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DIRECT SALES AS A TOOL TO PRESERVE HIGH NATURE VALUE GRASSLANDS

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Abstract
High Nature Value (HNV) farming areas have been an explicit environmental priority of European agricultural policy since early 2000s. Bulgaria provided targeted support to the HNV grasslands under the agri-environmental measure as early as the SAPARD Programme in 2005 which continued throughout to 2023. HNV grasslands in Natura 2000 areas were supported under the Natura 2000 compensatory measure since 2011. Nevertheless, the HNV farming areas faced multitude challenges, including losing areas to other land uses, reduced nature values and low economic attractiveness. Innovative marketing approaches such as direct sales that have the potential to contribute to the economic feasibility of the extensive farming in HNV areas were officially regulated since 2010. The study aims to explore whether the direct sales of farm products contribute to the preservation of High Nature Value grasslands in Bulgaria, as well as to compare the contributions by the agri-environment and Natura 2000 support and direct sales to the status of HNV grasslands in the country. The data collection was the main challenge in this study. Spatial analysis was applied to estimate the changes in the HNV farmland cover. Correlation analysis tested for statistically significant connections. The loss of HNV farmlands in 2019 in comparison to 2007 was around 40% with varied spatial patterns. The official direct sales registrations and the uptake of the environmental rural development measures also had varied spatial patterns. Three main results were obtained: (1) The High Nature Value grasslands in 2019 have very strong positive relationship with grasslands in Natura 2000 areas, indicating that the designation of Natura 2000 areas provides a certain level of protection for grasslands. (2) The farmlands that were claimed for agri-environmental support in 2008 have a strong relationship to all current HNV grasslands and to the farmers that claim agri-environmental support. This is despite the heavy penalties that were imposed in 2008 for the HNV grasslands assessed as ineligible for CAP support. (3) The farmers supported under the HNV agri-environmental scheme have also a strong positive relationship with the total registered for direct sales. This is the first study in Bulgaria that proves the significant and strong positive connection between the farmers managing HNV grasslands and the direct sales of farm products. It is an important indicator that farmers managing extensive areas can be a lot more open to innovative marketing approaches than other conventional farmers.

Keywords: agri-environment policy, permanent pastures, short-supply chains
JEL code: Q13, Q15, Q18

Background

High Nature Value (HNV) farming areas have been in the focus of European agricultural policy since early 2000s. They were an explicit environmental priority

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in three consecutive regulations on rural development (Regulation 1698/2005, Regulation 1305/2013, Regulation 2115/2021). The key policy instruments to address the preservation and management of the High Nature Value were the agri-environmental measures which provided support for the undertaking of specific and prescribed land management actions such as extensified grazing and later or reduced mowings. In Bulgaria, the High Nature Value grasslands support scheme was included in the agri-environmental measure as early as the SAPARD Programme in 2005 and continued throughout to 2023 (Kazakova-Mateva, 2019). The effectiveness of the agri-environmental support for biodiversity conservation on grasslands has been questioned in scientific literature. One strand of critique that can be referred to as the conservation challenge was on the prescribed nature of the management actions which focused on completing the actions and not on the actual biodiversity results (Zimmert et al., 2024). The other main challenge refers to the economic aspects of the High Nature Value farming system which as an extensive system very much reliant on low external input and high labour has become unfeasible for farmers (Caballero, 2007; Oppermann et al., 2012; Page et al., 2011; Dzhabarova &Peneva, 2014; Lomba et al., 2020). Both practitioners and scientists have been searching for solutions to address the needs for better biodiversity and economic results of the High Nature Value farming systems. The research on result-based agri-environmental scheme in grasslands ecosystems has been growing in recent years (Šumrada et al., 2021; Vainio et al., 2021). However, the research on the economic results and potential marketing solutions for the products and services from High Nature Value grasslands remains limited. A 2017 literature review for the HNV-Link project identified only a few publications on product and market innovations from HNV farming systems and that many of them were not based on real case data but rather theoretical assessments of potential benefits (Kazakova et al., 2016). A more recent study confirms the finding in that only 7% of the publications on HNV farming systems are on product and market innovations (Varela et al., 2025). The publications on short-food supply chains, direct sales, farmers markets and other innovative marketing approaches are significantly more. However, they underline that the nature conservation or other environmental benefits are not necessarily equal to local food systems and direct sales (EU/CoR; Kjelsen et al., 2006; Winter, 2003).

The objective of this paper is twofold: (1) to explore whether the direct sales of farm products contribute to the preservation of High Nature Value grasslands in Bulgaria, and (2) to compare the contributions by the agri-environment and Natura 2000 support and direct sales to the current HNV grasslands in the country. The results aim to provide for to the persistent research gap on the interaction between the nature values, policy support and economic aspects of HNV farming systems.

Methodological Approach

Exploratory data analysis is used to study patterns in the data related to HNV grasslands in Bulgaria. Theoretically, establishing the statistical relationship with a correlation analysis well established and constitutes the basis of any exploratory data analysis. From this perspective the main research challenge for this study is not so much in the research approach but in the data collection process and in the availability of sufficiently reliable data that allows statistical analysis.
The data collection and data analysis was performed at the district level (NUTS III) as this is the statistical level for which most of the policy support and economic data is available from public sources and still allows sufficient territorial dependence and specificity. MapInfo Professional was used for the spatial analysis and SPSS package for the correlation analysis.

Data collection approach for the analysis

Own assessment of HNV farming areas: A calculation of the change between the HNV farming areas in 2007 and 2019 was done. The 2007 data was the official data used in the first Rural development programme in Bulgaria. The 2019 HNV coverage calculation was based on official 2019 Land Parcel Identification System (LPIS) data applying the 2007 HNV identification approach. The change in land use was then calculated. The limitation of this approach is that it considers for the maintenance of the land use type but not of the intensity of use. Hence, the results need to be treated with care as intensified land use may lead to reduction of loss of High Nature Value which would not be recorded in this approach.
Direct sales data: the official registers for direct sales in the Bulgarian Food Safety Agency were used. The data was extracted, filtered and summarized.
One limitation of this approach is that non-registered producers of farm products are not considered in the study, due to lack of reliable data.
EUROSTAT regional economic GDP data for Bulgarian districts.
National Statistics Institute (NSI) population data for Bulgarian districts.
CAP supported entities per agri-environmental scheme and Natura 2000 compensatory measures per district summarized at district level from the Paying Agency public access datasets.
Data Collection Results
Changes in the High Nature Value farming areas and grasslands in particular
The loss of around 40% of the High Nature Value farming areas in Bulgaria has been significant. The biggest losses (over 50%) were observed in the districts in western Bulgaria and along the Central Balkans mountain range (dark red colour on Figure 1). With many districts in this group being mountainous or hilly the loss was likely due to overgrowth or conversion to other land use by 2019. The least losses (less than 27%) were observed in four districts, three of which have some of

the most developed agriculture systems (yellow colour on Figure 1). It is likely that the remaining HNV farming areas in these districts were in intensified land use which mighty lead to the loss of its High Nature Value.

Areas claimed for support under the agri-environment measure and the Natura 2000 compensatory measure

The visualisation of the areas claimed for support under the rural development measures focus on nature conservation revealed a mixed effect (Figure 1). There were some districts which showed a minimal interest in these measures such as Shumen, Varna, Razgrad, Stara Zagora, Vidin. There was also Blagoevgrad district in which the uptake was somewhat balanced but low and thus recorded a loss of over 50% of their High Nature Value farming areas. There were also districts where the uptake for the Natura 2000 compensatory measure was highest – Haskovo, Burgas, Yambol and Sliven, which were with below average loss of HNV farming areas, and Sofia-district, in which the HNV loss was above average.

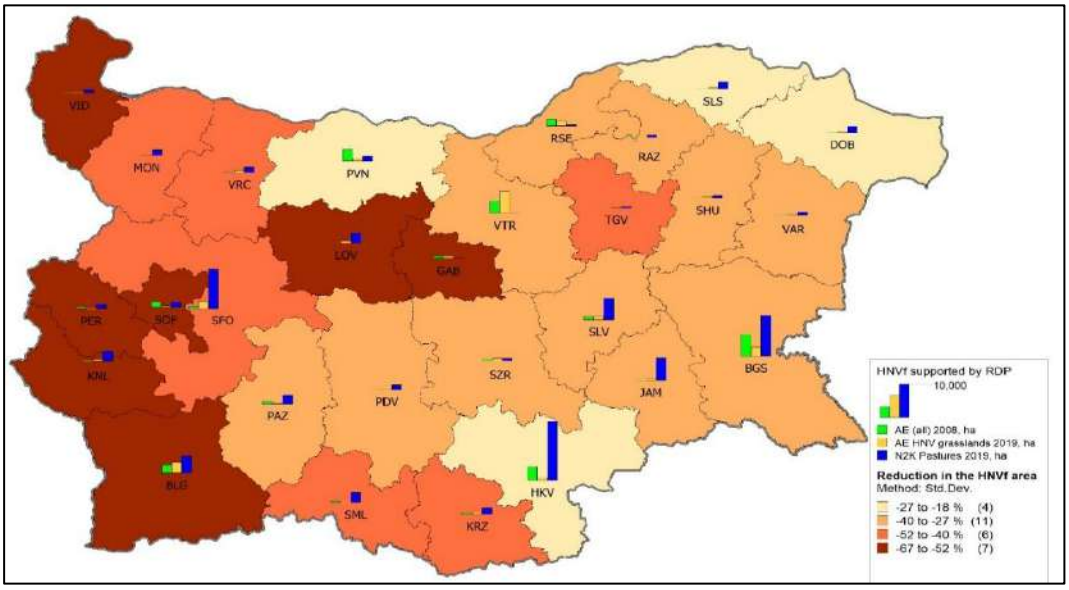

Figure 1. Changes in High Nature Value farming areas in Bulgaria in 2007–2019 and farmland claimed for support in the agri-environmental and Natura 2000 measures

Official registrations for direct sales of farm products under Ordinance No. 26 from 2010

The total number of official registrations for direct sales of farm products (Ordinance No. 26/ 2010) has increased to over 4500 since 2010. The direct sales registrations were slowly but steadily increasing from year to year and reached as many as 7% of the registered farmers in Bulgaria. The highest product registrations

of around 27% (1237) were for honey and related products, presented in the orange range on Figure 2. The second highest (805) were milk producers [blue colour in the pie chart on Figure 2], followed by 195 egg producers [yellow colour] and 155 producers of dairy products (yoghurt, cheese, kashkaval and butter) [green colour]. The spatial distribution of the total and product specific direct sales registration varied per district. Plovdiv, Sofia-district and Blagoevgrad had the highest number of official direct sales registrations, while the districts in the north-east had only a few registrations. This was not surprising considering that cereals dominated the agriculture production there.

The milk, dairy and meat registrations were used for the correlation analysis, as these product groups have the potential to be connected to the maintenance of the High Nature Value grasslands in the respective districts. The total number of official registrations were also included for comparison.

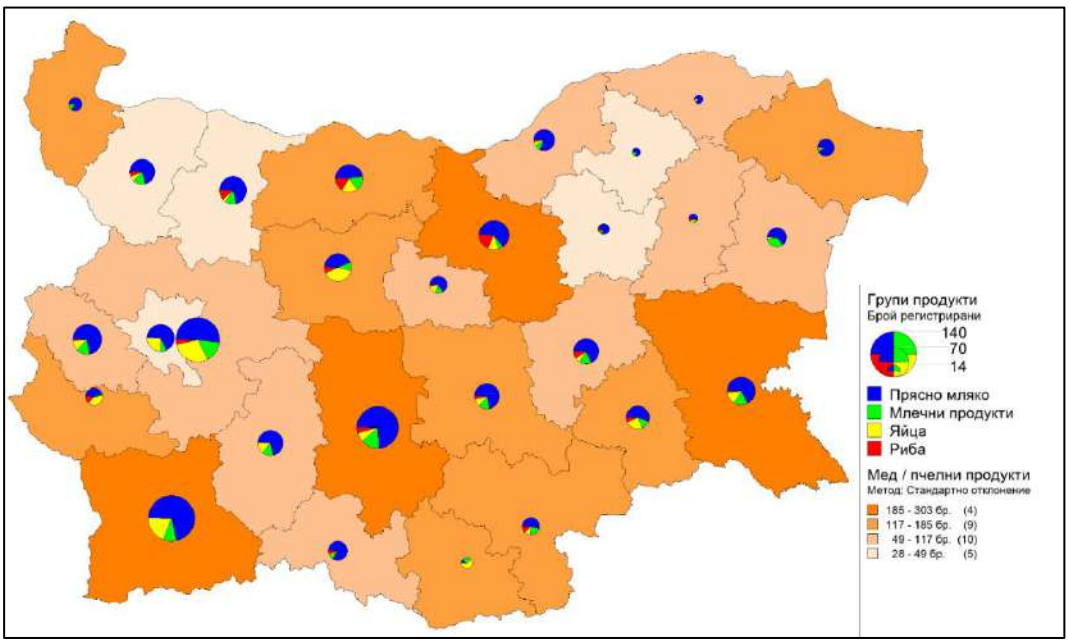

Figure 2. Official registrations for direct sales of farm products by the end of 2024

Source: Own calculations

Correlation Analysis Results and Discussion

The High Nature Value grasslands in 2019 [HNV2019ha in Table 1] have very strong positive relationship with grasslands in Natura 2000 areas *(r = .848**)* [N2KPast2019ha in Table 1]. This is likely related to two factors. On the one hand, the designation of Natura 2000 areas provides a certain level of protection for

grasslands as it is not allowed to plough them up and convert them to other land use. This protection is reflected in the CAP support delivery mechanism – once an area is declared as grasslands in Natura 2000 it cannot be claimed as other land use in consecutive years.

The 2019 HNV grasslands have a strong relationship with farmlands declared for agri-environmental support in 2008 *(r = .677**)* [AE2008ha]. This was the first year in which CAP agri-environmental measures were implemented in Bulgaria. Many farmers declared grasslands which were assessed as not eligible for support by the administration and hence the farmers were penalised, and grasslands were not actually supported. Still, the actual areas that were claimed for support in that same year continue to have an important role for both the 2019 HNV grasslands as well as the HNV grasslands and Natura 2000 grasslands claimed for support under the two measures in 2019 [AEHNV2019ha and N2KPast2019ha]. It indicates the farmlands which were in extensive use back in 2007 and the farmers that managed them were proactive in the maintenance of HNV areas and still have an impact on the HNV grasslands.

Interestingly, the grasslands supported under the HNV agri-environmental schemes in 2019 [AEHNV2019ha] have no significant relation to either the 2019 HNV grasslands or the 2019 Natura 2000 grasslands but have a moderately strong relationship with the farmlands declared for agri-environmental support in 2008 (r = .582**) [AE2008ha].

Given that there are no other statistically significant relationships between the 2019 HNV grasslands and other studied variables, the importance of the Natura 2000 protection status for grasslands and the proactive role of farmers in 2008 need to be studied in more details.

The farmers that manage grasslands of High Nature Value in 2019 could be supported by two environmental rural development measures, depending on the location of their grasslands. If the grassland is within Natura 2000 areas, then they could claim support under the Natura 2000 compensatory measure. If the grassland is outside Natura 2000 areas, then they could claim support under the HNV agri-environmental scheme. Thus, the correlation analysis considered the number of farmers supported under both measures, respectively [N2K_br] and [HNV_br] for farmers, and [N2K_BGN] and [HNV_BGN] for the provided support.

The farmers and support provided under the Natura 2000 compensatory measure have no significant relationship to any of the studied variables. This result supports a previous finding where Natura 2000 support had an almost perfect correlation to the support under the SAPS scheme, indicating a more intensive type of farming (Kazakova-Mateva, 2020).

The farmers supported under the HNV agri-environmental scheme in 2019 [HNV_br] have a moderate positive connection to the farmlands declared for AE

support in 2008 *(r=. 446*)*, which supports the important role of the first proactive farmers for the long-term maintenance of the HNV grasslands.
The farmers supported under the HNV agri-environmental scheme [HNV_br] have also a strong positive relationship with the total registered for direct sales *(r = .640**)* [salesTTL_2025 in Table 1]. The statistically significant relations to the more specific registrations are moderate positive link to the registered for milk and meat direct sales *(r= .578** and r= .568**)* and weak positive link to the registered for dairy processed direct sales *(r = .396*)* [Milk_2025, Meat_2025 and Dairy_2025 in Table 1].
Furthermore, the amount of the financial support provided under the HNV agri-environmental scheme in 2019 [HNV_BGN] is also strongly related to the direct sales registrations [salesTTL_2025, Milk_2025, Meat_2025 and Dairy_2025]. This is an important connection to study further as it indicates that direct sales can be an important tool to contribute to the economic attractiveness of the extensive management of HNV grasslands.

Conclusion

This is the first study in Bulgaria that proves the significant and strong positive connection between the farmers managing HNV grasslands and the direct sales of farm products. This has several implications: (1) direct sales do have a connection to HNV grasslands and it is important to understand it better, including any causal relationships; (2) it is an important indicator that farmers managing extensive areas can be a lot more open to innovative marketing approaches than other conventional farmers.
The study also confirms that the preservation and maintenance of the HNV grasslands is highly dependent on the protection provided by the Natura 2000 designation. Furthermore, the HNV grasslands that were claimed for support in 2008 under the agri-environmental measure even if not all of them were actually supported are still having an important impact on the remaining HNV grasslands in Bulgaria.
Direct sales may not be the main tool for preserving HNV grasslands but are still important for HNV farmers to diversify their economic activities and to enable them feel part of the wider community.
Future studies need to examine the presence of any causal relationships between the HNV grasslands, the farmers that manage them and the registrations for direct sales. The analysis can be deepened by adding data from the non-registered producers when reliable data can be collected. The study of the spatial patterns of the relationship between HNV grasslands, CAP support and direct sales registrations could provide additional insight into challenges and opportunities for HNV grasslands maintenance.

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References

Caballero, R. (2007). High nature value (HNV) grazing systems in Europe: a link between biodiversity and farm economics. The Open Agriculture Journal, 2007, 1, 11–19.

Dzhabarova, Y., & Peneva, M. (2014). Direct Marketing for High Nature Value Products–The Bulgarian Approach. Türk Tarım ve Doğa Bilimleri Dergisi, 1(Özel Sayı-2), 1784–1789.

EU/CoR, Progress Consulting/Living Prospects, (undated) Marketing on Local Markets. A study Commissioned by the EU/Committee of Regions. doi: 10.2863/34785

Kazakova, Y., Peneva, M., Gaki, D. & M.Jitea. (2016) HNV-LINK. Deliverable 2.2.1. Innovations Benefiting HNV Farming Systems, Farmers and Communities. Literature Review Report 3. Markets and Products Innovations.

Kazakova-Mateva, Y. (2019). Chapter 2. Policies Supporting Nature-Friendly Forms of Farming. In: Peneva, M., Y.Kazakova-Mateva. 2019. Spatial Analysis of Nature Friendly Farming in Bulgaria, pp. 36–54, UNWE Publishing Complex.

Kazakova-Mateva, Y. (2020). Policies supporting the use of agricultural land in the European ecological network Natura 2000. UNWE Publishing Complex.

Kjeldsen, C., Alroe, H.F. (2006). Localness as the new orthodoxy? Critical reflections on localisation of food systems, in Joint Organic Congress, Odense, Denmark, May 30–31, 2006.

Lomba, A., Moreira, F., Klimek, S., Jongman, R. H., Sullivan, C., Moran, J., Poux, X., Honrado, J.P., Pinto-Correia, T., Plieninger, T. & McCracken, D. I. (2020). Back to the future: rethinking socioecological systems underlying high nature value farmlands. Frontiers in Ecology and the Environment, *18*(1), 36–42.

Oppermann, R., Beaufoy, G., Jones, G. (eds.) (2012) High Nature Value Farming in Europe. 35 European countries – experiences and perspectives. Verlag regionalkultur

Regulation (EC) No 1698/2005 of 20 September 2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD).

Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development

Regulation (EU) No 2115/2021 of the European Parliament and of the Council of 2 December 2021 establishing rules on support for CAP strategic plans

Page, N., Popa, R., Gherghiceanu, C., & Balint, L. (2011). Linking high nature value grasslands to small-scale farmer incomes: Târnava Mare, Romania. Mt. Hay Meadows Hotspots Byodiversity Tradit. Cult. Ghimeş.

Šumrada, T., Vreš, B., Čelik, T., Šilc, U., Rac, I., Udovč, A., & Erjavec, E. (2021). Are result-based schemes a superior approach to the conservation of High Nature Value grasslands? Evidence from Slovenia. Land use policy, 111, 105749.

Vainio, A., Tienhaara, A., Haltia, E., Hyvönen, T., Pyysiäinen, J., & Pouta, E. (2021). The legitimacy of result-oriented and action-oriented agri-environmental schemes: A comparison of farmers' and citizens' perceptions. Land Use Policy, 107, 104358.

Varela, E., Jay, M., Flinzberger, L., Mobarak, C., & Plieninger, T. (2025). A review of high nature value farming systems in Europe: Biodiversity, ecosystem services, drivers, innovations and future prospects. People and Nature. 2025; 00:1–16.

Winter, M., (2005). Geographies of food: agro-food geographies – food, nature, farmers and agency, in Progress in Human Geography 29(5):609-617, October 2005

Zimmert, F., Jan, P., & Bonev, P. (2024). Participation in biodiversity schemes and environmental performance: overall farm-level impact and spillover effects on non-enrolled land. European Review of Agricultural Economics, 51(3), 690–724.

Table 1. Results of the correlation analysis of the studies variables

	POPUL 2024	GDP 2023	HNV 2019ha	AE 2008ha	AEHNV 2019ha	N2KPast 2019ha	salesTTL _2025	Milk _2025	Dairy _2025	Meat _2025	N2K _br	N2K_ BGN	HNV _br	HNV_ BGN
POPUL2024	1	,308	,240	,110	,361	,185	.469*	,170	,191	,208	,140	,320	.388*	.662**
GDP2023	,308	1	,087	-,098	,220	,210	-,050	,189	,108	-,093	-,187	-,041	-,047	,006
HNV2019ha	,240	,087	1	.677**	,314	.848**	,218	,196	-,060	,241	-,137	-,206	,334	,298
AE2008ha	,110	-,098	.677**	1	.582**	.533**	,146	,200	-,010	,279	-,091	-,236	.446*	,377
AEHNV2019ha	,361	,220	,314	.582**	1	,156	,087	,045	-,072	,354	-,130	-,080	,245	,322
N2KPast2019ha	,185	,210	.848**	.533**	,156	1	,232	,283	,031	,180	-,019	-,165	,302	,245
salesTTL_2025	.469*	-,050	,218	,146	,087	,232	1	.680**	.568**	.482**	,120	,048	.640**	.636**
milk_2025	,170	,189	,196	,200	,045	,283	.680**	1	.819**	,158	,200	-,109	.578**	.468*
eggs_2025	,102	,189	,137	,150	,068	,165	.486**	.654**	.679**	,222	,309	,001	.565**	.477*
dairy_2025	,191	,108	-,060	-,010	-,072	,031	.568**	.819**	1	,011	,363	,125	.396*	.380*
meat_2025	,208	-,093	,241	,279	,354	,180	.482**	,158	,011	1	-,161	-,097	.568**	.523**
N2K_br	,140	-,187	-,137	-,091	-,130	-,019	,120	,200	,363	-,161	1	.674**	,250	,303
N2K_BGN	,320	-,041	-,206	-,236	-,080	-,165	,048	-,109	,125	-,097	.674**	1	,131	,296
HNV_br	.388*	-,047	,334	.446*	,245	,302	.640**	.578**	.396*	.568**	,250	,131	1	.911**
HNV_BGN	.662**	,006	,298	,377	,322	,245	.636**	.468*	.380*	.523**	,303	,296	.911**	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Own calculations