

Changes in agriculture and their impact on rural areas

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Citation: Doitchinova, J.; Stoyanova, Z.; Miteva, A. (2022). Changes in agriculture and their impact on rural areas. *Ikonomika i upravlenie na selskoto stopanstvo*, 67(4), 3-11 (Bg).

Abstract

In recent decades there have been observed rapid and significant changes in Bulgarian agriculture. The aim of the paper is to assess how changes in agriculture affect rural development and to offer guidelines for its improvement. The methodology uses a mixed approach combining quantitative and qualitative methods. The results of the survey are based on statistical information and results of expert assessment. The surveyed experts highly appreciate the importance of agriculture for rural areas. Some of the reasons for the formed structures and for the tendencies of development during the years of the Bulgarian membership in the European Union are also assessed.

Key words: structural changes; product structure of agriculture; rural development

Introduction

In recent years, Bulgarian agriculture has undergone constant changes. They are mainly aimed at concentration and specialization of production, increase in the size of agricultural holdings and annual liquidation of a large number of mostly small farms. The ongoing processes are similar to those in all new member states, and at a slower pace in other EU member states. A number of documents acknowledge that the rapid rate of concentration of agricultural production and the increasing polarization of agricultural structures have led to significant problems in both intensive and disadvantaged areas (EC, 2010, 2011). Rivera et al. (2017) emphasized that economic efficiency can no longer be the dominant criterion in agricultural policy and that large industrialized farms “are no longer an indisputable ideal”.

The declining trends of family farming, the intensification and industrialization of agriculture and increased competition for land, raises the question of finding adequate solutions for the adaptation of farms and rural areas (He-

binck, 2018). Some authors believe that farmers are expanding their economic base by combining it with other activities and thus developing multifunctional farms (Van der Ploeg, 2018b; Oostindie, 2015), others that farmers are focusing on promoting local products (Woods, 2015). A third part of the authors suggest that increasing the agri-environmental capital of family farms can contribute to their well-being through redistribution of resources and on the basis of production stocks (Van den Berg et al., 2018). Summarizing the changes, Van der Ploeg (2018) examines the two related processes – the reduction of the number of farms and the ways of organizing the production process of de-peasantization, and stresses that “agricultural production was to become a more peasant-like and more entrepreneurial” (Van der Ploeg, 2018a).

These processes are more pronounced in areas where land is used by large farms. As some researchers rightly point out, this leads to unemployment and the creation of a group of people deprived of property without alternative employ-

ment opportunities (Schutter, 2011; Visser et al., 2012). A natural result is the increase in migration and depopulation of rural areas.

In recent years, structural changes have been of interest in our country, with a number of researchers focusing on the speed and trends of change (Koteva, 2019) and their importance for rural areas (Doitchinova, Stoyanova, 2020; Doitchinova, Miteva, 2020; Doitchinova, Miteva, Zaimova, 2019), of regional differences and the competitiveness of Bulgarian agriculture (Sarov, Yanevska, 2022).

The aim of the paper is to assess how changes in agriculture affect rural development and to offer guidelines for its improvement.

Methodology

To achieve the goal of the article the authors analyzed the: 1) changes in the production structure in agriculture; 2) changes in agricultural organizational structure; 3) impact of agriculture and its changes in rural areas. On this basis are prepared conclusions and recommendations.

Analyses and assessment are prepared by usage of statistical methods and the method of expert assessment. They are combined in term to assess the impact of agriculture on rural development.

The analysis of the changes in the production and organizational structure are based on statistical data. For the analysis on district level was used the information from the Agricultural censuses 2010 and 2020 and the analysis on country level was prepared through the statistical data from the Annual report for the state and development of agriculture.

For the purpose of the survey were involved 163 experts from regional directorates, municipal services and regional offices of the National Agricultural Advisory Service. They are with average professional experience between 11 and 20 years and qualifications in agriculture (73%), social sciences (15%), technical sciences (6%) etc.

Three groups of questions from the questionnaire were used for the assessments made in the article.

The first group is related to determine the importance of agriculture for the region in economic, social and environmental aspects. This set of questions aims to assess the importance of agriculture for: rural areas; income generation; job provision; positive impact on the environment.

The second group of questions assesses the production specialization of agricultural holdings on district level. Experts evaluate the following statements:

✓ The specialization of the farms is suitable for the conditions of the region;

✓ Natural and climatic conditions, soil types, etc. create preconditions for the cultivation of crops and animals, from which higher incomes;

✓ Insufficient irrigated areas and unsupported irrigation facilities are a reason to limit the production of vegetables and fruits;

✓ The small number of inhabitants, the deteriorating age structure and their low qualification are the reason for limiting the labor-intensive productions (labor shortage).

The directions for the development of the agrarian business supported by the Common Agricultural Policy are also subject of evaluation. The role of CAP for: 1) production of quality products; 2) stimulation of direct sales; 3) application of agri-environmental schemes; 4) diversification of farm activities is also assessed.

Changes in the production structure of the sector and agricultural holdings

During the period of membership of our country in the EU, the importance of agriculture for the Bulgarian economy is gradually declining (reaching 3.8% of gross added value in 2019), despite the fact that agricultural production increased by 33% compared to 2007. At the same time, crop production has increased by over 80%, and livestock production with some fluctuations over the years – maintains its level.

Evidence of the changes in the product structure is the significant change in the ratio between crop production and animal husbandry. At the beginning of the period in 2007, the ratio between them was close to the formed average EU ratio, namely about 58% for crop production and

42% for animal husbandry. In 2019, if the relative share of crop production for the EU–28 increased by only 2% (reaching 60%), Bulgarian crop production has increased its share to 75.5%.

During the period under review, most significant is the increase in the production of cereals and oilseeds. In 2019, they form 51.1% of the final production and occupy 62% of the used agricultural land and form 53% of the standard production volume. In some regions of the country 3–4 cereals and oilseeds cultures occupy 90% and more of the used agricultural land with all the resulting adverse effects on the environment, soils, employment and income of farmers. This results in the low added value of area that is obtained in Bulgarian agriculture.

The most serious decline in the GVA of the agricultural sector is observed in vegetables, whose relative share decreased from almost 12% in 2007 to 5.6% in 2019. In practice, this production suffers the biggest loss from the policy changes.

The changes in animal husbandry are also significant. For the period (2007–2019) there is a decrease in the number of most species of animals. Most significantly in goats (more than 2 times), pigs (80.8%), sheep (19%), cattle (18%) and after a serious decline there is a gradual recovery to 1% in cows. Significant growth is observed only in the number of buffaloes by 85%.

The trend is towards consolidation of dairy herds, with a rapid decrease in the number of farms. In 2019, compared to 2007, only 11.8% of dairy farms continue to operate.

In Bulgaria, as in all new EU member states, there is a rapid decline in the number of agricultural holdings, especially in the group of the smallest in size. From 493,133 in 2007 to 2020, they reached 132,400 (Figure 1). This means that only 26.8% of farms have survived and continue to operate since 2007.

A logical result of the ongoing process of concentration of production is the significant increase in the average size of used agricultural land. The comparison by districts between the two censuses – 2010 and 2020, shows significant changes in all districts of the country (Table 1). The average sizes have increased most significantly in Vidin (more than 5 times), and the least in Smolyan and Dobrich (about 2.2 times). Most numerous are the areas in which the used agricultural lands have increased between 3 and 4 times. These are 13 districts or 48.1%.

The largest farms by UAA are in the districts of Pleven (96.5 ha), Dobrich (76.6 ha), Yambol (65.7 ha) and Ruse (65.3), and the smallest – in Smolyan (2.7 ha), Kardzhali (3.0 ha) and Blagoevgrad (5.5 ha). In 10 years, the ratio between the average sizes of farms at district level has increased from 1:29.4 (2010) to 1:35.7 (2020).

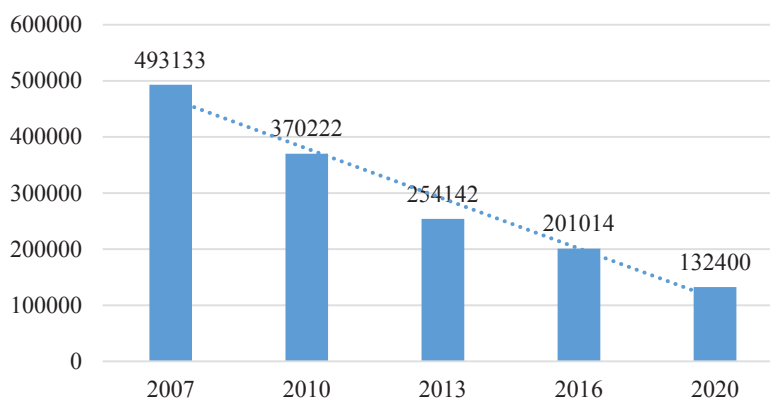


Fig. 1. Changes in the number of agricultural holdings (2007–2020)

Source: MAF, Agrostastic.

Table 1. Average size of used agricultural lands and its change for the period 2010–2020

District	Average size (ha)		Increase in the average farm size			
	2010	2020	2-3 times	3-4 times	4-5 times	over 5 times
Vratsa	17.95	61.2		3.41		
Montana	15.41	60.3		3.91		
Lovech	8.16	35.5			4.35	
Pleven	23.28	96.5			4.14	
Vidin	9.35	48.5				5.19
Ruse	22.12	65.3	2.95			
Veliko Tarnovo	23.27	72.0		3.09		
Gabrovo	9.83	35.1		3.56		
Razgrad	15.93	48.6		3.04		
Silistra	12.52	48.3		3.85		
Varna	13.1	58.6			4.47	
Shumen	14.85	37.7	2.54			
Targovishte	10.2	40.0		3.91		
Dobrich	33.53	76.6	2.28			
Burgas	13.17	44.8		3.4		
Stara Zagora	12.94	54.7			4.22	
Sliven	8.74	29.6				
Yambol	23.64	65.7	2.77			
Sofia-grad	12.59	53.0			4.2	
Blagoevgrad	1.54	5.5		3.56		
Sofia Region	6.54	31.0			4.74	
Kyustendil	3.39	11.7		3.45		
Pernik	11.48	32.4	2.82			
Plovdiv	6.58	22.9		3.47		
Haskovo	8.02	29.0		3.61		
Smolyan	1.23	2.7	2.22			
Pazardzhik	2.81	9.0		3.2		
Kardzhali	1.14	3.0	2.68			

Source: MAF, (2012, 2021) and own calculation.

Expert assessment of the changes

Despite the regional differences in the importance and the development of agriculture, the expert assessment of 163 specialists from all regions have high values in terms of the importance of agriculture for rural areas. The formed average score for the country is 4.18 (Table 2).

In 5 of the six planning regions, the average score is over 4 on a five-point scale. The highest score is in the Southeast region – 4.54, fol-

lowed by the North Central and Northeast – 4.33 and 4.25, respectively. The lowest score is in the Northwest region (3.91).

Assessments for agriculture as a source of income and jobs are significantly lower. All expert estimates for agriculture as a source of income range from 3.13 for the Northwest region to 3.85 for the Southeast. Estimates of the role of agriculture in creating new jobs in rural areas are slightly higher. They are highest again in the South-

Table 2. Regional differences in significance of the agriculture for the regions and expert assessment

District	Share (%) of agriculture ¹ from Agriculture					
	gross value added of agriculture	the economy of the district	is important for rural areas	provides income	provides jobs	has positive impact on the environment
V. Tarnovo	3.80	6.58	4.4	3.4	4	3.8
Gabrovo	1.47	4.24	3.67	2.33	2.67	3.67
Razgrad	3.57	13.82	3.5	3.5	2.5	3.5
Ruse	3.63	5.88	4.75	4.25	4	4.25
Silistra	3.61	19.39	4.75	4.75	4.5	4
<i>North Central</i>	<i>16.54</i>	9.64	<i>4.33</i>	<i>3.72</i>	<i>3.72</i>	<i>3.89</i>
Vidin	2.32	14.20	4.40	3.60	3.40	3.20
Vratza	3.75	7.88	3.75	3.25	3.50	2.50
Lovech	2.58	9.11	3.60	2.80	2.40	2.80
Montana	3.77	13.86	3.67	3.67	3.00	2.67
Pleven	4.13	7.92	4.00	2.67	3.67	2.67
<i>Nord West</i>	<i>16.07</i>	<i>8.10</i>	<i>3.91</i>	<i>3.13</i>	<i>3.22</i>	<i>2.78</i>
Varna	4.51	2.63	3.75	3.25	2.7	2.5
Dobrich	5.15	13.36	5	4.5	4.33	3.6
Targoviste	2.96	11.40	4	3.25	3.75	2.75
Shumen	4.29	10.99	4.33	4	4	3.33
<i>North East</i>	<i>16.9</i>	<i>6.15</i>	<i>4.27</i>	<i>3.74</i>	<i>3.67</i>	<i>2.92</i>
Burgas	4.93	4.02	4.33	3.50	3.17	3.17
Sliven	2.86	8.53	4.63	4.13	4.38	3.50
St .Zagora	4.34	3.80	4.75	4.00	4.00	3.75
Yambol	3.13	11.72	4.50	3.75	4.00	3.25
<i>SouthEast</i>	<i>15.26</i>	<i>5.14</i>	<i>4.54</i>	<i>3.85</i>	<i>3.92</i>	<i>3.38</i>
Kardjali	3.73	11.21	3.0	2.6	2.66	4.0
Pazardzhik	4.14	7.34	3.8	3.67	3.5	3.33
Plovdiv	6.91	3.22	4.6	4.0	3.58	3.28
Smolyan	2.01	7.40	4.0	4.0	3.83	5.0
Haskovo	3.97	8.71	4.6	4.36	4.33	4.0
<i>South Central</i>	<i>20.76</i>	<i>5.5</i>	<i>4.04</i>	<i>3.72</i>	<i>3.56</i>	<i>3.88</i>
Blagoevgrad	5.51	7.88	4.5	3.7	4.0	3.5
Kjustendil	2.27	9.11	4.45	3.82	3.55	3.55
Pernik	1.31	5.26	3.8	2.8	2.8	3.0
Sofia-district	3.77	4.37	3.57	2.57	2.0	2.57
<i>South West</i>	<i>14.46</i>	<i>6.24</i> ²	<i>4.18</i>	<i>3.36</i>	<i>3.24</i>	<i>3.24</i>
Bulgaria	100	100				

Source: National statistical institute, 2020 and own survey.

¹ 2019

² Without data for Sofia city.

east region (3.92) and lowest in the Northwest region (3.22).

Regarding the assessment of the production specialization, there are differences by regions, with the highest estimates for the North Central and South-Eastern planning regions - 3.63 and 3.71, respectively. Next are the Northeast region with 3.2 and the Southwest region with 3.09. Lowest is the expert assessment for the North-West region – 2.33 (Figure 2). In practice, this is the region with the most significant presence of cereals and oilseeds in the regional economy, with very limited development of animal husbandry.

These assessments show that the current production specialization of agricultural holdings in different rural areas does not create opportunities for full use of natural resources. Moreover, estimates of experts that conditions in the regions create conditions for the production of products that can provide higher incomes per unit area and livestock are higher in 5 of the six regions (Figure 3). The only exception is the South Central region.

As main reasons for the existing production specialization, the experts point out the insufficient human resources (Figure 5) and the limited irrigated areas (Figure 4). Labor difficulties are rated highest in the North-West (4.39) and South-Central (4.16), and lowest in the North-Central regions (3.89). Expert estimates for irrigated ar-

reas are even higher as a factor limiting the production of fruits and vegetables – in the range of 4.4 in the South-Central region and 4.39 in the North-West region to 3.64 in the South-East region.

The directions supported by the Common Agricultural Policy for the development of the agrarian business are also subject to evaluation – stimulation of the direct sales, production of high quality products, diversification of the activity of the farms, application of ecological schemes, etc.

According to experts, the changes stimulated by the CAP are also observed in our country, but are implemented much more slowly. This is also the reason for the low estimates of the trends shown in the Table 3. In comparative terms, the tendency to increase the holdings that carry out direct sales is highly valued. The scores for all regions are over 3, with the highest for the Southeast and Southcentral regions.

The tendency to increase the holdings that have focused on the production of high quality products is rated higher in the South-East and South-West regions (3.5 and 3.22, respectively), while in the three northern regions ratings are formed below 3.

There is a great variety in the formed assessments for the change of the importance of the farms, which apply agro-ecological schemes. They are rated at 3.69 in the South Central re-

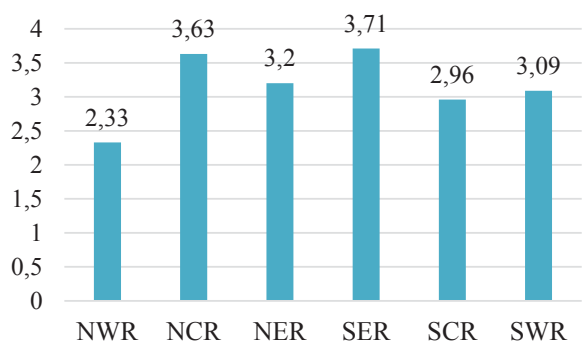


Fig. 2. Expert assessment “The specialization of the farms is suitable for the conditions of the region”

Source: Own survey.

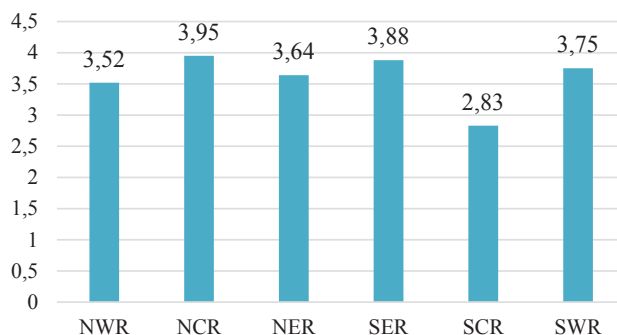


Fig. 3. Expert assessment “Natural and climatic conditions, soil types, etc. create preconditions for the cultivation of crops and animals, from which higher incomes per unit area and per animal can be realized”

Source: Own survey.

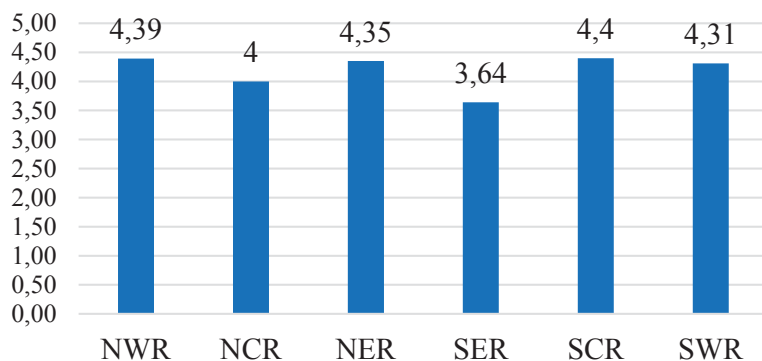


Fig. 4. Expert assessment „Insufficient irrigated areas and unsupported irrigation facilities are a reason to limit the production of vegetables and fruits”

Source: Own survey.

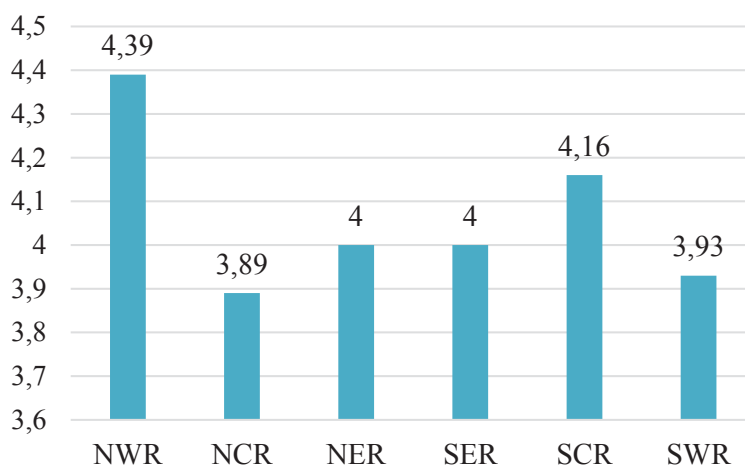


Fig. 5. Expert assessment “The small number of inhabitants, the deteriorating age structure and their low qualification are the reason for limiting the labor-intensive productions (labor shortage)“

Source: Own survey.

Table 3. Expert assessment of the directions for the development of the agrarian business supported by the Common Agricultural Policy

Region	The number of farms that produce quality products is increasing	The number of farms with direct sales is increasing	The number of farms applying agri-environmental schemes is increasing	The number of farms that diversify their activities is increasing
Northwest	2,48	3,0	1,95	2,09
North Central	2,94	3,0	3,42	2,22
Northeast	2,97	3,09	2,29	2,29
Southeast	3,5	3,73	3,34	2,84
South Central	3,0	3,72	3,69	3,5
Southwest	3,22	3,55	3,0	3,0

Source: Own survey.

gion and 3.42 in the North Central region. The high score in three of the regions is confirmed also with the research, conducted by Todorova (2022), in which the author reasonably expresses the opinion that to stimulate the implementation of agro-ecological measures, the most applicable mechanism is state support. The assessment for the Northwest region is only 1.95. These estimates also correspond with the results of other authors (Kabadzhova, 2022) on trends in green direct payments and financial support.

The estimates of the change of the holdings, which diversify their activity, are also divided along the North-South axis. The differences range from 3.5 for the South Central region to 2.09 for the Northwest region. Among the activities developed by agricultural holdings, the most significant is the presence of tourism, which expands its presence and the importance in rural areas (Ivanov et al., 2019).

Despite the differences, experts from all regions point out the applied CAP (direct payments) as the main reasons for the changes – 87% of experts; the implementation of the RDP (modernization of the Insurance Act) – 63%, and aging population and migration – 56%. Fewer experts add as reasons: the high competitiveness of large specialized farms – 34%; incentives for young farmers – 31%, and changes in the environment and climate – 31%. The implementation of agri-environmental payments is supported by 24%, and the realization of RDP (guest houses and other tourist services) – by only 13%. Lowest is the number of experts (only 9%) that assessed the implementation of the RDP (Leader approach) as a reason for the changes.

Conclusions and recommendations

The analysis gives grounds for some main conclusions:

✓ During the first two programming periods of our country's membership in the EU, Bulgarian agriculture is developing upwards. Adverse changes in the product structure and a sharp increase in production with relatively lower added value are observed.

✓ The strong reduction of irrigated areas, the significant reduction of the labor force in rural areas, the market problems of small producers and other organizational problems have become the reasons for instability and contraction of a number of traditional productions. The reduction in fruit and vegetable production, which has greater potential for creating added value, jobs and income, continues, despite the developed national measures and programs to support the so-called vulnerable sectors after 2010. Thus, no conditions are created for better use of the production potential of rural areas.

✓ The rate of reduction of agricultural holdings continues to be very high – most often small family farms from the first three groups by economic size

✓ The supported directions of development of agricultural holdings towards shortening the supply chains and realization of the production, greening of production and diversification have led to positive changes, but the processes are slow and still concern a limited number of farms.

✓ In general, the economic performance of farms (especially those specializing in the production of cereals and oilseeds) is improving, they are getting bigger, but this accelerates the depopulation of rural areas. Not only in the semi-mountainous regions, but also in some intensive regions, there is a growing number of Bulgarian villages with few permanent residents.

The future CAP (2021–2027) continues the main directions of development from the previous programming periods. To the support of fair incomes, increasing competitiveness, attracting young farmers and rural development is added a horizontal objective of “modernizing the sector by promoting and sharing knowledge, innovation and digitalization in agriculture and rural areas and promoting acquisition”, which will create opportunities for dynamization of these processes.

Along with the main ones, nine specific objectives have been formulated, as well as a common framework for all Member States. The new emphasis is placed on the environment and climate change, to which three goals are dedicated - actions to combat climate change; care for the environment; landscape and biodiversity conservation.

Another important new goal is to improve measures taken in EU agriculture in response to societal requirements for food and health (sustainable production of harmless and nutritious food), reduction of food waste, and animal welfare. These objectives are the basis for the development of strategic plans and the new model of implementation of the Common Agricultural Policy by the member states in the coming years.

National agricultural policy of our country should be aimed at stimulating the development of production with opportunities to create higher added value per unit of resource invested in production. The developed programs and measures should motivate the development of organic production and the expansion of the application of agri-environmental practices. At the same time, the market infrastructure of the sector needs to be improved, as well as the expansion of the distribution of network structures in order to transform the agricultural models in the different regions of the country.

Acknowledgement

The project leading to these results has received funding from the Bulgarian Research Fund – project “Sustainable multifunctional rural areas: rethinking agricultural models and systems with increased requirements and limited resources” (2017–2021).

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