farms and 46% of organic agricultural land) [Raport IJHARS]. The Lublin Voivodeship ranks third in Poland in the number of organic farms. According to the data from the Central Statistical Office, there were 1711 organic farms in the Lublin Voivodeship in late 2013, which represented 6.5% of the total organic production in Poland (http://www.stat.gov.pl/gus, Warsaw, date of access: 06.03.2015). The Lublin Agricultural Advisory Centre in Końskowola states that organic egg production in the Voivodeship is the domain of 9 farms (http://www.eko.lodr.konskowola.pl/ekologia.php, Warsaw, date of access: 6 March 2015). According to Kasztelan [2010], the Lublin Voivodeship is fully suited to continue developing organic food production, primarily due to a low level of environmental pollution, traditional technologies of agricultural production in use, and strong human resources.

The aim of this study was to analyze organic farms involved in the production of eggs within the Lublin Voivodeship.

MATERIAL AND METHODS

The survey involved five farms engaged in organic production of table eggs. The respondents are fully certified producers of organic food. The farms under study are located in three counties of the Lublin Voivodeship: Puławy (Wola Czołnowska, farm 1, and Leokadiów, farm 3), Ryki (Zielony Kąt, farm 2), and Łęczna (Ludwinów, farm 4, and Ostrówek Kolonia, farm 5). The survey was carried out using the questionnaire prepared by the authors. The respondents participating in the questionnaire were asked to answer 50 questions. The questions pertained to the conditions conducive to the development of organic food pro-

duction in the Lublin Voivodeship, farm area, the structure of the land resources, cropping structure, the duration of the organic production, farm owner's age, level of incomes, expenses incurred in converting a farm into an organic farming facility, description of the offered produce. Within the covered issues, there were questions related to marketing activities of the farm operators.

RESULTS AND DISCUSSION

The age of the farm owners ranged from 30 to 40 years (80% of respondents) and form 40 to 50 (20% of respondents). The farm operators were men with families. 80% of respondents had secondary education and 20% higher education, with a specialization in agri-tourism. According to Kurek [2008], the age of farm operators in the Lublin and Świętokrzyskie Voivodeships averaged to 44.7 years. Most farms were run by men (72%). The author found that most people had graduated from secondary education schools (23 persons) or vocational training (21), and only 8 farmers had graduated from a university, with the same number having completed their education on the primary-school level.

The duration of organic farm activities ranged between 2 and 5 years (60%) and from 5 to 10 years (40%). The land area of 15 to 20 ha was in the possession of 2 farms, another 2 farms were between 10 and 15 ha, and one was up to 5 ha of land area. In the study conducted by Kurek [2008], the average area of an organic farm was 8.91 ha, ranging within 1.4 and 29.5 ha. According to Leszczyńska et al. [2012], the area organic farms in the county of Kraśnik (Świętokrzyskie) was varied, with a prevalence of 5 to 10 ha farms. The average area of the farms in this study was 14.2 ha (Table 1). In terms of the structure of land resources, arable land dominated in the total area, ranging from 3.5 to 12.3 ha, which accounted for 74.5 and 65.4% , respectively, of the total area of the farm. Meadows and pastures were from 4.2 to 7 ha in area, which represented 22.3 to 36.3% of the total area, respectively. Two farms lacked grasslands. The area of permanent crops ranged from 0.3 to 3.2 ha, or 1.6 to 24%, respectively, of the total farm area. Orchards occupied 1 to 2.9 ha, which represented 5.2 to 21.7% of the total are of the farm.

The crop structure of the studied organic farms were dominated by grain, which ranged from 46.7 to 100%. In a single farm these were permanent pasture, 42.9% (Fig. 1). The farms also grow legumes, vegetables, and root crops.

According to the Framework Action Plan for Organic Food and Organic Farming in Poland for 2014–2020, the average size of an organic farm in Poland in 2012 was 25.50 ha, a figure being varied regionally. The largest farms were located in the Wielkopolska (42.59 ha) and Lubuskie (38.78 ha) Voivodeships, while the smallest in Małopolska (10.01 ha), Świętokrzyskie (11.30 ha), and Lublin (17.23 ha). In the overall the size-structure of organic farms in 2012, farms occupying

Table 1. Structure of land resources in the surveyed organic farms, in hectares

Tabela 1. Struktura zasobów ziemi w badanych gospodarstwach ekologicznych, ha

Farm Gospodarstwo	Arable land Grunty orne	Meadows and pastures Łąki i pastwiska	Permanent crops Plantacje wieloletnie	Orchards Sady	Total cultivated area Razem użytków rolnych	Homestead Siedlisko	Total farmland area Powierzchnia gospodarstwa ogółem
1	12.3	4.2	0.3	1.5	18.3	0.5	18.8
2	6.9	0.00	3.2	2.9	13	0.35	13.35
3	3.5	0.00	1	0.00	4.5	0.2	4.7
4	6	4.5	2	2	14.5	0.3	14.8
5	8	7	3	1	19	0.3	19.3

Explanation: for farm numbers, see Material and Methods.
Objaśnienia: numeracja gospodarstw, jak w rozdziale Materiał i metody.

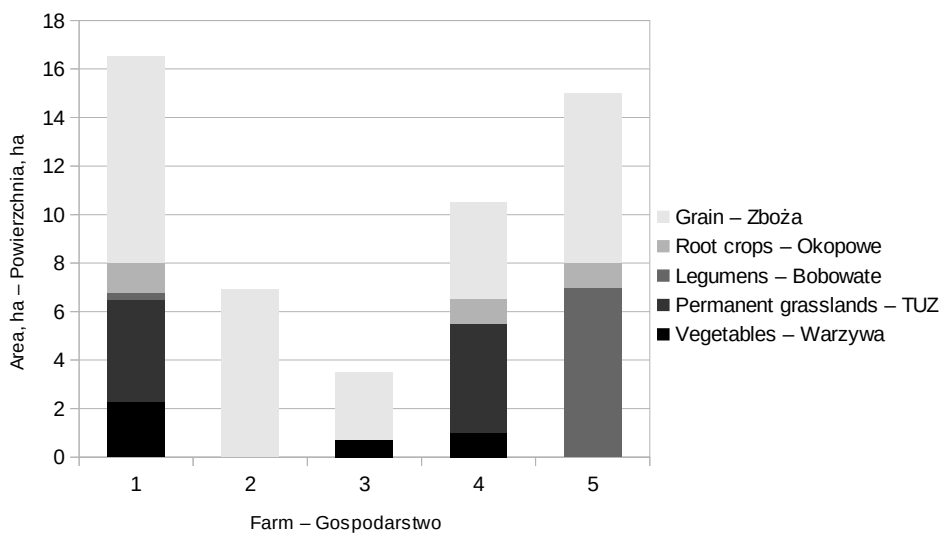

Fig. 1 The cultivated area in the studied organic farms in hectares (for explanations see Table 1)

Rys. 1. Powierzchnia upraw w badanych gospodarstwach ekologicznych w ha (objaśnienia: jak w tabeli 1)

up to 5 ha represented 19.28% of the total area of the organic farming land, while farms of an area of 10–20 hectares represented 25.54%.

The surveyed farms were located at a distance of 2 to 20 km away from heavy traffic roads, and at a distance of about 30 km from larger cities (4 farms), or about 16 km (1 farm). Three organic farms were connected with the public roads system by a communal driveway and two by their own dirt roads. The distance between the farm and a heavy traffic road (more than 500 vehicles per hour) should be at least 100 m [Kasztelan 2010].

The surveyed farms were involved in organic plant and animal production. According to Nachtman [2011], mixed production was the prevailing strategy of organic farms in Poland (41.3%). In the analyzed farms, no conventional production was carried out alongside the organic production. Before starting organic production, the surveyed farms abandoned swine breeding, they purchased animals, and prepared runs or paddocks for animals (Table 2). Livestock production in four farms was based on newly built facilities such as a brick chicken coop (4 farms), brick barn, fruits storage, a shed for farm machinery. The alterations carried out before beginning the new organic production in three farms consisted in abandoned dairy production, demolition of old buildings, and – basing on the support of the Rural Development Programme 2007–2013 – building fruit refrigerated store (1 farm), abandoned cattle and swine production (1 farm), and abandoned currants and raspberries conventional crops (1 farm).

The farms offered farm-gate sale of vegetables, fruit, and eggs. Three of the surveyed farms also sold milk and other dairy produce, one farm offered own-made fruit or vegetable products. The produce was also used for domestic purposes and satisfied 100% of the demand for eggs, fruit, and vegetables, as well as their products. In 3 farms, milk and dairy products covered 100% of the household needs, and in 2 farms their own-produced meat and meat products covered 50% of the needs. According to Kurek [2008], the production mainly focused on soft fruit farming. According to the author, the demand for organic fruits and vegetables is shaped by trends in the global organic food market, but also reflects the fact that the Voivodeships of Lublin and Świętokrzyskie have for years been treated as a hub of fruit and vegetable production.

As the main reasons underlying the decision to engage in organic production, the respondents name adaptability of existing buildings and runs, low purchase costs of livestock, and the demand for the produce (eggs and meat, Table 3).

All the studied farms focused on chicken egg production. Greenleg Partridge chickens were among the breeds managed in all the farms. Three farms also had Yellowleg, Messa 445, or Rhode Island Red. The reasons behind the selection of the breeds were: high productivity under organic production (3 answers), low environmental requirements (2 answers), popularity among consumers (1 answer),

Table 2. Alterations in farms before starting organic prodction activities

Tabela 2. Zmiany wprowadzone w badanych gospodarstwach przed podjęciem działalności ekologicznej

Type of change Rodzaj zmian	Organic farm Gospodarstwo ekologiczne				
	1	2	3	4	5
Purchased livestock Zakupione zwierzęta	+	+	+	+	+
Amended farmland Dokupiono grunty		+			
Discontinuation of mineral fertilizing Zaprzestano nawożenia mineralnego	+	+	+		
Reorganized farm – abandonment of swine farming Zreorganizowano gospodarstwo – rezygnacja z hodowli trzody chlewnej	+	+	+	+	+
Improving organic production Usprawnienie produkcji ekologicznej	+	+	+		
Construction of new buildings Budowa nowego budynku	+	+		+	+
Preparation of runs or paddocks Przygotowano wybiegi dla zwierząt	+	+	+	+	+
Others Inne	+	+			

Explanations: see Table 1 – Objaśnienia: jak w tabeli 1.

Table 3. Reasons behind decision to undertake organic production of poultry in the surveyed farms

Tabela 3. Powody podjęcia się ekologicznej produkcji drobiarskiej w badanych gospodarstwach

Specification Wyszczególnienie	Organic farm Gospodarstwo ekologiczne				
	1	2	3	4	5
Low cost of purchase of livestock animals Niski koszt zakupu zwierząt		+	+		
Popularity of the produce (eggs, meat) Popularność produktów (jaj, mięsa)	+			+	+
Adaptability of farm buildings and runs Łatwość adaptacji budynków i wybiegów	+	+	+	+	+
Less work as compared with other livestock animals Mniejszy nakład pracy niż przy innych gatunkach zwierząt		+			

Explanations: see Table 1 – Objaśnienia: jak w tabeli 1.

resistance to diseases (1 answer), and product quality (1 answer). According to Gornowicz et al. [2013], these requirements are fully met mainly by the local laying hen, Greenleg Partridge, as well as Rhode Island Red. According to the authors, egg traits, which include weight and shell coloration, should also be considered before buying the chicken flock. White-shelled eggs are sensorily perceived by consumers as inferior. The chicks for raising in all the surveyed farms were purchased from a hatchery. One farm acquired chicks from another organic farm. Krawczyk et al. [2012] estimate that populations of Greenleg Partridge and Rhode Island Red laying hens, included in the program of genetic resources protection, are 1086 and 922 birds, respectively, with the hens to roosters ratio of 10: 1. In all the surveyed farms, the chickens were utilized for 2 years. The flock of birds ranged from 100 to 300 chickens (Figure 2). Egg production in individual farms ranged from 90 to 125 eggs from hen. Hens were fed in the traditional way, using organic feed of own production. Birds had access to the chicken runs. They were kept in brick chicken houses, on litter bedding. According to research by Sokołowicz et al. [2012], within two years of laying, Greenleg Partridge continues to produce good quality eggs. The egg weight increases and so does the yolk-to-white ratio, and – with hens having access to grassy runs – the eggs retain the preferred low ratio of n-6 to n-3 fatty acids in yolk. According to the author, this means that maintaining the two-year life period of the hens of this breed is justified, and reduces production costs by cutting expenditures incurred on purchasing and rearing new flock.

The costs of farm conversion and adaptation to organic production were returned after about 2 years (2 farms) or about 3 years (2 farms). One farm had to wait as long as 5 years for the total return on investment. In 4 farms, the funds needed for organic production operations originated from family loans. Farmers also used preferential bank loans and their own savings (2 respondents). All respondents claimed that running organic production of table eggs is profitable. Farmers estimated their annual net income in the range of 10 to 20 thousand PLN (3 respondents) and in the range of 30 to 60 thousand PLN (2 respondents). Organic farms are characterized by lower economic efficiency compared with conventional farms; however, they enjoy having regular customers and the products attain higher prices [Runowski 2004]. Lower revenues are largely the result of the lower productivity and a number of restrictions on the use of pesticides and fertilizers, as well as prohibiting the use of conventional medicines in animals. A significant part of the income on farms engaged in organic production of plants and animals are direct payments and payments to agricultural land, which are higher than in the conventional production [Nachtman 2012]. According to Leszczyńska et al. [2012], organic production is profitable for 75% of farmers, the remaining 25%

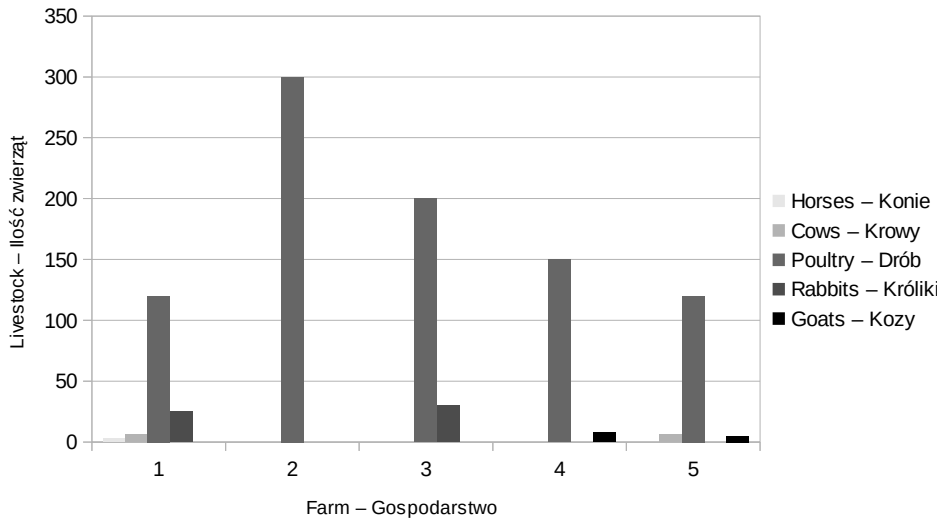

Fig. 2. Flock sizes in poultry producing organic farms in the Lublin Voivodeship (for explanations see Table 1)

Rys. 2. Obsada zwierząt w gospodarstwach ekologicznych zajmujacych się produkcją drobiarską w województwie lubelskim (objaśnienia: jak w tabeli 1)

claiming that this type of farming is unprofitable and does not bring the assumed profit.

In 3 cases, organic production was undertaken as a result of an independent decision based on estimated farm capacity or after assessing the values of the surrounding area. In the case of 2 farms, the owners had been persuaded by friends or professionals providing consultancy services in this area (Table 4). According to Leszczyńska et al. [2012], prospective extra funds from the payments or a visit to a successful organic farm inspired the farmer to change the type of production. Extension or change of direction in poultry production was planned by 3 respondents.

All respondents answered that the promotion of their farm and marketing of the produce (eggs) through customer recommendations and claimed this was the best way of promotion. They stress that regular customers, who represent from 70 to 90% of the buyers, often bring in new customers willing to buy organic products (Fig. 3). Organic products are often associated with food acquired directly from farmers. According to the Ministry of Agriculture and Rural Development, the consumer attitude is due to the place they trust in offering, in their opinion, good-quality organic food (http://www.minrol.gov.pl, Warsaw, date of access: 6 March 2015). Most respondents replied that they never used exhibitions or fairs to present

Table 4. Background of the decision to start organic production in the surveyed farms

Tabela 4. Motyw podjęcia działalności ekologicznej w badanych gospodarstwach

Farm Gospo-darstwo	Background of the decision to start organic production Motyw podjęcia działalności ekologicznej	Chief organic produce Główny produkt ekologiczny	Basis of decision behind the organic produce Podstawa określenia produktu ekologicznego
1	Persuaded by professional advisers Za namową osób zajmujących się doradztwem w tym zakresie	Still to be decignated Ustala się obecnie	Consultancy by agricultural professionals Porady fachowców z zakresu rolnictwa
2	Independent decision based on evaluation of the values of the surrounding Samodzielnej decyzji po ocenie walorów okolicy	Table eggs Jaja konsumpcyjne	Analysis of the farm potential Evaluation of the organic product Observations of other farms Analiza możliwości gospodarstwa Ocena walorów produktu ekologicznego Obserwacje innych gospodarstw
3	Independent decision based on evaluation of the farm potential Samodzielnej decyzji po ocenie możliwości gospodarstwa	Table eggs Jaja konsumpcyjne	Analysis of the farm potential Customer opinion Analiza możliwości gospodarstwa Uwagi klientów
4	Persuaded by friends Za namową znajomych	Eggs and goat milk and dairy produce Jaja oraz przetwory i mleko kozie	Customer opinion Uwagi klientów
5	Independent decision based on evaluation of the values of the surrounding Samodzielnej decyzji po ocenie walorów okolicy	Eggs and goat milk and dairy produce Jaja oraz przetwory i mleko kozie	Customer opinion Uwagi klientów

Explanations: see Table 1 – Objaśnienia: jak w tabeli 1.

and promote their products. All respondents stressed that their organic products were mostly purchased by families with children. All the surveyed farms were certified organic farming facilities, but did not belong to associations. All respondents had used the help of advisers. Also Leszczyńska et al. [2012] showed that farmers were eager to use consultancy services provided by specialists from the Agricultural Advisory Centre (ODR), consultants of the Agency for Restructuring and Modernisation of Agriculture (ARiMR), or corporate consultancy workers.

None of the respondents had discussed with their children yet the issues of the taking over the farm and continuing organic production.

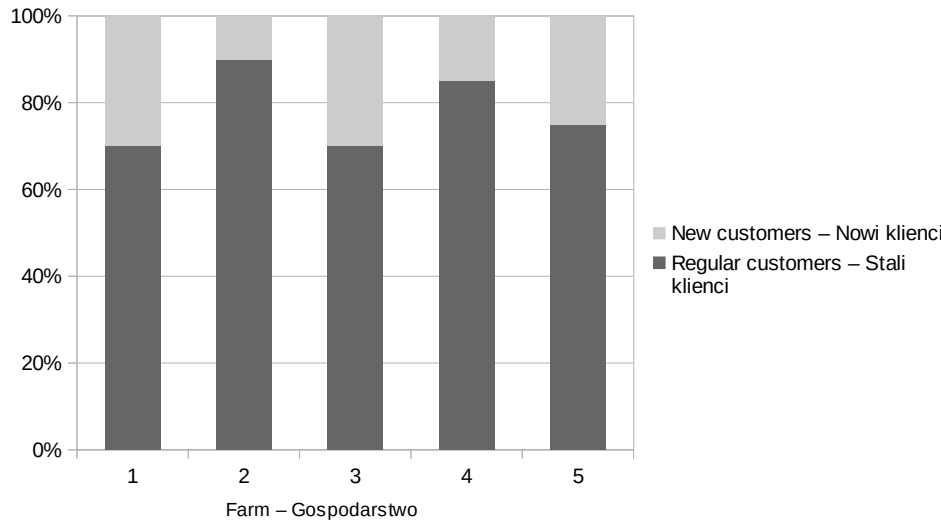

Fig. 3. Regular and new customers in the structure of buyers of organic products in surveyed households (for explanations see Table 1)

Rys. 3. Udział stałych i nowych klientów w strukturze kupujących produkty ekologiczne z badanych gospodarstw (objaśnienia: jak w tabeli 1)

CONCLUSIONS

The data collected in the survey create a picture of the organic table-eggs producing farms located in the Lublin Voivodeship. In conclusion, the farms were run by men at age 30 to 40 years. The main reasons to undertake organic poultry production was a low cost of flocks, adaptability of housing facilities and runs, as well as the popularity of organic produce (eggs, meat). The farms managed mainly the Greenleg Partridge breed of chickens. The reasons behind the selection of this breed were: its high productivity under organic production, low environmental requirements, popularity of the name and product quality, and resistance to diseases. Most farms managed flocks ranging from 100 to 300 chickens. All farm operators confirmed that their poultry production is profitable.

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CHARAKTERYSTYKA GOSPODARSTW EKOLOGICZNYCH ZAJMUJACYCH SIĘ PRODUKCJĄ JAJ KONSUMPCYJNYCH NA TERENIE WOJEWÓDZTWA LUBELSKIEGO

Streszczenie. Celem podjętych badań była analiza ekologicznych gospodarstw rolnych zajmujących się produkcją jaj konsumpcyjnych na terenie województwa lubelskiego. Badania wykonano w 5 gospodarstwach zlokalizowanych na terenach powiatów łęczyńskiego, puławskiego oraz ryckiego. Badania przeprowadzonych w oparciu o przygotowaną ankietę. Z analizy danych wynika, głównymi powodami podjęcia ekologicznej produkcji drobiarskiej był niski koszt zakupu zwierząt, łatwość adaptacji budynków i wybiegów oraz popularność produktów (jaj, mięsa). W badanych gospodarstwach wiek właścicieli gospodarstwa mieścił się w przedziale od 30 do 40 lat (80% ankietowanych) oraz od 40 do 50 lat (20% ankietowanych). Prowadzący te gospodarstwa to mężczyźni posiadający rodziny. Wykształcenie średnie posiadało 80% respondentów, a 20% wykształcenie wyższe o specjalności agroturystyka. Średnia powierzchnia badanych gospodarstw ekologicznych wynosiła 14.2 ha. W strukturze upraw w badanych gospodarstwach ekologicznych przeważały zboża od 46.7% do 100%. W gospodarstwach istniała możliwość zakupu warzyw, owoców i jaj. W niektórych można było również kupić mleko i jego przetwory oraz przetwory owocowe i warzywne. Wszystkie badane gospodarstwa ukierunkowane były na produkcję jaj kurzych. Do ras kur utrzymywanych we wszystkich gospodarstwach należała Zielononóżka Kuropatwiana. Źródłem pozyskiwania piskląt we wszystkich badanych gospodarstwach był zakup z wylęgarni lub zakup z innego gospodarstwa ekologicznego. W większości badanych gospodarstw liczebność ptaków kształtowała się na poziomie od 100 do 300 osobników. Nieśność w poszczególnych gospodarstwach wynosiła od 90 do 125 jaj od nioski. Kury żywiono systemem tradycyjnym, wykorzystując pasze ekologiczne z własnego gospodarstwa. Ptaki miały dostęp do wybiegów. Utrzymywane były w kurnikach murowanych, w systemie ściołowym. Wszyscy respondenci odpowiedzieli, że promocja ich gospodarstwa oraz wytwarzanych produktów (jaj) jest prowadzona za pośrednictwem rekomendacji klientów. Podkreślili, że stali klienci, którzy stanowili od 70 do 90% kupujących, często przyprowadzali nowe osoby chętne do zakupu produktów ekologicznych Wszyscy prowadzący analizowane gospodarstwa ekologiczne odpowiedzieli, że produkcja drobiu jest opłacalna.

Słowa kluczowe: gospodarstwa ekologiczne, drób, Zielononóżka Kuropatwiana, jaja konsumpcyjne

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