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CURRENT USE OF FORMER COMMUNIST AGRICULTURAL PROPERTIES IN SOUTH BOHEMIA**Současné využití komunistických zemědělských areálů v jižních Čechách****TOMÁŠ KREJČÍ****JOSEF NAVRÁTIL****STANISLAV MARTINÁT****KAMIL PÍCHA****PETR KLUSÁČEK****ROBERT OSMAN****JAROSLAV ŠKRABAL**

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Annotation

Although agriculture is considered a „traditional” or even „traditionalist” branch of economy, it is recently undergoing a rapid change along the development of production technologies. In East and Central Europe, these changes are significantly modified by processes of privatisation and profound changes in grant policies. The aim of the paper is to contribute to understanding of the changes in the use of ubiquitous premises of former communist co-operative farms and state farms in the Czech countryside. The changes in utilisation have been followed due to a newly developed database of these premises in 1989 comprising of available maps and aerial images. Geographically, our sample survey of the process focuses on the areas of South Bohemian Region. Altogether, 2,206 premises with a total area of 4,646 hectares have been identified. Currently, only their 59% share is used for varied agricultural purposes, 23 % is used for non-agricultural purposes and 18 % is abandoned and neglected. The distribution does not depend on the original use of the premises. The non-agricultural re-use of the property serves as housing and industrial sites.

Key words

brownfields, agriculture, land-use change

Anotace

Přestože je zemědělství považováno za „tradiční“ až „tradicionalistické“ hospodářské odvětví, prochází rychlou změnou společně s posuny v technologiích produkce, a v případě střední a východní Evropy jsou tyto změny výrazně modifikovány procesy privatizace a hlubokých změn v dotační politice. Cílem tohoto příspěvku je přispět k poznání změn, ke kterým došlo v těchto souvislostech ve využití na venkově „všudypřítomných“ areálů bývalých JZD a státních statků. Tato změna byla sledována na základě nově vytvořené databáze těchto areálů v roce 1989 podle dostupných map a ortofotosnímků a výběrového šetření jejich současného využití na území Jihočeského kraje. Identifikováno bylo 2206 areálů o celkové rozloze 4 646 ha. Z nich v současnosti pro různé zemědělské činnosti slouží jen 59 %, nezemědělskému využití slouží 23 % a 18 % je opuštěno a chátrá. Toto rozdělení je nezávislé na původním využití areálů. Hlavními nezemědělskými využitími jsou bydlení a průmysl.

Klíčová slova*brownfield, zemědělství, změny využití území***JEL classification:** R58, Q13, P31.**1. Introduction**

The agriculture in the Czech Republic has recently been under pressure to reduce its food production and to replace it with some other, non-food activities or changes in food activities. Czech agriculture was not able to compete with the western agriculture model (Doucha & Divila, 2008) after the fall of the Communism era in 1989. Considering the current agricultural sector of the Czech Republic as a whole, since 1990, its gross agriculture production has decreased by 31% to CZK 17.4 thousand (per 1 hectare of agriculture land in fixed prices of 1989), cattle numbers were reduced by 61%, pig numbers went down by 67%, sowing areas of common crops such as potatoes has also dramatically decreased while, on the other hand, the sowing areas of energy crops significantly increased (Martinat et al., 2016).

Agriculture in the Czech Republic has been dramatically influenced by the restitution and privatization processes since 1991 and, even more, by substantial cuts of state subsidies in 1993. These changes resulted in an intensive fall in agricultural employment and drop in agricultural share on GDP (Doucha & Divila, 2008). While in 1991, more than 0.5 million people found their jobs in agriculture, ten years later (2001) it was less than 200 thousand and nowadays less than 100 thousand. Currently, GDP share of agriculture oscillates around 2.5%. Process of privatization and restitution of the agricultural land and properties was extremely quick and resulted in millions of new land owners. However, the assumption of quick growth of commercial family farms did not fulfill (Bezemer, 2000) as majority of former small land owners already died and their heirs frequently moved to cities and were not interested in agriculture practice. Thus, agricultural land has been cultivated particularly by large companies that hire or buy land up and only about 13% is cultivated by family farmers (Doucha & Divila, 2008). Czech agricultural sector is currently dominated by large agricultural companies (ÚZEI, 2010), commonly having no direct relation to the location where the agricultural farms are situated.

Besides the large agri-companies, many of collective farms still exist but their legal status has changed (Bezemer, 2000; Doucha & Divila, 2008). These collective farms have been generally transformed into a corporate types of farms: enterprises with a legal label of partnerships, joint-stock companies or limited liability companies. Despite the unity, corporate farms are suffering from low profitability, high debts, and high liquidation or bankruptcy rates (Bezemer et al., 2006) resulting in decrease in their numbers (ÚZEI, 2010). Economically not so effective organizational structures of agricultural companies (collective ownership, large plots of land), changes in land ownership and general decrease of agriculture (Martinat et al., 2017) led to the occurrence of a range of unused or underused buildings and premises in rural space (Skala et al., 2013). They are usually large-scale buildings (e.g. barns, grain silos, storehouses, mill houses, cowsheds, calf houses, pigsties, etc.) also posing a very low investment potential, being commonly contaminated and not immediately exploitable (Svobodova & Veznik, 2009). It would be difficult to utilize them due to new and modern technologies in agriculture as well as its marginal locations away from developing areas (Skala et al., 2013). According to the results of the CzechInvest Agency survey, agricultural premises are the most abandoned properties in the Czech Republic (CzechInvest, 2008).

The de-agricization of the Czech agricultural sector is a deep process. Ways of more viable development of post-communist agriculture and sustainable improvement of the quality of life in the countryside has been widely searched since 1995. National subsidies granted in 1995-1997 changed in 1998 to the pre-EU-access support. In 2004, the Czech Republic finally became a member of the European Union, therefore, falling under the Common Agricultural Policy (CAP). Since the new millennium the CAP has been the most influential factor in the Czech agriculture (Veznik & Konecny, 2011) as well as in other Central and Eastern European Countries (Kantar & Svrznjak, 2017; Kebza, 2018). Subsidies were intended to make agriculture competitive within the framework of the agricultural multifunctionality concept (Hrabak & Konecny, 2018). Operational grants are usually the only way to keep economies of agricultural farms in profit (ÚZEI, 2010). Though, such development aid was aimed on diversification in agricultural production and favored especially growing purpose-grown energy crops (e.g. oilseed rape) or growing crops grown specifically for the use in anaerobic digestion (corn maize, fodder plants, etc.) (Martinat et al., 2016). The result was the transition of large arable lands into permanent grasslands. Nowadays, competitiveness of the Czech agriculture is given by very low cost of labor work (around a third compare to EU15) and very low cost of land prices (around a fifth compare to EU15) (ÚZEI, 2010).

Agricultural properties under our interest had been built during the era of collectivization in 1950s-1980s (Halamska, 2008) in almost all Czech, Moravian and Silesian villages following the Soviet model “one village = one farm”. The cooperative farm had become a central point of village life as peasants who contributed their land were made to join the collective farm and “everyone” in the village either worked in the collective farm or had close relatives working there. The extent and the structure of agriculture has been completely transformed, mirroring the situation of the use of the communist agricultural properties (Klusacek et al., 2013). Nonetheless, our knowledge of the above profound changes is very rare compared to the abundance of studies on urban space recycling that were recently conducted. That is why we started to focus on a study of changes in properties use in rural space. The aim of this contribution is to find out what are the current new uses of selected sample of communist agricultural properties. The selected area of study was the region of South Bohemia.

2. Methods

To fulfil the aim above, we had to undertake several steps. Firstly, the identification and the current use of the former communist agricultural properties from the late 1980s had to be conducted in the region of South Bohemia.

Identification of communist agricultural properties was done by researching basic topographic maps of Czechoslovakia in 1:25,000 ratio from late 1980s and the first half of 1990s where the agricultural use of properties was classified into 11 categories:

- Agricultural farm,
- cowshed,
- pigsty,
- sheepfold,
- poultry farm,
- horticulture,
- stud farm,
- hay shed,
- shed,
- silo,
- breeding station.

As not all agricultural properties had to be then labelled, we further used black and white prints of aerial images from early 1990s to find out other agricultural properties in each village. Location of all studied agricultural properties were digitalized in GIS - polygons of areas with buildings with agricultural use and its intensively cultivated surroundings (identified from the aerial images). Thus, the database of all communist agricultural properties of the South Bohemian Region was completed.

To find out the present use of the properties, 25% of the latter was randomly selected for a visit. These premises were divided into three groups: i) premises with an agricultural use, ii) premises with a non-agricultural use, iii) premises without any use (brownfields). Further, we tested if there are any differences between these three types of new uses and the types of uses in 1989. Chi square test was employed.

Non-agricultural uses consist of:

- Truck transport, garage, scrapyard,
- energy (photovoltaic, biogas, other energy),
- housing,
- industry,
- civic amenities and tourism,
- other services,
- non-agricultural warehouses.

For agricultural use we used these categories:

- Technical facilities,
- breeding,
- services for agriculture,
- complex agriculture (it was not possible to distinguish individual types),
- agricultural warehouses.

All data were added to the database and numerically calculated.

3. Results and Discussion

We have identified 2,206 premises of agricultural properties within the South Bohemian Region which occupied circ. 4,646 ha of land by the end of 1980s. Majority of these premises were labelled „agricultural” and the use was combined or unknown for authors of maps we used. One fifth of such premises of agricultural properties were cowsheds (Table 1).

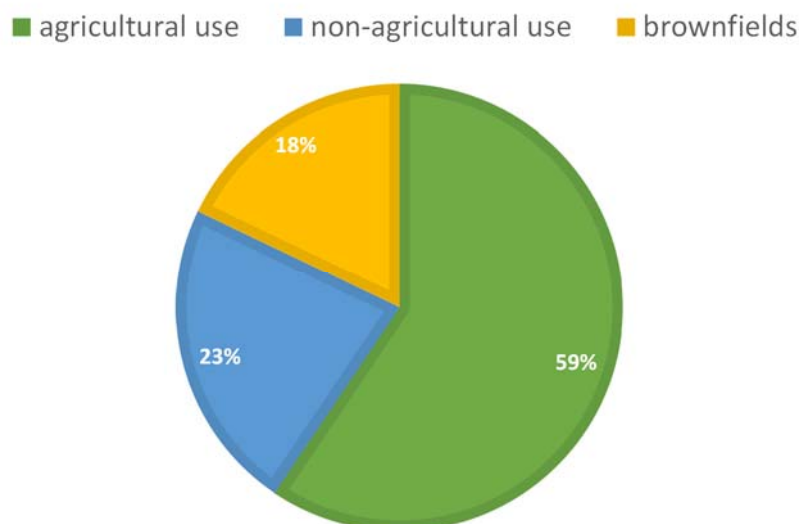
Tab. 1: The shares of premises types of agricultural properties in 1989 (n = 2,206).

type of use in 1989	percent of premises
agricultural premises	60.4%
cowshed	20.1%
pigsty	5.7%
sheepfold	0.9%
dairy farm	6,3%
horticulture	1.8%
stud farm	1.3%
hay shed	0.9%
silo	2.2%
breeding station	0.2%
unknown	0.4%

Source: own work

The reasearch of the current use of the above identified premises consisted of 25% (575) randomly selected sample out of all (2,206) agricultural properties found. The narrowed research also discovered a diverse use of such properties increasing the number of premises to 688. More than half (59%) of the current uses was found to remain agricultural (Figure 1). That means, that 41% (two fifths of former communist agricultural properties) has other than agricultural use. 23% of them are linked to non-agricultural use and 18% are premises with no use, abandoned, neglected and gradually falling into ruin. Thus, the non-agricultural or unused premises are quite common in former agricultural properties. Agricultural practice presents a great difficulty to operate the former premises due to a rapid process of modernization or specialization happening in agriculture (Skala et al., 2013).

Fig. 1: The structure of the present (2018) use of 688 premises of agricultural properties established before 1989.



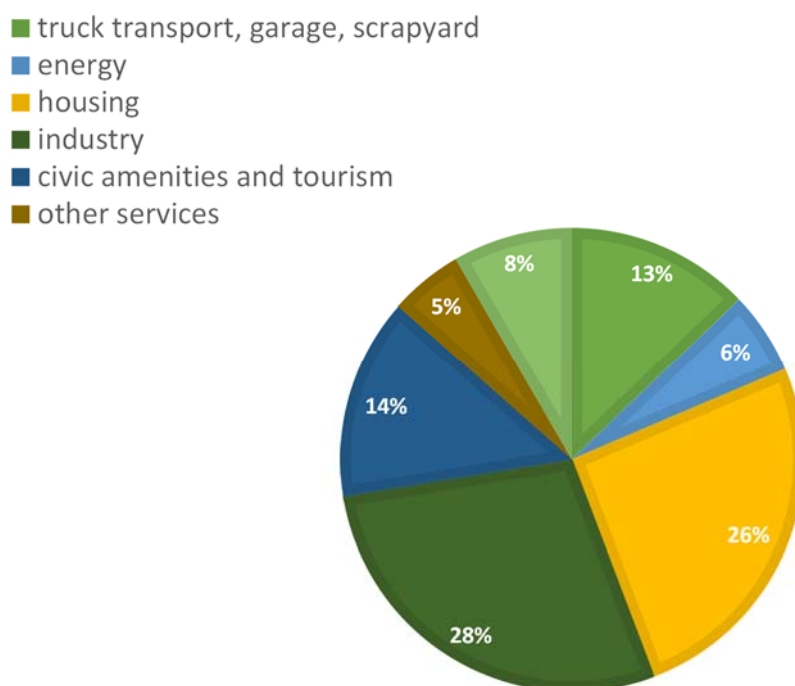
Source: own work from researched data

Chi-square test (Chi-square = 7.19; d.f. = 18; p= 0.51) presenting that there is no difference in distribution of agricultural, non-agricultural and any other use between the types of use in 1989, hence, it can be concluded that there is no influence of former use on the present use in the above three analysed categories.

When we look closer to the structure of non-agricultural use of former communist agricultural properties, we found that their most common new use is housing (Figure 2). This is the case especially of sole stud buildings, particularly cowsheds in smaller villages and farmhouses, that had become part of cooperative premises after collectivization. The second common use is an industrial use. In many cases we are talking about small industry of family businesses but new investments into large new firms can be found in our sample as well. In many cases the use of former agricultural properties was found in woodworking industry. Relatively great share has also been found for uses of civic amenities and tourism, as it has been already mentioned by Frantal et al. (Frantal et al., 2013). Interesting fact is also in the “energy” use of agricultural premises – bio-gas production reshapes the agricultural production (Ciervo & Schmitz, 2017; Van der Horst et al., 2018) and is very popular among Czech farmers (Frantal & Prousek, 2016; Martinat et al., 2016).

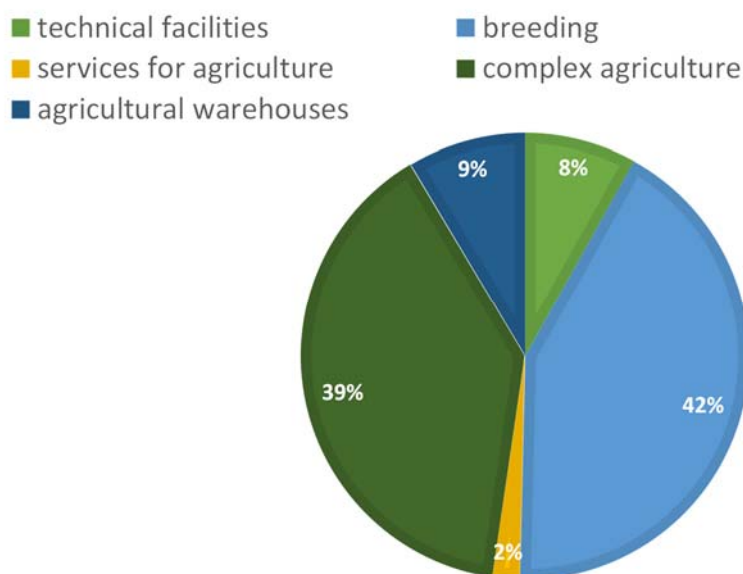
59% of studied agricultural properties established before 1989 are now used for agricultural purposes. Most of them (Figure 3) are used for animal husbandry (42%). Other large part of the sample consists of premises with combined use. Only small number of premises have specific use as agricultural warehouses, technical facilities and services for agriculture.

Fig. 2: The structure of present (2018) use for non-agricultural premises of agricultural properties established before 1989.



Source: own work from researched data

Fig. 3: The structure of present (2018) use of agricultural premises of agricultural properties established before 1989.



Source: own work from researched data

4. Conclusion

Based on the quantitative evaluation of former and current use of the premises after communist agricultural cooperatives and state farms in the area of the South Bohemian Region presented that utilisation of these premises is significantly diversified. Agriculture is still the most prevailing way of their use; however, this is only the case in slightly more than half of the number of these premises (59%). Unused and abandoned premises are gradually becoming an issue for the countryside. This type forms, according to our sample analysis, 18% of their total.

The degree of abandonment does not differ among former types of agricultural use. Transformation or development of the countryside away from its agricultural heritage is visible in the new structure of new non-agricultural uses of these premises. Its share of 26% (of the whole non-agricultural use) is utilised for housing and 28% for various industries that is dominated by small crafts, light industries, wood-processing industries and garages.

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