

## **IMPACT OF EU REGULATIONS ON INVESTMENTS IN CROATIAN TABLE EGG PRODUCTION AND ITS COMPETITIVENESS**

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### **Abstract**

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Table egg production in Croatia is in the process of adjustment to EU standards. Direct questionnaire was aimed to determine the level of compliance of table egg production with the Council Directive 1999/74/EC, as well as to define future developments. Obtained results indicated that 85% of producers fulfilled all requirements, while 15% of producers still have not complied with regulative. Out of 85% producers that comply with EU legislative, 71% of them invested in enriched cages, which usage is already prohibited in some EU countries. Only 33% of producers used IPARD grants to invest in production facilities. This paper presents an overview of experiences of some EU countries related to implementation of regulatives and main characteristics of Croatian table egg production. Analyses are presented about costs in table egg production, egg market prices and implemented new technologies as key factors of egg production competitiveness. Based on analyzed factors, high production costs are affecting increased market price of eggs produced in Croatia, which has negative impacts on production efficiency and existence of Croatian table egg producers. In order to overcome all above stated issues, producers shall implement new technology, reduce production costs, focus on product properties that potential buyers will recognize and position themselves to meet consumers' needs.

*Key words:* production costs, investment, competitiveness, table egg production

*Abbreviations:* (EU) European Union; IPARD (Instrument for Pre-accession Assistance for Rural Development); AMIS (Agricultural Market Information System)

### **Introduction**

In recent years, agricultural production has been focusing on environment protection, animal welfare and food safety. Studies have shown that animal welfare had been more vulnerable in poultry industry than in other branches of livestock breeding. Therefore, since 2012 the EU Directive 99/74/EC (Council of the European Union, 1999) completely banned production of eggs in conventional cages. The stated Directive is incorporated into Croatian legislative, and refers to acts and regulations that define conditions of laying hens keepin (Crnčan et al., 2011). They are Animal Protection Law (Official Gazette, 2006), Regulation of Protecting Animals Grown for Producing Purpose (Official Gazette, 2010a), Regulation of Minimum Conditions for Laying Hens Protection (Official Gazette, 2010b) and Rules of Laying Hens Farm Registration (Official Gazette, 2010c).

According to many authors (Van Horn and Bondt, 2003; Van Horn, 2007), transition to poultry housing systems that are permitted by EU legislation (enriched cages and different alternative systems) resulted in significant increase in production costs, thus becoming a threat to its profitability. In addition, some leading EU countries in animal welfare have already banned production in enriched cages, while Croatian egg producers still install enriched cages in their production facilities. In order to assess the impact of legal provisions on the level of production adjustment, there was direct questionnaire carried out to determine scope of legislative implementation and assumptions for development of table egg production in Croatia. This paper overviews production of table eggs in some EU countries, and presents characteristics of Croatian production. Factors that can be influenced by producers are also presented within recommendations for improvement of competitiveness.

## Materials and Methods

Referring to the implementation of EU regulations, the direct questionnaire has been carried out in 2013 in order to determine level of adjustment of production to legal provisions and to define assumptions for future developments in table egg production in Croatia. Questionnaire was targeted to producers that hold most significant share of table egg production on the Croatian market, and whose production capacity was over 50 000 hens. According to available data, there were ten of such producers, whereas in the study there were seven participating. This paper presents an overview of EU legislation implementation in some EU countries, which was taken as an example of different production practices, as well as an example of different legislative measures compared to situation in Croatia. In addition to direct questionnaire, the author used methods of analysis and description and elaborated factors that affect table egg production competitiveness.

## Implementation of Regulations in Some EU Countries

The care about protection and welfare of poultry is not the same throughout Europe. Northern countries have detailed regulations which clearly state what is prohibited, while in the southern countries regulations say that animals should not be abused. In some countries, legal provisions are implemented strictly, while other countries do not necessarily follow such practice. There are also great differences in subsidy programs for poultry production (Appleby, 2003). Even before the EU Directives, the Dutch government encouraged producers to replace conventional battery cages with alternative keeping systems. It stimulated programs that develop and promote organic farming, so over 50% out of 30 million laying hens were kept in aviaries, in free-range or within organic production. Only several farms still use enriched cages, however these shall be in use only for next 7-8 years, and then prohibited by Dutch national legislation, which is stricter than the European one. In Switzerland, keeping of hens is the most common in aviaries (over 80%) in combination with winter gardens. The Swiss government also provides financial support for producers to build winter gardens. Egg production in Switzerland has undergone a strong campaign for improvement of quality and poultry welfare. In Sweden, hens are also kept in aviaries and in deep litter system (over 60%), while approximately 30% of hens is kept in enriched cages (Matković et al., 2007).

All above stated indicates that European egg producers are encouraged to use alternative production systems, so nowadays in some EU countries production in enriched cages

is not allowed because such cages are not in compliance with regulations on animal welfare. Moreover, potential consumers are encouraged to prefer eggs labeled with animal welfare care and food safety. Thus, the most labels are assigned to organically produced eggs, while eggs produced in enriched cages are not labeled.

## Results and Discussion

According to the research results obtained in 2013, only 15% of table egg producers did not adjust their production to comply with regulations. Out of 85% of producers that invested in production facilities and equipment, 71% used cages, and 29% opted for production in cages and in aviaries as being one of alternative systems. The most common problems that producers are faced with are adverse conditions on the supply market and insufficient state subsidy to poultry production. There are significant financial means needed for investments in egg production. Investment per one hen depends on current state of facilities and possible reconstructions. Some authors stated different costs as depending on hen keeping system, from 10-25 € per hen for cages, and from 30-50 € per hen for alternative keeping system (Elson, 2008; Agra CEAS Consulting, 2004). Only 33% of producers used grants awarded by the IPARD program for investments in production, and other 67% used bank loans. Unlike the previously mentioned countries that provided financial supports to producers for realization of investments, Croatian producers were not given such opportunities. More specifically, producers of fattening poultry, table eggs and hatching eggs have been approved 3.35 million € of state subsidies for the first time in 2008, but only 15% of that amount was allocated to table egg production. Subsidies were also granted in 2010 for the purpose of reconstruction and equipping of facilities, however these were given to producers with capacities of up to 10.000 hens. Due to table egg production structure with dominant intensive production units with more capacity than stated, that way of financial assistance was denied to all major table egg producers. Besides lacking of financial means for necessary investments, another stumbling stone to development is adverse supply market, referring to high costs of poultry feed and other inputs necessary for egg production. Figure 1 shows distribution of costs that occur in table egg production.

Cost of feed take up the largest share in the total costs of egg production, and it is to expect that its price will continue to rise linearly with other production inputs. The most examinees participating in direct questionnaire (77%) produce their own raw material for feed, and only 23% of producers buy commercial feed. Their own feed production achieves better results in fattening of hens and production of table

eggs because there are more opportunities to have high quality feed with less investment, which is one of conditions for profitable production. In case of purchasing basic nutrients such as corn and soybeans needed for hens' feed, producers are recommended to buy them immediately after harvesting because crop prices are the lowest then, which presupposes additional savings in production of animal feed. In any case, the goal is to produce high quality feed of high nutritional value, with as lowest costs as possible.

At the same time, table egg producers are burdened with bank loans. In addition to rising production costs, Croatian producers expect an increase in import of table eggs on Croatian market, which will affect domestic egg prices. According to data of the Agricultural Market Information System (AMIS), prices of eggs in the EU are significantly lower than in Croatia. Table 1 presents prices of eggs in the EU as of the L and M class per 100 kg of eggs. Since in Croatia prices of

eggs are not expressed per kg, the calculation was based on 1.587 pieces of eggs (50% of class L and 50% of class M) taken as a mass of 100 kg and then compared to EU prices.

As presented, egg prices in Croatia are significantly higher than egg prices in the EU countries. Increasing prices of eggs in Croatia are resulting from increased prices of poultry feed and increased retailer bonuses. Producers are not able to directly influence on egg price, since it is formed under the influence of market supply and demand. However, in order to achieve higher unit price, there has been only one of questioned producers to opt for aviaries as an alternative system of keeping hens. Such systems require greater financial investment in production, but produced eggs achieve higher market prices than eggs produced in enriched cages. In such case, the main indicator of competitiveness is measured by production cost on the one hand, and egg price on the other.

Competitiveness can be considered as microeconomic and macroeconomic category that depends on different factors. Results of microeconomic competitiveness represent macroeconomic competitiveness. Therefore, companies gain their competitiveness through selection of various elements, most commonly through technology, as it is taken as one of the most effective ways. When taking technology as a factor of competitiveness, then it can be associated with availability of new technologies or with opportunities to create new technologies (Bandur Malić, 2007).

As of the example of table egg production, available new technology imply its implementation according to the Council Directive 99/74/EC, which sets minimum requirements for protection of laying hens. According to research results carried out in 2009, only smaller part of producers adapted their technical and technological production facilities to meet legal requirements, while the same results in 2013 tend to be more optimistic. Table 2 compares results of direct question-

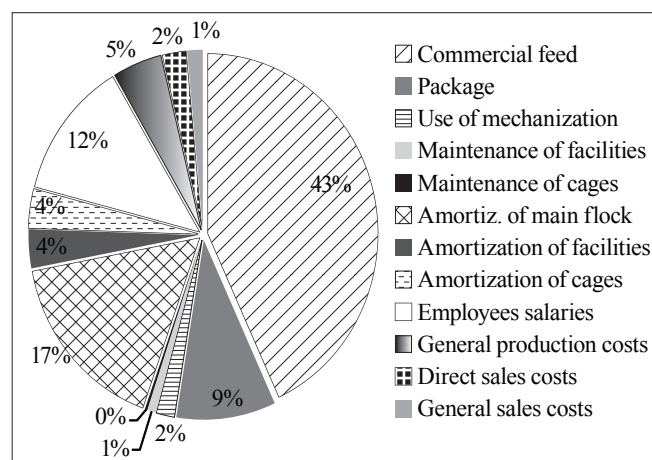


Fig. 1. Division of costs in table egg production

Table 1  
Average prices of eggs in EU countries (€/100kg of eggs)

Year	2010	2011	2012	2013
EU	111.68	114.52	162.36	120.13
RH	164.03*	174.56*	185.15*	192.94
Difference RH-EU	52.35	60.04	22.79	72.81

Source: AMIS; \*Author's calculation

Table 2  
Results of direct questioning of table egg producers in 2009 and 2013

	2009		2013	
	producers	%	producers	%
Production adjusted to regulations	1	20%	6	85%
Production not adjusted to regulations	5	80%	1	15%

naires carried out among the representative share of table egg producers in 2009 and 2013.

By comparing data obtained in 2009 and 2013, there are positive changes referring to adjustment of existing production to legal requirements. Still, future production for 15% of producers can be questionable, since they have not met required production standards yet. Such data suggest a possibility of reduction in current production of table eggs in Croatia. The majority of producers opted for production in enriched cages in order to reduce risk in production, while some producers decided to combine production in enriched cages and in an alternative system. Still, production in alternative systems is relatively unknown in our area. Investment costs are higher for such production, but price of eggs produced in these systems is higher. Consequently, measures such as reduction of costs or increase of egg market price can influence level of competitiveness in the sector of table egg production. Quality of products shall always be emphasized within competitiveness strategy.

Producers of table eggs have also a possibility to differentiate their products as of one or more properties that potential consumers will recognize and cherish. In this way producers can meet consumers' needs and position themselves on the market. Differentiation of products is different for each industry (Porter, 2008). Differentiation of table egg production can refer to production of liquid pasteurized eggs or eggs enriched with different nutritional substances. Such products are targeted towards specific group of customers that are able to recognize such difference. Production of such products offers greater opportunities for business success and competitiveness. In any case, it is important to achieve and sustain differentiation of products in industry, providing that product price does not exceed additional costs incurred as a result of such products' uniqueness.

## Conclusions

The majority of Croatian table egg producers (85%) adjusted their egg production to legal framework. Although some EU countries recommend prohibition of production in enriched cages, Croatian producers still install those in their facilities. As of the direct questionnaire results, there was only one of seven producers to opt for egg production both in aviaries and in enriched cages, while the remaining six producers continued with production in enriched cages. Problems that egg producers are faced with are unfavorable supply market conditions and insufficient state subsidies for poultry production. Only 33% of producers used grants of the IPARD program for investments into production, while other 67% of producers stated that they used bank loans.

Increase in production costs are recognized by producers as the greatest stumbling stone in their future production. It is also expected to have greater supply of eggs on Croatian market, which will affect price reduction. In order to achieve higher unit price, only one of questioned producers opted for egg production in aviaries. In order to overcome these difficulties and become more competitive, producers should implement new technology for egg production within alternative systems, connect horizontally in order to reduce production costs, and focus on differentiation of products to get better product value.

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