

ECOLOGICAL PRODUCTION AS A MARKET REGULATOR FOR THE PORK MARKET IN THE COUNTY OF OSIJEK AND BARANJA

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ABSTRACT

The objective of this research was to examine our consumers' perception of the high-quality ecologically produced meat and to ascertain to what extent this form of production and the quality of thus obtained pork can influence the pork market flows and be a regulator of this market. Based on the results of our research, we may conclude that pork is an important foodstuff in the diet of the residents of the County of Osijek and Baranja, since more than 80% of our subjects eat pork at least once a week. Price, instead of quality, is still the most important criterion for the purchasing of meat. More than 40% of the subjects pay no attention to the origin of meat when purchasing it, and a third of them do not check whether the meat is suitable in terms of health. Although the entire population is aware of the ecological method of pig-breeding, almost a third of them do not consider this method of pork production positive. Half of the subjects are not ready to pay a higher price for the meat produced by means of the ecologically acceptable method, in spite of the fact that they believe such meat to be of higher quality. Due to this reason, at this moment ecologically produced pork does not have a notable effect on market flows and market regulation. In order to obtain such an effect, certain requirements need to be fulfilled. This pertains primarily to the growth of the purchasing power of the population, ecological awareness and changes in the diet of our population towards the consumption of healthier foods.

Key words: pigs / ecological production / marketing / consumer attitudes / questionnaires / Croatia

EKOLOŠKA PRIREJA KOT REGULATOR TRGA S PRAŠIČJIM MESOM NA OBMOČJU OSJEKA IN BARANJE

IZVLEČEK

Namen raziskave je bil ugotoviti potrebe potrošnikov po visoko kakovostnem ekološko pridelanem mesu ter proučiti, v kakšnem obsegu ekološka pridelava in kakovost tako pridelanga prašičjega mesa vplivata in uravnavata trženje le-tega. Na osnovi rezultatov raziskave je mogoče zaključiti, da je prašičje meso pomembno živilo v prehrani prebivalcev pokrajina Osijek in Baranja. Več kot 80% anketiranih uživa prašičje meso vsaj enkrat tedensko. Cena in ne kakovost je še vedno najpomembnejši kriterij za nakup mesa. Več kot 40 odstotkom anketiranih ni pomemben izvor mesa in tretjina jih ne preveri ali je meso zdravstveno neoporečno. Kljub temu da celotna populacija pozna ekološke načine reje prašičev, skoraj tretjina od njih tega načina prireje prašičjega mesa ne ocenjuje pozitivno. Polovica vprašanih za ekološko prirejeno meso ni pripravljena plačati več, kljub temu da menijo, da je takšno meso kakovostnejše. Tako ekološko pridelano prašičje meso trenutno nima pomembnega vpliva na tržne tokove in uravnavanje trga, zato bo potrebno v prihodnje izpolniti nekatere pogoje. V prvi vrsti se le-ti nanašajo na dvig kupne moči prebivalstva in njihove ekološke zavesti ter na spremembe v prehranskih navadah ljudi v smeri uživanja bolj zdrave hrane.

Ključne besede: prašiči / ekološka reja / trženje / potrošniki / odnos potrošnikov / ankete / Hrvaška

INTRODUCTION

Pig-breeding is the most important source of meat and meat products as foodstuffs in the diet of Croatian population. It is also an important branch of agricultural production in our country. In addition to the production of sufficient quantities of meat of adequate quality, the producers have recently been faced with a new task – the task of producing healthy and ecologically acceptable food. Special emphasis is being placed on production in conditions that would have a beneficial effect on the health and welfare of animals. The ecological pig production, which is carried out in deep litter housing, is becoming a more and more popular pork production method in our country. The ecological production of pork in deep litter housing is cheaper (Gentry *et al.*, 2002a; Morrison *et al.*, 2003) and more favorable from the viewpoint of health and welfare of animals, as well as from the viewpoint of ecology (Lyons *et al.*, 1995; De Jong *et al.*, 1998; Beattie *et al.*, 2000; Kelly *et al.*, 2000; Klont *et al.*, 2001; Guy *et al.*, 2002) in comparison with the conventional pig fattening. Research into the production and slaughter-house characteristics of fattened pigs has shown certain advantages of pig-breeding in deep litter housing (Beattie *et al.*, 1996; Morgan *et al.*, 1998; Beattie *et al.*, 2000; Spoolder *et al.*, 2000; Turner *et al.*, 2000; Klont *et al.*, 2001; Maw *et al.*, 2001; Lambooij *et al.*, 2004), but it has also shown some unfavorable effects that this method of pig-breeding might have on the above-mentioned characteristics (Gentry *et al.*, 2002b; Honeyman and Harmon, 2003; Morrison *et al.*, 2003). The conventional method of fattened pig and pork production does not meet most of these characteristics.

Our pork producers need to improve their competitiveness, which is at present quite poor in relation to producers from the European Union, and the most logical way to improve competitiveness is to improve meat quality. Since quality is the most important market property and the property which the consumers appreciate the most (Kolega, 2004), there are efforts to improve the sales conditions in the present situation, in which there is a surplus of the supply of meat at the market. Naturally, this is not the only requirement. In order for quality as the most important market property to become even more prominent, it is also necessary to influence input decrease in pig-breeding through additional measures of agricultural politics. However, the consumers' purchasing power and their perception that they are paying a higher price for a certain product due to its quality are also important market references in pork consumption.

The objective of this research was to examine our consumers' perception of the high-quality ecologically produced meat and to ascertain to what extent this form of production and the quality of thus obtained pork can influence the pork market flows and be a regulator of this market.

MATERIAL AND METHODS

For the needs of this research, we conducted a survey of pork consumption and the ecological aspect of pig-breeding among the residents of the County of Osijek and Baranja. The precisely defined objective and tasks of the survey served as the basis for our questionnaire. The pollsters had an initial training, where they learned about the method of conducting the survey and the method of recording the collected answers and opinions. The total number of subjects was 100 and the method of conducting the survey was filling out questionnaires. The questionnaire consisted of 15 questions pertaining to the purchasing and consumption of pork, as well as to the subjects' perception of the aspects determining the market value of pork – primarily its quality, price and origin. More than two thirds of the total number of subjects belonged to the category of the so-called “most active population”, aged between 20 and 50 (Figure 1).

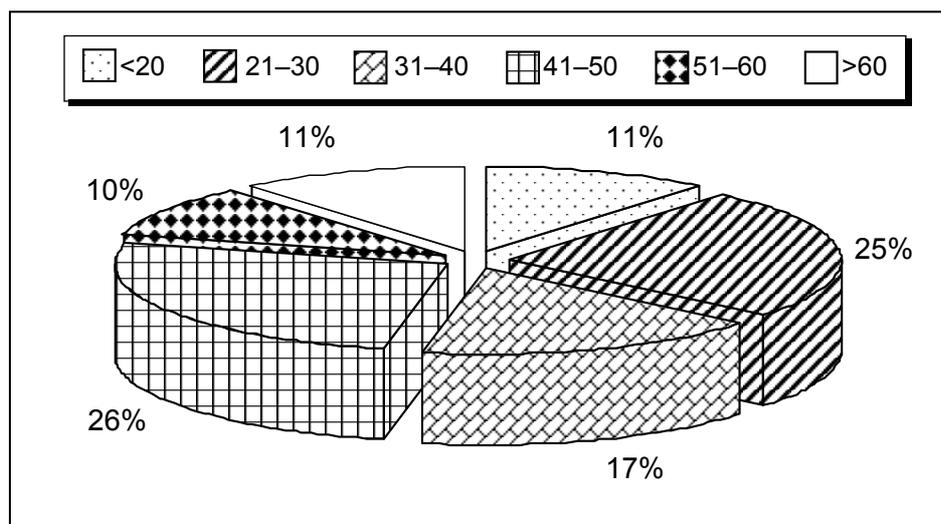


Figure 1. The subjects' age.

The results were processed on the basis of the whole sample, but also separately by the subjects' gender and age. Survey results were processed with the statistical package *Statistica for Windows 6.0*. Some results are presented in the form of figures and tables, while the remainder is presented in textual form.

RESULTS AND DISCUSSION

Bearing in mind the total population encompassed by this research, the results show that pork is a very important foodstuff in our population's diet, since more than 80% of the subjects eat pork at least once a week. The percentage is lower among the female population than among the male population. Pork as a foodstuff is most frequently consumed by the subjects between 20 and 40 years of age, while subjects under 20 years of age consume it the least frequently. When it comes to purchasing pork, more than 40% of our subjects buy it from private producers or produce it themselves, which is not surprising considering the fact that the County of Osijek and Baranja is the largest pork producer in Croatia and that the majority of this production comes from family farms.

The survey produced some very interesting results regarding the main criterion for the purchasing of pork. For the majority of subjects, price is the main criterion for the decision to purchase pork (Figure 2).

For more than 60% of female population quality is still the most important criterion for the purchasing of pork. The situation with the male population is the opposite – 65% of male consumers consider price more important than quality. If we take a look at the subjects' age, we see that the majority of people under 30 years of age believe quality to be the most important criterion, while people over 40 place the strongest emphasis on the price of pork. It is also interesting that not a single subject mentioned the package as the most important criterion for the purchasing of pork.

The consumers' perception of the production and purchasing of pork affects the market flows to a great extent, which is precisely why we made it the point of the strongest emphasis in this research. As can be seen in Figure 3, more than 40% of the subjects pay no attention to the origin of the pork when purchasing it, i.e. the question whether the pork was produced in Croatia or imported is irrelevant to them. Male subjects pay more attention to this criterion than female subjects. Furthermore, this criterion for the purchasing of pork was of greater relevance to

persons of older age than to younger ones. Concerning the suitability of meat with regard to health, it is significant that almost a third of our subjects do not take it into account at all when purchasing pork. The percentage is even higher with the female population. If we also take a look at the subjects' age, we see that the older age categories pay more attention to the suitability of meat with regard to health than the younger part of the population.

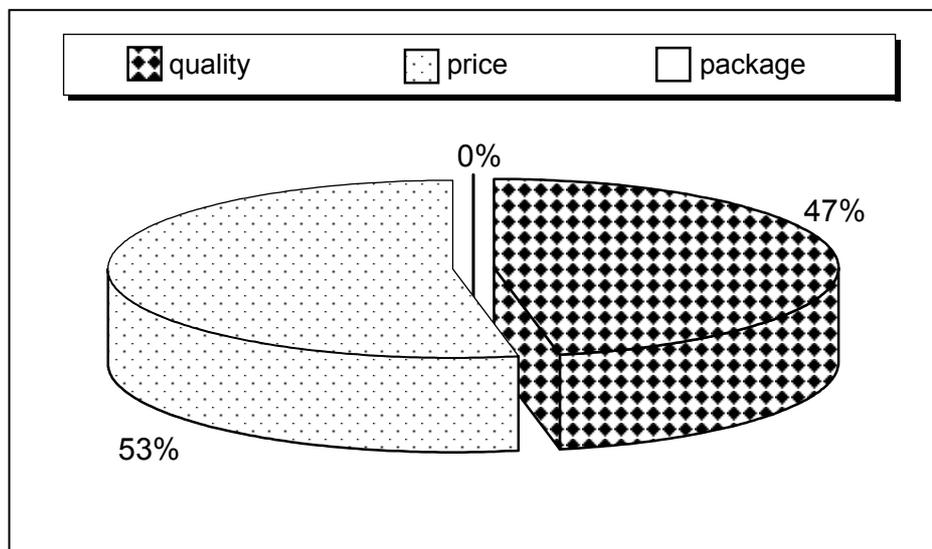


Figure 2. The criterion for the selection of pork.

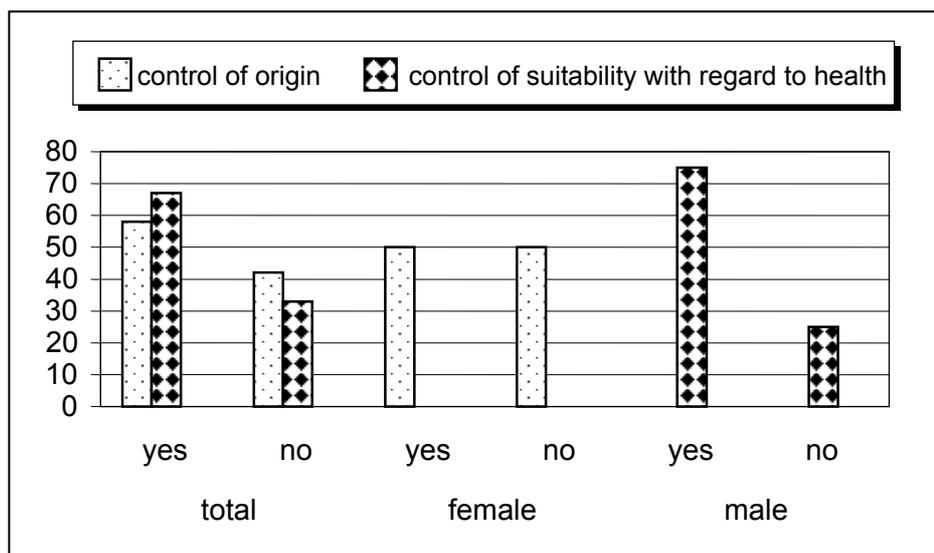


Figure 3. The consumers' perception of the origin of the meat and its suitability with regard to health.

The ecological method of pork production is gaining more and more importance in the whole world, and lately in our country as well. The consequence of the effect this method of production has on animal welfare and improvement of meat quality is the higher price of meat obtained from ecologically bred pigs. The purchasing power of consumers participating at the market must therefore be taken into consideration when evaluating the consumption of ecologically produced pork. Table 1 shows survey results pertaining to the perception of consumers from the County of Osijek and Baranja regarding the ecological production and consumption of pork.

Table 1. The consumers' perception of the ecological production and consumption of pork

Consumers' perception	Awareness of ecological pig-breeding	Positive evaluation of ecologically produced meat	Preparedness to pay a greater price for such products
All			
YES	99.00	67.00	52.00
NO	1.00	33.00	48.00
TOTAL	100.00	100.00	100.00
Female			
YES	97.92	72.92	52.08
NO	2.08	27.08	47.92
TOTAL	100.00	100.00	100.00
Male			
YES	100.00	61.54	51.92
NO	0.00	38.46	48.08
TOTAL	100.00	100.00	100.00

The table clearly shows that almost the entire population is aware of the ecological method of pig and pork production, notwithstanding the subjects' gender or age. Regarding their evaluation of this method of pig-breeding and pork production, almost a third of subjects do not consider it positive. The percentage is much higher among the male population than among the female population. If we compare the results based on the subjects' age, it becomes evident that younger age categories are more devoted to ecological pig-breeding and pork production than the older population. However, the consumers' readiness to pay a higher price for the meat of ecologically grown pigs at a given moment is definitely the most interesting part of the survey. Almost half of the subjects are not prepared to pay a higher price for such meat, even though they believe the meat produced by means of the ecologically acceptable method to be of higher quality. If we take a look at the subjects' gender, we see that there are no significant differences in this issue between the male and the female part of the population. As far as age structure of the subjects is concerned, the percentage of subjects from younger categories of population (from 20 to 40 years of age) who are ready to pay a higher price for ecologically produced pork is significantly higher than the same percentage of the population from the older age categories. The results stated above only confirm that, in addition to price and quality of the product, the purchasing power of the population and their traditional habits are very important market references that must not be neglected.

CONCLUSION

Based on the results of our research, we may conclude that pork is an important foodstuff in the diet of the residents of the County of Osijek and Baranja, since more than 80% of our subjects eat pork at least once a week. The fact that more than 40% of the subjects produce meat on their own family farms or buy it from private producers is also significant. Price, instead of quality, is still the most important criterion for the purchasing of meat. More than 40% of the subjects pay no attention to the origin of meat when purchasing it, and a third of them do not check whether the meat is suitable in terms of health. All of the results show certain aberrations with regard to the subjects' gender and age.

Although the entire population is aware of the ecological method of pig-breeding, almost a third of them do not consider this method of pork production positive. Half of the subjects are

not ready to pay a higher price for the meat produced by means of the ecologically acceptable method, in spite of the fact that they believe such meat to be of higher quality. These results concur with what we stated earlier about the price still being the most important market property with the strongest effect on the consumer. Due to this reason, at this moment ecologically produced pork does not have a notable effect on market flows and market regulation. In order to have an effect, certain requirements need to be fulfilled. This pertains primarily to the growth of the purchasing power of the population, ecological awareness and changes in the diet of our population towards the consumption of healthier foods.

REFERENCES

- Beattie, V.E./ Walker, N./ Sneddon, I.A. An investigation of the effect of environmental enrichment and space allowance on the behaviour and production of growing pigs. *Applied Animal Behaviour Science*, 48(1996), 151–158.
- Beattie, V.E./ O'Connell, N.E./ Moss, B.W. Influence of environmental enrichment on the behaviour, performance and meat quality of domestic pigs. *Livestock Production Science*, 65(2000), 71–79.
- De Jong, I.C./ Ekkel, E.D./ Van de Burgwal, J.A./ Lambooij, E./ Korte, S.M./ Ruis, M.A.W./ Koolhaas, J.M./ Blokhuis, H.J. Effects of strawbedding on physiological responses to stressors and behavior in growing pigs. *Physiology & Behavior*, 64(1998), 303–310.
- Gentry, J.C./ McGlone, J.J./ Miller, M.F./ Blanton Jr., J.R. Diverse birth and rearing environment effects on pig growth and meat quality. *Journal of Animal Science*, 80(2002a), 1707–1715.
- Gentry, J.C./ McGlone, J.J./ Blanton Jr., J.R./ Miller, M.F. Impact of spontaneous exercise on performance, meat quality, and muscle fiber characteristics of growing/finishing pigs. *Journal of Animal Science*, 80(2002b), 2833–2839.
- Guy, J.H./ Rowlinson, P./ Chadwick, J.P./ Ellis, M. Behaviour of two genotypes of growing-finishing pig in three different housing system. *Applied Animal Behaviour Science*, 75(2002), 193–206.
- Honeyman, M.S./ Harmon, J.D. Performance of finishing pigs in hoop structures and confinement during winter and summer. *Journal of Animal Science*, 81(2003), 1663–1670.
- Klont, R.E./ Hulsegge, B./ Hoving-Bolink, A.H., Gerritzen, M.A./ Kurt, E./ Winkelman-Goedhart, H.A./ De Jong, I.C./ Kranen, R.W. Relationships between behavioral and meat quality characteristics of pigs raised under barren and enriched housing conditions. *Journal of Animal Science*, 79(2001), 2835–2843.
- Kolega, A. Tržne odrednice hrvatskog svinjogojstva. Zbornik radova XI. Međunarodnog savjetovanja Krmiva 2004, Opatija, 2004-06-01/04. Zagreb, Grupacija industrije stočne hrane, 2004, 125–129.
- Lambooij, E./ Hulsegge, B./ Klont, R.E./ Winkelman-Goedhart, H.A./ Reimert, H.G.M./ Kranen, R.W. Effects of housing conditions of slaughter pigs on some post mortem muscle metabolites and pork quality characteristics. *Meat Science*, 66(2004), 855–862.
- Lyons, C.A.P./ Bruce, J.M./ Fowler, V.R./ English, P.R. A comparison of productivity and welfare of growing pigs in four intensive systems. *Livestock Production Science*, 43(1995), 265–274.
- Maw, S.J./ Fowler, V.R./ Hamilton, M./ Petchey, A.M. Effect of husbandry and housing of pigs on the organoleptic properties of bacon. *Livestock Production Science*, 68(2001), 119–130.
- Morgan, C.A./ Deans, L.A./ Lawrence, A.B./ Nielsen, B.L. The effects of straw bedding on the feeding and social behaviour of growing pigs fed by means of single-space feeders. *Applied Animal Behaviour Science*, 58(1998), 23–33.
- Morrison, R.S./ Hemsworth, P.H./ Cronin, G.M./ Campbell, R.G. The social and feeding behaviour of growing pigs in deep-litter, large group housing systems. *Applied Animal Behaviour Science*, 82(2003), 173–188.
- Spolder, H.A.M./ Edwards, S.A./ Corning, S. Legislative methods for specifying stocking density and consequences for the welfare of finishing pigs. *Livestock Production Science*, 64(2000), 167–173.
- Turner, S.P./ Ewen, M./ Rooke, J.A./ Edwards, S.A. The effect of space allowance on performance, aggression and immune competence of growing pigs housed on straw deep-litter at different group sizes. *Livestock Production Science*, 66(2000), 47–55.