

# Age management as a human resources management strategy with a focus on the primary sector of the Czech Republic

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**Citation:** Urbancová H., Vrabcová P. (2020): Age management as a human resources management strategy with a focus on the primary sector of the Czech Republic. *Agric. Econ. – Czech*, 66: 251–259.

**Abstract:** Primary sector, especially agricultural companies, have long been struggling with labour shortages and demographic trends as well as with negative age structure of employees. The article, therefore, aims to identify the organisational benefits and strategies of human resource management that will help ensure a generational change in selected agricultural companies in primary sectors. The data was obtained on the basis of quantitative research in 136 companies operating in the primary sector according to the CZ-NACE methodology. More than 75% of the enterprises assessed do not apply age management, the biggest obstacle being staffing shortage in the area of age management. The respondents see the main benefits in retaining key employees, improving motivation, increasing performance, and improving organisational climate. The article is limited by its focus on the specific primary sector, nevertheless, this topic is very important in its focus on Common Agricultural Policy at the level of individual companies in all countries of the European Union.

**Keywords:** age; agricultural companies; the Czech Republic; human resource activities; knowledge transfer

The outflow of labour is a long-term trend in the primary sector (Jarský 2015), especially in agriculture in the Czech Republic, and it is a focus area of the Common Agricultural Policy. According to the CZ-NACE methodology, the primary sector is divided into agricultural and forestry companies. Although the situation in agricultural companies and forestry companies can be different (e.g. different objects of interest, different tasks in society and economy, different roles not only regarding the products, structure of technologies and machinery equipment, capital productivity and efficiency), the concept of Common Agricultural Policy (CAP) is common and focused on knowledge transfer and generation changes of human resource in both of these areas of the primary sector. The low level of knowledge in Central and Eastern Europe is associated with higher age structure, which hampers the nec-

essary processes of restructuring the primary sector (Rizov and Swinnen 2004). Donnellan et al. (2017) add that the primary sector has remained more important in the economies of Central and Eastern European Member States than in Western European countries, suggesting that the Member States have different future revenue and employment generating capacities and generally limited employment growth potential. The number of employees in the primary sector and related activities has been permanently decreasing since 1989, despite the increasing volume of work.

The share of employed persons working in the primary sector in total employment in the Czech Republic was 2.7% in 2014 and has a decreasing tendency, coupled with a deteriorating age structure, above all in agriculture. The number of people employed in agriculture is around 100 000 (approximately 75% in enterprises

of legal entities), which represents 1.9% of employment of the national economy.

Czech agriculture and forestry are characterised by a large average size of enterprises in the EU context. The large size of enterprises and the process of digitalisation, primarily of legal entities (but also of some natural persons) represents an opportunity for the development of advanced technologies due to lower fixed area costs. Due to the rapid growth in the relevant fields, there are also considerable demands on the skills and competencies of executives, their further development, and at the same time, there are rapidly increasing demands on information supply to these companies. The emphasis on cooperation and knowledge transfer between generations of employees is to be supported by age management. Applying age management helps to address the negative issues resulting from personnel changes. Ciutiene and Railaite (2015), Kosir and Soba (2016) define age management as creating conditions that take into consideration age at different levels (political, organisational, of work processes management, of physical and social environment). Age management is a relatively new concept in the Czech Republic. The situation is better at the society-wide level than on the organisational level, where it is still not being applied to a larger extent. The importance of population ageing issues linked to the necessity of generational change (Ciutiene and Railaite 2015; Brown et al. 2019) and ensuring the knowledge continuity is also underlined by the fact that the Ministry of Labour and Social Affairs has adopted the National Action Plan on promoting positive ageing and on implementing age management at the society-wide level, but not at the level of companies. Given the current situation and the expected demographic development, age management needs to be addressed not only at the society-wide level, but primarily at the organisational level and at the resulting individual level (Urbanová and Čermáková 2015; Wikstrom et al. 2018). It includes the adaptation of human resource management strategies and adjustment of company tools in order to set-up appropriate working conditions for employees of all ages. The decision whether to apply age management or not is entirely the responsibility of individual companies, including as regards solving generational change problems which will be all the more difficult and problematic in view of the demographic development and current labour market situation (Marcaletti 2014; Chmielinski and Karwat-Wozniak 2015; Kosir and Soba 2016). Dolisca et al. (2006) state that the age management process can be improved by providing information on the benefits of companies, by increasing

annual incomes, improving education, strengthening membership in companies, and by increasing involvement of women in the primary sector.

This article aims to identify the benefits and strategies of human resource management that will help to ensure generational change in agricultural companies.

## THEORETICAL BACKGROUND

The number of workers in agriculture has a decreasing tendency and older workers predominate. Compared to other EU countries, the share of the primary sector in the total employment in the Czech Republic is below average. According to employment forecasts of the Czech Republic until 2020, the number of employees is expected to fall. Nevertheless, new agricultural workers will be needed as vacancies will have to be filled due to workers retiring. Given these forecasts, the importance of age management in organisations, the promotion of collaboration between generations of employees, and the promotion of knowledge transfer between generations are increasingly important.

Many researchers comment on the impact of age on agricultural and forestry activities (Thacher et al. 1996). Age can affect the willingness to adopt new technologies (Davey and Furtan 2018). Older farmers are less likely to adopt new technologies or changes while younger farmers are less risk-averse (Brown et al. 2019) and are more likely to try innovative farming practices. As Dolisca et al. (2006) or Stacho and Stachova (2015) add, education and gender are important variables to explain the core components of strengthening participation in agricultural and forestry programmes.

The development of salaries and wages is not positive (Lorga and Dobre 2018) and the younger generation of farmers and foresters is not sufficiently interested in working in primary sector. Jarský (2015) states that the primary sector particularly lacks working labourers and quality loggers who, due to the development of salary and wage conditions, leave the sector or leave for more developed countries (e.g. Germany). The facts above can be summarised and illustrated by the fact that the average age of people employed in the primary sector, e.g. in agriculture, forestry and fishing, is 44.3 years, which is 1.8 years more than the average age of all employed people in the Czech Republic and situation is still worse (Czech Statistical Office, Institute of Agricultural Economics and Information). The generational change of workers in agricultural and forestry companies in the Czech Republic is currently an important topic and age management.

<https://doi.org/10.17221/11/2020-AGRICECON>

As one of the strategic human resource activities, the generational change can help alleviate the situation.

The application of age management in companies represents a specialised approach to their management, taking into account the current demographic conditions and age categories of employees (generations of employees) in order to meet the objectives of companies (Stankiewicz and Lychmus 2017). Age management is a current topic of human resource management. The application of its principles makes it possible to utilise the knowledge of the employees concerned to ensure the continuity of their knowledge among generations of employees in order to achieve the competitive advantage of the company. At the same time it is a tool that can be used to support employment of different age categories in the workplace and to detect and reduce the negative manifestations of approaches to different age generations (Marcaletti 2014; Hitka et al. 2017). Age management is potentially another way of utilising the human potential to maintain and enhance the organisation's performance with respect to future demographic trends (Chand and Markova 2019).

The existing research (Wikstrom et al. 2018) points to the benefits of age management in terms of generational changes, therefore the article aims to identify the benefits and strategies of human resource management that help ensure personnel changes in agriculture and forestry companies (Urbancová and Čermáková 2015).

In view of the above, it can be summarised that the primary sector is struggling in the area of human resources with:

- Insufficient generation change;
- Insufficient generation cooperation and knowledge transfer;
- Insufficient use of knowledge transfer methods and techniques.

Given the fact that the insufficiencies raise the priority of knowledge transfer at EU level and hence the emphasis on adequate support (including research on knowledge transfer mechanisms at EU level), the EU priority in developing independent advice, the focus on the use of digitalisation and its use for knowledge transfer and support for intergenerational cooperation. It is necessary to address these areas not only at EU or national level, but primarily at the organisational level, i.e. in individual companies. They must start with the application of management in which the potential of all workers, regardless of their age, is used properly and their knowledge and experience are shared effectively. Applying age management at the organisational level is one of the

tools that can be used to support the human resource strategy at the organisational level and at the same time fulfil the Common Agricultural Policy in the field of knowledge transfer at national and European levels.

## MATERIAL AND METHODS

A questionnaire consisting of 23 questions on age management application in selected agricultural companies and seven identification questions was used. The questionnaire was divided into four parts (conditions of age management application; benefits and limits of age management application; costs of age management; using working time organisation and knowledge continuity); for this article, the section "conditions of age management application" in agricultural companies was used. The age management focused on all age groups of employees in companies. In view of the current development of the shortage of young generation of farmers, the disadvantages of the rigid labour market in agriculture and the 50+ age group were primarily analysed.

The primary data was gathered by conducting quantitative research, using an online questionnaire technique of gathering data. The research was conducted by quota-based selection among the selected agricultural companies active in the Czech Republic ( $n = 136$ ), the results can be generalised only for the given control sample. In total, 1 270 e-mails to owners or management of agricultural companies were sent out, 136 returned, so it can be said that the e-mail return rate was 10.71%. The sample was based on the ALBERTINA database of companies. The questionnaire was completed by the middle or higher management of the addressed companies, in case of smaller companies by the owner itself (thus the responses reflected the point of view of their heads/owners/managers).

Using this statistical approach to sample size computation and based on the above-mentioned deviations, the number of respondents is in accordance with Krejcie and Morgan (1970) formula. The construct reliability was tested and validated by the Cronbach's Alpha coefficient.

The structure of the agricultural companies, participating in the research, was as follows (Tables 1–3).

The questionnaire was completed by the middle or higher management of the addressed companies and in case of small companies by the owner itself. Table 2 shows the gender structure of companies.

It is clear from the above mentioned that men (66.2%) dominate in the absolute majority of cases. It is

Table 1. Structure of companies by size

Size of companies	Absolute frequency $n_i$ (number)	Relative frequency $p_i$ (%)	Cumulative relative frequency $P_i$ (%)
< 50 employees	91	66.9	66.9
51–249 employees	36	26.5	93.4
250 employees and more	9	6.6	100.0
<b>Total</b>	<b>136</b>	<b>100.0</b>	–

Source: Own survey

Table 2. Structure of companies by gender

Employee structure by gender	Absolute frequency $n_i$ (number)	Relative frequency $p_i$ (%)
Women > men	19	14.0
50 : 50	27	19.8
Women < men	90	66.2
<b>Total</b>	<b>136</b>	<b>100.0</b>

Source: Own survey

also necessary to analyse the organisational structure in the age category of 50+ (Table 3).

Based on the recommendations of Anderson (2013), the tools of descriptive statistics were used to evaluate the results, namely the absolute and relative frequency statistics. The results were analysed using statistical tools – the dependence test ( $\chi^2$ ) and the power of dependence test (Cramer's  $V$ ). The significance level value was chosen as  $\alpha = 0.05$ . The dependence strength was computed using the Cramer's  $V$  measure (1) that is within  $0 \leq V \leq 1$ , irrespective of the contingency table volume:

$$V = \sqrt{\frac{K}{n \times \min(r-1, s-1)}} \quad (1)$$

where:

$V$  – Cramer's  $V$ ;

$K$  – test statistics;

$n$  – total of observations;

$r$  – number of columns;

$s$  – number of rows.

From multidimensional statistical methods, the factor analysis, as recommended by Anderson (2013) was used. The factor analysis is a technique that is used to reduce a large number of variables into smaller numbers of factors; in this research, Confirmatory Factor Analysis was used. The factor analysis was made by the Varimax method, and the Kaiser-Guttman rule was used (i.e. the dispersion value of substantial factors is higher than 1) to select the substantial factors. The values higher than 0.3, considered as key values in social science and primarily in the HR management, were considered as substantial. The method is rejected as little exact, insufficiently conclusive and subjective by some statisticians; on the contrary, researchers in social sciences (e.g. sociologists) often use and trust the factor analysis (Anderson 2013). This analysis was used to establish factors that collect the behaviour of respondents (owners/managers of agricultural companies) into meaningful groups. The IBM SPSS Statistics 24 statistical software was used to evaluate the results.

Table 3. Structure of companies by employees in the 50+ age category

Employees in 50+ age group	Absolute frequency $n_i$ (number)	Relative frequency $p_i$ (%)	Cumulative relative frequency $P_i$ (%)
0–5%	25	18.4	18.4
6–10%	19	14.0	32.4
11–15%	18	13.2	45.6
16–20%	24	17.6	63.2
21–30%	24	17.6	80.9
31–40%	11	8.1	89.0
41–50%	8	5.9	94.9
51% and more	7	5.2	100.0
<b>Total</b>	<b>136</b>	<b>100.0</b>	–

Source: Own survey

<https://doi.org/10.17221/11/2020-AGRICECON>

## RESULTS

First, it was necessary to determine to what extent the companies examined apply age management (Table 4).

Based on testing, a statistically significant relationship between the application of age management and the size of the companies has been proved ( $P$ -value = 0.000; strength of dependence 0.339, which is the mean dependence). Table 5 shows the reasons for not applying age management in the context of the size of the companies. Respondents were allowed to indicate more answers.

Determining the direction of age management development is the main criterion for successful imple-

mentation of the concept, which is helped by comprehensive measures based on both the national policy and on respecting the specifics of the organisation.

Support from the top management and analysis of the current situation is crucial. The research has also looked into the benefits of applying age management in the context of the size of the companies (Table 6).

Above all, the company management should be convinced of the added value that the group of older employees brings to the organisation. It turns out that it is beneficial for a company to invest in the health and education of the ageing workforce, as this is proven to reduce costs. The research has shown that the respondents

Table 4. Pivot table: Application of age management and the size of companies

Applying age management (number of companies)	Size of company			Total
	< 50 employees	51–249 employees	≥ 250 employees	
Company applies age management	13	15	5	33
Company does not apply age management	78	21	4	103
<b>Total</b>	<b>91</b>	<b>36</b>	<b>9</b>	<b>136</b>

Source: Own results

Table 5. Pivot table: Reasons for not applying age management and the size of companies

Reasons for not applying age management (number of companies)	Size of company			Total
	< 50 employees	51–249 employees	≥ 250 employees	
We do not regard age management as important	34	9	2	45
Application is challenging	13	10	1	24
We do not have suitable specialists on this issue	45	11	2	58
Organisational culture of company does not support the idea	21	2	0	23

Source: Own results

Table 6. Pivot table: Benefits of applying age management and the size of companies

Benefits of applying age management (number of companies)	Size of company			Total
	< 50 employees	51–249 employees	≥ 250 employees	
Retaining key employees	13	12	4	29
Getting talented employees	6	5	3	14
Improving motivation and performance of existing employees and organisational performance	5	14	4	23
Improving organisational climate	7	6	2	15
Improving organisational culture	4	5	3	12
Improving organisation's reputation	2	3	1	6
Improving employer branding	2	3	2	7
Gaining competitive advantage	1	0	1	2
Improving crisis management	1	3	1	5

Source: Own results



<https://doi.org/10.17221/11/2020-AGRICECON>

Table 7. Resultant factors by the Varimax method

Factors	Total variance	Total % of variance	Cumulative % of variance
Factor 1	3.052	33.914	33.914
Factor 2	1.435	15.949	49.863
Factor 3	1.215	13.497	63.360

Factor 1 – building internal employer brand; Factor 2 – building external employer brand; Factor 3 – ensuring knowledge continuity

Source: Own results

perceive the main benefits in retaining key employees and improving motivation and performance.

The obtained results were further subjected to multivariate statistics and the Varimax method was used in the factor rotation (Table 7).

The factor analysis identified 3 significant factors combining the analysed variables. The first factor has a strength of approximately 34%, the second approximately 16%, the third 13.5%. The aim was to reduce the individual variables into 3 summary factors. Table 8 below shows the results of the factor analysis in detail. The methods used in companies in relation to the development of different age categories have been examined. Table 8 that follows presents the estimated coefficient values for each factor.

The factor analysis has revealed 3 statistically significant factors in total, which together explain a total of about 64% of the resulting behaviour of the sample.

In case of the latent variable – Factor 1, improving organisational climate is the dominant variable, in case of Factor 2 the dominant variable is gaining a competi-

tive advantage, and in case of Factor 3 it is improving crisis management. The 3 significant explanatory factors are building the internal employer brand by applying the current trends in management, building the external employer brand, and ensuring knowledge continuity. The company's good reputation (both the moral and qualitative attributes of a legal entity) is one of its most valuable assets and is the best advertising, attracting other employees and helping to retain the existing ones. Good reputation of a legal entity consists of a number of partial values. We can name the personal qualities of the representatives (management, employees) and their professionalism, credibility, quality of products, services, observance of business obligations, trade secrets and know-how. It is undisputed that effectively encouraging employees to share knowledge can increase and maintain the competitive advantage of the company.

Taking into account the results achieved, it is possible to summarise that agricultural companies are not currently engaged in age management at the organisational level, mainly due to the lack of information on the appli-

Table 8. Resultant factors by the Varimax method, demonstrable benefits resulting from applying age management in agricultural companies

Variables	Factor 1	Factor 2	Factor 3
Retaining key employees	0.162	0.001	<b>0.706</b>
Getting talented employees	0.419	<b>0.539</b>	0.431
Improving motivation and performance of existing employees and organisational performance	<b>0.543</b>	0.599	0.085
Improving organisational climate	<b>0.906</b>	0.009	0.064
Improving organisational culture	0.346	–0.195	<b>0.704</b>
Improving organisation's reputation	0.095	<b>0.630</b>	–0.173
Improving employer branding	<b>0.724</b>	0.098	0.216
Gaining competitive advantage	–0.086	<b>0.791</b>	0.199
Improving crisis management	–0.099	0.391	<b>0.731</b>
<b>Total % of variance</b>	<b>33.914</b>	<b>15.949</b>	<b>13.497</b>

Factor 1 – building internal employer brand; Factor 2 – building external employer brand; Factor 3 – ensuring knowledge continuity; significant measures of association are in bold (according to Anderson 2013)

Source: Own survey

<https://doi.org/10.17221/11/2020-AGRICECON>

cation of age management. However, the use of age management has benefits for companies not only operating in agriculture, and it can be used in order to achieve a competitive advantage. However, given the unfavourable demographic situation in agriculture (the lack of young farmers), emphasis must be placed on intergenerational cooperation, knowledge transfer and support employee capacity. The examples of employee capacity building activities include: promoting healthy eating, rehabilitation and reconditioning programs, smoking cessation programs for employees, vaccination, and other health prevention packages. Other examples of good practice include reducing stress by relocating to other jobs, analysing the job in terms of ergonomics, promoting mental health, preventing burnout, and many others.

Focus on attracting of young farmers and facilitation of business development in rural areas, helping to transfer farms from "old" to "young" farmers is important along with advising them on administrative and transfers reducing transaction costs (handover plan) and providing advice on the possibilities of expanding and modernising a business (to create a business plan, what to produce), administration, subsidies.

Given the current state of the Common Agricultural Policy and the preparation of the new Common Agricultural Policy, it can be summarised that web portals, brochures, telephone consultations, field days and seminars are currently prevalent in knowledge transfer in agriculture. Personal counselling targeted at specific farm conditions is widespread to a lesser extent. In other words, the existing knowledge transfer system focuses mainly on the first objective: one-way knowledge transfer from experts (research) to entrepreneurs. Other goals, such as decision support, problem-solving, support for local initiatives and conflict resolution, which require individual involvement of the experts/advisors and longer cooperation with the client, are not sufficiently developed in the current agricultural knowledge and innovation system. This is due, among other things, to the low number of independent consultants, indicating the low capacity in this area. Their level of involvement in counselling suggests an even smaller ability than the total number of counsellors, and at the same time, the age structure of counsellors indicates their imminent further decline. These are the primary focus areas of the future Common Agricultural Policy.

## DISCUSSION

It is crucial for companies to effectively allocate key human, material, and financial resources. The authors

of scientific studies (Falk et al. 2018) agree that age management should be applied in all sectors of the economy, including agriculture. The agricultural sector in the country is an important source of job opportunities (Lorga and Dobre 2018). However, the labour market, especially for specific occupations such as agriculture, may not offer sufficient selection of young candidates. The number of age management projects aimed at supporting the 50+ age category in the Czech Republic has been slightly increasing recently (incentive programs, counselling, computer literacy, communication, ergonomic measures in workplaces, sports events). The concept of age management should become a part of corporate social responsibility. Companies build their good reputation not only of a business partner but also of a quality employer. Age management points out, among other things, that employing people aged 50+ has its advantages (Nowak and Kijek 2016). Wikstrom et al. (2018) emphasise not only social importance but the organisational one. It is necessary to talk about promoting diversity in the company and some support of organisational innovations (Huo et al. 2019). Wikstrom et al. (2018) agree that taking age into consideration is important in building a competitive advantage and efficient utilisation of human potential to improve the organisation's performance. The human factor plays a crucial role in meeting new requirements for greening the economy (Earl and Taylor 2015), which affects both agriculture and forestry.

The results have identified 3 significant explanatory factors of applying age management. A functioning internal communication that permeates a company is, according to many experts, a driving force of the company and at the same time, a prerequisite for smooth operation as well as organisational climate. McMurray and Scott (2013) state the organisational climate is understood as an integration of practical and theoretical disciplines that are interconnected. Abbah (2014) gives general recommendations – a conflict-free climate, an appropriate reward system, an opportunity for personal development, a sense of loyalty, a balanced relationship between employees in terms of the management hierarchy. Abbah (2014) add the need to establish an effective system of motivation, to create a sense of security and an effective system of communication.

Creating and maintaining organisational culture is currently gaining momentum. It is important to take the individuality of every employee into account and to emphasise diversity and application of strategic thinking. It is advisable to create individual working conditions for different categories of employees

and to ensure knowledge sharing from generation to generation (knowledge continuity). Managers should be informed about the issue through various forms of education and development. They should emphasise the employee development of all ages and develop career plans for their employees of all ages. Managers should also identify bottlenecks of the company's internal processes from the age management perspective, adopt specific forms of job interviews for different age groups, create tools supporting intergenerational learning, ensure a conflict-free climate, adequate reward system, personal development opportunities, sense of loyalty and balanced relationships among employees in terms of management hierarchy and, finally, develop health and safety measures. Targeted measures supporting employee health may be more beneficial to a company than redundancies.

In view of the current emphasis of the forthcoming Common Agricultural Policy on generational change and knowledge transfer aimed at promoting the competitiveness of agriculture and the food sector, measures are also being prepared in this area at the level of national policies. The proposals for redefining the future Common Agricultural Policy have several instruments that can partially contribute to improving the competitiveness of agriculture. In the area of generational cooperation and knowledge transfer, it is the support and creation of new demonstration farms and the use of field days to spread knowledge. In the future, given the increasing priority of knowledge transfer at EU level, it is necessary to focus on adequate support (including research on knowledge transfer mechanisms at EU level). The development of independent advice, the development of information technology and its use can also help intergenerational cooperation and support of age management. It is essential to realise that knowledge generation is necessary at EU level and that every person working in agriculture is a bearer of knowledge and can help intergenerational cooperation.

Climate change will force guidance needs. It is necessary to develop European cooperation structures through the Agricultural Knowledge and Information System.

## CONCLUSION

More than 75% of agricultural enterprises examined do not apply age management. As the results have shown, the biggest obstacles for companies include the lack of staffing capable of dealing with age management and the fact that they do not consider applying

age management important. At the same time, the statistically significant relationship between the application of age management and the size of the company has been proved. The respondents see the main benefits in retaining key employees, improving motivation, increasing performance, and improving organisational climate. The current demographic developments and labour market situation all the more increase the need for companies to respect the age of employees, to adapt organisational conditions, to apply measures supporting age management, and to avoid employee discrimination on the grounds of age. Applying age management increases the price of employees for the company and increases the competitiveness of the whole company. The practical contribution of the article is to present the results of research conducted in the selected agricultural companies focused on the application of age management and generational change. The article is limited by its focus on the specific sector of agriculture; however, it is the sector experiencing the greatest problems with the lack of qualified and skilled labour and negative age structure of employees. Further research will concentrate on the motivation of employees to choose a job in the agriculture sector.

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Received: January 10, 2020

Accepted: March 11, 2020