
**AGRICULTURAL PRODUCTION
IN THE REPUBLIC OF SLOVENIA
(ACCORDING TO THE CENSUS OF THE
AGRICULTURAL SECTOR 2000)**

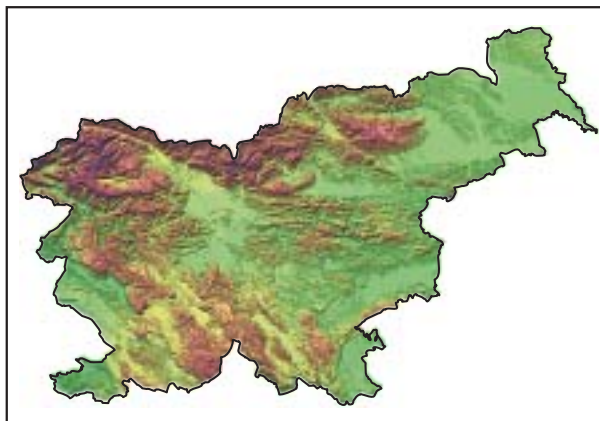
**KMETIJSKA PROIZVODNJA
V REPUBLIKI SLOVENIJI
(PO POPISU KMETIJSKIH
GOSPODARSTEV LETA 2000)**

Igor Vrišer



Well-cultivated fields in Dolenjska, southeast part of Slovenia
(photography Igor Maher).

Skrbno obdelana polja na Dolenjskem
(fotografija Igor Maher).



Abstract

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Agricultural Production in the Republic of Slovenia (According to the Census of the Agricultural Sector 2000)

KEY WORDS: rural geography, agricultural production, Slovenia.

In June 2000, a census of the agricultural sector was carried out in Slovenia. The Statistical Office of the Republic of Slovenia arranged the data on private farms according to »agricultural assessment areas« and for state-owned agricultural companies according to the existing municipalities. Thus organized, the data formed the basis for local and regional analyses of agricultural land use and for calculating the location coefficient (on the basis of comparison with the national average) for agricultural land devoted to the production of wheat, corn, potato, hops, fodder plants, grasslands, and orchards and vineyards. The land proportions of the most important agricultural products, cultures, and categories according to agricultural assessment areas were the basis for determining and specifying the distribution of the main systems of agricultural land use. According to the same methodology, the results acquired can be compared with research from 1960 and 1985.

The data on stock farming, that is, on livestock populations and the total stock farming production (expressed in »livestock units«), was processed in a similar manner. Using the structural proportions of livestock, an attempt was made to divide Slovenia into stock farming areas.

Izvleček

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Kmetijska proizvodnja v Republiki Sloveniji (po popisu kmetijskih gospodarstev leta 2000)

KLJUČNE BESEDE: agrarna geografija, kmetijska proizvodnja, Slovenija.

Junija 2000 je bil v Republiki Sloveniji popis kmetijstva. Statistični urad RS je zbrane podatke uredil za zasebna kmetijska gospodarstva po »kmetijskih cenilnih okoliših« in za kmetijska podjetja po obstoječih občinah. Tako urejeni podatki so bili podlaga za lokalno in regionalno analizo rabe kmetijskih tal in za računanje lokacijskega koeficienta (na osnovi primerjave z državnim povprečjem) za zemljišča namenjena proizvodnji pšenice, koruze, krompirja, hmelja, krmnih rastlin, travinja ter sadovnjakov in vinogradov. Zemljiški deleži najpomembnejših kmetijskih pridelkov, kultur in kategorij po kmetijskih cenilnih okoliših so bili osnova za opredelitev in določitev razprostranjenosti pglavitnih sistemov agrarnega izkoriščanja tal. Glede na enako metodično zasnovo je mogoče dobljene rezultate primerjati z raziskavami za leti 1960 in 1985

Na podoben način so bili obdelani tudi podatki o živinoreji, to je o staležu in skupni živinorejski proizvodnji (izraženi v »glavah velike živine«). S pomočjo strukturnih deležev živine je bil napravljan poskus členitve Slovenije na živinorejska območja.

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In June 2000, the *Census of the Agricultural Sector, Slovenia, 2000* was published in Slovenia on the basis of the special »Act on the Census of the Agricultural Sector in the Republic of Slovenia in 2000« (*Official Gazette of the Republic of Slovenia*, No. 99/99). Two autonomous censuses of the agricultural sector were held in Slovenia in 1930 and 1960, while in 1971, 1981, and 1991, the agricultural census was combined with the population census.¹

The preliminary main results of the census for the entire country were published in the *Statistical Information of the Statistical Office of the Republic of Slovenia* and the *Statistical Yearbook of the Republic of Slovenia*². In the process, the original census data was arranged and combined at the Statistical Office* according to the smallest territorial collection units: for private farms according to agricultural assessment areas, and for state-owned agricultural companies according to existing administrative municipalities. We thus acquired valuable original material that offered an insight into the microregional and macroregional production structure of Slovene agriculture. At the same time, the Department for Regional Statistics elaborated a map of agricultural assessment areas and the existing administrative divisions,³ which considerably simplified the organization and presentation of the data.⁴

* With authorization of the director of the Statistical Office of the Republic of Slovenia, Mr. Tomaž Banovec and with technical help of Mrs. Dr. Ana Tretjak, head of Agricultural Statistics, and Mrs. Irena Orešnik, head of the Agricultural Census.

1 Material

1.1 Agricultural sector

In the census, the agricultural sector was defined as the organizationally and operationally whole of agricultural land, forests, buildings, equipment, and labour force that has uniform management and is involved in agricultural production. The latter includes the production of agricultural plants (grains, other field crops, grasslands, vegetables, decorative plants, seeds, seedlings, winegrowing, fruit growing, and growing mushrooms) and stock farming (cattle, pigs, poultry, sheep, horses, bees, and other animals)⁵.

As in previous agricultural censuses, the Statistical Office included in the *Census of the Agricultural Sector 2000* those farms that fulfilled the following conditions⁶:

- that they had at least 1 hectare of utilized agricultural area, and in addition those that had
- at least 10 ares of agricultural land and 90 ares of forest or
- at least 50 ares of cultivated fields and gardens or
- at least 5 ares of intensive vineyards or
- at least 30 ares of all vineyards or
- at least 10 ares of intensive orchards or
- at least 30 ares of all orchards or
- at least 30 ares of vineyards and orchards or
- one or more livestock units.

According to the preliminary data, the census covered 96,669 private farms and 132 state-owned agricultural companies.⁷

1.2 Territorial units

At the Statistical Office, the arrangement and combining of census material on the agricultural sector took two different paths. Because of their high number, private farms were combined according to »agricultural assessment areas,« which had been introduced during the agricultural census in 1960. For the needs of agricultural, these turned out to be a logical territorial division adapted to natural conditions. Their formation leaned on cadastral municipalities, which facilitated identification. Their number ranged from 290 to 307 (at the last census). Because of their relatively large size (average size 220.7 ha), small number, and the standard practice in the Socialist period, state-owned agricultural companies were arranged according to the administrative municipalities that existed during the census. Their land was identified in 190 municipalities.

A consequence of this double-track division was the great difficulty in combining and unifying the data on agricultural areas and production. We used agricultural assessment areas as the basis for combining. In cases where the territory of an administrative municipality more or less matched the agricultural assessment area, combining the data on private farms and state-owned agricultural companies was simple. Problems appeared, however, if the property of a state-owned agricultural company overlapped several agricultural assessment areas or municipalities (for example, in Krško and Murska Sobota) or if the municipalities encompassed several agricultural assessment areas (for example, Krško, Brežice, and Slovenska Bistrica) and the boundaries of administrative municipalities differed from the agricultural assessment areas (for example, Gorišnica and Radenci). In such cases, we combined the data of several agricultural assessment areas.⁸ This approach did not prove effective if the combined agricultural assessment areas overlapped the territory of several different natural regions (for example, with Ormož, Ptuj, and Puconci). The situation was most complicated in the areas of the former municipalities of Gornja Radgona, Krško, Murska Sobota, and Ptuj where the joint figures according to agricultural assessment areas are approximate since in spite of the combining of agricultural assessment areas, it was not possible to correctly calculate the data for the new administrative municipalities and with them, for the state-owned agricultural com-

panies (for example, Murska Sobota-Tišina-Puconci, Ptuj-Markovci-Destrnik-Dornava-Juršinci-Gorišnica, and Videm-Podlehnik-Majšperk-Žetale). In combining the data according to agricultural assessment areas, we considered the annual reports of state-owned agricultural companies from 1993 that identified the cadastral municipalities in which they possessed land. After 1993, the Statistical Office stopped collecting this information. Due to the major changes in ownership that state-owned agricultural companies experienced after 1993, this data had only auxiliary and informative significance. The annual reports for the regions mentioned are therefore approximate relative to agricultural assessment areas, but globally they are correct.

The combined data according to agricultural assessment areas was arranged according to geographical regions. As much as possible, we followed the regionalization scheme outlined by I. Gams.⁹ Nevertheless, certain deviations appeared because agricultural assessment areas did not completely match the natural geographical configuration (for example, the boundaries of Goričko and Mursko polje), because the division did not suit agricultural requirements (for example, the division of the Julian Alps into several regions such as Tolminsko, the Upper Sava Valley, and Bohinj), or because it was necessary to take special conditions into consideration (for example, the exclusion of the city municipalities of Ljubljana and Maribor).

1.3 Data on crops and livestock

As the basic source data for plant production, we used the land surface areas for individual crops. With this we calculated the collected data on agricultural cultures (cereals, hilling plants, fodder plants, grasslands), agricultural categories (orchards, vineyards, meadows, pastures), the total »utilized agricultural area,« and crop production. For greater clarity, we combined the detailed registration of crops into »agricultural cultures« or »agricultural categories.« We differentiated the following groups:

Cereals: wheat (winter or early), rye, barley (winter or early), oats, triticale, corn, millet (main crop and stubble crop), buckwheat (stubble crop), spelt, sorghum, wheat-rye mix, mixed cereals (without wheat-rye mix), other cereals (millet, buckwheat, triticale);

Hilling plants: potato (early, late, seed), pumpkins for oil, rape, sunflower, soya, sugar beet, hemp, flax, other industrial plants (we did not consider other garden vegetables);

Fodder, composed of two subgroups:

Fodder plants: grasses and grass mixtures, clover and alfalfa, grass-clover mixtures, silage corn, fodder beets and kohlrabi, fodder carrots, fodder kale, fodder peas and broad beans, fodder rape, fodder cereals and mixtures of legumes, pumpkins for fodder, turnips (stubble crop), fodder beets (stubble crop), fodder carrots (stubble crop), fodder kale and fodder rape (stubble crops), grasses and grass mixtures (stubble crop);

Grasslands: (meadows and pastures): used once, twice, three, or more times a year;

Special agricultural cultures composed of three subgroups:

Orchards (intensive and extensive): apple, pear, peach, apricot, cherry, sour cherry, plum, walnut, olive (table and oil varieties), strawberry;

Vineyards: vintage white varieties, other white varieties, vintage red varieties, other red varieties;

Hop fields.

Fewer problems arose with the stock farming data. In this case, there were no major territorial differences between private farms and state-owned agricultural companies. For the sake of comparison, we calculated the livestock populations in »livestock units« according to the established key.

We encountered special problems in displaying the trends in production from 1954 on, which we summarized from the *Statistical Yearbook of the (Socialist) Republic of Slovenia*. This was caused by the changes in methodology carried out in recent years, due to which data on certain crops was omitted or combined in new groups.

1.4 Cartographical presentation

Cartographical presentation presented a special problem. Among the various methods in use, we decided to use »percentage proportions of the whole« and »location quotients«¹⁰ in the form of a double fraction representing the ratio between the proportion that a certain crop had in an agricultural assessment area and the same proportion in the entire national territory. If the proportion was below the index 100, it was below the national average; and if it was above 100, it was above the national average. The index seems complicated, but its advantage is that it indicates the relative relationship to the entire national territory.

$$LQ = \frac{\frac{\text{Surface area of crop x in hectares in agricultural assessment area y}}{\text{Surface area of agricultural areas in hectares in agricultural assessment area y}}}{\frac{\text{Surface area of crop x in hectares in the entire national territory}}{\text{Surface area of agricultural areas in hectares in the entire national territory}}}$$

2. Plant production

2.1 Agricultural land

Data on the area and structure of agricultural land in Slovenia is offered by the Statistical Office of the Republic of Slovenia and the Surveying and Mapping Authority of the Republic of Slovenia. The former collects data on the basis of annual questionnaire assessments or periodic censuses of the agricultural sector, and the latter summarizes registered changes in land use categories in cadastral municipalities. The following land categories are ranked among agricultural land: cultivated fields and gardens, orchards, vineyards (comprising total arable land), meadows, pastures (together grasslands), fishponds, reed beds, and marshes. The 1990 census of the agricultural sector introduced a somewhat narrower definition of agricultural land: *utilized agricultural area*. This meant land owned by members of a farm household or a state-owned agricultural company that was actually used in the agricultural sector for agricultural production. Land rented for use was also counted but land rented out was excluded. With this definition,¹¹ the actual area of agricultural land perceptibly decreased, but the assessment simultaneously became more realistic. The structural composition of land categories also changed. On average, there were barely 0.263 hectares of utilized agricultural area per inhabitant of Slovenia, an exceptionally small amount.

TABLE 1: AGRICULTURAL LAND IN SLOVENIA.
PREGLEDNICA 1: KMETIJSKA TLA V SLOVENIJI.

Land categories	1900 ¹² ha	%	1929 ¹³ ha	%	1953 ¹⁴ ha	%	1991 ¹⁵ ha	%	2000 ¹⁶ ha	%
Agricultural areas	1,103,159	100.0	1,023,451	100.0	1,054,946	100.0	514,430	100.0	517,923	100.0
Cultivated fields and gardens	382,637	34.7	342,838	33.5	358,475	34.0	196,806	38.3	172,751	33.4
Orchards	32,846	3.2	14,849	1.4	14,314	2.8	13,457	2.6
Vineyards	45,986	4.2	27,696	2.7	31,444	3.0	16,750	3.2	17,283	3.3
Grasslands	674,536	61.1	620,070	60.6	650,178	61.6	286,560	55.7	314,434	60.7

Regardless of the objective, methodological, or possible other reasons for this decrease, it is a fact that in Slovenia we have barely 25.5% of »utilized agricultural area« of the total surface area along with exceptionally large regional differences. Genuinely favourable conditions with more than 50% of utilized agricultural area from the total area of a region exist on barely 142,314 hectares or 7.0% of the total surface area of Slovenia (2,025,336 hectares). In contrast, there are as many as 844,895 hectares or 41.8% of the total area in regions with less than 20% of utilized agricultural area.

We can create an even clearer illustration of the uneven distribution of utilized agricultural area by distributing agricultural assessment areas according to main relief types. Using the »Relief Units and Forms«

map in the *Geographical Atlas of Slovenia*,¹⁷ an approximate distribution of agricultural assessment areas shows that the most favourable conditions exist on the plains and in the low hills, where the proportion of utilized agricultural area is between 34% and 40%. In high mountains, this proportion is only 7.8%, on high karst plateaus 13.5%, on low karst plateaus 15.0%, and in the hills 21.6%. Or put another way, the proportion of Slovenia's total surface area of plains and low hills amounts to 36.4%, on which 54.5% of the utilized agricultural area is found, whereas on the karst regions that occupy about 25.3% of the total surface area, there is only 17.5% of utilized agricultural area, and in the high mountains (10.8%), only 3.5%.

TABLE 2: DISTRIBUTION OF UTILIZED AGRICULTURAL AREA ACCORDING TO RELIEF TYPES (CENSUS OF AGRICULTURAL SECTOR 2000).
PREGLEDNICA 2: RAZPOREDITEV KMETIJSKIH TAL V UPORABI GLEDE NA RELIEFNE TIPE (POPIS KMETIJSKIH GOSPODARSTEV 2000).

Relief types	Total surface area (ha)	Proportion of relief types in the total area (%)	Utilized agricultural area according to relief types (ha)	Proportion of agricultural area of total area (%)	Proportion of utilized agricultural area according to relief types
Alpine high mountains	217,981	10.83	16,977.9	7.8	3.5
Hills	549,695	27.31	118,705	21.6	24.5
Low hills	320,289	15.91	109,133.2	34.1	22.6
Low hills and plains	120,101	6.00	48,148	40.1	9.9
Plains	293,884	14.60	106,639.3	36.3	22.0
Low karst plateaus	233,510	11.60	46,731.2	20.0	9.7
Plains-low karst plateaus	14,907	0.74	2,234.0	15.0	0.5
Dinaric high karst plateaus	261,883	13.01	35,345.7	13.5	7.3
Total	2,012,250	100.0	483,914.3	24.0	100.0

Advantageous proportions of utilized agricultural area in Slovenia (above 40% of the total surface area) occur only in the northeast in Pomurje (Ravensko, Dolinsko, Mursko polje), Podravje (Ptujsko polje and Dravsko polje), and Slovenske Gorice (46%), and in the Krka basin (33%) and Kranjsko-Sorško polje (34%). In the Alps, the subalpine foothills, the Posavsko hills, and the high karst plateaus, the proportion is almost everywhere below 20% or even below 10%. It is surprisingly low in Slovene Istria, Posočje, and Kras, where it is mostly below 15%.

2.2 Agricultural cultures and crops

Cereals. According to the *Census of the Agricultural Sector 2000*, cereals occupy 103,308 hectares or 21.4% of utilized agricultural area. Among cereals in the broader sense of the word, wheat and corn are by far the most important crops. The former is meant for food, the latter primarily for fodder. Wheat occupies 9.87% of utilized agricultural area and corn, 11.27%. It is typical here that with the increasing orientation of Slovene agriculture into stock farming, the proportion of the first cereal is gradually decreasing while the proportion of the second, in spite of the less suitable climatic and pedological conditions, is increasing. The remaining cereals are less important: rye occupies 0.15% of utilized agricultural area, winter and early barley 2.45%, and buckwheat only 0.14%. A special feature is that certain old types of cereals have been preserved, for example, millet, spelt, and wheat-rye mix, although only on small surface areas.

According to the data in the *Statistical Yearbook of the (Socialist) Republic of Slovenia*, the production of wheat achieved an annual average (geometrical mean) of 134,366 tons over the past forty-six years, ranging from 60,228 tons in 1954 to 199,544 tons in 1990. For corn (chief and stubble crop), an annual production of 188,511 tons was recorded with similar oscillations: a minimum 101,181 tons in 1954 and a maximum 232,000 tons in 1990. The average annual quantity of barley produced reached 23,438 tons, of rye 10,499 tons, of oats 10,606 tons, and of buckwheat (chief and stubble crop) 1,821 tons. Production of the remaining »cereals,« wheat-rye mix and millet, was negligible. The quantities of cereals produced were not sufficient.

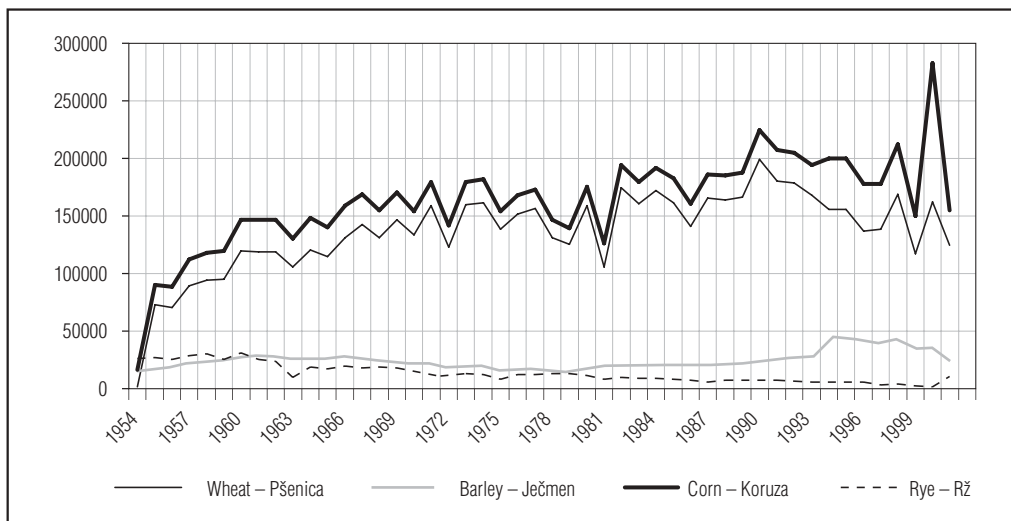


Figure 1: Production of wheat, rye, barley and corn in Slovenia between 1954 and 2000 (*Statistical Yearbook of the (Socialist) Republic of Slovenia*).
 Slika 1: Proizvodnja pšenice, rži, ječmena in koruze v zrnju v Sloveniji med l. 1954 in 2000 (*Statistični letopis (S)R Slovenije*).

According to the *Census of the Agricultural Sector 2000*, the production of cereals was concentrated in north-eastern Slovenia in the Pomurje and Spodnje (Lower) Podravje regions. The production was also above the Slovene average in the Krško-Brežice basin, the Kranjsko-Sorško polje, and the Bistrica plain in central Slovenia.

Hilling plants. The quite diverse group of hilling plants includes alimentary crops (potatoes, sugar beet, vegetables), certain industrial plants (hemp, flax), and oleaginous plants (sunflowers, pumpkins, rape, soya). We excluded hop, which is treated as a special subculture, from this group. Due to their great diversity, we also omitted garden land. Hilling plants, which rank among intensive crops because of the amount of work invested, occupy 19,788 hectares or 4.09% of all utilized agricultural area in Slovenia. Among them,

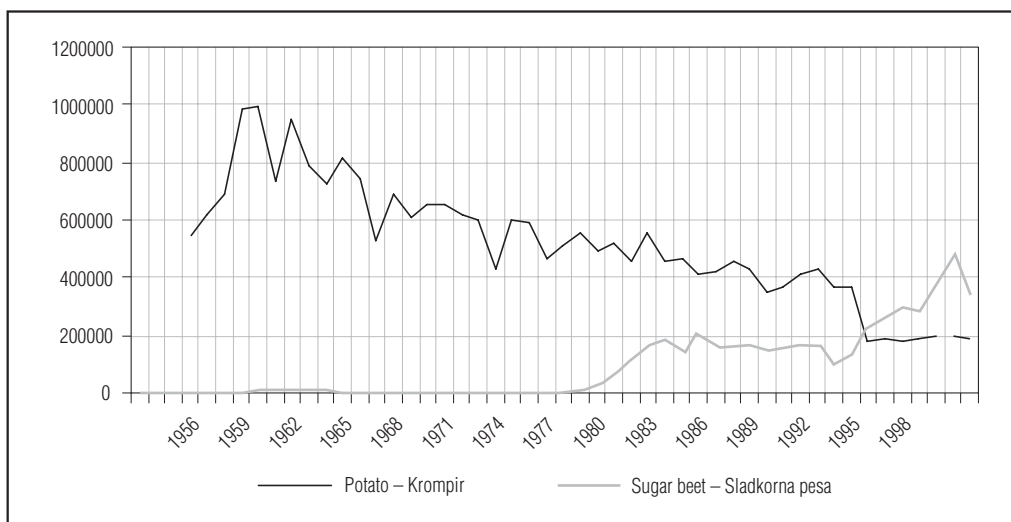


Figure 2: Production of potato and sugar beet in tons between 1954 and 2000 in Slovenia (*Statistical Yearbook of the (Socialist) Republic of Slovenia*).
 Slika 2: Proizvodnja krompirja in sladkorne pese v tonah med l. 1954 in 2000 v Sloveniji (*Statistični letopis (S)R Slovenije*).

potatoes take first place by far (winter, early, and seed potatoes), occupying 1.92% of utilized agricultural area. Other crops occupy smaller proportions: pumpkins for oil 0.46%, rape 0.04%, sunflower and soya 0.005% each, sugar beet 1.96%.

Production of the majority of hilling plants is gradually decreasing. Sugar beet, whose production was strongly supported by the agricultural services after the construction of the sugar factory in Ormož, is an exception. Regression is most evident in the production of potato, which was among the chief crops meant for food or fodder in Slovenia over the last two hundred years, and the production of flax, hemp, sunflower, and sorghum decreased perceptibly. The average annual production of potato totaled 471,826 tons between 1954 and 1999 (with a peak of 813,800 tons in 1963 and a minimum of 176,600 tons in 1994), of sugar beet 13,281 tons, of rape 1,272 tons, and of sunflower 651 tons.

Production of hilling plants is concentrated in northeastern Slovenia in Pomurje and Spodnje (Lower) Podravje, however with substantial differences relative to individual crops. Thus, for example, centers of potato production were in the Kranjsko-Sorško polje and the Ljubljana polje, the Dolenjska valley systems (around Grosuplje, Stična, and Trebnje), Ravensko, the Novo mesto region, Brkini, and the Notranjska Reka Valley. Early potatoes were produced in the lower Vipava Valley and Slovene Istria. Production of sugar beet was concentrated in Ptujsko polje, Dravsko polje, Mursko polje, Ravensko, Dolinsko, Kranjsko-Sorško polje, the Bistrica plain, Slovenske gorice, and the Krško-Brežice basin.

Fodder. Given the predominantly stock farming orientation of Slovene agriculture, the production of fodder is very important. Along with various fodder plants, this group of agricultural crops also encompasses the production of hay in meadows, pastures, fallow fields, and orchards. Due to methodological problems, the various combining of crops, changes in denominations, the division into chief crops and/or stubble crops, or the abandonment of monitoring of certain crops, statistical coverage correlation is less transparent and comparison is more difficult. Surface areas devoted to the production of fodder occupy 339,392 hectares or 70.17% of utilized agricultural area according to the figures in the *Census of the Agricultural Sector 2000*.

The group of **fodder plants** is composed of various grasses, clovers (red clover, alfalfa), unripe (green) crops, silage corn, hilling plants (fodder beet, carrots, and turnip), and various combinations of these crops.

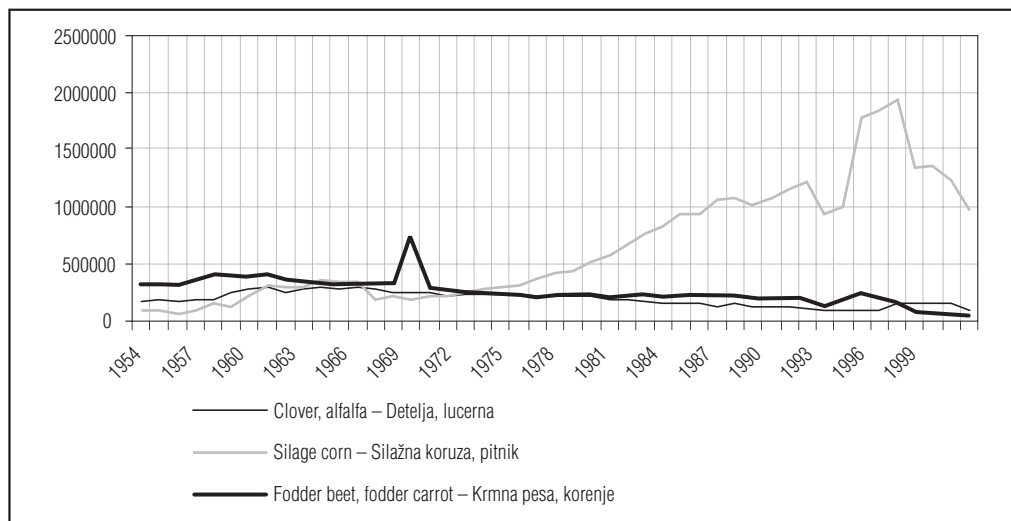


Figure 3: Production of chief fodder plants (clover and alfalfa, fodder beet and carrots and silage corn) in tons between 1954 and 2000 in Slovenia (*Statistical Yearbook of the (Socialist) Republic of Slovenia*).

Slika 3: Proizvodnja poglavitnih krmnih rastlin (detelje in lucerne, krmne pese in korenje in silažne kuruze) v tonah med l. 1954–2000 v Sloveniji (*Statistični letopis (S)R Slovenije*).

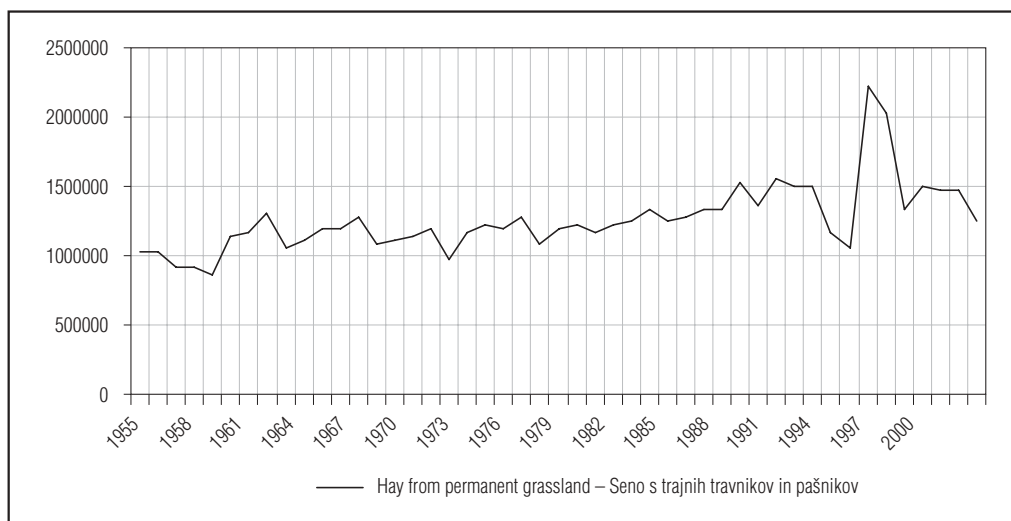


Figure 4: Production of hay in tons between 1954 and 1999 in Slovenia (*Statistical Yearbook of the (Socialist) Republic of Slovenia*).
Slika 4: Proizvodnja sena v tonah med l. 1954 in 1999 v Sloveniji (*Statistični letopis (S)R Slovenije*).

The proportion of land planted with agricultural fodder plants is around 10.04% (48,578 hectares). The trend of the production of fodder plants shows a gradual decrease, with the exception of silage corn whose use is mostly on the increase. The average annual quantity of red clover and alfalfa totaled 173,611 tons for the past 45-year period, silage corn 47,735 tons, fodder beet and fodder carrots 234,619 tons, and fodder turnip 112,508 tons.

The distribution of land with fodder plants is quite uneven. There are many areas where occupation of the land is considerably below the Slovene average. These include mainly the agricultural areas in the hilly parts (Pohorje, Julian Alps, Savinjske Alps, subalpine regions, high Dinaric plateaus). In general, production is concentrated on the margins of the most intensive agricultural areas or in regions where natural conditions for farming are somewhat less favourable but not yet bad. Such regions include, for example, the Ljubljana basin, Dolenjska, Bela krajina, the Savinja Valley and its margins, the Mislinja Valley, Dravinjske gorice, Slovenske gorice, and Goričko.

The proportion of **grasslands** in utilized agricultural area totals 60.1%, the highest percentage reached by any agricultural culture or category. However, we must bear in mind that this is predominantly extensive production with low hectare yields. The total surface area is 290,813 hectares. In contrast to fodder plants, the distribution of grasslands is much more uniform. It is only areas devoted to winegrowing, fruit growing, and the production of cereals that show lower proportions of grassland in comparison with the national average. In the majority of the remaining areas, the location quotient for grasslands ranges from 100 to 200 relative to the national average. Estimates about the production of hay vary a great deal. Changes in the methodology for collecting data contribute considerably to this. As an example, we cite the two different approaches used by the Statistical Office. Until 1994, it estimated the production of hay according to land categories (meadows, pastures, fallow fields, and orchards) while later it distinguished grasslands according to the number of annual harvests. Hay production in Slovenia averaged 1,236,976 tons, the most in 1994 with 2,267,669 tons and the least in 1958 with 922,585 tons. The majority of hay was produced on meadows (ca. 74%).

Orchards. The development of intensively cultivated orchards in the last thirty years has strengthened this land category and made it more economically independent. In the process, the extensive »farm« orchards found on every farmstead in previous times lost their significance. According to the *Census of the Agricultural Sector 2000*, orchards occupy 4,080 hectares or 0.84% of utilized agricultural area. Fruit production is dom-

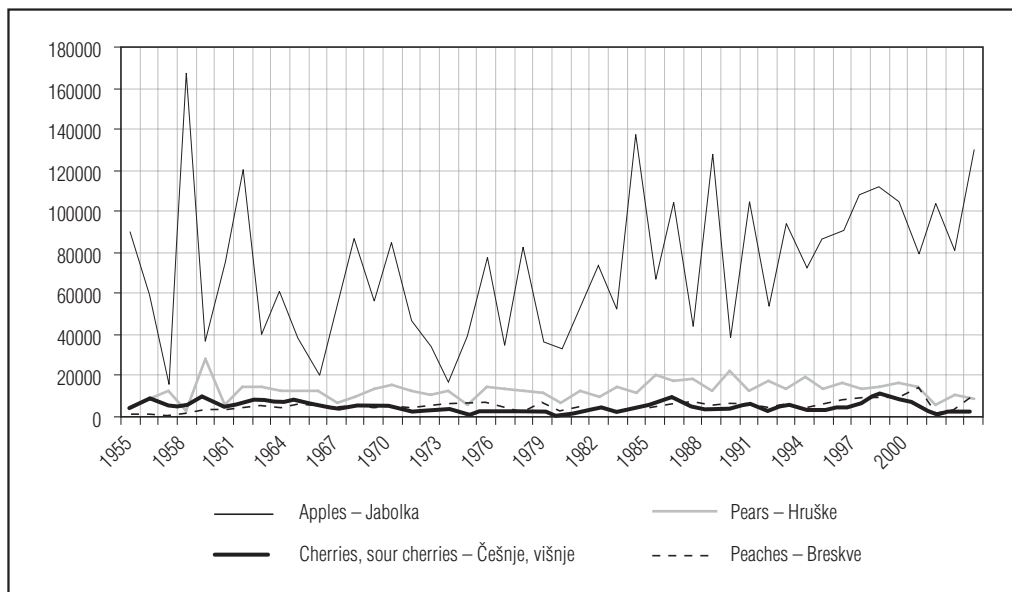


Figure 5: Production of apples, pears, cherries, and peaches in tons between 1954 and 2000 in Slovenia (*Statistical Yearbook of the (Socialist) Republic of Slovenia*).

Slika 5: Proizvodnja jabolk, hrušk, češenj in breskev v tonah med l. 1954–2000 v Sloveniji (*Statistični letopis (S)R Slovenije*).

inated by apples (which total 67.8% of the entire tonnage of fruit production) followed by pears (12.6%), plums (7%), peaches (5.6%), cherries and sour cherries (5%), walnuts (1.4%), and apricots (0.5%). Average annual crops in the last forty-five years amounted to 61,864 tons for apples, 12,099 tons for pears, 6,436 tons for plums, 5,215 tons for peaches, 4,685 tons for cherries and sour cherries, 1,194 tons for walnuts, and 385 tons for apricots. Production did not increase significantly in terms of quantity, but the quality of the fruit increased.

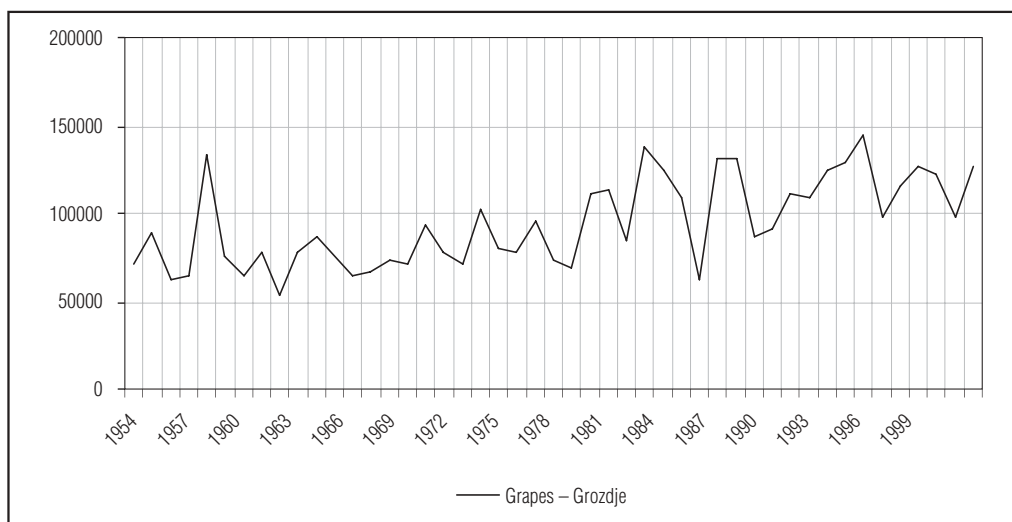


Figure 6: Production of grapes in tons between 1954 and 1999 in Slovenia (*Statistical Yearbook of the (Socialist) Republic of Slovenia*).

Slika 6: Proizvodnja grozolja v tonah med l. 1954 in 1999 v Sloveniji (*Statistični letopis (S)R Slovenije*).

Fruit growing is concentrated in regions with advantageous natural conditions for fruit, especially those with a suitable climate and a long tradition of production. They can be divided into two groups: sub-mediterranean and northeastern Slovenia. In the latter, fruit growing is concentrated in Slovenske gorice and Dravinjske gorice, on the northern margins of the Krško-Brežice basin, in the Novo mesto region, the Savinja Valley, and, exceptionally, in some places in Gorenjska. As a matter of fact, Brkini, where apples dominate fruit growing as in Štajerska, should also have been included among these regions. In sub-mediterranean Slovenia, fruit production is more varied; here they grow peaches, cherries, pears, and plums and fruit growing is concentrated in Istria, the Vipava Valley, and Goriška Brda.

Vineyards. Traditional Slovene winegrowing has experienced an important metamorphosis in recent decades with major investments in quality, the selection of varieties, modern cultivation, cellarage, and marketing. However, in the process, the winegrowing areas and the production of grapes only increased very modestly. The proportion of vineyards in the utilized agricultural area totals 3.25%. The total surface area measures 15,703 hectares according to the *Census of the Agricultural Sector 2000*. The average annual production of grapes was around 91,217 tons, the highest being in 1994 with 144,620 tons, the lowest in 1962 with 54,124 tons.

Like fruit growing, winegrowing can also be divided into the submediterranean region and the temperate continental climate region (northeastern Slovenia). The former includes winegrowing districts in Slovene Istria, the Vipava Valley, Goriška Brda, and Kras. The latter includes Slovenske gorice, Dravinjske gorice, Lendavske gorice, Posotelje and the margins of the Krško-Brežice basin, sunny areas of the Novo mesto region, and Bela krajina. The listed winegrowing districts are surrounded by areas where grapevine is still grown, but with lower percentage proportions and poorer quality because the natural conditions are barely suitable for winegrowing (for example, the Krka and Mirna valleys).

Hop growing. The cultivation of hop comprises the third group of special agricultural cultures. We differentiated this group because of its strong specialization, unique technology, and high degree of marketing. Areas planted with hop total 0.29% of utilized agricultural area and measure 1,398 hectares. The average annual production in the past forty-five years totaled 3,114 tons and is increasing slightly.

Slovenia's traditional hop growing region is found in lower Savinja Valley between Celje, Žalec, Braslovče, and Dobrna. In the past, attempts have been made to develop hop growing in several other regions (for example, around Radlje, Novo mesto, Slovenske Konjice, etc.), but it only remains in the Mislinja Valley, the Ptujsko polje, and the Brežiško polje with proportions above 10%.

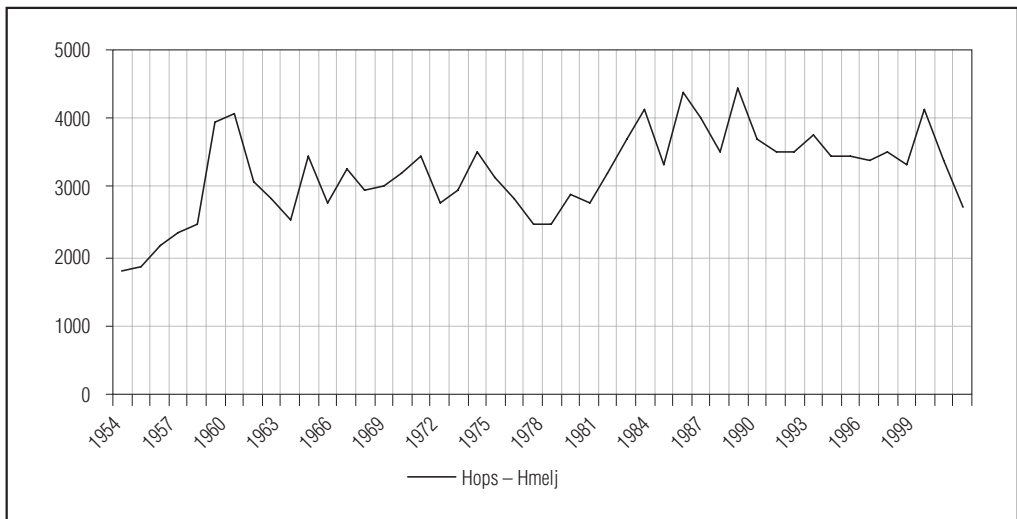


Figure 7: Production of hops in tons between 1954 and 2000 in Slovenia (*Statistical Yearbook of the (Socialist) Republic of Slovenia*).
Slika 7: Proizvodnja hmelja v tonah med l. 1954 in 2000 v Sloveniji (*Statistični letopis (S)R Slovenije*).

2.3 Production of the most important crops

According to the preliminary data from the *Census of the Agricultural Sector 2000*, production of the most important agricultural crops in Slovenia totaled the following: wheat 119,151 tons, rye 2,580 tons, barley 37,354 tons, oats 5,223 tons, corn 248,542 tons, potatoes 185,290 tons, sugar beet 240,781 tons, grasses and grass mixtures 42,879 tons, clovers and alfalfa 18,580 tons, grass-clover mixtures 25,123 tons, silage corn 927,485 tons, fodder beet and kohlrabi 41,132 tons, hay 1,191,229 tons, apples 42,141 tons, peaches 10,679 tons, pears 3,250 tons, grapes 126,650 tons, and hops 1,554 tons.

2.4 Systems of agricultural land use

The term »agricultural system« denotes a complex structure of agricultural production and management. Agricultural systems are influenced, as well as by production relations, by natural and social conditions, social relations in agriculture, farming techniques and technology, and specific regional conditions. With them, we wish to encompass in a complex fashion all the essential elements that comprise agriculture.¹⁸ Since such an approach demands a very extensive approach, we also attempt to present agricultural systems in a simpler manner, usually with the help of certain characteristic indicators.

Several methods are employed to define agricultural systems. The »crop rotation« method considers long-term and stabilized alternations of agricultural categories, cultures, and crops. The »systems or types of cultures« method distinguishes primary and secondary agricultural cultures or crops. The »production orientation« method is based on assessments of newly created value in agricultural production according to individual activities. In agricultural geography, the »agricultural land use« method is most often used, in which the type of agricultural system is determined from the ratio between various groups of agricultural categories, cultures, and crops. It derives from the hypothesis that each agricultural system depends on the unique ratios between agricultural cultures and that these relationships do not change significantly change over the years regardless of crop rotation.¹⁹

For typification using the »agricultural land use« method, we rely on the data on surface areas occupied by individual agricultural categories, cultures, and crops, and on their mutual ratios. In comparison with data, for example, on the extent of production or the value created according to branches or crops, these facts are relatively more stable and are less under the influence of production and price oscillations. They

TABLE 3: DEMARCATION VALUES IN DEFINING SYSTEMS OF AGRICULTURAL LAND USE.
PREGLEDNICA 3: RAZMEJITVENE VREDNOSTI PRI OPREDELJEVANJU SISTEMOV AGRARNEGA IZKORIŠČANJA TAL.

System of agricultural land use	Cereals	Proportion of agricultural land		Special cultures
		Hilling plants	Fodder	
1. FODDER SYSTEM				
a) Pronounced fodder subsystem	below 15%	below 5%	above 80%	below 10%
b) Moderate fodder subsystem	below 20%	below 10%	70–80%	below 10%
2. CEREAL SYSTEM				
a) Cereal-hilling plants subsystem	above 30%	5–10%	up to 60%	below 10%
b) Cereal-fodder subsystem	above 30%	below 5%	up to 70%	below 10%
3. HILLING PLANTS SYSTEM				
a) Hilling plant-cereal subsystem	20–40%	above 10%	up to 60%	below 10%
b) Hilling plant-fodder subsystem	below 20%	above 10%	up to 70%	below 10%
4. MIXED (TRANSITIONAL) SYSTEM	15–30%	below 10%	50–70%	below 10%
5. SPECIAL SYSTEMS				
a) Fruit growing subsystem		Other agricultural cultures		above 10%
b) Winegrowing subsystem		and crops are insignificant or were not considered.		above 10%
c) Hop growing subsystem				above 10%

are also comparable to data from other countries. From this data it is possible to ascertain the degree of development of agriculture and its production orientation.

In our case, however, there is another reason to use this method. The author of this paper did the first analysis of systems of agricultural land use in Slovenia for the year 1960. In the process, he used the assessments of agricultural land use according to cadastral municipalities collected by the Institute for Statistics of the Socialist Republic of Slovenia. He repeated the analysis for 1985 on the basis of the agricultural census.²⁰ The *Census of the Agricultural Sector 2000*, however, allowed us to make a third attempt at the typification of Slovene agriculture and from a comparison of these three periods to see which direction the development of Slovene agriculture took over the past forty years. From the comparison, it is also possible to see the influence of social conditions in this period on agriculture. Relative to this, we also used the standards elaborated in 1967 to determine the agricultural systems of land use in 2000. We determined them from the structural proportions of cereals, hilling plants, fodder, and special cultures calculated from a 10% sample among 2,634 cadastral municipalities.

2.5 Systems of agricultural land use in Slovenia

The analysis showed that all the above-mentioned systems of agricultural land use are present in Slovenia, although with very different occurrences. Among agricultural systems, the pronounced fodder subsystem is by far the most widely distributed. In a substantially lesser extent follow the moderate fodder subsystem, the cereal-fodder subsystem, the cereal-hilling plants subsystem, and the hilling plant-cereal subsystem. Also relatively numerous are agricultural assessment areas with special cultures, particularly winegrowing. Due to the great interweaving of special systems with predominantly field crop systems, we had to introduce some intermediate combinations such as the combining of the fruit growing and winegrowing subsystems.

The **fodder system** is undoubtedly the most widespread form of agricultural land use in Slovenia. The two subsystems, *pronounced* and *moderate*, together occupy 74.5% of the total surface area and 59.2% of utilized agricultural areas. It dominates in 194 of the total 251 agricultural assessment areas. Its basic characteristic is an extremely high proportion of grasslands and fodder plants. According to production orientation, it is completely oriented toward meat and dairy stock farming, primarily cattle breeding. Other agricultural crops are few and intended largely for domestic use. Relative to the amount of work invested, the system is extensive due to the great proportion of grasslands, even though it demands careful and constant work from farmers because of the dominant cattle breeding orientation. In terms of technology and management, it is less demanding. Motorized mowers, conveyance systems, and dryers have replaced strenuous manual labour to a great extent. The change in technology has caused the abandonment of land on which machine cultivation is not possible. To a large extent, modest field areas are used for the production of fodder plants for feeding livestock in the winter and for fattening.

In the *pronounced fodder subsystem*, the proportion of grasslands totals on average 84.7%, of fodder plants 8.2%, of cereals 4.7%, and of hilling plants only 1.6% of all utilized agricultural areas. The pronounced fodder subsystem dominates entirely in the Alps, the subalpine hills (Tolminsko, the Škofja Loka hills, Pohorje, Podravje, the upper Savinja Valley, the Posavje hills) and the Dinaric high plateaus (Banjščica, Trnovski gozd, the Idrijsko-Cerkljansko hills, the Notranjska valley system, Pivka, Kočevsko), everywhere the natural conditions for farming are poorer due to climate, relief, or pedological reasons.

The *moderate fodder subsystem* is found in lower locations and in somewhat more advantageous natural conditions (the Šaleška, Mislinja, Mežica, and Drava valleys, Dolenjska, Bela Krajina, the Ljubljana Marsh, Kozjansko, Voglajnsko, higher Haloze). For this reason, the proportions of cereals, hilling plants, and fodder plants are higher and total on average 16.7%, 2.9%, and 14.6%, respectively. The proportion of grasslands is lower and totals only 61.6%. Relative to technology and production orientation, there are no major differences between the two subsystems. It is interesting that over the past fifteen years (in comparison with the situation in 1985), the distribution of the moderate fodder subsystem has decreased in favour of the pronounced fodder subsystem.

The **cereal system** is a sort of opposite of the fodder system since cereals occupy 43.7%, and fodder only 44.9% of the utilized agricultural area. Hilling plants occupy 5.3% of the utilized agricultural area. The system is not very widespread, occupying 9.9% of all land and 18.2% of utilized agricultural areas. The chief crops are wheat and corn. In a more detailed definition, we distinguished two subsystems, one in which the agriculture is devoted more to hilling plants and in the second more to the production of fodder. By its nature, the system is highly productive and reminiscent of the advanced agriculture in developed countries. In both cases, agriculture is linked to breeding cattle and pigs.

The *cereal-fodder subsystem* is more widespread, occupying 4.6% of all surface area or 8.3% of the utilized agricultural area. It differs from the cereal-hilling plant subsystem with a higher proportion of fodder (52.8%) and a lower proportion of hilling plants (3.0%). Cereals occupy 37.3% of the utilized agricultural area. It is widespread in northeastern and eastern Slovenia on somewhat moister or soaked ground as found in Slovenske gorice, Dravsko polje, Brežiško polje, and Šentjernejsko polje.

The *cereal-hilling plant subsystem* is spread across the drier flatlands, occupying 5.3% of all surface area or 10.0% of the utilized agricultural area. Along with a high proportion of cereals (49.1%), its basic characteristic is the increased proportion of hilling plants (7.2%). It spreads across Ptujsko polje, Mursko polje, Ravensko, Goričko, and the Krško-Brežice basin.

The **hilling plant system** is the least widespread of the common agricultural systems in Slovenia. It occupies only 5.4% of all surface area and 11.8% of the utilized agricultural area. It is marked by an increased proportion of hilling plants: that is above 10% of the utilized agricultural area. In this system, we also distinguished two variants: one with a high proportion of cereals and the other with an increased proportion of fodder. For the most part, the chief crop in both subsystems was potato, along with sugar beet, vegetables, and oleaginous plants. Among the cereals, corn dominates.

Relative to distribution, the *hilling plant-cereal subsystem* dominates. It is characterized by high proportions of cereals (55.1%), hilling plants (14.2%), and fodder plants (11.7%) and a relatively low proportion of grasslands (16.1%). Along with the cereal-hilling plant subsystem, this is the most productive way of farming in Slovenia. It spreads across the best land according to pedology and relief in Ravensko, Dolinsko, Prekmurje, Mursko polje, Ptujsko polje, Dravsko polje, and—outside of northeastern Slovenia—Kranjsko-Sorško polje.

The *hilling plant-fodder subsystem* is less frequent, occurring in the Bistrica plain and in individual sites in Krško-Brežiško polje.

TABLE 4: SYSTEMS OF AGRICULTURAL LAND USE IN SLOVENIA: SURFACE AREAS OF AGRICULTURAL CULTURES AND CATEGORIES IN HECTARES (CENSUS OF THE AGRICULTURAL SECTOR 2000).
PREGLEDNICA 4: SISTEMI AGRARNEGA IZKORIŠČANJA TAL V SLOVENIJI: POVRŠINE KMETIJSKIH KULTUR IN KATEGORIJ V HA (POPIS KMETIJSKIH GOSPODARSTEV 2000).

Type of agriculture	Total surface area	Utilized agricultural area	Cereals	Hilling plants	Fodder	Fodder plants	Grasslands	Orchards	Vineyards	Hop-fields
TOTAL	2,012,250	483,915	103,023	20,068	339,559	47,981	291,578	4,096	15,770	1,398
FODDER SYSTEM	1,308,256	233,099	10,846	3,831	216,408	19,042	197,366	537	1,146	332
Pronounced fodder subsystem	1,308,246	233,099	10,845	3,830	216,408	19,042	197,365	537	1,145	332
Moderate fodder subsystem	190,710	53,186	8,896	1,537	40,547	7,759	32,788	184	1,969	52
CEREAL SYSTEM	198,546	88,222	38,597	4,682	39,628	9,030	30,598	1,590	3,613	113
Cereal-hilling plant subsystem	106,466	48,260	23,686	3,468	18,510	5,573	12,937	611	1,884	101
Cereal-fodder subsystem	92,080	39,963	14,912	1,214	21,118	3,457	17,661	978	1,729	12
HILLING PLANT SYSTEM	109,133	56,999	30,691	8,114	16,595	6,945	9,650	162	1,415	22
Hilling plant-cereal subsystem	103,040	55,093	30,374	7,843	15,306	6,461	8,845	133	1,415	22
Hilling plant-fodder subsystem	6,093	1,906	317	271	1,288	483	805	29	0	0
MIXED SYSTEM	47,014	13,082	3,265	398	8,609	1,977	6,633	85	725	0
SPECIAL SYSTEMS	158,591	39,326	10,729	1,506	17,772	3,229	14,543	1,539	6,901	879
Orchard-winegrowing subsystem	47,462	7,566	889	192	2,198	437	1,761	943	3,344	0
Winegrowing subsystem	96,535	25,770	8,825	1,052	11,873	1,609	10,264	487	3,531	1
Hop growing subsystem	14,594	5,990	1,015	263	3,701	1,184	2,517	108	26	878

TABLE 5: SYSTEMS OF AGRICULTURAL LAND USE IN SLOVENIA: PERCENTAGES OF SURFACE AREAS OF AGRICULTURAL CULTURES AND CATEGORIES (CENSUS OF THE AGRICULTURAL SECTOR 2000).
 PREGLEDNICA 5: SISTEMI AGRARNEGA IZKORIŠČANJA TAL V SLOVENIJI: DELEŽI POVRŠIN KMETIJSKIH KULTUR IN KATEGORIJ (POPIS KMETIJSKIH GOSPODARSTEV 2000).

Type of agriculture	Total surface area	Utilized agricultural area	Cereals	Hilling plants	Fodder	Fodder plants	Grasslands	Orchards	Vineyards	Hop-fields
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
FODDER SYSTEM	74.5	59.2	19.2	26.7	75.7	55.9	78.9	17.6	19.8	27.5
Pronounced fodder subsystem	65.0	48.2	10.5	19.1	63.7	39.7	67.7	13.1	7.3	23.8
Moderate fodder subsystem	9.5	11.0	8.6	7.7	11.9	16.2	11.2	4.5	12.5	3.7
CEREAL SYSTEM	9.9	18.2	37.5	23.3	11.7	18.8	10.5	38.8	22.9	8.1
Cereal-hilling plants subsystem	5.3	10.0	23.0	17.3	5.5	11.6	4.4	14.9	11.9	7.2
Cereal-fodder subsystem	4.6	8.3	14.5	6.0	6.2	7.2	6.1	23.9	11.0	0.9
HILLING PLANTS SYSTEM	5.4	11.8	29.8	40.4	4.9	14.5	3.3	4.0	9.0	1.6
Hilling plants-cereal subsystem	5.1	11.4	29.5	39.1	4.5	13.5	3.0	3.2	9.0	1.6
Hilling plants-fodder subsystem	0.3	0.4	0.3	1.4	0.4	1.0	0.3	0.7	0.0	0.0
MIXED SYSTEM	2.3	2.7	3.2	2.0	2.5	4.1	2.3	2.1	4.6	0.0
SPECIAL SYSTEMS	7.9	8.1	10.4	7.5	5.2	6.7	5.0	37.6	43.8	62.9
Orchard-winegrowing subsystem	2.4	1.6	0.9	1.0	0.6	0.9	0.6	23.0	21.2	0.0
Winegrowing subsystem	4.8	5.3	8.6	5.2	3.5	3.4	3.5	11.9	22.4	0.1
Hop growing subsystem	0.7	1.2	1.0	1.3	1.1	2.5	0.9	2.6	0.2	62.8

According to its characteristics, the **mixed system** is a transitional form between the fodder system and the cereal or hilling plants systems. This is evident from the structure of land use, which is characterized by a relatively high proportion of cereals (24.9%) and an increased proportion of fodder (65.8%). In the 1960's, this system denoted traditional autarchic agriculture with a polycultural orientation. Later, in the 1980's, its distribution decreased as in numerous cases this method of farming was transformed and reoriented into the fodder system. The current situation shows the continuing reduction of such land and the reorientation of production into stock farming. It only occupies 2.3% of all land or 2.7% of the utilized agricultural area. It is widespread in Dolenjska and Bela krajina and is often connected with fruit growing (Dravinjske gorice, Haloze), winegrowing (the Vipava Valley, Bizeljsko, Bela krajina), and hop growing (Savinja Valley).

Special systems. We placed three subsystems under special systems: fruit growing, winegrowing, and hop growing. We differentiated these where their proportion exceeded 10%. They occupied 158,591 hectares or 7.9% of all land and 39,326 hectares or 8.1% of the utilized agricultural area.

The *fruit growing subsystem* occurs independently only in exceptional cases; for the most part, it is bound up with the winegrowing subsystem. This is largely the result of the similar natural factors required for successful production. A larger concentration of orchards is noticeable in submediterranean Slovenia (Slovene Istria, the lower Vipava Valley, and Goriška Brda) and in subpannonian Slovenia (Slovenske gorice, the Bistrica section of Dravinjske gorice, the low hills of the Brežice, Krško, and Žalec municipalities). It encompasses 47,462 hectares of all land or 7,566 hectares of the utilized agricultural area (2.4% and 1.6%, respectively).

The *winegrowing subsystem* is more distinctive. It occupies 96,535 hectares (4.8%) of the total surface area or 25,770 hectares of the utilized agricultural area (5.3%). It exceeded the lower limit of 10% of vineyards in submediterranean Slovenia is Slovene Istria, Kras, Goriška Brda, and the Vipava Valley and in subpannonian Slovenia in Slovenske gorice (around Gornja Radgona, Ormož, Maribor, Zgornja Kungota), Spodnje (winegrowing) Haloze, and Bizeljsko. We also find relatively high proportions for vineyards, above 5%, around Metlika, Semič, Novo mesto, Straža, Podčetrtek, Pesnica, and Šentilj. Several smaller but compact winegrowing areas were less significant, for example, Lendavske gorice and Dravinjske gorice.

The *hop growing subsystem* shrank greatly in size over the last forty years. During the census, it only occupied 14,594 hectares of the total surface area (0.7%) or 5,990 hectares of the utilized agricultural area (1.2%). The above –10% proportion was only preserved in the lower Savinja Valley. Small hop fields were also preserved in Ptujsko polje, the Mislinja Valley, and around Brežice and Mozirje.

TABLE 6: SYSTEMS OF AGRICULTURAL LAND USE IN SLOVENIA: STRUCTURAL PROPORTIONS OF AGRICULTURAL CULTURES AND CATEGORIES IN PERCENT IN INDIVIDUAL SUBSYSTEM (CENSUS OF THE AGRICULTURAL SECTOR 2000).

PREGLEDNICA 6: SISTEMI AGRARNEGA IZKORIŠČANJA TAL V SLOVENIJI: STRUKTURNI DELEŽI KMETIJSKIH KULTUR IN KATEGORIJI V ODSOTKIH V POSAMEZNEM SISTEMU (POPIS KMETIJSKIH GOSPODARSTEV 2000).

	Utilized agricultural area	Cereals	Hilling	Fodder plants	Fodder	Grasslands plants	Orchards	Vineyards	Hop-fields
TOTAL	100.0	21.3	4.1	70.2	9.9	60.3	0.8	3.3	0.3
FODDER SYSTEM	100.0	6.9	1.9	89.8	9.4	80.4	0.3	1.1	0.1
Pronounced fodder subsystem	100.0	4.7	1.6	92.8	8.2	84.7	0.2	0.5	0.1
Moderate fodder subsystem	100.0	16.7	2.9	76.2	14.6	61.6	0.3	3.7	0.1
CEREAL SYSTEM	100.0	43.7	5.3	44.9	10.2	34.7	1.8	4.1	0.1
Cereal-hilling plants subsystem	100.0	49.1	7.2	38.4	11.5	26.8	1.3	3.9	0.2
Cereal-fodder subsystem	100.0	37.3	3.0	52.8	8.7	44.2	2.4	4.3	0.0
HILLING PLANTS SYSTEM	100.0	53.8	14.2	29.1	12.2	16.9	0.3	2.5	0.0
Hilling plants subsystem	100.0	55.1	14.2	27.8	11.7	16.1	0.2	2.6	0.0
Hilling plants-fodder subsystem	100.0	16.6	14.2	67.6	25.4	42.2	1.5	0.0	0.0
MIXED SYSTEM	100.0	25.0	3.0	65.8	15.1	50.7	0.6	5.5	0.0
SPECIAL SYSTEMS	100.0	27.3	3.8	45.2	8.2	37.0	3.9	17.5	2.2
Fruit growing-winegrowing subsystem	100.0	11.7	2.5	29.0	5.8	23.3	12.5	44.2	0.0
Winegrowing subsystem	100.0	34.2	4.1	46.1	6.2	39.8	1.9	13.7	0.0
Hop growing subsystem	100.0	16.9	4.4	61.8	19.8	42.0	1.8	0.4	14.7

2.6 Regional distribution of systems of agricultural land use

Due to the large regional territorial units, various local features of agricultural systems were largely blurred, which is especially evident for special cultures, which can only be recognized with difficulty. In general, the pronounced fodder system dominates in the Alps, the subalpine foothills, and the high and low Dinaric karst plateaus. On the lowland plains, hilling plant and cereal subsystems are achieving dominance. In numerous cases, the examples of the mixed agricultural system are the consequence of the intertwining of various systems. Special systems, mainly the winegrowing and fruit growing subsystem, dominate only in regions with distinctively favourable natural conditions or a traditional orientation. A detailed regional division is provided in Table 7.

TABLE 7: REGIONS AND SUBREGIONS IN SLOVENIA: UTILIZED AGRICULTURAL AREA, PERCENTAGE OF AGRICULTURAL CULTURES AND CATEGORIES OF TOTAL UTILIZED AGRICULTURAL AREA, AND DEFINITION OF THE SYSTEM OF AGRICULTURAL LAND USE.

PREGLEDNICA 7: REGIJE IN SUBREGIJE V SLOVENIJI: KMETIJSKA TLA V RABI, DELEŽ KMETIJSKIH KULTUR IN KATEGORIJI OD KMETIJSKIH TAL V RABI TER OPREDELITEV SISTEMA AGRARNEGA IZKORIŠČANJA TAL.

Key to abbreviations:

Fp = Pronounced fodder subsystem; Fm = Moderate fodder subsystem; C-hp = Cereal-hilling plant subsystem; C-f = Cereal-fodder subsystem; HP-c = Hilling plant-cereal subsystem; HP = Hilling plant subsystem; M = Mixed (Cereal-hilling plant) system; FR = Fruitgrowing subsystem; W = Winegrowing subsystem; H = Hop growing subsystem.

Okrajšave:

Fp = Izraziti krmni podsistem; Fm = Omiljeni krmni podsistem; C-hp = Žitno okopavinski podsistem; C-f = Žitno krmni podsistem; HP-c = Okopavinsko žitni podsistem; HP = Okopavinsko krmni podsistem; M = Mešani (Žitno-okopavinsko-krmni) sistem; FR = Sadjarski podsistem; W = Vinogradniški podsistem; H = Hmeljarski podsistem.

Regions and subregions	Utilized agricultural area in hectares	% of utilized agricultural area of total surface area	Cereal	Percentages of agricultural cultures and categories of total utilized agricultural area				Hop-fields	Agricultural system
				Hilling plants	Fodder	Orchards	Vineyards		
Slovenia	488,384.8	24.3	21.2	4.0	69.5	0.8	3.2	0.3	M
Slovene Istria	3,214.0	9.3	11.7	3.6	32.9	15.3	36.4	0.0	W
Karst Regions	8,520.8	11.3	2.5	1.7	90.4	0.8	4.6	0.0	Fp
Kras	5,837.3	12.2	2.5	1.7	88.9	0.2	6.6	0.0	Fp
Hrpeljski kras-Western Brkini	2,683.5	9.8	2.4	1.6	93.6	2.1	0.2	0.0	Fp
Brkini-Notranjska Reka Valley	3,775.0	12.7	4.8	3.6	90.8	0.8	0.0	0.0	Fp
Pivka	8,515.8	15.9	2.6	1.5	95.4	0.4	0.0	0.0	Fp
Goriško	14,825.8	16.4	9.7	1.7	62.7	3.5	22.4	0.0	V
Vipava Valley-Goriško polje	8,069.6	21.1	16.5	2.1	54.2	4.2	23.0	0.0	VM
Goriška Brda	2,035.7	28.5	1.9	0.6	16.6	9.0	71.9	0.0	V
Lower Soča Valley	1,140.4	8.0	2.9	1.6	95.3	0.1	0.2	0.0	Fp
Trnovski gozd-Banjščice	3,580.1	11.7	1.0	1.4	97.6	0.0	0.0	0.0	Fp
Idrijsko-Cerkljansko	8,738.5	20.6	0.4	1.2	98.3	0.0	0.0	0.0	Fp
Tolminsko	7,445.2	7.9	0.7	0.9	98.3	0.1	0.0	0.0	Fp
Gorenjska	51,026.3	18.2	7.3	4.3	88.0	0.2	0.1	0.0	Fp
Upper Sava Valley	2,898.6	7.7	0.7	0.8	98.5	0.0	0.0	0.0	Fp
Bohinj	2,134.5	7.0	0.2	1.2	98.6	0.0	0.0	0.0	Fp
Dežela-Blejski kot	4,531.7	13.5	2.7	1.5	95.0	0.7	0.0	0.0	Fp
Tržič Alps	1,379.5	8.9	2.8	1.6	95.6	0.0	0.0	0.0	Fp
Jezerško	2,312.4	11.5	2.0	1.2	96.6	0.3	0.0	0.0	Fp
Kranjsko-Sorško polje	12,538.2	34.8	16.5	10.7	72.6	0.1	0.0	0.0	HP-c
Škofja Loka hills	16,702.9	23.8	1.2	1.3	97.5	0.1	0.0	0.0	Fp
Tuhinjski Valley	4,073.3	17.8	1.0	1.6	97.4	0.0	0.0	0.0	Fp
Bistrica plain	4,455.1	32.4	27.2	9.0	61.8	1.5	0.6	0.0	M
Ljubljana	6,484.3	22.4	12.6	3.6	83.2	0.3	0.4	0.0	Fp
Ljubljana Barje Moor	9,668.2	24.4	12.0	1.5	86.5	0.1	0.0	0.0	Fp
Notranjska valley system	11,295.5	17.2	1.2	1.5	97.3	0.0	0.0	0.0	Fp
Bloke and Loška dolina	4,120.6	16.9	0.8	1.3	97.9	0.0	0.0	0.0	Fp
Cerknica Valley-Planinsko polje	4,420.5	16.1	1.7	1.6	96.7	0.0	0.0	0.0	Fp
Logaško polje	2,754.4	19.7	1.0	1.5	97.4	0.0	0.0	0.0	Fp
Kočevsko-Ribniško	12,587.2	11.2	1.3	1.1	97.7	0.0	0.0	0.0	Fp
Velike Lašče region	2,019.6	19.6	0.9	1.6	97.4	0.0	0.0	0.0	Fp
Ribnica Valley	3,601.2	17.7	0.9	1.3	97.8	0.0	0.0	0.0	Fp
Kočevje Valley	4,996.9	8.4	1.8	0.4	97.8	0.0	0.0	0.0	Fp
Loški Potok	1,484.0	11.2	0.1	1.4	98.5	0.0	0.0	0.0	Fp
Kolpa Valley	485.5	5.5	4.2	2.2	93.6	0.0	0.0	0.0	Fp
Dolenjska	51,521.5	25.1	17.2	2.9	76.5	0.2	3.2	0.0	Fm
Dolenjska valley system	13,997.1	30.0	12.0	3.4	83.7	0.0	0.7	0.0	Fp
Suha Krajina	6,848.0	24.3	9.8	2.3	85.9	0.1	2.0	0.0	Fp
Mirna Valley	4,182.4	28.9	14.2	3.1	79.3	0.0	3.4	0.0	Fm
Novo mesto region	14,895.6	25.1	24.6	3.1	67.1	0.6	4.6	0.0	M
Bela Krajina	11,598.4	20.5	19.5	2.1	73.4	0.1	4.9	0.0	Fm
Spodnje (Lower) Posavje	27,665.4	30.7	27.9	3.3	60.2	2.6	6.0	0.1	M
Spodnje (Lower) Zasavje	8,117.9	25.5	12.3	1.9	82.2	0.5	3.0	0.0	Fp
Krško-Brežice basin	19,547.5	33.4	34.3	3.9	51.1	3.4	7.2	0.1	C-f
Posavsko hribovje	31,599.5	26.4	6.2	1.5	91.7	0.1	0.5	0.0	Fp
Western Posavsko hribovje	5,732.3	31.8	7.6	2.0	90.3	0.0	0.0	0.0	Fp
Zgornje (Upper) Zasavje	13,288.3	22.5	4.2	1.4	93.9	0.1	0.3	0.0	Fp
Lower Savinja Valley	5,433.2	26.9	4.5	1.0	94.3	0.1	0.1	0.0	Fp
Kozjansko	7,145.6	32.1	10.2	1.7	86.7	0.0	1.3	0.0	Fp
Sotelsko-Vogljansko	17,822.8	37.9	16.1	1.2	78.0	0.3	4.5	0.0	Fm
Sotelsko	13,836.7	38.3	17.9	1.2	75.6	0.2	5.1	0.0	Fm
Vogljansko	3,986.2	36.5	9.7	1.1	86.3	0.4	2.5	0.0	Fp
Celje Basin	17,853.8	31.0	11.8	2.5	78.5	0.9	0.5	5.8	Fm
Lower Savinja Valley	13,306.1	30.6	13.2	2.9	75.0	1.0	0.4	7.4	Fm
Dobrna valley system	4,547.7	32.1	7.8	1.3	88.6	0.6	0.8	0.9	Fp
Upper Savinja Valley	7,749.5	15.3	2.0	1.5	95.7	0.1	0.0	0.6	Fp

Regions and subregions	Utilized agricultural area in hectares	% of utilized agricultural area of total surface area	Percentages of agricultural cultures and categories of total utilized agricultural area					Hop-fields	Agricultural system
			Cereal	Hilling plants	Fodder	Orchards	Vineyards		
Šaleška Valley	4,896.2	26.8	2.7	1.3	95.3	0.4	0.3	0.0	Fp
Mežiška Valley	5,107.7	16.8	1.3	1.0	97.6	0.0	0.0	0.0	Fp
Pohorsko Podravje	18,097.5	19.6	3.5	2.1	93.3	0.4	0.0	0.7	Fp
Mislinja Valley	6,583.6	24.9	1.4	1.7	94.9	0.0	0.0	2.0	Fp
Drava Valley	11,513.9	17.4	4.7	2.3	92.4	0.6	0.1	0.0	Fp
Maribor	4,388.7	31.0	33.9	4.7	45.8	3.2	12.3	0.0	W
Dravinjske gorice-Haloze	22,729.8	29.0	12.7	1.8	79.7	1.1	4.5	0.2	Fm
Vitanjsko valley system	3,299.8	27.2	1.2	1.3	97.4	0.0	0.1	0.0	Fp
Dravinjske gorice	12,148.6	30.8	11.2	1.5	81.3	2.0	4.0	0.0	Fp
Haloze	7,281.5	27.2	20.3	2.6	69.0	0.1	7.3	0.7	M
Dravsko-Ptujsko polje	31,271.8	59.2	49.6	12.6	35.2	0.6	1.6	0.2	HP-c
Dravsko polje	17,797.1	45.1	44.6	8.6	44.6	1.0	1.2	0.1	C-hp
Ptujsko polje	9,210.6	56.8	58.2	15.1	22.4	0.2	3.4	0.6	HP-c
Slovenske Gorice	46,281.8	46.9	43.4	3.9	44.9	1.5	6.2	0.1	C-f
Maribor section	9,276.6	40.5	29.9	3.1	56.1	2.6	8.3	0.0	M
Lenart section	10,848.9	53.2	41.3	1.7	53.1	2.2	1.8	0.0	C-f
Ptuj section	9,048.9	48.8	48.4	5.1	40.1	1.8	4.0	0.5	C-hp
Radgona-Ljutomer section	11,463.6	48.2	55.1	5.3	30.3	0.4	9.0	0.0	C-hp
Ormoške Slovenske gorice	5,643.8	43.1	38.2	4.8	47.8	0.4	8.8	0.0	C-f
Pomurje	55,302.0	50.3	57.8	12.1	27.3	0.4	2.4	0.0	HP-c
Mursko polje	8,657.3	57.5	57.7	11.6	28.1	0.2	2.4	0.0	HP-c
Ravensko	20,379.9	59.1	59.1	15.1	23.7	0.5	1.5	0.0	HP-c
Dolinsko	12,580.1	49.1	63.5	13.8	18.1	0.1	4.5	0.0	HP-c
Goričko	13,684.7	39.5	50.8	6.6	40.5	0.6	1.5	0.0	C-f

2.7 Changes in systems of agricultural land use

In the past forty years, Slovene agriculture and its agricultural systems have experienced a considerable transformation. This is most evident from comparisons between 1960, 1985, and 2000, for which analyses exist according to former municipalities. From these comparisons, a general reorientation into the pronounced fodder system is evident, which is probably the consequence of the increasing orientation into stock farming, particularly cattle breeding. This was indicated by the transformation from the mixed system to the moderate fodder system, and in the last fifteen years, the moderate fodder system has expe-

TABLE 8: DEFINITION OF AGRICULTURAL SYSTEMS IN FORMER MUNICIPALITIES IN 1960, 1985, AND 2000.
PREGLEDNICA 8: OPREDELITEV KMETIJSKIH SISTEMOV V NEKDANJIH OBČINAH V LETIH 1960, 1984 IN 2000.

Agricultural systems and subsystems	Number of municipalities		
	1960	1985	2000
FODDER SYSTEM	28	34	45
• Pronounced fodder subsystem	17	29	37
• Moderate fodder subsystem	12	5	8
CEREAL SYSTEM	4	4	6
• Cereal-hilling plant subsystem	4	4	4
• Cereal-fodder subsystem	—	—	2
HILLING PLANT SYSTEM	4	3	3
• Hilling plant-cereal subsystem	2	—	3
• Hilling plant-fodder subsystem	2	3	—
MIXED (fodder-cereal-hilling plant) SYSTEM	18	10	3
SPECIAL SYSTEMS	7	16	5
• Fruit-growing subsystem	2	10	2
• Winegrowing subsystem	4	4	5
• Hop growing subsystem	1	1	—
Total	61	67	62

rienced a similar transformation to the pronounced fodder system. Along with this basic trend, we find minor changes in the ratios between the cereal and hilling plant systems to the detriment of the latter, a stabilization of winegrowing regions with the best natural conditions, and the reduction of hop growing.

3 Stock farming

3.1 Livestock populations

Three branches dominate Slovene stock farming: cattle breeding, pig breeding, and poultry farming. Other branches (breeding sheep, horses, rabbits, deer, ostrich) are of secondary and largely local character. Because of the great differences between the various types of livestock, measuring the relative importance of the individual branches presents a special problem. This is accomplished with the help of a special indicator called »livestock units« (LU). The LU is calculated by multiplying the livestock population of each stock farming branch by a corresponding quotient.²¹ The use of this criterion in the case of Slovenia indicates that the total sum for the entire livestock stock and poultry totals 694,421.1 LU. Of this, cattle comprise 72% of the total LU, pigs 21.8%, horses 2.3%, poultry 1.9%, and sheep 1.8%. To simplify the calculations, we did not consider differences relative to age or gender.

TABLE 9: NUMBER OF LIVESTOCK ACCORDING TO CENSUS OF AGRICULTURE (JUNE 1, 2000) AND CALCULATED VALUE IN LIVESTOCK UNITS (LU).

PREGLEDNICA 9: ŠTEVILO ŽIVINE PO KMETIJSKEM POPISU 1. 6. 2000 IN PRERAČUNANE VREDNOSTI V GLAVE VELIKE ŽIVINE (GVŽ).

	Number according to statistical information ²¹	Number according to statistical material according to KCO	Livestock units (LU) ²²	% LU
Cattle	499,786	500,313	500,313.0	72.0
Pigs	606,334	606,484	151,621.0	21.8
Sheep	96,531	96,640	9,664.0	1.4
Goats	30,030	30,101	3,010.0	0.4
Horses	14,337	14,434	15,877.4	2.3
Rabbits	192,225	193,304	386.6	0.1
Poultry	6,252,609	6,774,572	13,549.1	1.9
Total			694,421.1	100.0

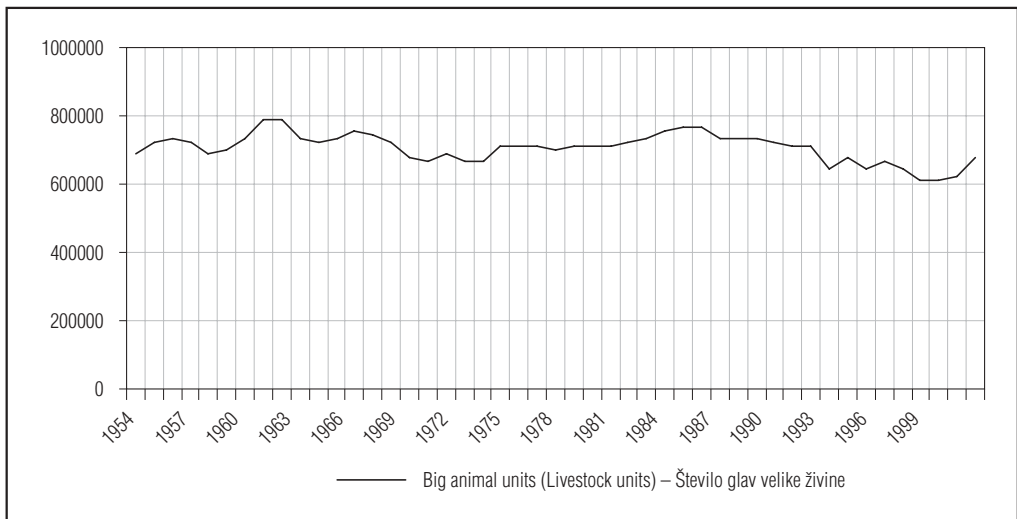


Figure 8: Number of livestock units in Slovenia between 1954 and 2000 (*Statistical Yearbook of the (Socialist) Republic of Slovenia*).
Slika 8: Število glav velike živine v Sloveniji med l. 1954 in 2000 (*Statistični letopis (S)R Slovenije*).

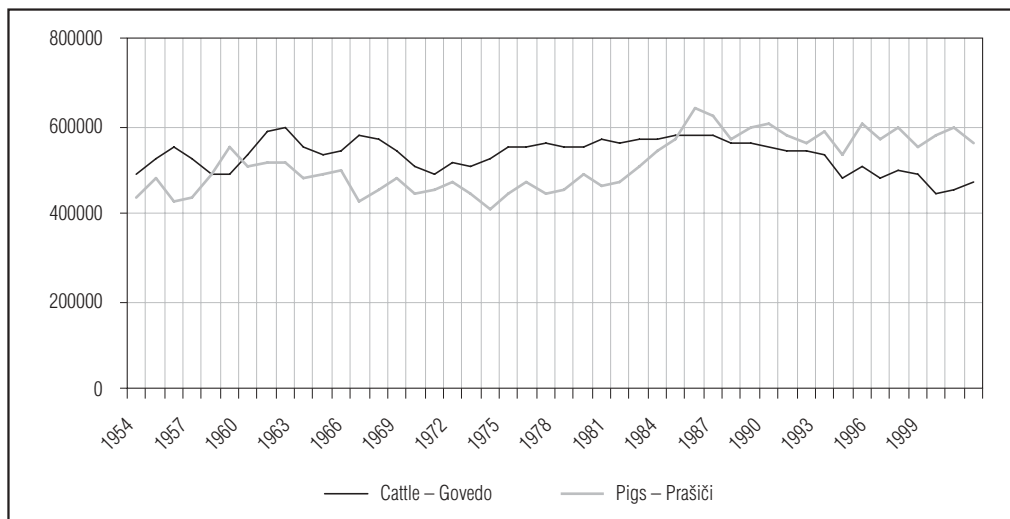


Figure 9: Number of cattle and pigs in Slovenia between 1954 and 2000 (*Statistical Yearbook of the (Socialist) Republic of Slovenia*).
Slika 9: Število goveje živine in prašičev v Sloveniji med l. 1954–2000 (*Statistični letopis (S)R Slovenije*).

Cattle breeding is the most widespread branch. This is a distinctive activity of the private agricultural sector, which possesses 96.8% of the total 500,313 head of cattle. Among state-owned agricultural companies, only twenty-two were oriented into cattle breeding. Cattle breeding is spread throughout Slovenia. If for comparison we consider the density of cattle per hectare of the utilized agricultural area, we see that the highest densities of cattle are found in Kočevsko, Kranjsko-Sorško polje, the Bistrica plain, Voglajnsko, the Šaleška Valley, the Mislinja Valley, the lower Savinja Valley, and Dravinjske gorice. The lowest densities are recorded in the Notranjska valley system, the Ribnica Valley, Goriška Brda, Kras, Slovene Istria, Dolinsko, Brkini, and the high karst plateaus. The average density of cattle per hectare of utilized agricultural area in Slovenia totaled 1.02 head/hectare.

The second most important livestock branch in Slovenia is *pig breeding*. Two methods of breeding are employed: along with the traditional breeding of smaller numbers of pigs on private farms, large pig farms (Ihan, Klinja vas pri Kočevju, Pristava pri Leskovcu, Nemščak pri Ižakovcih, Draženci pri Ptujju, Stična, Podgrad pri Gornji Radgoni, Zalog pri Ljubljani, and Maribor) from the Socialist period have been preserved. State-owned agricultural companies thus possess 606,484 head or 34.9%.

The highest density of pigs per hectare of utilized agricultural area is recorded in Ravensko, Mursko polje, Ptujsko polje, Dravsko polje, Slovenske gorice, Goričko, the Krško-Brežice basin, and, as peculiarity, the Bistrica plain. The areas of the highest density of pigs to a large extent coincides with the areas of the most intensive production of corn. The lowest densities are recorded in the Alps, the high karst plateaus, Kras, Kočevsko, and the Notranjska valley system. The average density of pigs per hectare of utilized agricultural area in Slovenia totaled 1.24.

With the introduction of specialized poultry farms, the number of poultry in Slovenia substantially increased and *poultry farming* became an important livestock branch. As with in pig breeding, the poultry production farms of state-owned agricultural companies are in the forefront (Zalog, Neverke, Draženci, Duplica, Beltinci, Hardek, etc.), possessing 20.2% of the livestock population, but there are an increasing number of private farms that have undertaken poultry farming in the industrial manner. This branch is developed above the average in grain-producing areas and in the vicinity of larger cities. In the previous Socialist period, many poultry farms were deliberately set up in certain remote regions (Neverke, Mozirje).

The remaining two livestock branches, *horse breeding* and *sheep breeding* (*sheep and goats*), are of no major importance. The former regressed due to motorization but was preserved as a recreational activity (Lipica)

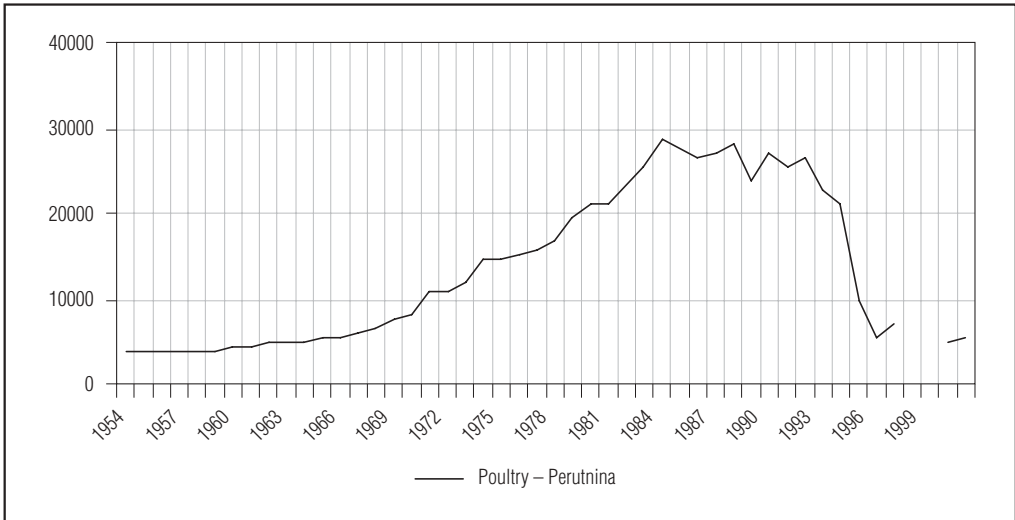


Figure 10: Number of poultry in Slovenia between 1954 and 2000 (*Statistical Yearbook of the (Socialist) Republic of Slovenia*).
Slika 10: Število perutnine v Sloveniji med l. 1954–2000 (*Statistični letopis (S)R Slovenije*).

and according to its distribution, as a secondary activity of the forest industry. We therefore find it in forest regions such as Kočevsko, the Cerknica Valley, Gorjanci, and the Julian Alps. Sheep breeding was the second most numerous livestock branch in Slovenia before World War I but almost died out in the 1970's and 1980's; recently, however, the number of sheep has been gradually rising. They now have an above average presence in the high karst plateaus (Kočevsko, Pivka), the Alps (Posočje, the Trzič Alps, the upper Savinja Valley), Kras, and Bela Krajina.

We obtain geographically interesting findings about the distribution of livestock if we compare the distribution of agricultural land and the number of livestock according to natural regions. Thus, for example, in comparison with the proportion of agricultural land, there is a percentage surplus of sheep in the Alpine

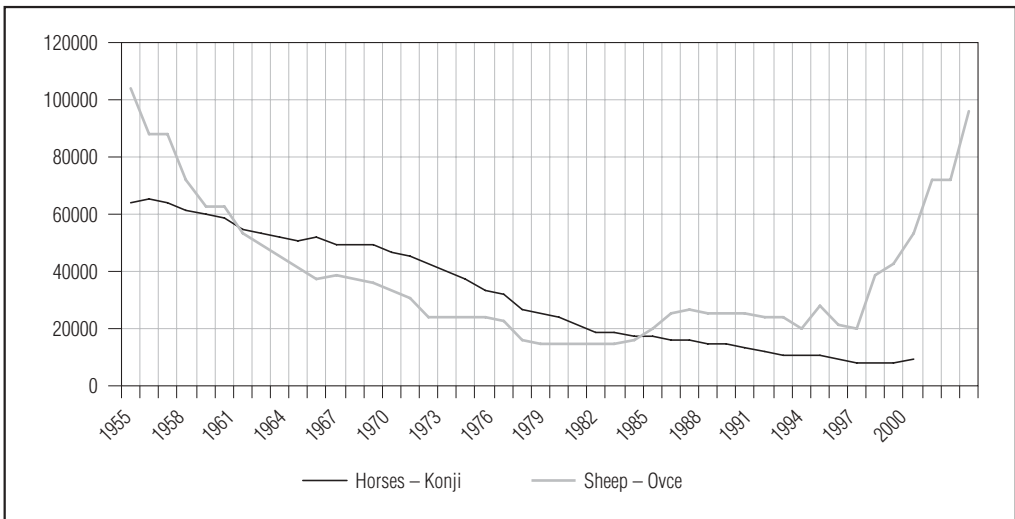


Figure 11: Number of sheep and horses in Slovenia between 1954 and 2000 (*Statistical Yearbook of the (Socialist) Republic of Slovenia*).
Slika 11: Število ovc in konj v Sloveniji med l. 1954 in 2000 (*Statistični letopis (S)R Slovenije*).

high mountains, of cattle in the hill regions, of poultry in low hill regions, of pigs and poultry in the plains, and of horses and sheep in the high and low karst plateaus.

TABLE 10: DISTRIBUTION OF LIVESTOCK ACCORDING TO NATURAL REGIONS (IN %) (CENSUS OF THE AGRICULTURAL SECTOR 2000).

PREGLEDNICA 10: RAZPOREDITEV ŽIVINE PO NARAVNIH OBMOČJIH (V %) (POPIS KMETIJSKIH GOSPODARSTEV 2000).

	Percent of utilized agricultural area	Proportion of cattle in %	Proportion of pigs in %	Proportion of horses in %	Proportion of sheep in %	Proportion of poultry in %
Alpine high mountains	3.5	3.4	0.4	4.1	12.0	0.4
Hills	24.5	29.3	6.3	21.2	25.3	15.3
Low hills	22.6	22.2	21.9	16.4	13.4	25.9
Low hills-plains	9.9	8.3	16.2	7.4	3.1	17.3
Plains	22.0	23.5	45.0	20.1	8.7	25.6
Low karst plateaus	9.7	8.0	3.9	14.3	19.7	3.4
Plains-low karst plateaus	0.5	0.4	2.8	2.4	0.8	0.5
Dinaric high karst plateaus	7.3	5.0	3.5	14.0	17.0	11.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

We get similar findings comparing systems of agricultural land use with the distribution of livestock. Thus, cattle breeding is linked with the fodder system, pig breeding with the hilling plant and cereal systems, sheep and horse breeding with the fodder system, and poultry farming with the cereal and hilling plant systems. The least livestock is found in the special systems

TABLE 11: DISTRIBUTION OF LIVESTOCK ACCORDING TO SYSTEMS OF AGRICULTURAL LAND USE (CENSUS OF THE AGRICULTURAL SECTOR 2000).

PREGLEDNICA 11: RAZMESTITEV ŽIVINE GLEDE NA SISTEME AGRARNEGA IZKORIŠČANJA TAL (POPIS KMETIJSKIH GOSPODARSTEV 2000).

	Utilized agricultural area	Proportion of cattle in %	Proportion of pigs in %	Proportion of horses in %	Proportion of sheep in %	Proportion of poultry in %
FODDER SYSTEM	59.2	64.4	21.5	70.3	80.6	44.0
Pronounced fodder subsystem	48.2	51.6	12.3	57.9	67.2	36.7
Moderate fodder subsystem	11.0	12.8	9.2	12.4	13.4	7.3
CEREAL SYSTEM	20.7	18.3	38.8	14.5	6.8	25.4
Cereal-hilling plant subsystem	12.4	10.0	27.7	6.2	3.3	15.3
Cereal-fodder subsystem	8.3	8.3	11.1	8.3	3.5	10.1
HILLING PLANT SYSTEM	11.8	10.5	35.9	4.8	2.0	19.3
Hilling plant-cereal subsystem	11.4	9.9	35.9	4.3	1.9	15.9
Hilling plant-fodder subsystem	0.4	0.6	0.0	0.5	0.1	3.4
MIXED (fodder-cereal-hilling plant) SYSTEM	3.9	3.4	2.0	6.6	7.3	3.0
SPECIAL SYSTEMS	4.5	3.4	1.7	3.8	3.3	8.3
Fruitgrowing	1.6	0.4	0.4	1.4	1.9	2.7
Winegrowing	1.7	1.3	0.6	1.0	0.9	3.2
Hop growing	1.2	1.7	0.7	1.4	0.5	2.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

3.2 Stock farming Orientations

According to the »systems of agricultural land use« model, we also attempted to define the main stock farming orientation types and their distribution. According to the diversity of livestock, in the determination we used the data on livestock units (LU) that we calculated for each individual agricultural assessment area according to a special key²³. The total sum of LU enabled us to determine the structural composi-

tion of livestock. From this, we could see the proportion or significance of each branch of stock farming branch. Using the demarcation values shown in Table 12, we defined individual stock farming types. The demarcation values are adapted to Slovene conditions.

TABLE 12: DEMARCATION VALUES IN LIVESTOCK UNITS (LU) FOR DETERMINING THE STOCK FARMING ORIENTATION. PREGLEDNICA 12: RAZMEJITVENE VREDNOSTI ZA OPREDELITEV ŽIVINOREJSKE USMERITVE.

Stock farming orientation	% of cattle (LU)	% of pigs (LU)	% of horses (LU)	% of sheep and goats (LU)	% of poultry (LU)
Cattle breeding					
• pronounced	above 90	below 30	below 10	below 10	below 10
• moderate	70–90	below 30	below 10	below 10	below 10
Mixed stock farming	50–70	15–30	below 10	below 10	below 10
Pig breeding	below 70	above 30	below 10	below 10	below 10
Horse breeding	below 70	below 30	above 10	below 10	below 10
Sheep breeding	below 70	below 30	below 10	above 10	below 10
Poultry farming	below 70	below 30	below 10	below 10	above 10

From the structural composition of livestock, it is possible to see that cattle breeding dominates in Slovenia, appearing in two variants: pronounced orientation and moderate orientation. The two occupy 55.9% of the total 696,920 LU (according to a rough analysis of the results of the *Census of the Agricultural Sector 2000*), and if we also consider the links of (moderate) cattle breeding with some other orientations, the proportion rises to 59.4%. The cattle breeding type of stock farming is spread throughout all of Slovenia with a strongly one-sided orientation in Gorenjska, Dolenjska, Zasavje, the Šaleška Valley, and the Mislinja Valley. A lower density of cattle is evident in Primorje, Pomurje, and Spodnje (Lower) Podravje. This type of stock farming spreads over 61.2% of the utilized agricultural area.

Orientation into pig breeding is concentrated in Pomurje and Spodnje (Lower) Podravje and to a large extent overlaps areas where corn is produced. Outside of this rather compact belt, the pig breeding orientation only appears in those regions where large pig breeding farms are located (Kočevsko, Kostanjevica, the Bistrica plain) They total 29.9% of LU and 20.9% of the utilized agricultural area.

Agricultural assessment areas without a distinct orientation were ranked in the mixed stock farming type. Given the high proportion of cattle (50–70%), this is really still the cattle breeding type but with a weak-

TABLE 13: TYPES OF STOCK FARMING ORIENTATION IN SLOVENIA (CENSUS OF THE AGRICULTURAL SECTOR 2000). PREGLEDNICA 13: TIPI ŽIVINOREJSKE USMERITVE V SLOVENIJI (POPIS KMETIJSKIH GOSPODARSTEV 2000).

Stock farming orientation	Livestock units	%	Utilized agricultural area (ha)	%
Cattle breeding	434,523	62.5	321,664	66.9
Pronounced cattle breeding	160,121	23.9	106,240	22.1
Moderate cattle breeding	245,103	35.3	188,634	39.2
Cattle breeding and horse breeding	6,036	0.9	7,445	1.5
Cattle breeding and sheep breeding	7,542	1.1	9,493	2.0
Cattle breeding and poultry farming	15,721	2.3	9,852	2.0
Mixed stock farming	27,588	4.0	29,617	6.2
Mixed stock farming	21,724	2.9	22,146	4.2
Mixed stock farming and sheep breeding	2,391	0.3	2,863	0.6
Mixed stock farming and poultry farming	3,474	0.5	4,607	1.0
Pig breeding	219,139	31.5	109,712	22.8
Sheep breeding (sheep and goats)	9,500	1.4	15,288	3.2
Sheep breeding	6,758	1.0	9,629	2.0
Sheep breeding and poultry farming	1,003	0.1	2,439	0.5
Sheep breeding and horse breeding	1,739	0.3	3,220	0.7
Horse breeding	1,520	0.2	3,035	0.6
Poultry farming	2,577	0.4	1,682	0.3
Total	694,846	100.0	480,997	100.0

er orientation since on these farms there was also a relatively high proportion of pigs or sheep. This type of stock farming totaled 3.7% of LU or 5.6% of the utilized agricultural land.

As an independent stock farming branch, the sheep breeding orientation is only recorded in rare agricultural assessment areas in Kočevska, Pivka, and Kras. More frequently, it is linked with cattle breeding, as we find in Bela Krajina, Zgornje (Upper) Posočje, Kras, and Brkini. Horse breeding offers a similar example, appearing together with cattle breeding or sheep breeding. It occurs in high karst plateaus. Large poultry farms placed their orientation stamp on several agricultural assessment areas.

3.4 Regional distribution

Regional comparisons of stock farming in Slovenia indicate that the highest density of livestock (LU) per hectare of the utilized agricultural area is reached in northeastern Slovenia in Ravensko, Mursko polje, and Dravsko polje. Figures above the national average, totaling 1.44 LU per hectare of the utilized agricultural area are also reached in Gorenjska, the Dolenjska valley system, the lower Savinja Valley, the Šaleška Valley, Pohorje Podravje, Dravsko-Ptujsko polje, Slovenske gorice, and Pomurje.

TABLE 14: STOCK FARMING TYPES, DENSITY OF LU PER HECTARE OF UTILIZED AGRICULTURAL AREA, AND PROPORTIONS OF STOCK FARMING BRANCHES IN TOTAL SUM OF LU ACCORDING TO REGIONS (CENSUS OF THE AGRICULTURAL SECTOR 2000).

PREGLEDNICA 14: ŽIVINOREJSKI TIPI, GOSTOTA GVŽ NA HA KMETIJSKIH TAL V RABI IN DELEŽI ŽIVINOREJSKIH PANOG V SKUPNEM SEŠTEVKU GVŽ PO REGIJAH (POPIS KMETIJSKIH GOSPODARSTEV 2000).

Key to abbreviations: Cp = pronounced cattle breeding, Cm = moderate cattle breeding, M = mixed stock farming, Pg = pig breeding, H = horse breeding, S = sheep breeding, Po = poultry farming, CS = cattle breeding and sheep breeding, CH = cattle breeding and horse breeding, HS = horse breeding and sheep breeding.

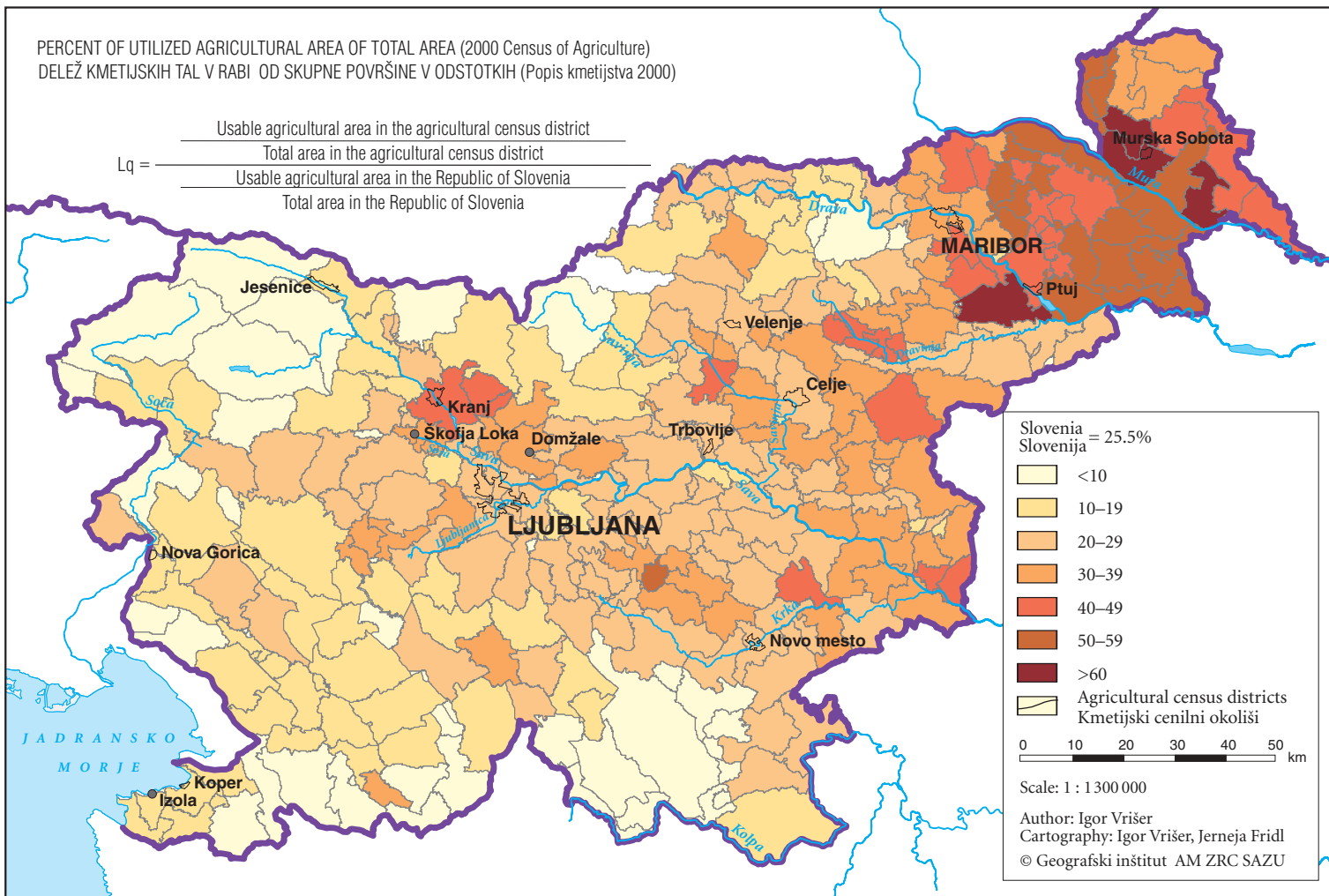
Okrajšave: Cp = izrazita govedoreja, Cm = omiljena govedoreja, M = mešana živinoreja, Pg = prašičereja, H = konjereja, S = reja drobnice, Po = perutninarstvo, CS = govedoreja in reja drobnice, CH = govedoreja in konjereja, HS = konjereja in reja drobnice.

	Type	Livestock units (LU)	LU per hectare of utilized agricultural land	cattle % of LU	Pigs % of LU	Horses % of LU	Sheep % of LU	Poultry % of LU	Other % of LU
SLOVENIA	Cm	694,847	1.44	72.0	21.8	2.3	1.8	1.9	0.1
Slovene Istria	HS	1,086	0.34	48.9	17.6	11.7	12.1	8.9	0.8
Kras	HS	4,386	0.51	66.6	6.1	11.4	11.0	4.7	0.3
Komenski Kras	HS	3,172	0.54	63.1	6.9	13.5	11.6	4.6	0.3
Podgorski Kras	Cm	1,214	0.45	75.6	4.0	6.1	9.2	5.0	0.1
Brkini	CS	2,530	0.67	70.0	5.2	6.2	10.5	8.0	0.1
Pivka	Po	8,486	1.00	68.8	2.1	5.8	6.9	16.1	0.3
Goriška	Cm	11,351	0.77	78.6	8.2	3.2	3.6	6.1	0.3
Vipava Valley	Cm	7,779	0.96	75.5	10.1	3.1	2.6	8.4	0.3
Goriška Brda	Cm	266	0.13	71.4	17.5	5.4	3.1	2.4	0.3
Lower Soča Valley	Cm	906	0.79	84.6	2.5	3.2	9.1	0.5	0.1
Banjščice	Cm	1,544	0.43	88.1	1.8	3.1	5.1	1.4	0.5
Trnovski gozd	Cm	856	0.56	85.9	5.8	3.7	3.9	0.3	0.4
Idrijsko	Cp	8,610	0.99	90.0	2.6	2.7	4.2	0.4	0.1
Tolminsko	CS	7,186	0.97	83.0	0.8	2.0	13.7	0.3	0.2
Gorenjska	Cm	97,109	1.90	82.4	12.7	2.3	1.6	0.9	0.1
Dolina	Cm	3,234	1.12	82.1	1.1	8.2	8.3	0.2	0.1
Bohinj	Cp	2,196	1.03	91.8	1.3	3.2	3.3	0.2	0.2
Dežela-Blejski kot	Cp	8,232	1.82	90.4	1.4	4.1	3.7	0.3	0.0
Tržič Alps	Cm	1,910	1.38	85.6	6.8	1.7	5.4	0.3	0.1
Jezerško	Cp	3,829	1.66	92.5	2.5	2.2	2.5	0.2	0.0
Kranjsko-Sorško polje	Cp	28,310	2.26	95.2	1.8	2.0	0.6	0.4	0.0
Škofja Loka hills	Cp	23,424	1.40	94.2	2.0	2.0	1.6	0.2	0.1
Tuhinjski Valley	Cp	5,268	1.29	90.7	2.4	3.2	3.0	0.6	0.1
Bistrica plain	Pg	20,706	4.65	43.1	52.6	1.0	0.2	3.1	0.0

	Type	Livestock units (LU)	LU per hectare of utilized agricultural land	cattle % of LU	Pigs % of LU	Horses % of LU	Sheep % of LU	Poultry % of LU	Other % of LU
Ljubljana	Cm	9,023	1.39	85.5	3.8	5.7	1.0	3.8	0.1
Ljubljana Barje (Moor)	Cm	11,988	1.24	89.2	3.7	5.7	0.9	0.4	0.1
Notranjska valley system	Cm	8,575	0.76	84.6	1.9	9.8	2.5	1.0	0.1
Loška dolina-Bloke	CH	2,842	0.69	82.6	0.9	13.2	3.0	0.3	0.1
Cerknica Valley	CH	3,105	0.70	80.7	2.2	11.3	3.3	2.3	0.2
Logaško polje	Cp	2,628	0.95	91.4	2.7	4.5	1.0	0.3	0.1
Kočevsko	M	16,550	1.31	57.0	29.9	5.3	7.3	0.3	0.2
Velike Lašče region	Cm	2,233	1.11	82.6	5.0	9.6	2.2	0.3	0.2
Ribnica Valley	Cm	3,420	0.95	84.8	2.4	8.6	3.3	0.3	0.5
Kočevje Valley	Pg	9,682	1.94	39.1	48.7	2.6	9.3	0.3	0.0
Loški Potok	CH	894	0.60	81.2	1.6	10.5	6.4	0.2	0.2
Kolpa Valley	S	322	0.66	56.0	10.0	6.5	26.5	0.8	0.2
Dolenjska	Cm	66,484	1.29	80.2	11.4	4.0	3.5	0.7	0.2
Dolenjska valley system	Cm	23,322	1.67	83.1	13.0	2.4	1.0	0.4	0.1
Suha krajina	Cp	6,981	1.02	90.6	3.6	3.2	2.0	0.3	0.3
Novo mesto region	Cm	21,187	1.42	78.3	12.3	6.0	2.7	0.6	0.1
Bela krajina	S	9,207	0.79	67.4	13.5	3.5	14.0	1.3	0.4
Mirna Valley	Cm	5,787	1.38	83.3	8.5	5.0	1.7	1.3	0.1
Spodnje (Lower) Posavje	M	34,753	1.26	65.3	27.9	4.4	1.5	0.7	0.1
Spodnje (Lower) Zasavje	Cm	11,418	1.41	86.0	10.1	1.8	1.6	0.4	0.1
Krško basin	Pg	23,335	1.19	55.2	36.6	5.7	1.5	0.9	0.1
Posavsko hribovje	Cm	42,419	1.34	89.5	5.5	2.4	1.5	1.1	0.1
Western Posavsko hribovje	Cp	8,863	1.55	90.5	3.9	3.4	0.9	1.2	0.0
Zgornje (Upper) Zasavje	Cp	18,017	1.36	90.4	4.1	2.0	1.9	1.4	0.1
Lower Savinja Valley	Cm	7,332	1.35	89.0	6.5	2.2	1.3	0.9	0.1
Kozjansko	Cm	8,206	1.15	86.8	9.2	2.1	1.3	0.3	0.3
Sotelsko-Voglajnsko	Cm	28,900	1.62	82.8	12.3	1.2	1.1	2.5	0.2
Sotelsko	Cm	20,356	1.47	81.7	15.1	1.1	1.1	0.8	0.2
Voglajnsko	Cm	8,545	2.14	85.3	5.7	1.3	1.1	6.5	0.1
Celje basin	Cm	28,636	1.60	86.3	8.7	2.1	1.0	1.7	0.1
Lower Savinja Valley	Cm	22,295	1.68	85.7	9.2	2.1	1.0	1.9	0.1
Dobrna valley system	Cm	6,341	1.39	88.3	7.1	2.0	1.1	1.3	0.2
Upper Savinja Valley	Cm	11,466	1.48	86.4	4.8	2.2	3.2	3.1	0.2
Šaleška Valley	Cm	9,240	1.89	89.5	6.4	1.5	1.6	1.0	0.1
Mežiška Valley	Cm	6,993	1.37	87.1	10.1	1.0	1.5	0.2	0.2
Pohorje Podravje	Cm	28,350	1.57	86.9	7.7	1.4	2.0	1.6	0.3
Mislinja Valley	Cp	10,550	1.60	90.6	5.1	2.0	1.6	0.6	0.2
Drava Valley	Cm	17,800	1.55	84.7	9.3	1.1	2.3	2.2	0.4
Dravinjske gorice-Haloze	Cm	31,091	1.37	83.7	11.3	1.0	0.8	3.2	0.1
Vitanj valley system	Cp	4,906	1.49	91.6	4.6	1.5	1.6	0.5	0.2
Dravinjske gorice	Cm	18,209	1.50	85.3	9.9	0.8	0.6	3.3	0.1
Haloze	Cm	7,976	1.10	75.1	18.5	1.0	0.7	4.7	0.1
Maribor	Cm	5,391	1.23	78.2	17.6	1.6	1.0	1.5	0.2
Dravsko-Ptujsko polje	Pg	58,750	2.18	52.1	42.4	0.6	0.1	4.8	0.0
Dravsko polje	Pg	46,300	2.60	53.1	41.8	0.6	0.0	4.5	0.0
Ptujsko polje	Pg	12,450	1.35	48.4	44.7	0.7	0.2	6.0	0.1
Slovenske Gorice	Pg	73,256	1.58	59.6	37.3	0.8	0.5	1.8	0.1
Pomurje	Pg	83,359	1.51	44.0	53.9	0.6	0.2	1.2	0.1
Mursko polje	Pg	20,511	2.37	37.9	59.9	1.8	0.1	0.3	0.0
Dolinsko	Pg	8,576	0.68	63.3	33.2	0.4	0.5	2.3	0.2
Ravensko	Pg	35,565	1.75	33.7	64.5	0.2	0.2	1.3	0.1
Goričko	Pg	18,707	1.37	61.6	36.8	0.3	0.0	1.2	0.1

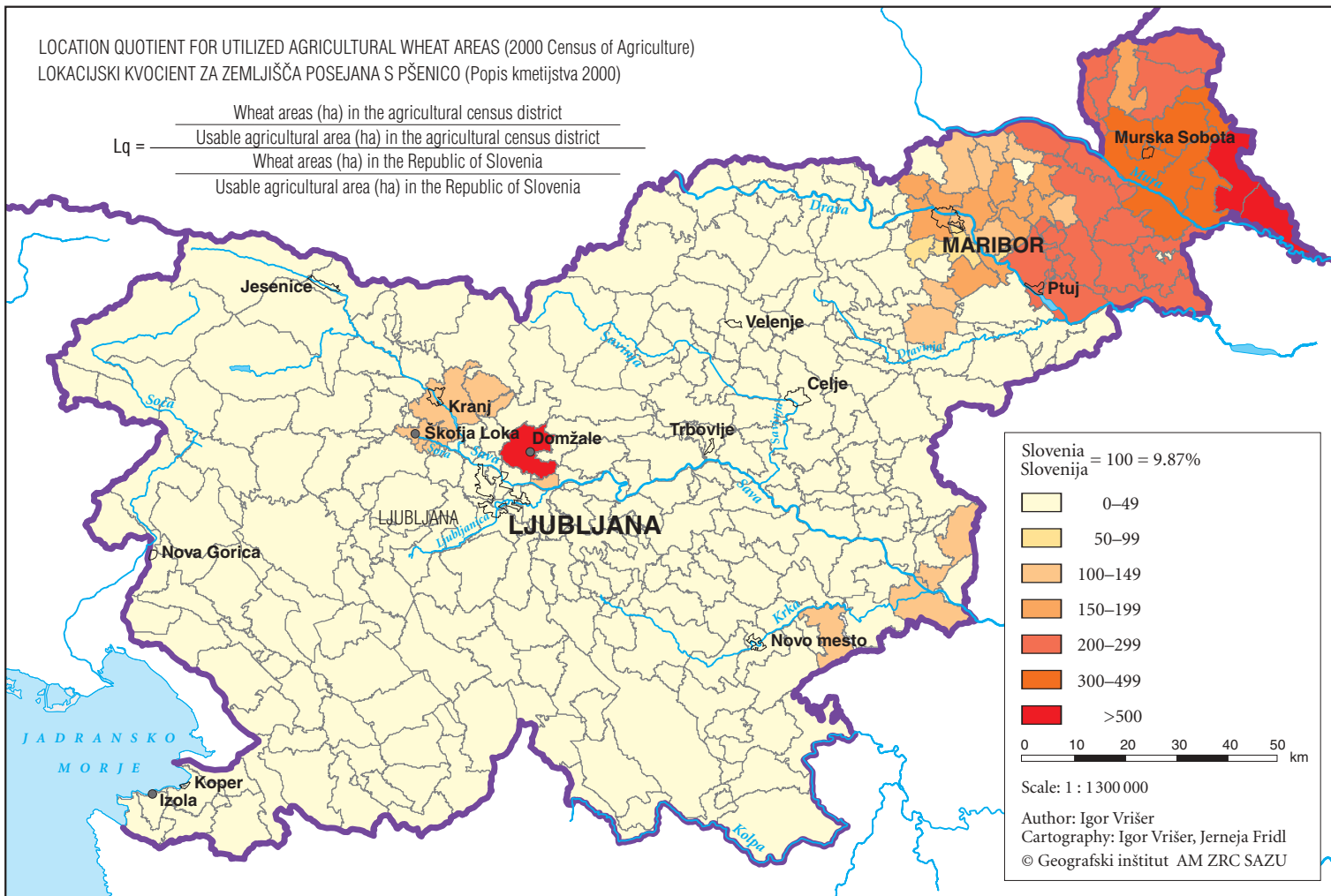
PERCENT OF UTILIZED AGRICULTURAL AREA OF TOTAL AREA (2000 Census of Agriculture)
 DELEŽ KMETIJSKIH TAL V RABI OD SKUPNE POVRŠINE V ODSOTOKIH (Popis kmetijstva 2000)

$$Lq = \frac{\frac{\text{Usable agricultural area in the agricultural census district}}{\text{Total area in the agricultural census district}}}{\frac{\text{Usable agricultural area in the Republic of Slovenia}}{\text{Total area in the Republic of Slovenia}}}$$



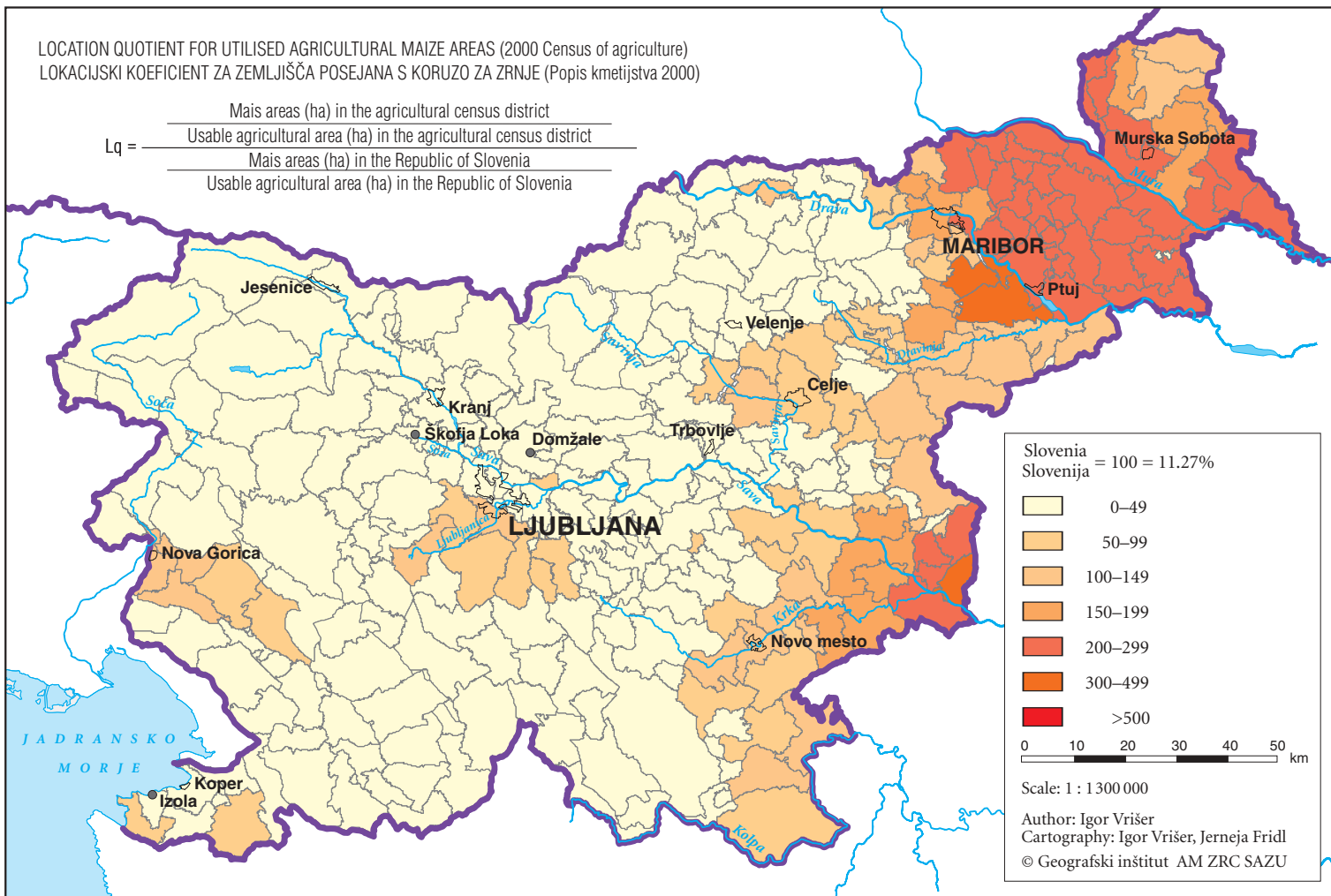
LOCATION QUOTIENT FOR UTILIZED AGRICULTURAL WHEAT AREAS (2000 Census of Agriculture)
 LOKACIJSKI KVOCIENT ZA ZEMLJIŠČA POSEJANA S PŠENICO (Popis kmetijstva 2000)

$$Lq = \frac{\frac{\text{Wheat areas (ha) in the agricultural census district}}{\text{Usable agricultural area (ha) in the agricultural census district}}}{\frac{\text{Wheat areas (ha) in the Republic of Slovenia}}{\text{Usable agricultural area (ha) in the Republic of Slovenia}}}$$



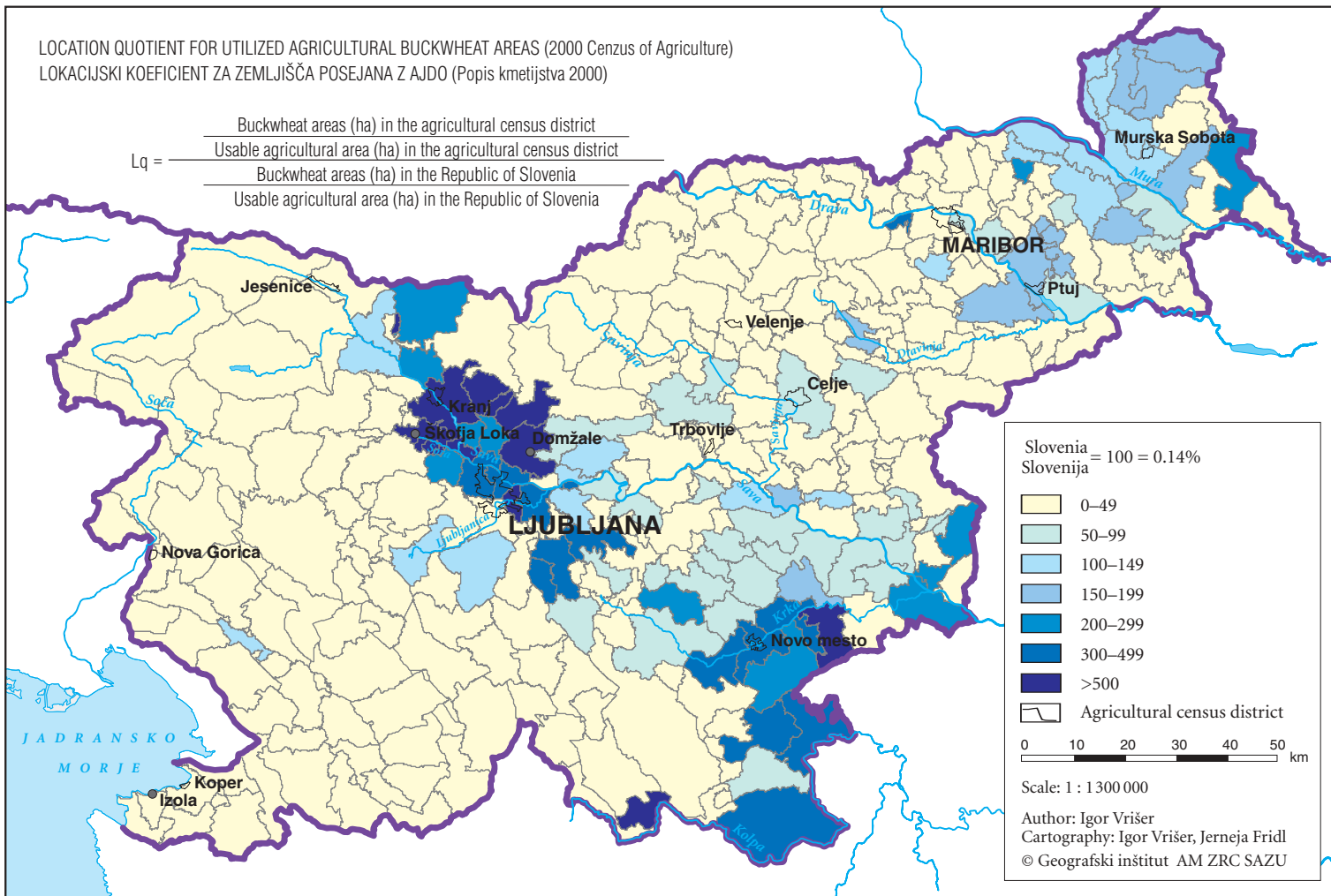
LOCATION QUOTIENT FOR UTILISED AGRICULTURAL MAIZE AREAS (2000 Census of agriculture)
 LOKACIJSKI KOEFICIENT ZA ZEMLJIŠČA POSEJANA S KORUZO ZA ZRNJE (Popis kmetijstva 2000)

$$Lq = \frac{\frac{\text{Maize areas (ha) in the agricultural census district}}{\text{Usable agricultural area (ha) in the agricultural census district}}}{\frac{\text{Maize areas (ha) in the Republic of Slovenia}}{\text{Usable agricultural area (ha) in the Republic of Slovenia}}}$$



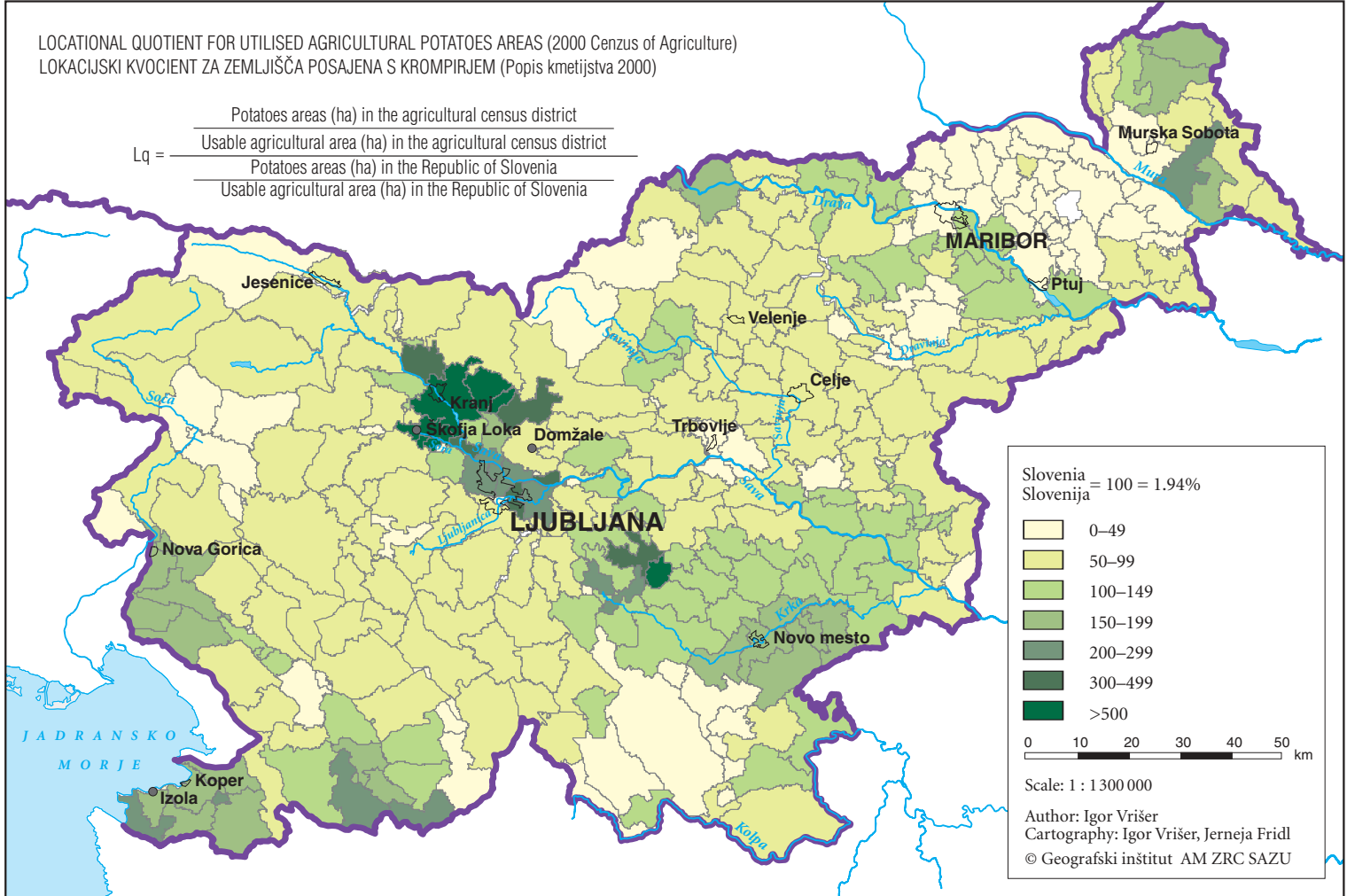
LOCATION QUOTIENT FOR UTILIZED AGRICULTURAL BUCKWHEAT AREAS (2000 Census of Agriculture)
 LOKACIJSKI KOEFICIENT ZA ZEMLJIŠČA POSEJANA Z AJDO (Popis kmetijstva 2000)

$$Lq = \frac{\frac{\text{Buckwheat areas (ha) in the agricultural census district}}{\text{Usable agricultural area (ha) in the agricultural census district}}}{\frac{\text{Buckwheat areas (ha) in the Republic of Slovenia}}{\text{Usable agricultural area (ha) in the Republic of Slovenia}}}$$



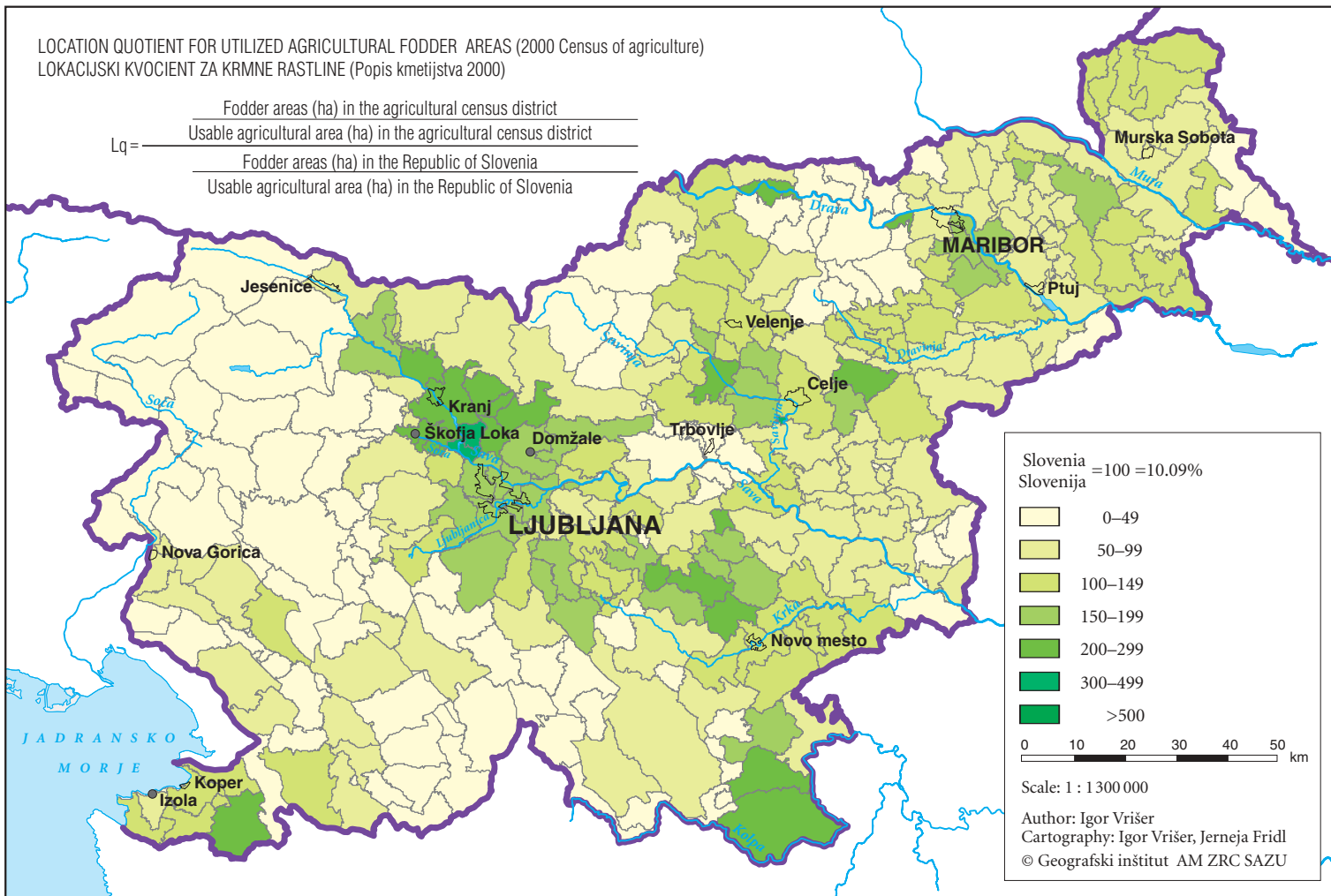
LOCATIONAL QUOTIENT FOR UTILISED AGRICULTURAL POTATOES AREAS (2000 Census of Agriculture)
 LOKACIJSKI KVOCIENT ZA ZEMLJIŠČA POSAJENA S KROMPIRJEM (Popis kmetijstva 2000)

$$Lq = \frac{\frac{\text{Potatoes areas (ha) in the agricultural census district}}{\text{Usable agricultural area (ha) in the agricultural census district}}}{\frac{\text{Potatoes areas (ha) in the Republic of Slovenia}}{\text{Usable agricultural area (ha) in the Republic of Slovenia}}}$$



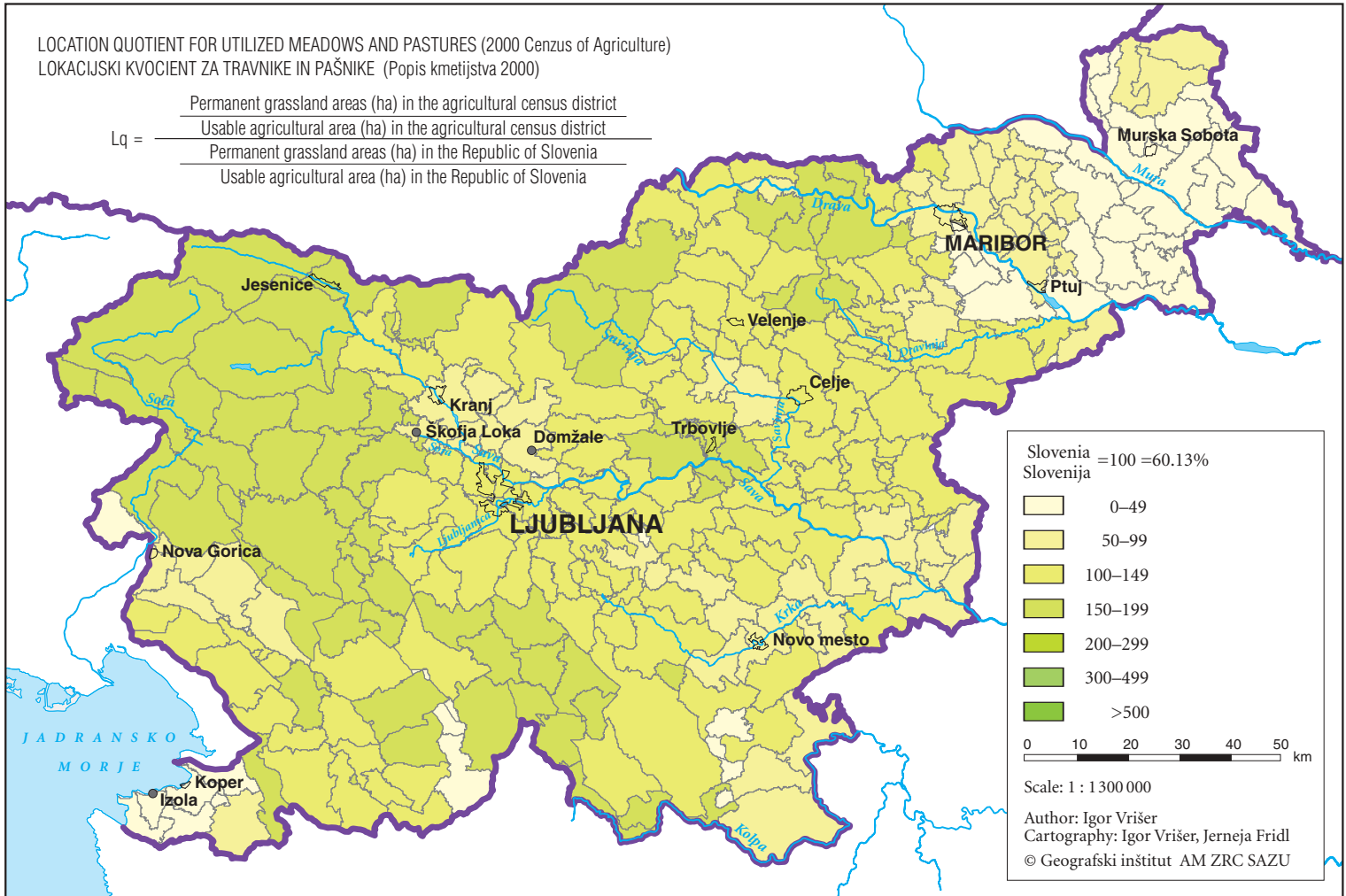
LOCATION QUOTIENT FOR UTILIZED AGRICULTURAL FODDER AREAS (2000 Census of agriculture)
 LOKACIJSKI KVOCIENT ZA KRMNE RASTLINE (Popis kmetijstva 2000)

$$Lq = \frac{\frac{\text{Fodder areas (ha) in the agricultural census district}}{\text{Usable agricultural area (ha) in the agricultural census district}}}{\frac{\text{Fodder areas (ha) in the Republic of Slovenia}}{\text{Usable agricultural area (ha) in the Republic of Slovenia}}}$$



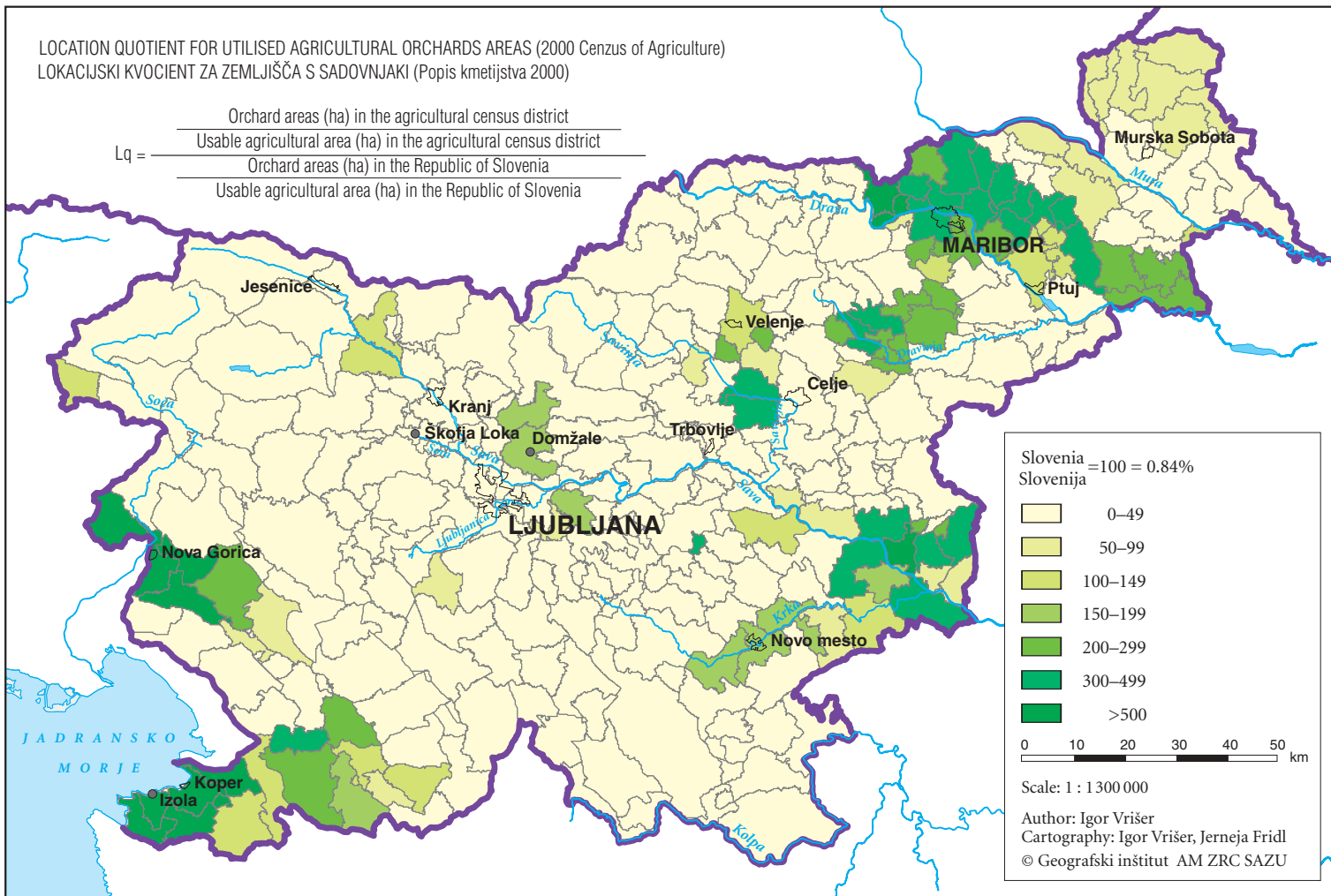
LOCATION QUOTIENT FOR UTILIZED MEADOWS AND PASTURES (2000 Census of Agriculture)
 LOKACIJSKI KVOCIJENT ZA TRAVNIKE IN PAŠNIKE (Popis kmetijstva 2000)

$$Lq = \frac{\frac{\text{Permanent grassland areas (ha) in the agricultural census district}}{\text{Usable agricultural area (ha) in the agricultural census district}}}{\frac{\text{Permanent grassland areas (ha) in the Republic of Slovenia}}{\text{Usable agricultural area (ha) in the Republic of Slovenia}}}$$



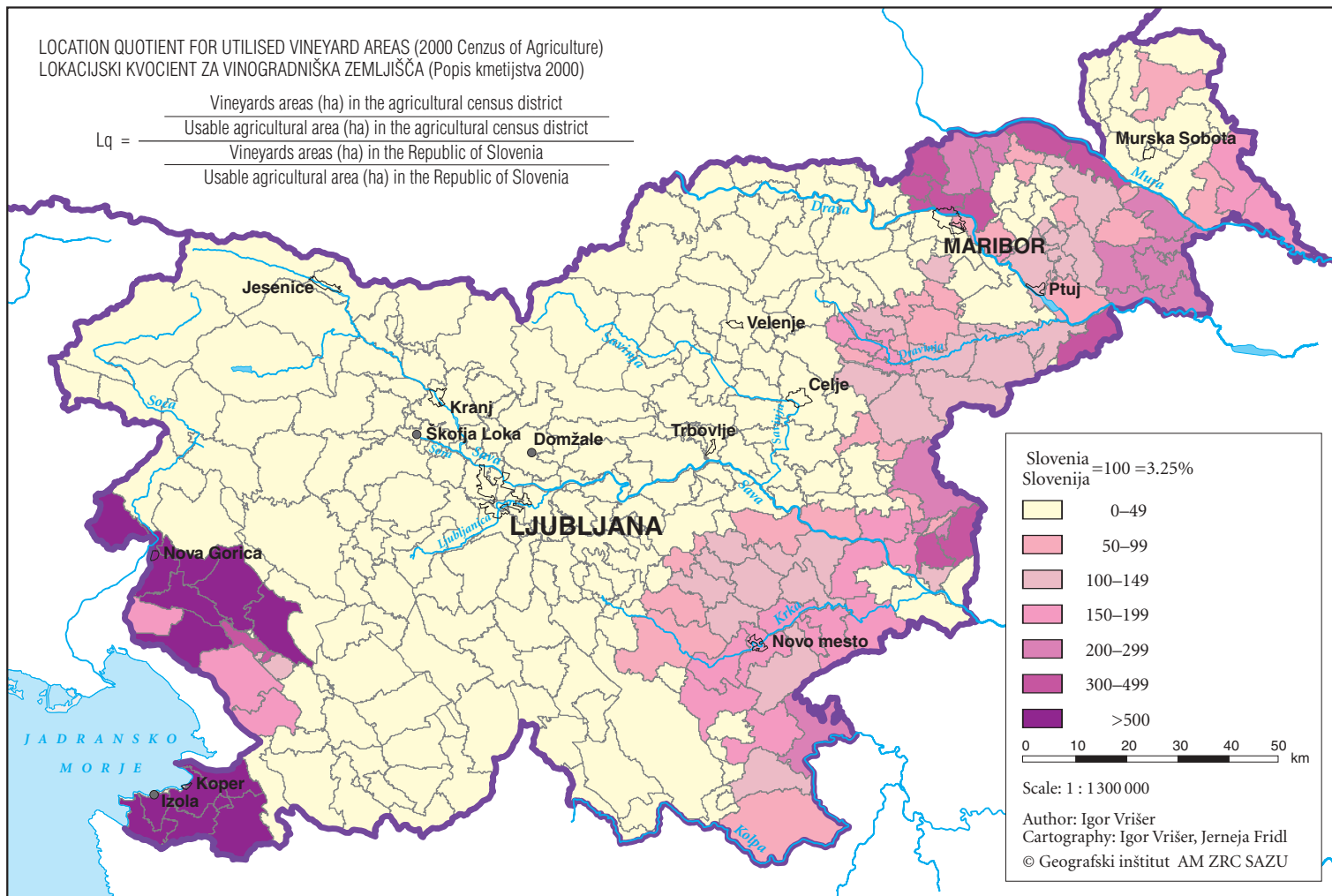
LOCATION QUOTIENT FOR UTILISED AGRICULTURAL ORCHARDS AREAS (2000 Census of Agriculture)
 LOKACIJSKI KVOCIENT ZA ZEMLJIŠČA S SADOVNJAKI (Popis kmetijstva 2000)

$$Lq = \frac{\frac{\text{Orchard areas (ha) in the agricultural census district}}{\text{Usable agricultural area (ha) in the agricultural census district}}}{\frac{\text{Orchard areas (ha) in the Republic of Slovenia}}{\text{Usable agricultural area (ha) in the Republic of Slovenia}}}$$



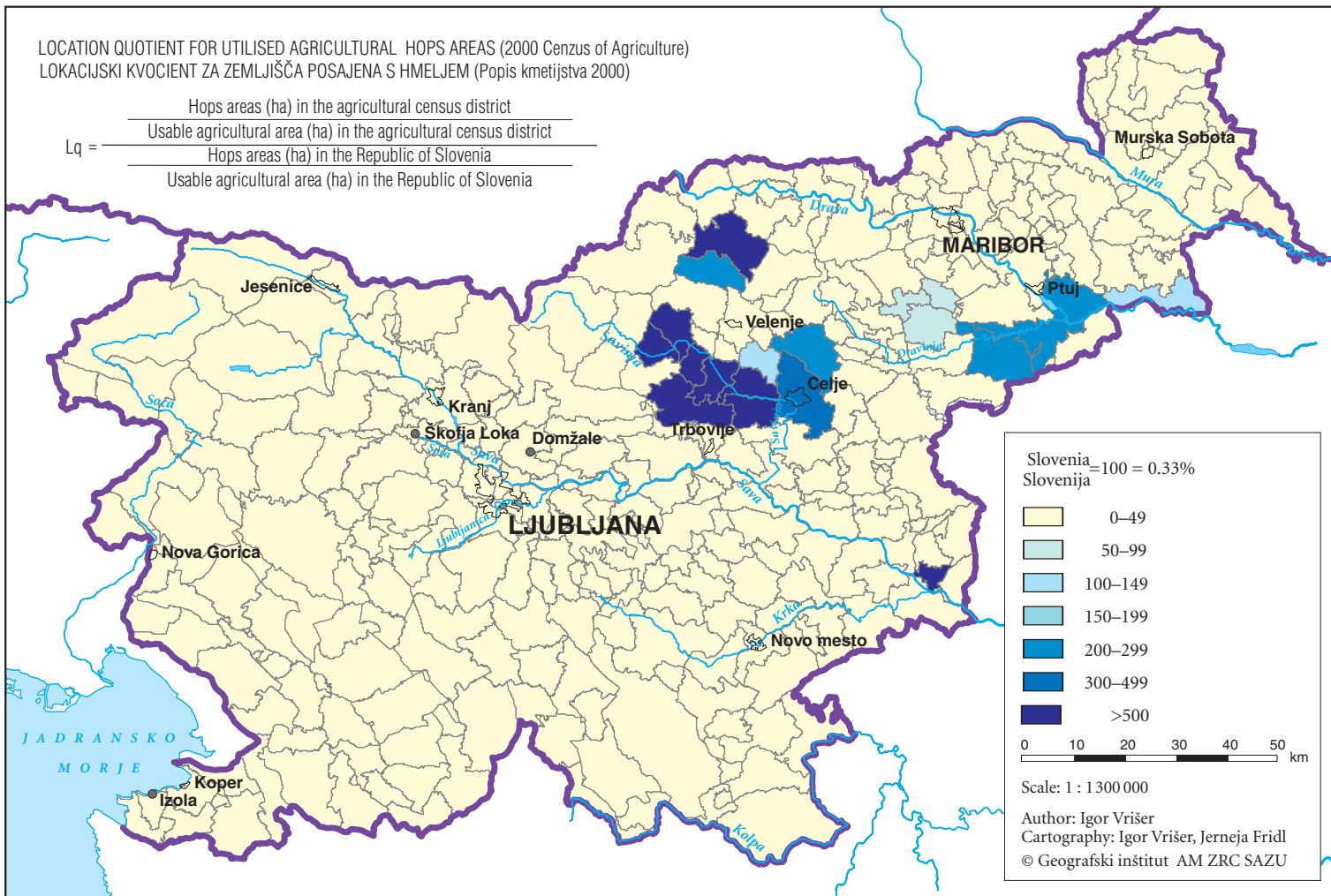
LOCATION QUOTIENT FOR UTILISED VINEYARD AREAS (2000 Census of Agriculture)
 LOKACIJSKI KVOCIENT ZA VINOGRADNIŠKA ZEMLJIŠČA (Popis kmetijstva 2000)

$$Lq = \frac{\frac{\text{Vineyards areas (ha) in the agricultural census district}}{\text{Usable agricultural area (ha) in the agricultural census district}}}{\frac{\text{Vineyards areas (ha) in the Republic of Slovenia}}{\text{Usable agricultural area (ha) in the Republic of Slovenia}}}$$

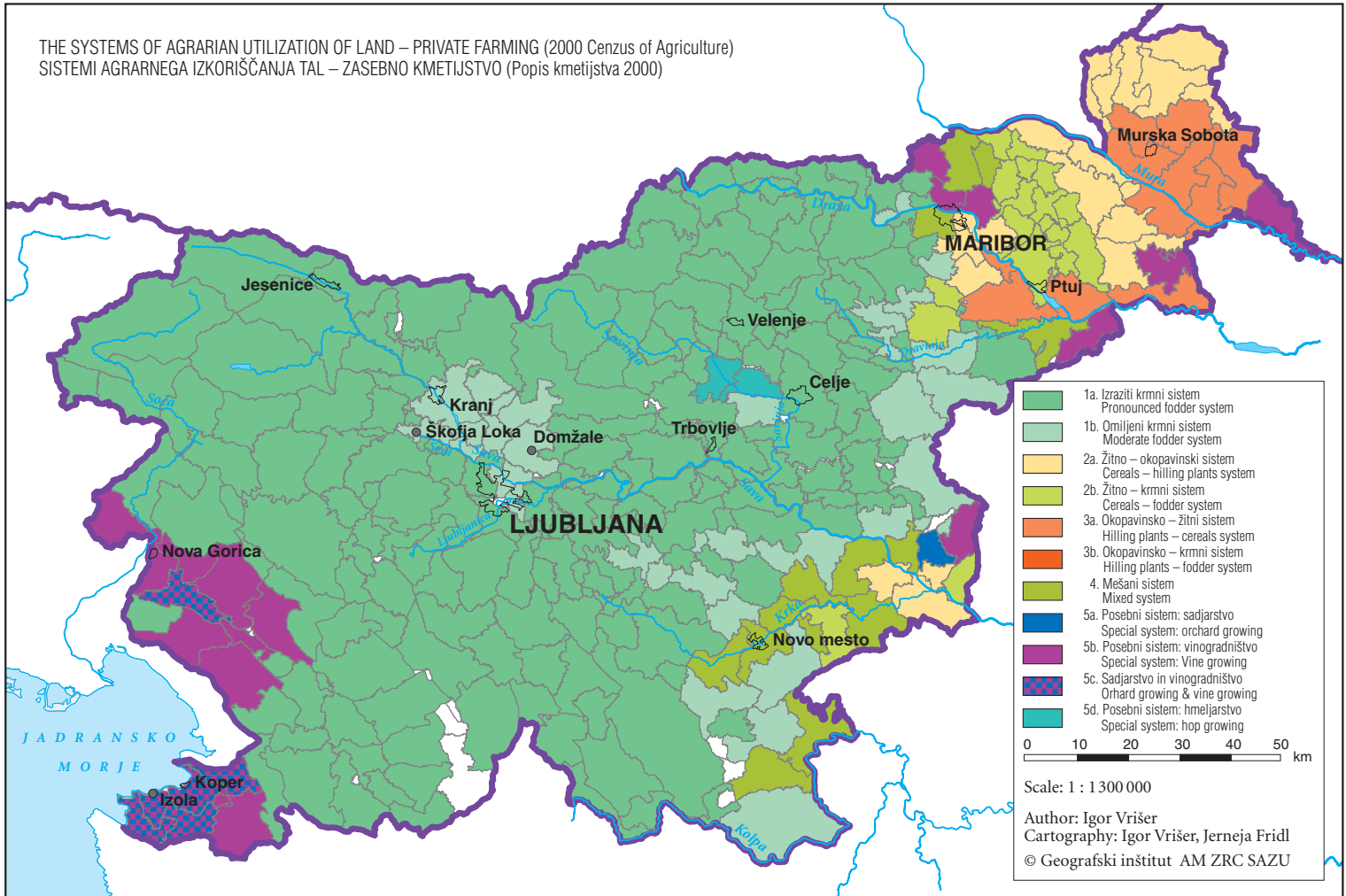


LOCATION QUOTIENT FOR UTILISED AGRICULTURAL HOPS AREAS (2000 Census of Agriculture)
 LOKACIJSKI KVOCIENT ZA ZEMLJIŠČA POSAJENA S HMELJEM (Popis kmetijstva 2000)

$$Lq = \frac{\frac{\text{Hops areas (ha) in the agricultural census district}}{\text{Usable agricultural area (ha) in the agricultural census district}}}{\frac{\text{Hops areas (ha) in the Republic of Slovenia}}{\text{Usable agricultural area (ha) in the Republic of Slovenia}}}$$

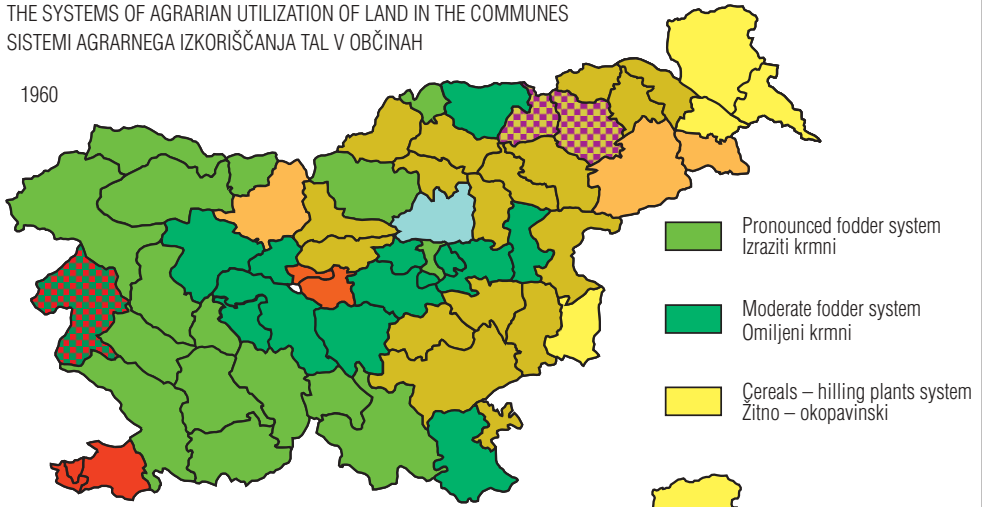


THE SYSTEMS OF AGRARIAN UTILIZATION OF LAND – PRIVATE FARMING (2000 Census of Agriculture)
 SISTEMI AGRARNEGA IZKORIŠČANJA TAL – ZASEBNO KMETIJSTVO (Popis kmetijstva 2000)

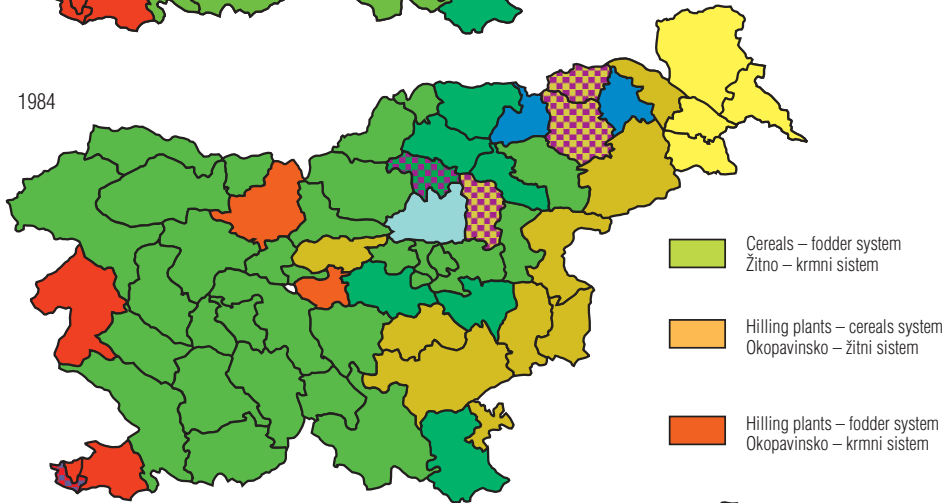


THE SYSTEMS OF AGRARIAN UTILIZATION OF LAND IN THE COMMUNES
 SISTEMI AGRARNEGA IZKORIŠČANJA TAL V OBČINAH

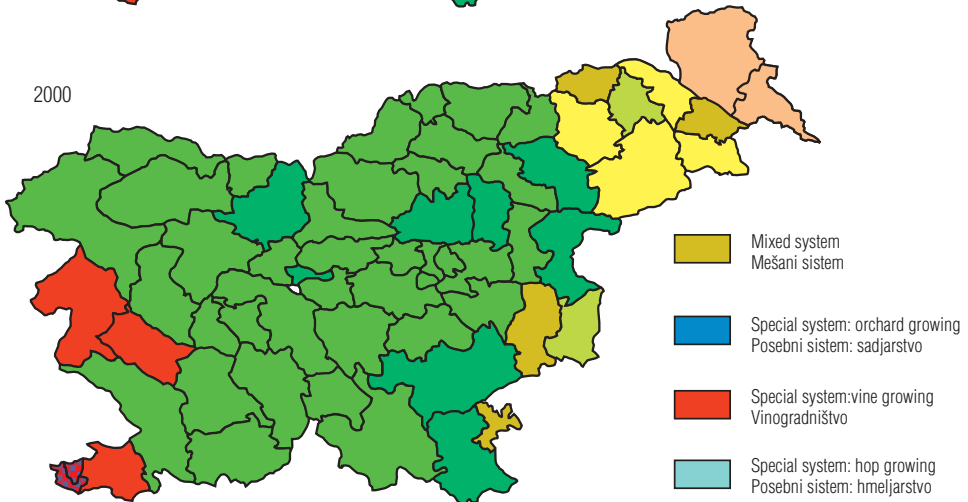
1960



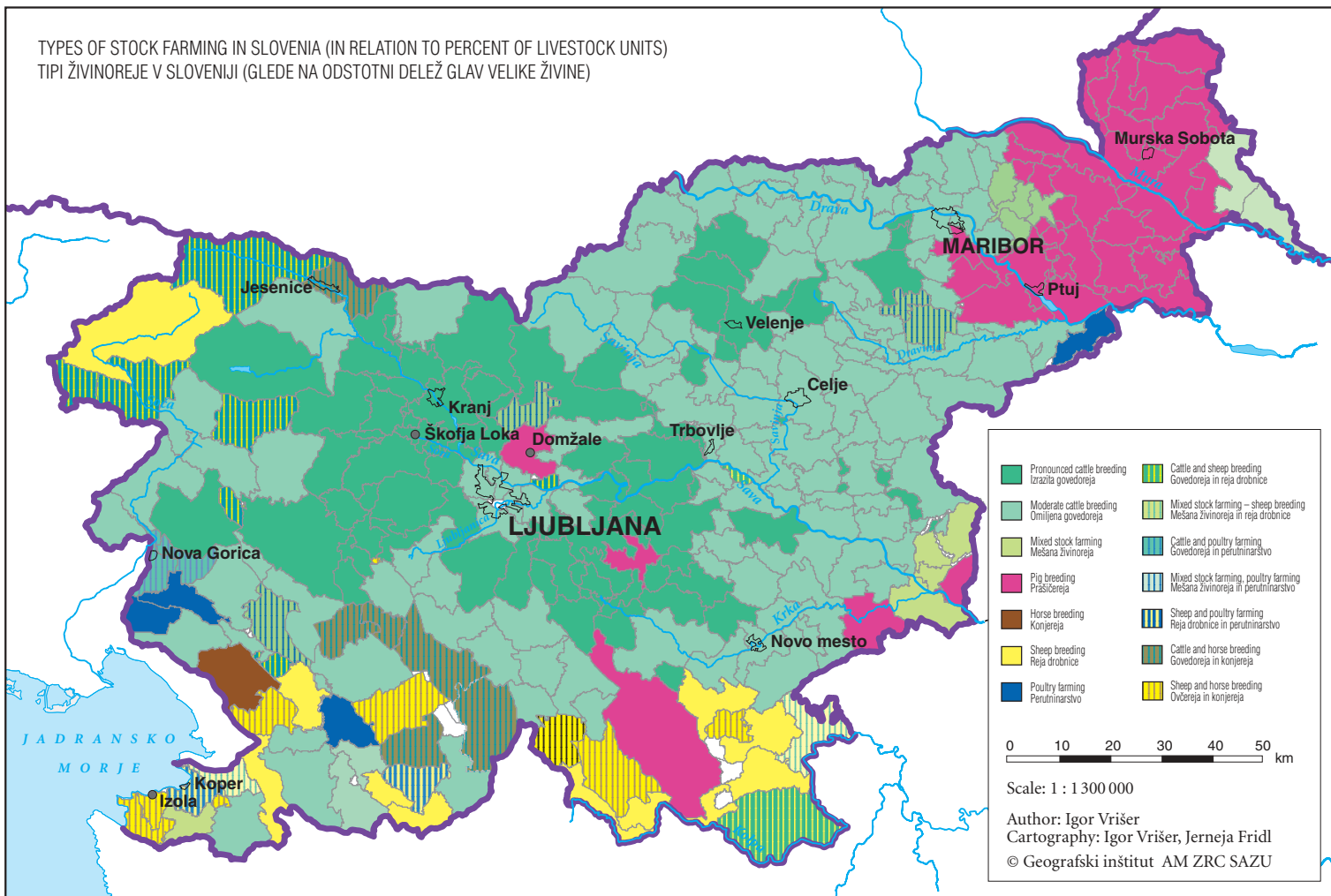
1984



2000

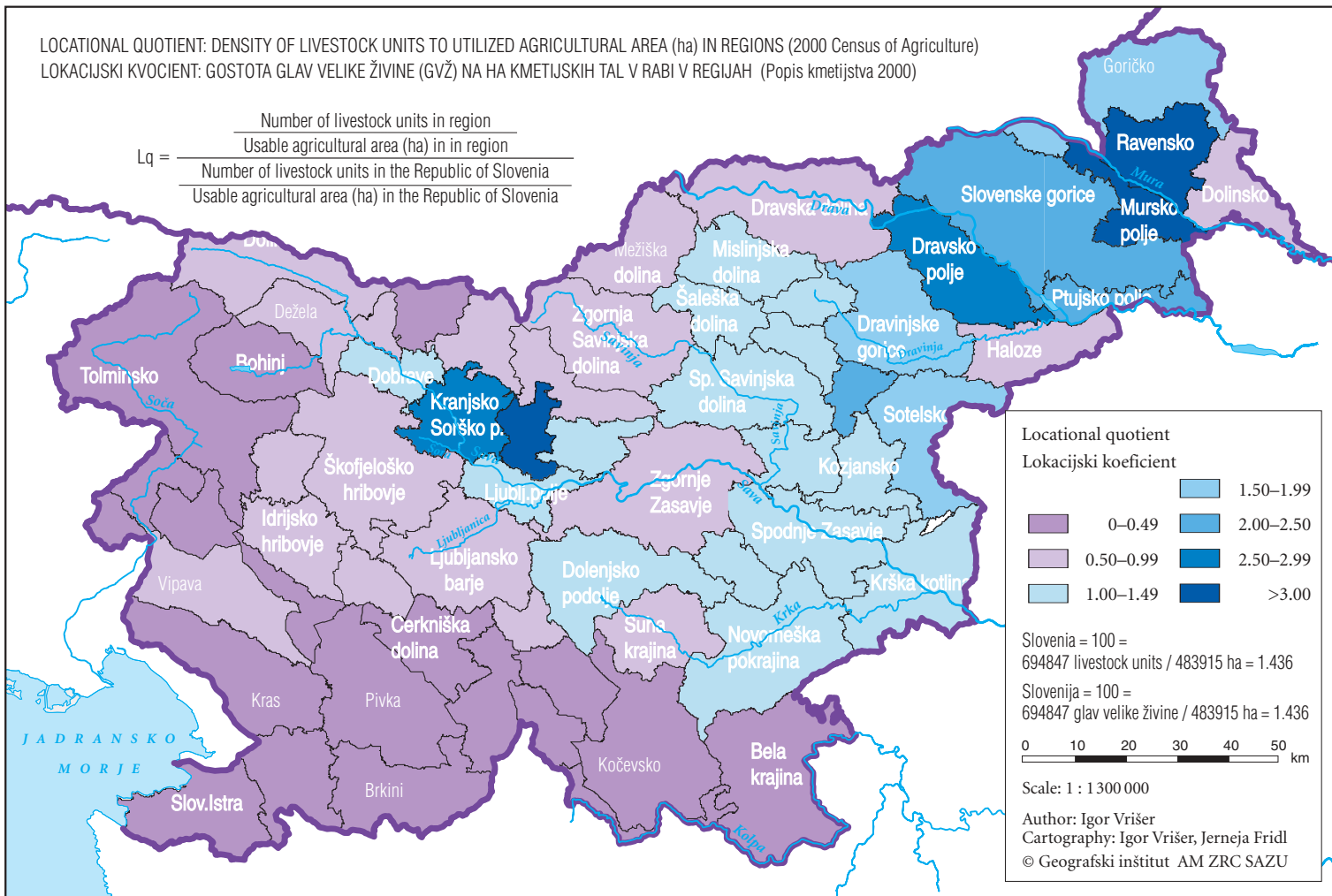


TYPES OF STOCK FARMING IN SLOVENIA (IN RELATION TO PERCENT OF LIVESTOCK UNITS)
 TIPI ŽIVINOREJE V SLOVENIJI (GLEDE NA ODSOTNI DELEŽ GLAV VELIKE ŽIVINE)



LOCATIONAL QUOTIENT: DENSITY OF LIVESTOCK UNITS TO UTILIZED AGRICULTURAL AREA (ha) IN REGIONS (2000 Census of Agriculture)
 LOKACIJSKI KVOCIENT: GOSTOTA GLAV VELIKE ŽIVINE (GVŽ) NA HA KMETIJSKIH TAL V RABI V REGIJAH (Popis kmetijstva 2000)

$$Lq = \frac{\frac{\text{Number of livestock units in region}}{\text{Usable agricultural area (ha) in region}}}{\frac{\text{Number of livestock units in the Republic of Slovenia}}{\text{Usable agricultural area (ha) in the Republic of Slovenia}}}$$



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2. *Popis kmetijskih gospodarstev, Slovenija, 2000* (Agricultural Census, Slovenia, 2000), Statistični urad Republike Slovenije (Statistical Office of the Republic of Slovenia). *Rezultati raziskovanj* (Results of Surveys), Št./No. 777, Ljubljana, 2002. *Statistical Yearbook, 2000–2002*, Statistični urad Republike Slovenije (Statistical Office of the Republic of Slovenia), Ljubljana.
3. Under the guidance of Dr. Branko Pavlin.
4. Sincere thanks to all those listed for their understanding, technical help, and patience. Without their cooperation, the present report would never have appeared.
5. Orešnik, I. 2000, p. 12.
6. Orešnik, I. 2000, p. 5.
7. *Statistične informacije*, št. 324, 22. 12. 2000, 15, Kmetijstvo in ribištvo, št. 7.
8. We combined the following agricultural assessment areas:

Former municipality	Number of agricultural assessment area
Brežice	700, 900–1000
Domžale	2700–2800;
Gornja Radgona	3300–3400;
Grosuplje	4100–4200;
Kočevje	6100–6200;
Koper	6800–6900 and 7100;
Kranj	7600–7700;
Krško	7800–8000 and 8200;
Lenart	8801–8803 and 9102;
Lendava	9200–9300;
Ljubljana	10100, 10400–10600, 11000 in 12100; 11500–11600;
Ljutomer	12400, 12600–12800;
Maribor	13500–13600; 13700–13702, 14300 and 1/2 14300 and 1/3 15200; 13900, 14100 14600–14800 and 15100; 2/3 15200;
Mozirje	15400–15500;
Murska Sobota	16001–16002; 16102 in 16203; 16401–16402;
Nova Gorica	16800–17000;
Novo mesto	17300, 17500–17600;
Ormož	18100–18400;
Ptuj	19300–19500; 19900–20000;
Radovljica	20800–20900;
Sežana	22301 and 22400;
Slovenska Bistrica	23700, 24000, 24400, 24102;
Slovenske Konjice	24700–25100;
Trebnje	28500–28700;
Žalec	30300–30400;
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11. Orešnik, I. 2000: *Popis kmetijskih gospodarstev junij 2000, Navodila za popisovalce in inštruktorje*, Metodološko gradivo, št. 5, Statistični urad Republike Slovenije, Ljubljana, p. 16.
12. »*Lexicon of municipalities*« for Štajersko, Vienna, 1904; Avstrijsko Ilirsko Primorje, Vienna, 1906; Kranjsko, Vienna, 1906; Koroško, Vienna, 1905; for the Hungarian area of Slovenia (Prekmurje) in *Magyar statisztikai közlemények*, Budapest, 1913.
13. *Krajevni leksikon Dravske Banovine*, 1935, Ljubljana.
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 18. Woermann, E. 1959: *Landwirtschaftliche Bodennutzungssysteme in der Bundesrepublik Deutschland*, Berr. z. d. Landeskunde, 22/2, Remagen.
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 23. Kostrowicki, J. »*Land Utilization, Case studies: Origins, Aims, Methods, Techniques*«, Geographica Polonica 5, Warsaw 1965, p. 7–28.
- Calculated according to key: Livestock units (LU): cattle = 1, pig = 0.25, sheep or goat = 0.1, horse = 1.1, rabbit = 0.002, poultry = 0.002, quail 0.001, and ostrich 0.004.

5 Summary in Slovene – Povzetek

Kmetijska proizvodnja v Republiki Sloveniji (po popisu kmetijskih gospodarstev leta 2000)

Igor Vrišer

Junija 2000 je bil v Republiki Sloveniji »*Popis kmetijskih gospodarstev, Slovenija, 2000*«. Izvedli so ga na podlagi posebnega »Zakona o popisu kmetijskih gospodarstev v Republiki Sloveniji v letu 2000« (*Uradni list RS št. 99/99*). V Sloveniji smo imeli doslej dva samostojna popisa kmetijskih gospodarstev, l. 1930 in 1960, v letih 1971, 1981 in 1991 pa so kmetijski popis združili s popisom prebivalstva.¹

Predhodne pogloblitve rezultate popisa so za celotno državno ozemlje objavili v *Statističnih informacijah Statističnega urada RS* in *Statističnem letopisu RS*. Na statističnem uradu so pri obdelavi izvorne popisne podatke uredili in združili po najmanjših zbirnih teritorialnih enotah: za zasebne kmečka gospodarstva po kmetijskih cenilnih okoliših in za kmetijska podjetja po obstoječih upravnih občinah². Na ta način smo prišli do dragocenega izvornega gradiva, ki omogoča vpogled v mikro- in makroregionalno proizvodno sestavo slovenskega kmetijstva. Obenem so na oddelku za regionalno statistiko izdelali karto kmetijskih cenilnih okolišev in obstoječe upravne razdelitve³, kar je znatno olajšalo urejanje in prikazovanje⁴.

1 Gradivo

1.1 Kmetijsko gospodarstvo

Pri popisu so kot **kmetijsko gospodarstvo** opredelili organizacijsko in poslovno zaokroženo celoto kmetijskih zemljišč, gozdov, zgradb, opreme in delovne sile, ki ima enotno vodstvo in se ukvarja s kmetijsko pridelavo. V slednje se je šlo pridelovanje kmetijskih rastlin (žit, drugih poljščin, travinja, vrtnin, okrasnih rastlin, semen, sadik, vinogradništvo in sadjarstvo ter gojenje gob) in rejo živine (goveda, prašičev, perutnine, drobnice, konj, čebel in drugih živali).

Podobno kot pri prejšnjih kmetijskih popisih je statistični urad ob popisu kmetijskih gospodarstev l. 2000 zajel tista kmetijska gospodarstva, ki so izpolnjevala naslednje pogoje⁶.

- da so imela najmanj 1 ha kmetijskih zemljišč v uporabi, razen teh pa tudi tista, ki so imela
- najmanj 10 arov kmetijskih zemljišč in 90 arov gozda ali
- najmanj 50 arov njiv in vrtov ali
- najmanj 5 arov intenzivnih vinogradov ali
- najmanj 30 arov vseh vinogradov ali
- najmanj 10 arov intenzivnih sadovnjakov ali
- najmanj 30 arov vseh sadovnjakov ali
- najmanj 30 arov vinogradov in sadovnjakov ali
- eno ali več glav velike živine.

Po predhodnih podatkih so ob popisu zajeli 96.669 zasebnih kmetij in 132 kmetijskih podjetij⁷.

1.2 Teritorialne enote.

Urejanje in združevanje popisnega gradiva o kmetijskih gospodarstvih je potekalo na statističnem uradu po dveh različnih poteh. Zaradi velikega števila so zasebna kmetijska gospodarstva združili po »kmetijskih cenilnih okoliših«, ki so jih uvedli že ob kmetijskem popisu l. 1960. Za potrebe kmetijstva so se izkazali kot smiselna in naravnim razmeram prilagojena teritorialna členitev. Pri njihovem oblikovanju so se oprli na katastrske občine, kar je olajšalo identifikacijo. Njihovo število se je gibalo med 290 in 307 (ob zadnjem popisu). Kmetijska podjetja pa so zaradi znatne velikosti (povprečna velikost 220,7 ha), majhnega števila in prakse še iz socialističnega obdobja uredili po (ob popisu veljavnih) upravnih občinah. Njihova zemljišča so bila v 190 občinah.

Posledica te dvotirnosti so bile velike težave pri združevanju in poenotenju podatkov o kmetijskih površinah in pridelavi. Kot podlago združevanja smo uporabili kmetijske cenilne okoliše. V primerih, ko se je ozemlje upravne občine bolj ali manj ujemalo s cenilnim okolišem, je bila združitev podatkov o zasebnih gospodarstvih in kmetijskih podjetjih enostavna. Težave pa so nastopile, če je posest kmetijskega podjetja segala v več kmetijskih cenilnih okolišev ali občin (npr. Krško, Murska Sobota), ali pa so občine zajemale več cenilnih okolišev (npr. Krško, Brežice, Slovenska Bistrica) in so se meje upravne občine razhajale s cenilnimi okoliši (npr. Gorišnica, Radenci). V takšnih primerih smo združili podatke več cenilnih okolišev⁸. Postopek se ni obnesel, če so združeni cenilni okoliši segali na ozemlje več različnih naravnih regij (npr. pri Ormožu, Ptuj, Puconcih). Najbolj zapletene razmere so bile na območjih nekdanjih občin Gornja Radgona, Krško, Murska Sobota in Ptuj, kjer so skupni podatki po kmetijskih cenilnih okoliših približni, saj ni bilo mogoče podatkov za nove upravne občine in s tem za kmetijska podjetja, kljub združevanju cenilnih okolišev, pravilno izračunati (npr. Murska Sobota-Tišina-Puconci, ali Ptuj-Markovci-Destrnik-Dornava-Juršinci-Gorišnica ali Videm-Podlehnik-Majšperk-Žetale). Pri združevanju podatkov po cenilnih okoliših smo upoštevali navedbe kmetijskih podjetij iz l. 1993 o tem, v katerih katastrskih občinah imajo zemljišča. Po l. 1993 so na statističnem uradu opustili zbiranje teh podatkov. Zaradi velikih lastniških sprememb, ki so jih doživela kmetijska podjetja po l. 1993, so imeli ti podatki zgolj pomožni in informativni pomen. Navedbe za navedena območja so glede na to za kmetijske cenilne okoliše približne, vendar v globalu pravilne.

Združene podatke po kmetijskih cenilnih okoliših smo uredili po geografskih regijah. Pri tem smo se, kolikor je to bilo mogoče, držali regionalizacije, ki jo je izdelal I. Gams⁹. Do določenih odstopanj je vendarle prišlo, ker se cenilni okoliši niso povsem ujemali s naravno geografsko konfiguracijo (npr. omejitev Goriškega, Murskega polja) ali delitev ni ustrezala kmetijskim potrebam (npr. razdelitev Julijskih Alp na več regij: Tolminsko, Zgornja Savska dolina, Bohinj) ali pa je bilo treba upoštevati posebne razmere (npr. izločitev mestnih občin Ljubljane in Maribora).

1.3 Podatki o pridelkih in živini.

Kot temeljni izvorni podatek za rastlinsko proizvodnjo smo uporabili zemljiške površine za posamezni pridelek. Z njihovo pomočjo smo izračunali zbirne podatke o kmetijskih kulturah (žito, okopavine, krm-

ne rastline, travinje), kmetijskih kategorijah (sadovnjaki, vinogradi, travniki, pašniki), skupnih »kmetijskih zemljiščih v uporabi« ter o proizvodnji pridelkov. Podrobno registracijo pridelkov smo zaradi večje preglednosti združili v »kmetijske kulture« oziroma »kmetijske kategorije«. Razlikovali smo naslednje skupine: žito: pšenica (ozimna ali jara), rž, ječmen (ozimni ali jari), oves, triticales, koruza za zrnje, proso (strniščni pridelek), ajda (strniščni pridelek), pira, sirek, mohar, soržica, mešanica žit (brez soržice), druga žita (proso, ajda, tritikale);

okopavine: krompir (zgodnji, pozni semenski), buče za olje, oljna ogrščica, sončnice, soja, sladkorna pesa, konoplja, lan, druge industrijske rastline (preostalih vrtnin nismo upoštevali);

krma, ki jo sestavljata dve podskupini:

krmne rastline: trave in travne mešanice, detelja in lucerna, travno-deteljne mešanice, silažna koruza, krmna pesa in koleraba, krmno kornje, krmni ohrov, krmni grah in bob, krmna ogrščica in repica, krmna žita in mešanice stročnic, buče za krmo, repa (strniščni posevek), krmna pesa (strniščni posevek), krmno korenje (strniščno), krmni ohrov, krmna repica in ogrščica (strniščni posevek), trave in travne mešanice (strniščni posevek);

travinje (travniki in pašniki): enkratna, dvo- ali trikratna ali večkratna raba;

posebne kmetijske kulture, ki jo sestavljajo tri podskupine:

sadovnjaki (intenzivni in ekstenzivni): jablane, hruške, breskve, marelice, češnje, višnje, češplje in slive, orehi, oljke (namizne in za olje), jagodičevje;

vinogradi: bele žlahtne sorte, bele druge sorte, rdeče žlahtne sorte, rdeče druge sorte, hmeljišča.

Manj težav je bilo z živinorejskimi podatki. V tem primeru ni bilo velikih teritorialnih razlik med zasebnimi gospodarstvi in kmetijskimi podjetji. Zaradi primerljivosti smo stalež živine preračunali v »glave velike živine« po ustaljenem ključu.

Na posebne težave smo naleteli pri prikazovanju gibanja proizvodnje od l. 1954 dalje, ki smo jih povzeli iz Statističnih letopisov (S)RS. Vzrok so bile v zadnjih letih izvedene metodološke spremembe, zaradi katerih so opustili navajanje podatkov o nekaterih pridelkih oziroma so jih združili v nove skupine.

1.3 Kartografski prikaz

Poseben problem je bila **kartografska upodobitev**. Med različnimi metodami, ki se uporabljajo, smo smo se odločili za »procentualne deleže od celote« in za »lokacijske koeficiente¹⁰«, ki v obliki dvojnega ulomka podajajo razmerje med deležem, ki ga ima določen pridelek v kmetijskem cenilnem okolju, in istim deležem na celotnem državnem ozemlju. Če je bil ta delež pod indeksom 100, je pomenilo, da je pod državnim povprečjem, če pa je znašal nad 100, je bil nad državnim povprečjem. Indeks je na videz zapleten, vendar je njegova prednost, da pokaže relativnen odnos do celotnega državnega ozemlja.

$$Lk = \frac{\frac{\text{Površina pridelka } x \text{ v ha v kmetijskem cenilnem okolju } y}{\text{Površina kmetijskih zemljišč v ha v kmetijskem cenilnem okolju } y}}{\frac{\text{Površina pridelka } x \text{ v ha na celotnem državnem ozemlju}}{\text{Površina kmetijskih zemljišč v ha na celotnem državnem ozemlju}}}$$

2 Rastlinska pridelava

2.1 Kmetijska tla

Podatke o površini in sestavi kmetijskih tal v Sloveniji nudita Statistični urad RS in Geodetska uprava RS. Prvi jih zbira na podlagi letnih anketnih ocen oziroma občasnih popisov kmetijskih gospodarstev, druga pa povzema registrirane spremembe v rabi zemljiških kategorij v katastrskih občinah. Med kmetijska zemljišča se uvrščajo naslednje zemljiške kategorije: njive in vrtovi, sadovnjaki, vinogradi (skupaj orna zemljišča), travniki, pašniki (skupaj travinje), ribniki, trstičja in močvirja. Popis kmetijskih gospodarstev 1990 je vpeljal nekoliko ožje pojmovanje kmetijskih tal: *kmetijska zemljišča v uporabi*. To naj bi bila zemljišča, ki so bila v lasti članov gospodinjstva ali kmetijskega podjetja in so jih v kmetijskem gospodarstvu upo-

rabljali za kmetijsko pridelovanje. K njim so prišle zemljišča vzeta v najem. Izločili pa so zemljišča, ki so jih oddali v najem. S takšno opredelitvijo¹¹ so se dejanske površine kmetijskih tal občutno zmanjšale, vendar so hkrati postale bolj stvarne. Spremenila se je tudi strukturna sestava zemljiških kategorij. V povprečju je prišlo na prebivalca Slovenije komaj 0,263 ha kmetijskih tal v rabi, kar je izredno malo.

Ne glede na stvarne, metodološke ali morebitne druge razloge za to zmanjšanje je dejstvo, da imamo v Sloveniji od skupne površine (2,025.336 ha) komaj 25,5 % »kmetijskih tal v uporabi« ob izredno velikih regionalnih razlikah. Zares ugodne razmere, z več kot 50 % kmetijskih tal od skupne površine, obstajajo na komaj 142.314 ha ali na 7,0 % skupne površine. Nasprotno pa je kar 844.895 ha ali 41,8 % skupne površine na območjih z manj kot 20 % kmetijskih tal.

Še nazornejšo sliko o neenakomerni razporeditvi kmetijskih tal v uporabi si lahko ustvarimo, če kmetijske cenilne okoliše razporedimo po glavnih reliefnih tipih. Ob uporabi karte »Reliefne enote in oblike« v Geografskem atlasu Slovenije¹⁷ približna razporeditev kmetijskih okolišev pokaže, da so najugodnejše razmere na ravninah in v gričevju, kjer je delež kmetijskih tal v rabi med 34 % in 40 %. V visokogorju znaša ta delež komaj okoli 7,8 %, na kraških visokih planotah 13,5 %, na nizkih kraških planotah 15,0 % in v hribovju 21,6 %. Ali drugače povedano: delež skupne površine ravnin in gričevja znaša 36,4 %, na njih je 54,5 % kmetijskih tal, nasprotno je na krasu, ki zavzema ca 25,3 % skupnih površin, le 17,5 % kmetijskih tal, v visokogorju (10,8 %) pa komaj 3,5 %.

Ugodne deleže uporabljenih kmetijskih tal (nad 40 % od skupne površine) imamo v Sloveniji zgolj na severovzhodu v Pomurju (na Ravenskem, Dolinskem, na Murskem polju), Podravju (na Ptujskem in Dravskem polju) in v Slovenskih Goricah (46 %), razen tega še v Krški kotlini (33 %) in na Kranjskem-Sorškem polju (34 %). V Alpah, Alpskem predgorju, Posavskem hribovju in na Visokih kraških planotah je ta delež skoraj povsod pod 20 % ali celo pod 10 %. Presenetljivo nizek je v Slovenski Istri, v Posočju in na Krasu; kjer je večidel pod 15 %.

2.2 Kmetijske kulture in pridelki

Žita. Po popisu kmetijskih gospodarstev l. 2000 zavzemajo žita 103.308 ha ali 21,4 % kmetijskih tal v uporabi. Med žiti v širšem pomenu besede sta daleč najpomembnejša pridelka pšenica in koruza (za zrnje). Prva je namenjena prehrani, druga pa prvenstveno krmljenju. Pšenica zavzema 9,87 % kmetijskih tal v uporabi, koruza pa 11,27 %. Pri tem je značilno, da s čedalje večjo usmeritvijo slovenskega kmetijstva v živinorejo, delež prve postopoma upada, delež druge pa, kljub manj primernim klimatskim in pedološkim razmeram, narašča. Ostala žita so manj pomembna: na rž odpade 0,15 % kmetijskih tal v rabi, na ozimni in jari ječmen 2,45 % in na ajdo komaj 0,14 %. Kot posebnost je treba omeniti, da so se obdržale tudi nekatere stare zvrsti »žit«, kot so mohar, proso, pira in soržica, vendar na majhnih površinah.

Proizvodnja pšenice je po podatkih Statističnega letopisa (S)RS v minulih 46 letih znašala v letnem povprečju (geometrijska sredina) 134.366 t in se je gibala med 60.228 t l. 1954 in 199.544 t l. 1990. Pri koruzi v zrnju (glavni in strniščni pridelek) beležimo povprečno letno proizvodnjo 188.511 t s podobnimi nihaji: minimum l. 1954 101.181 t in maksimum l. 1990 z 232.000 t. Povprečna letna količina pridelanega ječmena je znašala 23.438 t, rži 10.499 t, ovsu 10.606 t in ajde 1821 t (glavni in strniščni pridelek). Priderek preostalih »žit«, soržice, prosa, moharja je bil zanemarljiv. Pridelane količine žit niso zadoščale.

Pridelovanje žit je bilo, sodeč po popisu kmetijskih gospodarstev l. 2000, osredotočeno na severovzhodu Slovenije: v Pomurju in Spodnjem Podravju. Nad slovenskim povprečjem je bila pridelava še v Krško-Brežiški kotlini ter na Kranjsko-Sorškem polju in Bistriški ravnini v Osrednji Sloveniji.

Okopavine. Dokaj pestro skupino okopavin sestavljajo poleg prehranbenih pridelkov (krompir, sladkorna pesa, zelenjava) še nekatere industrijske rastline (konoplja, lan) in oljarice (sončnice, buče, oljna repica, soja). Iz njih smo izločili hmelj, ki ga obravnavamo kot posebno subkulturo. Zaradi velike pestrosti nismo upoštevali zemljišč z vrtninami. Okopavine, ki se uvrščajo glede na vloženo delo med intenzivne pridelke, zavzemajo 19.788 ha ali 4,09 % od vseh kmetijsko uporabljenih zemljišč v Sloveniji. Med njimi je daleč na prvem mestu

krompir (pozni, rani in semenski krompir), nanj odpade 1,92 % kmetijskih tal. Drugi pridelki zavzemajo manjše deleže: buče za olje 0,46 %, oljna ogrščica 0,04 %, sončnice in soja po 0,005 %, sladkorna pesa 1,96 %.

Proizvodnja večine okopavin se postopoma zmanjšuje. Izjema je sladkorna pesa, katere pridelavo so kmetijske službe po zgraditvi sladkorne tovarne v Ormožu močno podpirale. Nazadovanje je najbolj opazno pri pridelovanju krompirja, ki je bil zadnjih dvesto let na Slovenskem med glavnimi pridelki namenjenih prehrani ali krmi. Občutno se je zmanjšalo tudi pridelovanje lana in konoplje, sončnic in sirka. Povprečna letna proizvodnja krompirja je znašala med l. 1954 in 1999 471.826 t (z viškom l. 1963 z 813.800 t in minimumom l. 1994 s 176.600 t), sladkorne pese 13.281 t, oljne repice 1272 t in sončnic 651 t.

Pridelava okopavin je osredotočena na severovzhodu Slovenije v Pomurju in Spodnjem Podravju, vendar z znatnimi razlikami glede na posamezne pridelke. Tako npr. so bila središča pridelovanja krompirja na Kranjsko-Sorškem in Ljubljanskem polju, v Dolenjskem podolju (okoli Grosuplja, Stične in Trebnjega), na Ravenskem, v Novomeški pokrajini, Brkinih in v dolini Notranjske reke. Zgodnji krompir so pridelovali v Spodnji Vipavski dolini in Slovenski Istri. Pridelava sladkorne pese je bila osredotočena na Ptujskem, Dravskem in Murskem polju, Ravenskem in Dolinskem, Kranjsko-Sorškem polju, Bistriški ravnini, Slovenskih goricah in v Krško-Brežiški kotlini.

Krma. Glede na pretežno živinorejsko usmeritev slovenskega kmetijstva je pridelovanje krme zelo pomembno. Ta skupina kmetijskih pridelkov obsega poleg različnih krmnih rastlin še proizvodnjo sena na travnikih, pašnikih, ledinah, trzninah in v sadovnjakih. Statistično zajemanje je zaradi metodoloških težav, različnih združevanj pridelkov, sprememb v poimenovanjih, ločevanja na glavne pridelke in podseveke oziroma strniščne pridelke ali opuščanja opazovanj nekaterih pridelkov manj pregledno in težje primerljivo. Površine namenjene pridelovanju krme zavzemajo po rezultatih popisa kmetijskih gospodarstev l. 2000 339.392 ha ali 70,17 % kmetijskih zemljišč v uporabi.

Skupino **krmnih rastlin** tvorijo različne trave, detelje (črna detelje, lucerna), nedozoreli (zeleni) pridelki (pitnik, žita), silažna koruza, korenčnice (krmna pesa, korenje in repa) in različne kombinacije teh pridelkov. Delež zemljišč posejanih s krmnimi rastlinami je okoli 10,04 % (48578 ha) od kmetijskih tal v uporabi. Trend pridelovanja krmnih rastlin kaže postopno zmanjševanje. Izjema je silažna koruza, katere poraba se v glavnem veča. Povprečna letna količina pridelane črne detelje in lucerne znaša za minulo 45 letno obdobje okoli 173.611 t, silažne koruze 447.735 t, krmne pese in krmnega korenja 234.619 t in krmne repe 112.508 t.

Razporeditev zemljišč s krmnimi rastlinami je dokaj neenakomerna. Obstaja kar veliko območij, kjer je zasedenost tal znatno pod slovenskim povprečjem. To so predvsem kmetijski okoliši v hribovitih predelih (Pohorje, Julijske in Savinjske Alpe in Predalpe, Visoke dinarske planote). Na splošno velja, da je pridelovanje osredotočeno na obrobju najbolj intenzivnih kmetijskih območij oziroma na območjih, kjer so naravne razmere za kmetovanje že nekoliko slabše, vendar še ne slabe. Ta območja so npr. Ljubljanska kotlina, Dolenjska, Bela krajina, Savinjska dolina z obrobjem, Mislinjska dolina, Dravinjske in Slovenske gorice in Goričko.

Delež **travinja** v kmetijskih tleh v uporabi znaša 60,1 %, kar je najvišji odstotek, ki ga zaseda katerakoli kmetijska kultura ali kategorija. Vendar je treba upoštevati, da gre za pretežno ekstenzivno pridelovanje z nizkimi hektarskimi donosi. Skupna površina znaša 290.813 ha.

V nasprotju s krmnimi rastlinami je razmestitev travinja veliko bolj enakomerna. Edino predeli z usmeritvijo v vinogradništvo, sadjarstvo ali pridelovanje žita izkazujejo v primerjavi z državnim povprečjem nižje deleže travnikov in pašnikov. V večini preostalih predelov pa se giblje lokacijski koeficient za travnino glede na državno povprečje med 100 in 200. Ocene o proizvodnji sena dokaj nihajo. K temu veliko prispevajo tudi spremembe v metodologiji zajemanja podatkov. Kot primer navajamo dva različna pristopa, ki jih je uporabljal statistični urad. Do l. 1994 je ocenjeval proizvodnjo sena po zemljiških kategorijah: travnikih in pašnikih ter trzninah in sadovnjakih, po novem pa razlikuje travna zemljišča glede na število letno opravljenih košenj. Proizvodnja sena je v Sloveniji znašala v povprečju 1.236.976 t, največ l. 1994 z 2.267.669 t in najmanj l. 1958 z 922.585 t. Večino so pridelali na travnikih (ca 74 %).

Sadovnjaki. Razvoj intenzivno gojenih sadovnjakov v zadnjih tridesetih letih je to zemljiško kategorijo okrepil in jo napravil gospodarsko samostojnejšo. Ob tem so ekstenzivni »kmečki« sadovnjaki, ki so v prejš-

njih časih spremljali vsako kmetijo, izgubili na pomenu. Sadovnjaki zavzemajo po popisu kmetijskih gospodarstev l. 2000 0,84 % kmetijskih zemljišč v uporabi ali 4080 ha. V sadjarski proizvodnji prevladujejo jabolka (nanje odpade 67,8 % vse teže sadnega pridelka), hruške (12,6 %), češplje (7 %) breskve (5,6 %), češnje in višnje (5 %), orehi (1,4 %) in marelice (0,5 %). Povprečni letni pridelok je v preteklih 45 letih znašal pri jabolkih 61864 t, hruškah 12.099, češpljah 6436 t, breskvah 5215 t, češnjah in višnjah 4685 t, orehih 1194 t in marelicah 385 t. Količinsko se proizvodnja ni pomembneje povečala, pač pa je porasla kvaliteta sadja.

Sadjarstvo je osredotočeno območjih, ki imajo ugodne naravne razmere za sadje, zlasti primerno podnebje, in dolgoletno tradicijo v pridelovanju. Razdeliti jih je mogoče na dve večji skupini: na Primorje in na severovzhodno in vzhodno Slovenijo. V slednji je sadjarstvo osredotočeno v Slovenskih in Dravinjskih gorinah, na severnem obrobju Krško-Brežiške kotline, v Novomeški pokrajini, Savinjski dolini ter, izjemoma, ponekod na Gorenjskem. Pravzaprav bi morali med ta območja uvrstiti še Brkine, kjer v sadjarstvu tudi prevladuje gojenje jabolka, podobno kot na Štajerskem. V submediteranski Sloveniji je sadjarska proizvodnja bolj pestra; pridelujejo breskve, češnje, hruške in češplje. Sadjarstvo je tod osredotočeno v Istri, Vipavski dolini in Goriških Brdih.

Vinogradi. Tradicionalno slovensko vinogradništvo doživlja v zadnjih desetletjih pomembno preobrazbo: veliko se vlaga v kvaliteto, sortni izbor, sodobno obdelovanje, kletarenje in tržnost. Vendar so se ob tem vinogradniške površine in proizvodnja grozdja zelo zmerno povečale. Delež vinogradov od kmetijskih tal v uporabi znaša 3,25 %. Skupna površina meri po Popisu kmetijskih gospodarstev l. 2000 15.703 ha. Povprečna letna proizvodnja grozdja se je gibala okoli 91.217 t, najvišja je bila l. 1994 s 144.620 t, najnižja pa l. 1962 s 54.124 t.

Tudi vinogradništvo lahko razdelimo, podobno kot sadjarstvo, na submediteransko (primorsko) in zmereno celinsko podnebno območje (na severovzhodu in vzhodu Slovenije). Prvega tvorijo vinorodna območja v Slovenski Istri, Vipavski dolini, Goriških Brdih in na Krasu. V drugo pa se uvrščajo Slovenske, Dravinjske in Lendavske gorice, Posotelje in obrobje Krško-Brežiške kotline, prisojni deli Novomeške pokrajine in Bele krajine. Našteta vinorodna območja obdajajo predeli, kjer še goje vinsko trto, vendar z nižjimi odstotnimi deleži in slabšo kvaliteto, saj so naravne razmere komajda še ustrezne za vinogradništvo (npr. dolina Krke, Mirenska dolina).

Hmeljarstvo. Tretjo skupino posebnih kmetijskih kultur tvori pridelovanje hmelja. Izločili smo jo zaradi močne specializacije, svojstvene tehnologije in visoke stopnje tržnosti. Zemljišča posajena s hmeljem zavzemajo 0,29 % kmetijskih tal v uporabi in merijo 1398 ha. Povprečna letna proizvodnja v minulih 45 letih je znašala 3114 t in je v rahlem porastu.

Tradicionalno hmeljarsko območje je v Spodnji Savinjski dolini med Celjem, Žalcem, Braslovčami in Dobrno. V preteklosti so skušali hmeljarstvo razviti tudi na nekaterih drugih območjih (npr. v okolici Radelj, Novega mesta, Slovenskih Konjic itd.), vendar se je z odstotkom višjim nad 10 % obdržalo le v Mislinjski dolini ter na Ptujskem in Brežiškem polju.

2.3 Proizvodnja najpomembnejših pridelkov

Po predhodnih podatkih Popisa kmetijskih gospodarstev 2000 je znašala proizvodnja najpomembnejših kmetijskih pridelkov v Sloveniji: pšenica 119.151 ton, rž 2580 t, ječmen 37.354 t, oves 5223 t, koruzav zrnju 248.542 t, krompir 185.290 t, sladkorna pesa 240.781 t, trave in travne mešanice 42879 t, detelje in lucerna 18.580 t, travno-deteljne mešanice 25.123, silažna koruza 927.485 t, krmna pesa in koleraba 41132 t, seno 1.191.229 t, jabolka 42.141 t, breskve 10.679 t, hruške 3250 t, grozdje 126.650 t in hmelj 1.554 t.

2.4 Sistemi agrarnega izkoriščanja tal

S pojmom agrarni sistem označujemo zapleteni sestav kmetijske proizvodnje in gospodarjenja. Nanj vplivajo poleg proizvodnih odnosov naravne in družbene razmere, socialni odnosi v kmetijstvu, kmetijska

tehnika in tehnologija in vsakokratne regionalne razmere. Z njim želimo zajeti na kompleksen način vse temeljne prvine, ki tvorijo kmetovanje¹⁸. Ker bi takšen pristop zahteval zelo obsežno obravnavo, skušamo prikazati kmetijske sisteme tudi na bolj preprost način, navadno s pomočjo nekaterih značilnih kazalcev.

Pri opredeljevanju se uporablja več različnih metod. »Metoda kolobarja« upošteva večletno in ustaljeno menjavanje kmetijskih kategorij, kultur in pridelkov. Metoda »sistemi ali tipi kultur« razlikuje vodilne in pomožne kmetijske kulture oziroma pridelke. »Metoda produkcijske usmerjenosti« se opira na ocene o novo ustvarjeni vrednosti v kmetijski proizvodnji po posameznih dejavnostih. V agrarni geografiji najpogosteje uporabljajo »metodo agrarnega izkoriščanja tal«, pri kateri določimo tip agrarnega sistema iz razmerja med različnimi skupinami kmetijskih kategorij, kultur in pridelkov. Izhaja iz predpostavke, da se vsak agrarni sistem opira na določeno svojsko razmerje med kmetijskimi kulturami in da se ti odnosi, ne glede na kolobarjenje, pomembneje ne spreminjajo v teku let¹⁹.

Pri tipizaciji z »metodo agrarnega izkoriščanja tal« se opiramo na podatke o površinah, ki jih zavzemajo posamezne kmetijske kategorije, kulture in pridelki in na njihova medsebojna razmerja. Te navedbe so v primerjavi s podatki, npr. o obsegu proizvodnje ali o ustvarjeni vrednosti po panogah ali pridelkih, relativno bolj ustaljene in so manj pod vplivom proizvodnih in cenovnih nihanj. So primerljive s podatki v drugih državah. Iz njih je mogoče razbrati stopnjo razvitosti kmetijstva in njegovo proizvodno usmerjenost.

V našem primeru pa obstaja še en razlog za uporabo te metode. Avtor tega poročila je napravil prvo analizo sistemov agrarnega izkoriščanja tal v Sloveniji že za leto 1960. Pri tem je uporabil ocene kmetijske rabe tal po katastrskih občinah, ki so jih na zbrali na Zavodu za statistiko SRS. Ponovil jo je za l. 1985²⁰ na podlagi kmetijskega popisa. Popis kmetijskih gospodarstev l. 2000 pa je omogočil, da napravimo še tretji poskus tipizacije slovenskega kmetijstva in iz primerjave teh treh obdobj razberemo, v kakšni smeri je potekal razvoj slovenskega kmetijstva v minulih štiridesetih letih. Iz primerjave je tudi mogoče razbrati, kakšen je bil vpliv vsakokratnih družbenih razmer na kmetovanje. Glede na to smo tudi za določitev agrarnih sistemov izrabe tal l. 2000 uporabili merila, ki smo jo izdelali l. 1967. Določili smo jih iz strukturnih deležev žit, okopavin, krme in posebnih kultur, ki smo jih izračunali iz 10 % vzorca med 2634 katastrskimi občinami.

2.5 Sistemi agrarnega izkoriščanja tal v Sloveniji

Analiza je pokazala, da nastopajo v Sloveniji vsi zgoraj navedeni sistemi agrarnega izkoriščanja tal, vendar z zelo različno zastopanostjo. Med agrarnimi sistemi je daleč najbolj razprostranjen izraziti krmni sistem. V znatno manjšem obsegu mu sledijo omiljeni krmni sistem, žitno-krmni, žitno-okopavinski in okopavinsko-žitni sistem. Razmeroma številni so tudi cenilni okoliši s posebnimi kulturami, zlasti z vinogradništvom. Zaradi močnega prepletanja posebnih sistemov s pretežno poljedelskimi sistemi smo morali vpeljati še nekatere vmesne kombinacije, kot je ne primer prepletenost sadjarskega in vinogradniškega podsistema.

Krmni sistem je nedvomno najbolj razširjen način kmetijske rabe zemljišč v Sloveniji. Oba podsistema, *izraziti* in *omiljeni*, skupaj zasedata 74,5 % vseh površin in 59,2 % kmetijskih zemljišč v uporabi. V kar 194 kmetijskih cenilnih okoliših od skupnih 251 je prevladujoč. Njegova osnovna značilnost je izredno visok delež travinja in krmnih rastlin. Po proizvodni naravnosti je docela usmerjen v mesno in mlečno živinorejo, predvsem v govedorejo. Drugih kmetijskih pridelkov je malo in so v znatni meri namenjeni domači porabi. Glede na vloženo delo je sistem zaradi velikega deleža travinja ekstenziven, čeprav terja od kmetovalcev zaradi prevladujoče živinorejske usmeritve skrbno in stalno delo. Tehnološko in organizacijsko je manj zahteven. Motorne kosilnice, nakladalniki in sušilniki so sicer naporno ročno delo v znatni meri olajšali. Sprememba tehnologije je povzročila opuščanje zemljišč, na katerih ni možna strojna obdelava. Skromne njivske površine se v dobršni meri uporabljajo za proizvodnjo krmnih rastlin za prehrano živine pozimi in za pitanje.

Pri *izrazitem krmnem sistemu* znašajo deleži travinja v povprečju 84,7 %, krmnih rastlin 8,2 %, žit 4,7 % in okopavin komaj 1,6 % od vseh kmetijskih zemljišč v uporabi. Izraziti krmni sistem docela prevladuje v Alpah, Predalpskem hribovju (Tolminsko, Škofjeloško hribovje, Pohorsko Podravje, Zgornja Savinjska

dolina, Posavsko hribovje) in na Dinarskih visokih planotah (Banjščice, Trnovski gozd, Idrijsko-Cerkljansko hribovje, Notranjsko podolje, Pivka, Kočevsko), povsod tam, kjer so naravne razmere za kmetovanje slabše bodisi iz klimatskih, reliefnih ali pedoloških razlogov.

Omiljeni krmni sistem se pojavlja v nižjih legah in v nekoliko ugodnejših naravnih razmerah (Šaleška, Mislinjska, Mežiška in Dravska dolina, Dolenjska, Bela Krajina, Ljubljansko Barje, Kozjansko, Voglajnsko, Gozdnote Haloze). Zato je delež žit, okopavin in krmnih rastlin že večji in znaša v povprečju 16,7 %, 2,9 % oziroma 14,6 %. Delež travinja je manjši in nanj odpade le še 61,6 %. Glede na tehnologijo in proizvodno usmerjenost med obema podsistemoma ni večjih razlik. Zanimivo je, da se je minulih petnajstih letih (v primerjavi z razmerami l. 1985) razprostranjenost omiljenega krmnega režima zmanjšala v korist izrazitega.

Žitni sistem je nekakšno nasprotje krmnemu sistemu, saj zavzemajo žita 43,7 %, krma pa le 44,9,4 % v kmetijstvu uporabljenih tal. Na okopavine odpade 5,3 % kmetijskih tal. Sistem ni zelo razširjen: zaseda 9,9 % vsega ozemlja in 18,2 % kmetijskih zemljišč v uporabi. Glavna pridelka sta pšenica in koruza. Pri podrobnejšem opredeljevanju smo razlikovali dva podsistema, prvega, kjer se kmetovanje bolj navezuje na okopavine, in drugega z močnejšo naslonitvijo na pridelovanje krme. Po svojem značaju je sistem visoko produktiven in spominja na napredno kmetijstvo v razvitih državah. V obeh primerih je kmetovanje povezano z govedorejo in prašičerejo.

Žitno-krmni podsistem je bolj razširjen. Zavzema 4,6 % vsega površja oziroma 8,3 % kmetijsko uporabnih tal. Od žitno-okopavinskega se razlikuje po večjem deležu krme (52,8 %) in manjšem deležu okopavin (3,0 %). Na žita odpade 37,3 % kmetijskih tal. Razširjen je na severovzhodu in vzhodu Slovenije na nekoliko bolj vlažnih ali namočenih tleh, kot so Slovenske gorice, izgoni na Dravskem polju, Brežiško in Šentjernejsko polje.

Žitno-okopavinski podsistem je razširjen na bolj sušnih ravninah. Zaseda 5,3 % površja oziroma 10,0 % kmetijskih tal v uporabi. Njegova temeljna značilnost je poleg visokega deleža žit (49,1 %) povišan delež okopavin (7,2 %). Razširjen je na Ptujskem in Murskem polju, na Ravenskem in Goričkem in v Krško-Brežiški kotlini.

Okopavinski sistem je med navadnimi kmetijskimi sistemi v Sloveniji najmanj razširjen. Zaseda le 5,4 % vse površine in 11,8 % kmetijskih tal v uporabi. Označuje ga povišan delež okopavin: to je nad 10 % kmetijskih tal v uporabi. Tudi pri tem sistemu smo razlikovali dve inačici: prvo z visokim deležem žit in drugo z povišanim deležem krme. Povečini je bil v obeh podsistemih glavni pridelek krompir poleg sladkorne pese, zelenjave in oljaric. Med žiti je bilo največ koruze.

Glede na razširjenost je prevladoval *okopavinsko-žitni podsistem*. Zanj je bil značilen visok delež žit (55,1 %), okopavin (14,2 %) in krmnih rastlin (11,7 %) ter relativno nizek delež travinja (16,1 %). Poleg žitno-okopavinskega podsistema je to bil najbolj produktiven način kmetovanja pri nas. Razširjen je bil na pedološko in reliefno najboljših zemljiščih na Ravenskem in Dolinskem in Prekmurju, na Murskem, Ptujskem in Dravskem polje ter izven severovzhodne Slovenije na Kranjsko-Sorškem polju.

Okopavinsko-krmni podsistem, druga inačica, je bil manj pogost. Pojavljal se je na Bistriški ravnini in ponekod na Krško-Brežiškem polju.

Mešani sistem je po svojih značilnostih prehodna oblika med krmnim in žitnim oziroma okopavinskim sistemom. To je razvidno iz strukture rabe tal, ki izkazuje razmeroma visok delež žita (24,9 %) in povišan delež krme (65,8 %). V šestdesetih letih je ta sistem označeval tradicionalno avtarkično kmetovanje s polikulturno usmerjenostjo. Kasneje, v osemdesetih letih se je njegova razširjenost zmanjšala, saj se je v številnih primerih ta način kmetovanja preobrazil in preusmeril v krmni sistem. Sedanje razmere kažejo nadaljnje krčenje ozemlja in proizvodno preusmerjanje v živinorejo. Zaseda le še 2,3 % vsega ozemlja oziroma 2,7 % kmetijskih tal v uporabi. Razširjen je na Dolenjskem in v Beli krajini. Pogosto pa se povezuje s sadjarstvom (Dravinjske gorice, Haloze), vinogradništvom (Vipavska dolina, Bizeljsko, Bela krajina) in hmeljarstvom (Savinjska dolina).

Posebni sistemi. Med nje smo uvrstili tri podsisteme: sadjarski, vinogradniški in hmeljarski. Izločili smo jih povsod, kjer je njihov delež presegel 10 %. Zasedali so 159.591 ha ali 7,9 % vse površine oziroma 39.326 ha ali 8,1 % kmetijskih tal v rabi.

Sadjarski podsistem je le izjemoma nastopal samostojno, večidel se je navezoval na vinogradniški podsistem. K temu so veliko pripomogli podobni naravni dejavniki potrebni za uspešno pridelovanje. Večje osredotočenje sadovnjakov zaznamujemo v submediteranski Sloveniji: v Slovenski Istri, Spodnji Vipavski dolini in Brdih ter v subpanonski Sloveniji (v Slovenskih goricah, bistriskem delu Dravinjskih gorici ter v gričevju brežiške, krške in žalske občine). Skupna površina je znašala 47.462 ha oziroma 7566 ha kmetijskih tal v rabi (2,4 % oziroma 1,6 %).

Vinogradniški podsistem je bil bolj izrazit. Zavzemal 96.535 ha (4,8 %) skupne površine oziroma 25.770 ha kmetijskih tal v rabi (5,3 %). Spodnjo mejo 10 odstotkov vinogradov je presegel v submediteranski Sloveniji v Slovenski Istri, na Krasu, v Brdih in v Vipavski dolini, v subpanonski Sloveniji pa v Slovenskih goricah (okoli Gornje Radgone, Ormoža, Maribora, Zgornje Kungote), v Spodnjih (Vinorodnih) Halozah in na Bizeljskem. Razmeroma visoke deleže vinogradov, nad 5 %, beležimo tudi okoli Metlike in Semiča, Novega mesta in Straže, Podčetrška, Pesnice in Šentilja. Nekatera manjša, vendar strnjena vinogradniška območja niso prišla do izraza (npr. Lendavske gorice, Dravinjske gorice).

Hmeljarski podsistem se je v minulih štiridesetih letih ozemeljsko močno skrčil. Ob popisu je zavzemal le še 14594 ha skupne površine (0,7 %) oziroma 5990 ha kmetijskih zemljišč v rabi (1,2 %). Delež nad 10 odstotki je obdržal samo v Spodnji Savinjski dolini. Manjša hmeljišča so se ohranila še na Ptujskem polju, v Mislinjski dolini, okoli Brežic in Mozirja.

2.6 Regionalna razporeditev sistemov agrarnega izkoriščanja tal.

Zaradi večjih, regionalnih ozemeljskih enot so se različne krajevne posebnosti agrarnih sistemov v glavnem zabrisale, kar se zlasti pozna posebnim kulturam, ki le stežka pridejo do veljave. Na splošno velja, da v Alpah, Alpskem predgorju in na Dinarskih (visokih in nizkih) kraških planotah prevladuje izraziti krmni sistem. Na nižinskih ravninah se uveljavljajo okopavinski in žitni podsistemi. Primeri mešanega agrarnega sistema so v številnih primerih posledica prepletanja različnih sistemov. Posebni sistemi, predvsem vinogradniški in sadjarski podsistem, prevladujejo le v regijah z izrazito naravno naravnostjo ali tradicionalno usmerjenostjo. Podrobna regionalna členitev je razvidna iz tabele št. 7.

2.7 Spremembe v sistemih agrarnega izkoriščanja tal.

V minulih štiridesetih letih je doživelo slovensko kmetijstvo in z njim vred tudi agrarni sistemi znatno preobrazbo. To je najbolj razvidno iz primerjav med l. 1960, 1985 in 2000, za katera imamo analize po nekdanjih občinah. Iz njih je razvidno splošno preusmerjanje v izraziti krmni sistem, kar naj bi bila posledica čedalje močnejše živinorejske, posebej govedorejske orientacije. To se je kazalo v preobrazbi mešanega sistema v omiljeni krmni sistem, v zadnjih petnajstih letih pa je podobno preobrazbo v izraziti krmni sistem doživljal omiljeni krmni sistem. Razen te temeljne težnje zaznamujemo manjše spremembe v razmerjih med žitnim in okopavinskim sistemom v škodo slednjega, utrditev vinogradniških območij z najboljšimi naravnimi razmerami in krčenje hmeljarstva.

3 Živinoreja

3.1 Stalež

V slovenski živinoreji prevladujejo tri panoge: govedoreja, prašičereja in perutninarstvo. Druge panoge (reja drobnice, konj, kunccev, jelenov, nojev) so postranskega in večidel krajevnega značaja. Zaradi velikih razlik med različnimi vrstami živine je poseben problem, kako izmeriti relativni pomen posameznih panog. Pomagamo si s pomočjo posebnega kazalca, imenovanega »glave velike živine« (GVŽ) ali »glave normalne živine«. Izračunamo ga tako, da stalež vsake živinorejske panoge pomnožimo s ustreznim koeficientom²¹ v GVŽ. Uporaba tega kriterija na primeru Slovenije pokaže, da znaša skupna vsota za celotni živinski fond in perutnino, 694.847 GVŽ. Od tega odpade na govedo 72 % GVŽ, prašiče 21,8 %, konje

2,3 %, perutnino 1,9 % in na drobnico 1,8 %. Zaradi poenostavitve pri računanju nismo upoštevali razlik glede na stopnjo odraslosti ali spol.

Najbolj je razširjena *govedoreja*. Je izrazita dejavnost zasebnih kmečkih gospodarstev; nanje je odpadlo kar 96,8 % goveda od skupnih 500.313 glav. Med kmetijskimi podjetji jih je bilo le 22 usmerjenih v govedorejo. Razširjena je po celi Sloveniji. Če uporabimo za primerjavo gostoto goveda na hektar »kmetijskih zemljišč v uporabi«, se pokaže, da največjo gostoto goveje živine dobimo na Kočevskem, Kranjsko-Sorškem polju, Bistriški ravnini, Voglajnskem, v Šaleški, Mislinjski in Spodnji Savinjski dolini ter v Dravinjskih gorica. Najnižje vrednosti beležimo v Notranjskem podolju, Ribniški dolini, Brdih, na Krasu, v Slovenski Istri, na Dolinskem, v Brkinih in na Visokih kraških planotah. Povprečna gostota goveda na hektar kmetijskih tal v rabi je v Sloveniji znašala 1,02 glav/ha.

Druga najpomembnejša živinorejska panoga v Sloveniji je *prašičereja*. Uporabljata se dva načina vzreje: poleg tradicionalne reje manjšega števila prašičev na zasebnih kmetijah so se iz socialističnega obdobja obdržale velike prašičerejske farme z več tisočglavo čredo v lasti kmetijskih podjetij (Ihan, Klinja vas pri Kočevju, Pristava pri Leskovcu, Nemščak pri Izakovcih, Draženci pri Ptuj, Stična, Podgrad pri Gornji Radgoni, Zalog pri Ljubljani in Maribor). Na kmetijska podjetja tako odpade od skupnega števila 606.484 glav 34,9 %.

Največjo gostoto prašičev na hektar »kmetijskih tal v rabi« beležimo na Ravenskem, Murskem, Ptujskem in Dravskem polju, v Slovenskih gorica, na Goričkem, v Krško-Brežiški kotlini in kot posebnost na Bistriški ravnini. Območje največje gostote prašičev v znatni meri sovпада z predeli najintenzivnejšega pridelovanja koruze v zrnju. Najmanjšo gostoto zaznamujemo v Alpah, na Visokih kraških planotah, Krasu, Kočevskem in v Notranjskem podolju. Povprečna gostota prašičev na hektar kmetijskih tal v rabi je v Sloveniji znašala 1,24.

Z uvedbo specializiranih perutninarskih kmetij se je število perutnine na Slovenskem znatno zvečalo in postalo pomembna živinorejska panoga. Kot pri prašičereji so tudi pri *perutninarstvu* v ospredju veliki proizvodni obrati kmetijskih podjetij (Zalog, Neverke, Draženci, Duplica, Beltinci, Hardek itd.), ki obvladujejo 20,2 % staleža, vendar je čedalje več tudi zasebnih kmetij, ki so se lotile perutninarstva na industrijski način. Nadpovprečno je ta panoga razvita v žitorodnih predelih in v bližini večjih mest. Marsikateri perutninarski obrat pa so v prejšnjem obdobju načrtno postavili v nekaterih odmaknjenih predelih (Neverke, Mozirje).

Preostali dve živinorejske dejavnosti, *konjereja* in *reja drobnice (ovce in koze)*, nimata večjega pomena. Prva je nazadovala z motorizacijo. Obdržala se je kot rekreativna dejavnost (Lipica) in sodeč po razširjenosti kot pomoč v gozdarstvu. Zato jo srečujemo v gozdnatih predelih (Kočevsko, Cerkniška dolina, Gorjanci, Julijske Alpe). Število drobnice, ki je bila v Sloveniji pred 1. svetovno vojno druga najštevilnejša živinorejska panoga in je nato v sedemdesetih in osemdesetih letih 20. stoletja skorajda izumrla, se v zadnjem času počasi obnavlja. Nadpovprečno je zastopana na Visokih kraških planotah (Kočevsko, Pivka), Alpah (Pošočje, Tržiške Alpe, Zgornja Savinjska dolina), na Krasu in v Beli Krajini.

Geografsko zanimive ugotovitve o razporeditvi živine dobimo, če primerjamo razporeditev kmetijskih tal in število živine po naravnih območjih. Tako npr. obstaja v alpskem visokogorju v primerjavi z deležem kmetijskih tal procentualni presežek pri drobnici, v hribovju pri govedu, na gričevnatih območjih pri perutnini, na ravninah pri prašičih in perutnini, na visokih in nizkih kraških planotah pa pri konjih in drobnici.

Do podobnih ugotovitev pridemo, ob primerjavi sistemov agrarnega izkoriščanja tal z razmestitvijo živine. Tako se govedoreja veže na krmni sistem, prašičereja na okopavinski in žitni sistem, ovčereja in konjereja na krmni in perutninarstvo na žitni in okopavinski sistem. Najmanj živine je v posebnih sistemih

3.2 Živinorejske usmeritve

Po zgledu »sistemov agrarnega izkoriščanja kmetijskih tal« smo skušali opredeliti tudi glavne živinorejske usmeritvene tipe in njihovo razprostranjenost. Glede na raznolikost živine smo pri opredeljevanju

uporabili podatke o glavah velike živine (GVŽ), ki smo jih po posebnem ključu²³ izračunali za vsak kmetijski cenilni okoliš. Skupna vsota GVŽ je omogočila, da smo ugotovili strukturno sestavo živine. Iz nje smo lahko razbrali, kolikšen delež oziroma pomen ima vsaka živinorejska panoga. Z razmejitvenimi vrednostmi, kot jih prikazuje preglednica 12, smo opredelili posamezne živinorejske tipe. Členitev je prilagojena slovenskim razmeram.

Iz strukturne sestave živine je mogoče razbrati, da v Sloveniji prevladuje govedoreja, ki nastopa v dveh inačicah: kot izredna oziroma omiljena usmeritev. Na obe odpade kar 55,9 % od skupnih 694.846 GVŽ (po grobi oceni rezultatov kmetijskega popisa l. 2000), če pa upoštevamo še povezave (omiljene) govedoreje z nekaterimi drugimi usmeritvami, se delež povzpne na 59,4 %. Govedorejski tip živinoreje je razprostranjen po celi Sloveniji, vendar do močno enostranske usmeritve prihaja na Gorenjskem, Dolenjskem, v Zasavju ter v Šaleški in Mislinjski dolini. Manjšo gostoto goveje živine zaznamujemo v Primorju, Pomurju in Spodnjem Podravju. Ta tip živinoreje je razširjen na 61,2 % kmetijskih tal v rabi

Usmeritev v prašičerejo je osredotočena na Pomurje in Spodnje Podravje in se v dobršni meri prekriva z območji, kjer pridelujejo koruzo v zrnju. Izven tega dokaj strnjenege pasu pa se prašičerejska usmeritev pojavlja le v tistih okoliših, kjer so veliki prašičerejski obrati (Kočevo, Kostanjevica, Bistriška ravnina) Nanjo odpade 29,9 % GVŽ in 20,9 % kmetijskih tal v rabi.

Kmetijske cenilne okoliše brez izrazite usmeritve smo uvrstili v tip mešane živinoreje. Glede na visok delež (50–70 %) goveda je to bil v resnici še vedno govedorejski tip, le da s šibkejšo usmeritvijo, saj je na teh kmetijah odpadel sorazmerno velik delež tudi na prašiče oziroma drobnico. Na ta tip živinoreje je odpadlo 3,7 % GVŽ oziroma 5,6 % kmetijskih tal.

Ovčerejsko usmeritev kot samostojno živinorejsko panogo beležimo le v redkih kmetijskih cenilnih okoliših na Kočevskem, Pivki in Krasu. Bolj pogosta je povezava z govedorejo, ki jo srečujemo v Beli Krajini, Zgornjem Posočju, na Krasu in v Brkinih. Podoben primer je z konjerejo, ki nastopa skupaj z govedorejo ali z ovčerejo. Pojavlja se na Visokih kraških planotah. Veliki perutninski obrati so dali usmeritveni pečat tudi nekaterim cenilnim okolišem.

3.4 Regionalna razmestitev

Regionalne primerjave živinoreje pokažejo, da v Sloveniji dosegajo najvišjo gostoto živine (GVŽ) na hektar kmetijskih tal v rabi v severovzhodni Sloveniji: na Ravenskem, Murskem in Dravskem polju. Nad državnim povprečjem, ki znaša 1,44 GVŽ na ha kmetijskih tal, dosegajo še na Gorenjskem, v Dolenjskem podolju, Spodnji Savinjski dolini, Šaleški dolini, Pohorskem Podravju, na Dravsko-Ptujskem polju, v Slovenskih goricah in v Pomurju.

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3. Pod vodstvom g. dr. Branka Pavlina.
4. Vsem imenovanim se za izkazano razumevanje, strokovno pomoč in potrpljenje najprizračneje zahvaljujem! Brez njihovega sodelovanja ne bi bilo pričujočega poročila.
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8. Združili smo naslednje kmetijske cenilne okoliše:

Nekdanja občina	Številka kmetijskega cenilnega okoliša
Brežice	700, 900–1000
Domžale	2700–2800;
Gornja Radgona	3300–3400;
Grosuplje	4100–4200;
Kočevje	6100–6200;
Koper	6800–6900 in 7100;
Kranj	7600–7700;
Krško	7800–8000 in 8200;
Lenart	8801–8803 in 9102;
Lendava	9200–9300;
Ljubljana	10100, 10400–10600, 11000 in 12100; 11500–11600;
Ljutomer	12400, 12600–12800;
Maribor	13500–13600; 13700–13702, 14300 in 1/2 14300 in 1/3 15200; 13900, 14100 14600–14800 in 15100; 2/3 15200;
Mozirje	15400–15500;
Murska Sobota	16001–16002; 16102 in 16203; 16401–16402;
Nova Gorica	16800–17000;
Novo mesto	17300, 17500–17600;
Ormož	18100–18400;
Ptuj	19300–19500; 19900–20000;
Radovljica	20800–20900;
Sežana	22301 in 22400;
Slovenska Bistrica	23700, 24000, 24400, 24102;
Slovenske Konjice	24700–25100;
Trebnje	28500–28700;
Žalec	30300–30400;

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