

Agricultural Production and Food Safety in Hungary

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Abstract. Consumers of the developed world tend to give more and more consideration to food safety, production-related environmental issues, health-consciousness and other credence attributes of food. Global food systems are increasingly based on trust and symbolic dimensions and quality systems are to provide information on and assistance for those attributes that cannot be evaluated during purchase. In our paper we collected all the quality systems applicable in the (Hungarian) horticultural production. Then primary research was carried out in 2009-2010 among the Hungarian horticultural Producer Groups (PGs), Producer Organisations (POs) and retailers/processors of fresh fruit or vegetable to know and assess their knowledge, attitude and application of quality systems. Quantitative and qualitative evaluation methods as Pearson's Chi-square test, Friedman, Wilcoxon and McNemar tests, factor and discriminant analyses were used. The main motives are clearly market retention as well as the requirements of their customers and trading partners with obtaining new and international markets slightly behind. Three latent factors have been identified behind the motivations by factor analysis: internal motivation, external motivation and external pressure. The most important result of system application is market retention, more than 63% (maximum score being 85%) of the respondents marked it as very important. Many of these respondents could not supply at least some of their customers without the phase systems and certificates.

Keywords: horticulture, quality schemes, motivation, POs

1. Introduction

Consumers of the developed world tend to give more and more consideration to food safety, production-related environmental issues, health-consciousness and other credence attributes of food (GMO-free, organic products) [1]. Demand for information about food (the importance of geographical origin, ethical and social compliance) and demand for convenience and premium products are increasing [2] as the success or failure of a product lies in the hands of the customers [3]. Global food systems are increasingly based on trust and symbolic dimensions and quality systems are to provide information on and assistance for those attributes that cannot be evaluated during purchase. The focus of consumer trends has been shifting onto credence attributes and consumers tend to rely on information from packaging and quality signs in their purchasing decisions in order to decrease the information asymmetry between producers and consumers [4].

The number of and the areas covered by quality certification systems are steadily rising in the last 30 years. The export- or retail-oriented producers must face not only the import and local regulations but there is a variety of additional requirements on different (partly niche-) markets to be complied with. In my opinion the subject has a great significance since food is involved, which are irreplaceable, confidential products, and their safety (quality) is needed to guarantee [5].

In order to achieve this, on the whole length of the supply chain, on its all items a control process must be implemented. Precisely because of its inadequacy various private initiatives appeared to meet the highest possible level of consumer expectations, mainly on the field of primary production and produce handling which are the least controlled parts of the chain. Meeting the consumer expectations influences crucially the export ability of the Hungarian products. Quality in general is very popular in Hungary as well, despite this, the specialties and unique requirements of the agriculture-specific systems are poorly researched and applied.

2. Material and methods

2.1. Material

Primary research was carried out in 2009-2010 among the Hungarian horticultural Producer Groups (PGs), Producer Organisations (POs) and retailers/processors of fresh fruit or vegetable to assess their knowledge, attitude and application of quality systems. We chose the producer organisations because they are the basic elements and subsidised units of the European Common Agricultural Policy and they constitute a well-known reference population. Statistical data can hardly be found about them.

2.2. Methods

With the theoretical foundation laid down for the research during the primary research, we collected qualitative and quantitative information using standard questionnaire and expert in-depth interview techniques. We made two interrelated questionnaires, one for the producer side and the other for the customer side in order to ensure comparability in some questions.

Quantitative and qualitative evaluation methods, most often cross and frequency tables were used. The independence in the correlation examinations was verified by Pearson's Chi-square test and Fisher's exact test, while Cramer's test was applied for the strength. Nonparametric tests were performed for the assessment of ranking importance of factors. We used Friedman test for all factors and Wilcoxon and McNemar test for pairwise comparisons. Factor analysis was used to determine the latent variables, then the respondents were grouped with cluster analysis (K-mean method). Discriminant analysis was then performed to confirm the results of the cluster analysis. We performed in-depth interviews with three representatives of the authority, consultancy and professional organisations respectively based on interview plan and checklist [6].

The analysis of data obtained from questionnaires and interviews were examined with Pasw Statistics 18.0 (formerly known as SPSS 18.0) and SPSS Clementine software applications, while Microsoft Office Excel software was used to make graphs.

3. Results

3.1. Attitudes and opinions concerning quality systems

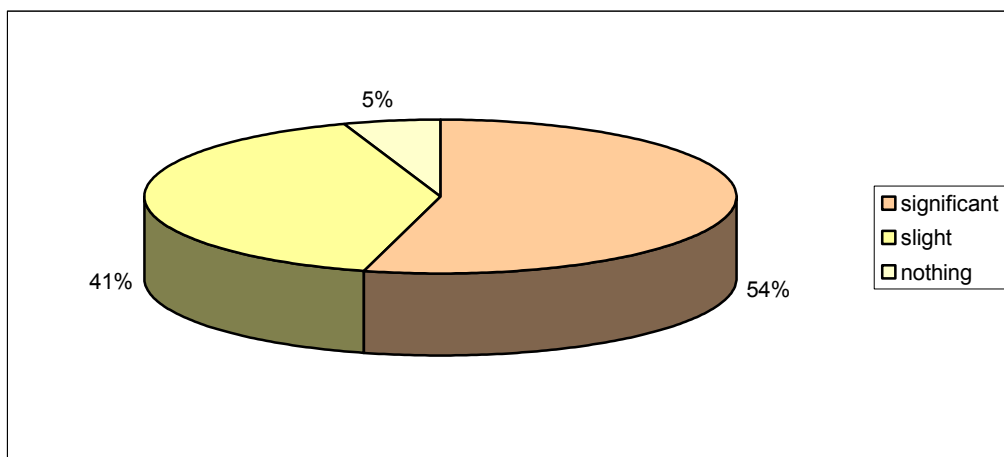


Fig. 1: General respondent opinion on the impact of the system on quality.

As seen on Fig. 1. 95% of the respondents felt that quality systems have a palpable impact on the quality of fruits and vegetables on the market. An added value of the answers is that nearly 70% of the answers came from professional staff. Opinions about the strength of this effect are, however, divergent, 54% considers it significant as opposed to the 41% who thinks that this effect is slight. The dominant opinion of the customer side is that the systems have a slight effect but processors evaluate it significantly more important than the retail respondents do.

Eight general scheme factors have been identified which is inherent in almost every system and asked respondents to assess their importance. The product quality is the most important (0.709 Wilcoxon test),

traceability and hygiene were the second group (Wilcoxon test, 0.828), yet these are clearly more important for the respondents than the third category of environmental protection, occupational safety and sustainability. The marketing value of systems forms a separate group, which the respondents strongly devalued. The factors are plotted on Fig. 2 based on their (converted) rank average.

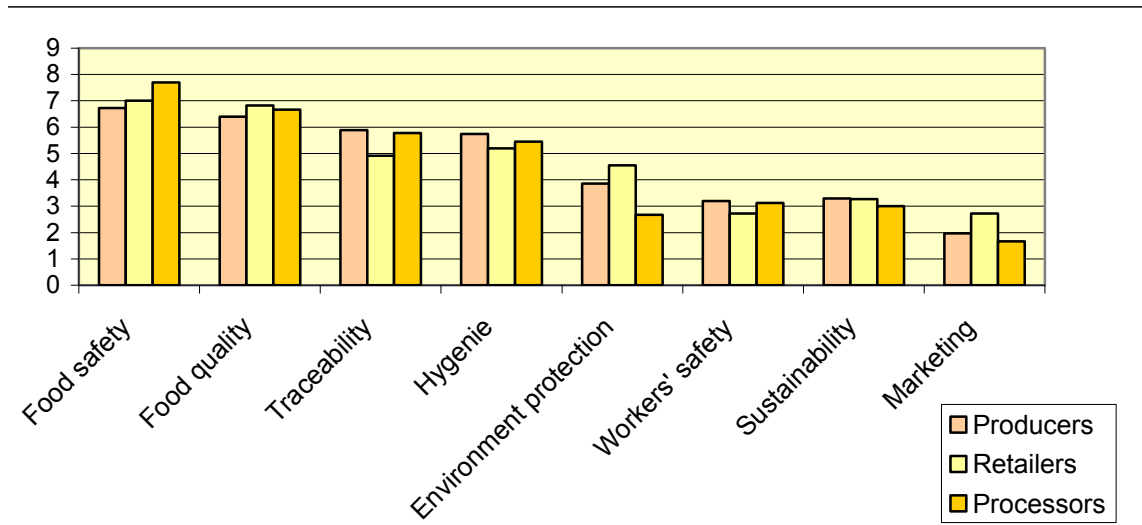


Fig. 2: The importance of general scheme factors

3.2. Motivation for system implementation

The respondents evaluated the pre-listed factors, the strength of their motivation in their case (Fig. 3).

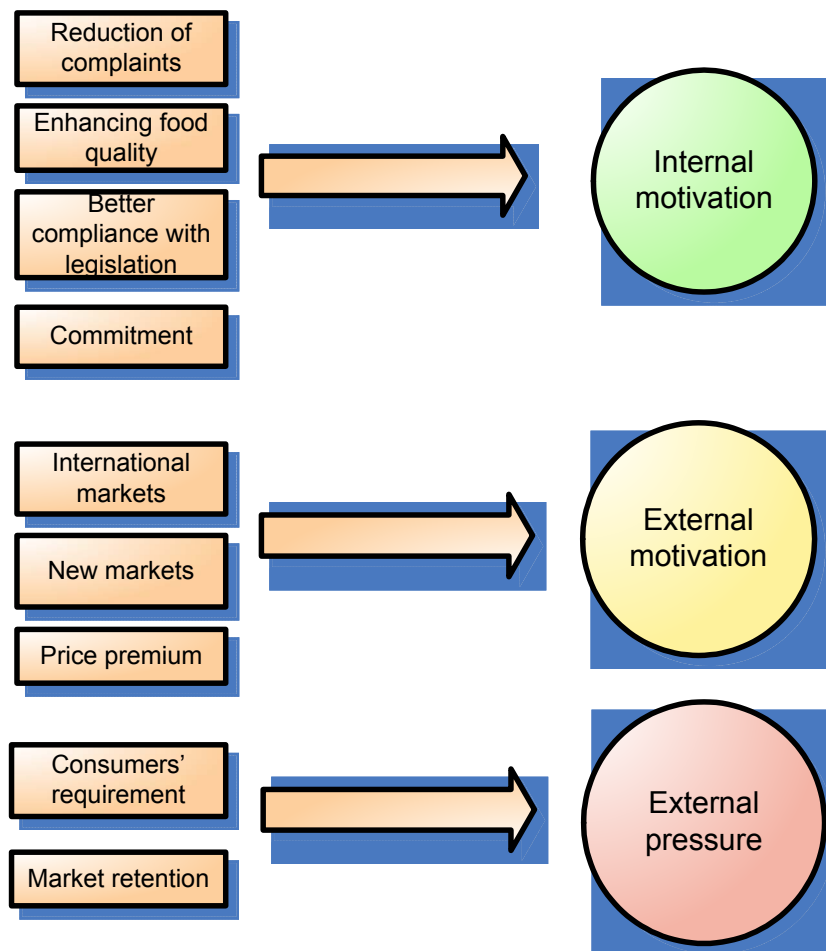


Fig. 3: Identification of latent variables behind the motivations.

The main motives are clearly market retention as well as the requirements of their customers and trading partners with obtaining new and international markets slightly behind. The respondents did not think that the system operation would result in price premium, they rather hoped for an increase of their sales volume. The enhancement of product quality, reduction of customer complaints and compliance with legislation were not decisive factors. Factor analysis was performed to identify the latent factors behind the motivations. The factor analysis identified three factors behind the listed factors.

The first factor contains complaint reduction, quality enhancement, formal compliance with legislation and commitment to their systems. Given the nature of its contents, I have named this latent factor *internal motivation*. These factors derive from the company culture and management philosophy, direct external impact cannot be found.

The second factor including international appearance, reaching new markets and price premium has been named *external motivation* because internal decision and the recognition of external needs combine here.

The third factor contains market retention and customer demand which are purely external requirements that are independent of the company, thus its name is *external pressure*.

3.3. Results of operated quality schemes

The most important result is market retention, more than 63% (maximum score being 85%) of the respondents marked it as very important. Many of these respondents could not supply at least some of their customers without the phase systems and certificates.

This ratio almost fully corresponds with the proportion of respondents who decided on the system owing to external pressure. The following two result factors, the better compliance with legislation and the enhancement of product quality (63 and 62% respectively), show a minimal difference. Reaching new markets (international market presence and expanding customer base) is just a little behind.

Complaint reduction and more efficient operation scored moderate results (45 and 44% respectively). System introductions typically do not yield any results in tender awards and employee satisfaction. Eight respondents identified winning professional awards as a result of their quality systems. The respondents mentioned winning the Hungarian Agricultural Quality Award three times, obtaining the Quality Food from Hungary trademark three times and winning the HORTICO Product Award two times. Fig. 4 shows the comparison of the main results against the motivations.

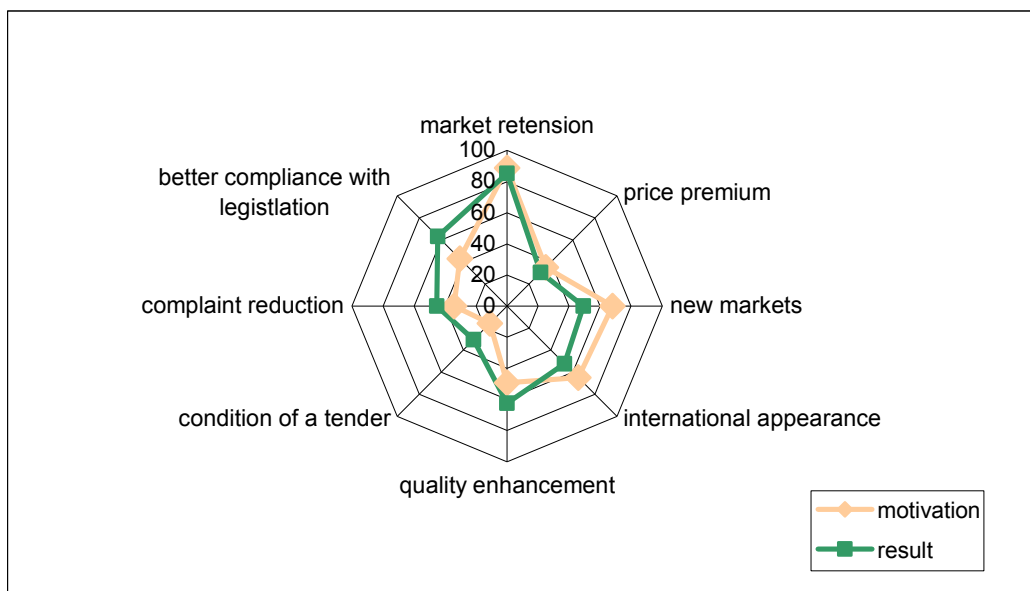


Fig. 4: Comparison of the respondents' motivations against the perceived results.

The main motivation, i.e. market retention, almost completely succeeded. Finding new markets and international appearance are a little less than expected, the producers were more optimistic but their hope that the certificate would open up new possibilities for them has not been fully realised. The price premium is

slightly below the expected and based on replies from respondents of the retail/processing survey, reaching price premium is not possible, only organic products can reach it and even this is rather occasional, too.

4. Conclusions and suggestions

The trend for the future development of food supply chains clearly points towards a general regulation covering all elements, which means that horticulture must also catch up with the other actors. The only question is whether this regulation will be realised on a voluntary or mandatory basis. Some quality systems – especially the basic ones that specify minimum requirements for retailers and processors– are already, "quasi-voluntary. In practice they are transportation requirements in almost all cases (e.g. GLOBALGAP). In the light of the present conditions it can be stated that the increase of the number of quality systems is slowing down but their significance will not be decreasing. It is extremely important that all participants of the supply chain should understand the business processes, market dynamics and the nature of the operations in which are involved.

Hungarian producers wishing to supply exporting or international companies and retail chains must use these internationally acknowledged and applied systems. The vast proportion of the above mentioned producer groups has already been applying more than one quality systems, so the situation is not so bad, at least not in the "white" sector. The greatest disadvantage of the schemes is the administrative and financial burdens they pose, as in the case of the most commonly used basic systems revenue growth or price premium cannot be realised owing to the increases in cost. The value-added systems typically brings price premium only to the retailers, organic production being the only exception to this rule. In our opinion, inclusion of the principles of system benchmarking in the emerging new quality policy would be important to consolidate the producers' burdens.

It is also observed that due to the dominance of external pressure during the introduction and operation, producers do not give due consideration to the positive effects that a system may result. The most important effect of the systems is changing the producers' mindset and approach to quality, which has been forming over the past decade. The care, control and more transparent processes may lead to increased operational efficiency, and if they do not treat the process merely as "paper buying" but really implement the system, they can noticeably improve product safety and quality, making it easier to handle and reduce customer complaints and also help to meet legislation requirements. I think the incorrect consultant practice of often forcing a general system-frame upon producers with the purpose of saving energy and costs (for themselves) instead of offering customised systems also adversely affects the emerging approach to quality.

5. References

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