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SUSTAINABLE CATTLE PRODUCTION IS THE BEST FOR SLOVENIA

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ABSTRACT

In Slovenia, two thirds of agricultural areas are grassland, and 43% of areas are karst. A great part of arable areas are sandy and gravelly and thus prone to drought. The mentioned facts as well as hilly surface are the main reasons for small size farms, slim possibilities of increasing, specialization and intensive farming. Consequently cattle production should be planned prudently. The soil fertility can be preserved by sowing arable areas with grain and by rotation of crops, production of grass-clover mixtures and application of organic manure. Milk and beef should be produced by forage with the lowest possible degree of pollution with greenhouse gas emissions. Cows wellbeing and longevity are important as well as the quality of produced milk and beef. Considering the natural conditions, self-sufficiency, farm size and wholesome quality the sustainable production of dual purpose breed is required. Cows fed on forage should produce about 5 000 to 7 000 kg of milk in lactation and at least 30 000 kg milk in life span. Young animals should grow quickly and achieve excellent slaughtering traits. All above demands are already met by modern type of Simmental breed.

Key words: sustainable animal production / cattle production / Slovenia

ZA SLOVENIJO JE PRIMERNA ZLASTI SONARAVNA GOVEDOREJA

IZVLEČEK

V Sloveniji je 2/3 kmetijskih površin absoluten travnat svet; 43 % površine Slovenije je kras. Veliko njiv je peščeno-prodnatih, in so občutljive za sušo. Navedena dejstva in gričevnatost so med razlogi za majhne kmetije, majhne možnosti velikega povečanja in specializirano ter intenzivno kmetovanje (farming). To moramo upoštevati tudi pri načrtovanju govedoreje. Na njivah bomo morali pridelovati več žit in kolobariti ter pridelovati deteljno travne mešanice in gnojiti z organskim gnojem, da bomo ohranili potrebno rodovitnost zemlje. Potrebno mleko in goveje meso bomo morali prirediti pretežno z voluminozno krmo, s čim manjšim vsesplošnim obremenjevanjem okolja in obremenjevanjem s toplogrednimi plini. Krave se bodo morale dobro počutiti, da bodo dolgo živele. Pomembno je, da bosta prirejeno mleko in meso vsestransko kakovostna. Upoštevanje naravnih danosti, potreb po večji stopnji samooskrbe, predvidevanj o velikosti kmetij in želja po vsestranski kakovosti narekujejo v Sloveniji sonaravno rejo modernega tipa kombinirane pasme goveda. Krave naj bi dale pretežno iz voluminozne krme 5 000 do 7 000 kg mleka v laktaciji in vsaj 30 000 kg mleka v življenju. Mlade živali v pitanju naj bi hitro rasle in dosegle odlično klavno kakovost. Tem zahtevam ustreza že uveljavljena lisasta pasma v modernem tipu.

Ključne besede: sonaravna živinoreja / govedoreja / Slovenija

INTRODUCTION

Slovenia belongs to the most densely wooded countries in Europe; woods cover nearly 60% of the country. Agricultural areas in use represent a quarter of the surface and 60% of agricultural areas are permanent grasslands and pastures that cannot be ploughed up. Fields and

gardens represent only 36% of agricultural areas in use. If we sum grasslands and fields sown with grass-clover mixtures, we come to 64% of areas used for feeds for ruminants. Cattle are the most important. The above data show that cattle production is the most important agricultural branch in Slovenia. Hence it is clear that Slovenian farmers obtain over 40% of income by milk and beef production. After the Second World War beef shortage in Europe enabled good sale of quality young fatten bulls. Slovenian farmers gained 3 to 4 times more for meat than for milk. Later the ratio changed and in 1985 farmers gained for milk as much as for cattle. Now farmers earn twice as much for milk than for beef.

Besides above mentioned grass-clover mixtures, about 30 000 ha of arable fields are used for maize production for silage. It means that 70% of agricultural areas are used for fodder production for ruminants, primarily for cattle. Only small areas are used for fodder production for small ruminants and horses. All domestic animals, especially cattle, consume a lot of side products of agricultural production, comprising stubble and winter plants produced on the rest of fields. We can therefore conclude that three quarters of organic mass that is produced every year on Slovenian agricultural areas with the help of photosynthesis are used for cattle production. For that reason we can agree with Lengerken (1955, cited in Haiger, 2005) saying that "the man cannot become what he is without cattle".

Cattle production has already become the most important agricultural branch in Slovenia. Slovenian agricultural environment is very sensitive. According to data of Karst Research Institute at Scientific Research Centre of the Slovenian Academy of Sciences and Arts, 43% of areas are karst while areas along rivers are gravelly. Those areas are very sensitive and no intensive farming with huge amounts of mineral manures and pesticides should be practised to avoid an impact on environment. Fodder production for cattle should consider this fact, as cattle production is criticised for greenhouse gas emissions and some other harmful effects on environment (slurry). Consequently we are of the opinion that only sustainable cattle production will be good for Slovenia in future. Such cattle production requires a complex approach based on necessary connections and consequences. Preservation of fertile agricultural lands, which is our main goods, wellbeing of animals that remain in production for a long time, environment protection and quality of products are our main objectives. Further on we will enlighten the mentioned requirements and hint at the planning of appropriate development and organization of cattle production in Slovenia.

AGRICULTURE IS NOT FARMING

We have already mentioned unfavourable conditions for intensive farming in Slovenia. Those conditions besides historical development, contributed to the development of small size farms that organized gaudy and rich farming culture and appropriate processing of vegetal and animal products which resulted in nutritional, housing and general culture of living in this area affecting also development and appearance of landscape. Traditional way of farming can be called agriculture. In Slovenia farm type of farming had never been destroyed and even after 45 years of proletariatization and industrialization of agriculture after the Second World War, in the nineties of previous century farm type of agriculture production still existed. Most of cattle were produced on farms with few animals. In the last two decades a quick restructuring and farm size changes are present (Tables 1 and 2).

Structural changes and herd enlargement match with nowadays knowledge about treacherous industrialization of agriculture that was performed in the 20th century in the East and West and is explained by the expression farming. This way of farming is not sustainable and not nature friendly. The aim of such farming is maximal production and yield with the help of artificial fertilizers and phytopharmaceutical products that are not legally prohibited. Technological

processes are industrialized, the productivity is consequently high but upon account of animal wellbeing and land mistreatment, which on the other hand endangers its fertility and quality of land and animal products as well as environment. Industrialized agricultural and cattle production were developed on state farms in Slovenia in the sixties of the previous century. Such a state farm had 10 000 young cattle. They did not have enough land for fodder production and they had to buy about 30 tons of maize in cobs a day. They were never sure if they got the maize. Because they did not have enough surfaces the problem of slurry was insoluble and the environmental impact was inevitable. Bulls had rations with too small amounts of structural fibres which disturbed digestion and damaged the rumens of animals that were ruminants after all (Osterc, unpublished data). Bulls certainly did not feel well and the production did not respond the ethological demands. Since the state farm did not have enough fields the slurry was not used. For that reason the basic circulation of plant nutrients was stopped as nutrients never arrived to the areas where fodder for bulls was produced. Thus the fertility of land became poor despite enlarged use of mineral fertilizers. A similar case was found in East Germany where they had a farm with 10 000 dairy cows. Lands around the farm were destroyed due to too high amounts of slurry while maize silage had to be carried for 500 km because of drought (Osterc, unpublished data). Both cases prove that such concentrations are inappropriate from the point of view of sustainability.

Table 1. Number of breeders and dairy cows in milk purchase system

Year	Herds	Cows	Purchased milk, lit.			Cows per farm
			Total	Per cow	Per herd	
1980	55 533	150 694	303 831 000	2 016	5 471	2.7
1985	58 194	175 696	352 454 200	2 120	6 063	2.9
1990	43 656	161 992	359 184 200	2 217	8 228	3.5
1995	30 040	132 532	388 394 400	2 968	12 942	4.4
2000	16 869	117 775	447 831 000	3 758	26 516	6.8
2002	12 589	113 599	473 500 000	4 154	38 577	9.3
2003	11 500	112 484	484 200 000	4 323	42 104	9.7
2004	10 900	112 500	488 683 000	4 344	44 833	10.3
2005	10 578	111 424	506 888 419	4 549	47 919	10.5
2006	9 509	111 000	512 034 328	4 613	53 847	11.7
2007	8 897	106 000	528 426 472	4 985	59 394	11.9

The above described farming does not agree with farm type of farming, it changes quickly the way of living in the country and destroys the living culture that has been developed during centuries and is typical for some entities and thus represents a national value. In some EU countries that were influenced by Soviet Union as well as in some western countries the farm type of farming is not present any more and centuries old customs disappear together with the landscape scenes. The problems of preservation of cultural landscape are evident. Due to the mentioned problems the appeals to former cultural farming that requires a complex approach with connections among measures have been already heard. Cattle production is also in question. Sustainable cattle production requires a complex approach. Planning should start with land and its fertility preservation and followed by fodder production in the view of environment protection, animal wellbeing and quality of products that are demanded by consumers.

Table 2. Herd structure on farms that sell milk to diaries, %

Year	Percentage of farms regarding cows per herd				Cows per farm
	1–4	5–9	10–15	above 15	
1981	78.2	19.2	2.1	0.4	2.8
1985	78.6	18.0	2.7	0.7	2.9
1990	73.5	21.3	3.6	1.6	3.5
1995	62.0	28.6	6.7	2.6	4.4
2000	46.9	30.0	13.7	8.9	6.8
2002	36	34	18	12	9.3
Year	≤ 2	3–9	10–19	above 19	Cows per farm
2003	21.2	46.8	22.3	9.7	9.7
2004	16.5	45.7	25.7	12.1	10.3
2005	16.1	44.9	26.4	12.6	10.5
2006	11.8	44.2	29.4	14.6	11.7

PRESERVATION OF FERTILE SOIL

Fertile agricultural land is our greatest wealth and we should preserve it for our descendants. Cattle are responsible for formation and preservation of fertile agricultural lands. Sometimes ago I came across a statement that cattle can help to make very poor land fertile. Besides manure also feeding plants that are sown in rotation are meant. Feeding plants have very long, deep and spread roots that have a good effect on soil structure and enrich the soil with organic mass for humus production. Thus most of farms that would like to farm sustainably rear also cattle. In the manure of dairy cows there are above 80% of the most important plant nutrients that were in fodder consumed by cows. In the manure of fattening bulls, there are between 94% and 98% of such nutrients (Vetter and Steffens, 1986). Hence it is important to know that a farm can satisfactorily connect fodder production and management with organic manure and in this way closes the circulation of plant nutrients, but on condition that arable areas are in accordance with number of animals. Those areas should be in appropriate distance for economic manure distribution and fodder delivery. Big herds put in question such orientation due to logistics.

Table 3. The effect of manuring on soil microorganism (30 years long trial), in relative values

Manure	Bacteria	Actinomicets	Fungi	Mites
No manure since 1937	100	100	100	100
NPK + Ca	199	153	87	141
NPK + Ca + 300 dt stable manure	398	277	96	207

The maintenance and improvement of soil fertility depends on organic mass supply that affects the share of humus in soil. Grass-clover mixtures (GCM) and other feeding plants for cattle nutrition can contribute a lot to rich supply of organic mass. GCM sown in rotation play a role in maintaining of good soil structure. Lands on which GCM or other legumes and feeding plants are grown in rotation and treated with organic manure are very rich in soil microorganisms that enable mineralization and humification. The effects of manuring on soil microorganisms can

be seen from the trial results published by Diercks (1986, cited in Rubensam and Steinbrecher, 1968) and shown in Table 3.

Regular use of organic manure enriches the soil with humus, which can be proved by the results of 70 years long trial reported by the same author (cited in Korschens, 1978) (Table 4). The soil that is regularly supplied with organic manure contains an adequate amount of humus that ensures the fertility. In humus rich soil the amount of nitrogen is significantly higher.

Table 4. The content of humus in differently manured arable land (0–20 cm) after a 70-year-long trial

Manure	Carbon (C), %		Nitrogen (N), %	
	no NPK	with NPK	no NPK	with NPK
No stable manure	1.58	1.86	0.133	0.155
200 dt stable manure every 2 years	1.96	2.14	0.153	0.187
300 dt stable manure every 3 years	2.05	2.22	0.172	0.192

Some years ago the level of humus in fields that were used for maize silage production for more than ten years was studied. Despite enormous use of cattle slurry the amount of humus decreased significantly. The rest of maize roots and low amounts of organic mass from slurry did not substitute the yearly losses of humus (Toplak *et al*., 2005). Monocultural production of maize for silage worsened the fertility of soil, therefore it cannot be accepted. Also the appearance of corn rootworm (Diabrotica virgifera virgifera LeConte) contributes to the damages caused by monocultural production of maize, which could be prevented by rotation of crops. The above mentioned trial by Toplak *et al*. (2005) showed that in the studied period the amount of phosphorus increased significantly. Too high amounts of phosphorus in soil can cause too high amounts of phosphorus in fodder following by metabolic and reproduction disorders. All findings prove that cattle production is connected with preservation and improvement of agricultural land fertility. Adequate supply of soil with plant nutrients and humus ensures the quality of fodder, which on the other hand contributes to healthy and productive animals and their longevity. Those connections should be kept in minds of dairy cow breeders because the economy of milk production depends on longevity of cows and their life production. In developed countries clever farmers are well aware of those facts. In Great Britain, farmers oriented to vegetal production who are aware of importance of organic manure make a deal with farmers oriented to cattle production. They sell them their products and buy organic manure from them (Osterc, unpublished data). So the fertility of agricultural lands is preserved and cows are supplied by quality fodder. Also farmers from Prekmurje reported from their own experiences on very favourable effects of cattle manure on structure and soil fertility. Thus producers of fattening bulls often decide to keep animals on deep bedding (Osterc, unpublished data) to get good cattle manure. All the mentioned findings prove that cattle production, especially diary cows, should not be planned separately from fodder production and with respect to the preservation of fertile soil. Agricultural land can be preserved only with harmonised planning of fodder and animal production, primarily cattle production.

ENVIRONMENTAL IMPACT

Long-term economics is based on environmental acceptability (Haiger, 2006). Certainly big farms with a lot of cattle (cows and fattening bulls) for whom long distance delivery of fodder is necessary and with no surfaces for manure deposition on which fodder is produced are not

acceptable. Such farms have great environmental problems with slurry. In the case they succeed to solve slurry problems with biogas and purifying plants they do not solve logistic problems concerning fodder and other material. Any transport means environmental impact with CO_2. In Austria they calculated that 10% more foods bought on local farms on the count of imported ones increased the domestic gross product by 1.5 milliards EUR and provided 17 000 jobs. The purchase of products from local farms contributes to better environment and climate as well as to economy (Weinberger, 2005). In the January issue of journal Ökoenergie the president of Austrian and European Eco-social Forum and ex-commissioner for agriculture in EU Dr. Franz Fischler wrote that we should think about using home produced foods as an investment into more sustainable future. In the same journal he and Dr. Helga Kromp-Kolb, professor at Agricultural University in Vienna, and Mr. Garhard Wlodkowski, the president of Agricultural and Forestry Chamber of Austria, stated that the purchase of home produced foods with short distance deliveries provided 450 000 jobs to Austrians and protected climate as well.

Cattle production has encountered sharp critics due to greenhouse gas emissions that affect the climate significantly. Dairy cows and methane that is produced at fermentation in rumen are most frequently mentioned in connection to environmental impacts. The amount of extracted methane per litre of milk is higher if yield is lower. Thus production of high yield dairy cows seems to be a solution. We need fewer cows to achieve the necessary level of production and thus less greenhouse gases are produced. High yield dairy cows get more concentrates in a ration, digestion of which produces less greenhouse gases than the digestion of forage. But these cows do not have calves for beef production and suckler cows should be reared for calf production but they do produce greenhouse gases.

Kampschulte (2007) reported that Rosenberger and Rutmoser figured out that in Bavaria milk and beef production with specialized dairy breeds and suckler cows for rearing calves for fattening caused greenhouse gas emissions in the same amounts as if all needed milk and beef would have been produced by dual purpose Simmental breed that produced also good quality calves for fattening. Black and white Holstein-Friesian cows would produce 9 000 kg milk but their calves could not be fattened. They should also rear suckler cows and total number of cows as well as greenhouse gas emissions would be much higher (15.7% more methane, 32% more nitrogen and 31.7% more phosphorus). The quoted calculations point out at a dilemma whether in the areas with mid quality of forage as well as on areas where fields for grain production are scarce, the production of dual purpose breeds is more reasonable having in mind the complex approach required by sustainable agriculture.

ANIMAL WELLBEING

Animal wellbeing is one of the main demands of the EU. All living beings on Earth have their own tasks to fulfil within the balance preservation. It also concerns cattle that certainly are the most important ruminants that change most of organic mass obtained by photosynthesis into food for people. Cattle production can fulfil its tasks if cattle are produced in a friendly way. Animals would live long; they will produce a lot and give a suitable income. Good health, longevity and high life yield are the best indicators of animal wellbeing. Bad treatment, poor and inappropriate nutrition and inconvenient stables, etc. cause poor health, low production and short life. Healthy cows can live even 20 or more years and calve every year. On the other hand dairy cows in intensive production survive less than three years. The Canadians report that in the USA they do not have enough own heifers for reproduction and farm owners buy breeding heifers in Canada (Osterc, personal communication). In Germany they have already confronted the same situation. The latest data for Germany (Wangler, 2007; Postler, 2008) reported on 2.5 to 2.6 years for cows in intensive production. In such herds home produced heifers for reproduction are scarce. In the

previous Slovenian state exhibition of Black-and-White cows, one of the German experts assessed the cows and reported that on large farms that remained in the eastern part of Germany after the uniting, the production period of cows lasted less than two years and thus they did not have own heifers for reproduction. They have to buy missing heifers in the western part of Germany; therefore Germany does not export breeding heifers any more.

Shorter life span and worse production despite higher milk yield are also reported for Holstein-Friesian breed in Baden-Würtenberg (Wittenberg, 2000, cit. by Barth *et al*., 2004)) (Table 5).

Table 5. Life span between 1994–1999 in Baden-Würtenberg

Year	Life yield			Average milk yield per year		
	Age years	Calving	Milk gain kg	Milk gain kg	Milk fat %	Milk fat kg
1994	6.0	3.6	18 960	5 277	4.17	240
1995	6.4	3.5	18 755	5 827	4.21	245
1996	5.8	3.5	18 270	5 886	4.23	249
1997	5.7	3.5	17 936	5 969	4.24	253
1998	5.5	3.2	17 648	6 155	4.24	261
1999	5.4	3.2	17 684	6 346	4.24	269

Production of dairy cows with short lives and low yields is not economic. Wangler (2007) reported that economic cows should survive at least 3.5 to 4 lactations and produce 30 000 kg milk.

Only few cows are eliminated due to low production. Most cows are removed because of diseases (metabolic disease, foot and udder problems) and reproduction disorders. The reasons for such conditions are unsuitable nutrition of high yield dairy cows. After calving those cows do not consume enough food to cover production needs. Negative energy balance is the result of low consumption of dry matter from fodder. Rossow (2003) reported that too low consumption of dry matter slowed down the restoration of ovaries which disturbed the reproduction. Dry matter consumption is affected by physical condition of a cow at calving and the quality of forage. Physical conditions can be managed by production conditions and nutrition while the quality of fodder depends on natural conditions and feed preservation technology (for winter periods). Rossow (2003) also states that when there is no high quality forage at disposition all year round, cows cannot consume basic feeds in the amount of 2% of body mass in the period of highest consumption (100 days after calving). In the case of shortage the breeders offer more concentrates to cows. Cows consume about 12 to 13 kg of concentrates a day, which is more than of 40% of dry matter. EU standards allow it even though it is contrary to sustainable ruminant production (Haiger, 2005). Such a ration is not suitable for cows. Due to shortage of structural fibres the excretion of saliva decreases folowwing by pH decrease in rumen from 6.5 to 5.5 or even lower (Rossow, 2003; Haiger, 2005). The decrease worsens living conditions for rumen microorganisms that decompose the cellulose and feed passes the digestive system very quickly while more unused nutrients enter the colon. The above conditions besides sour medium enable the development of bacteria *Escherihia coli*. Consequently cows excreted dangerous bacteria (Haiger, 2005). In the areas with a lot of maize silage in a ration, which is rich in energy, such conditions are regular. Breeders like energy rich fodder but they forget to diminish the share of concentrates by 10%, when they feed animals on maize silage. The above facts show that inappropriate feeding regime of high yield dairy cows, causes health problems as well as

reproduction disorders, short life span and low yields. High life yield is according to Rossow (2008) the most important condition for economic milk production. We cannot talk about animal wellbeing when cows are in bad health conditions. Ethological reasons should prevent harmful breeding, which means that a breeder should harmonize production ability of cow with fodder, that is, he has to choose the right cow for each quality of fodder. Where breeders do not succeed to regularize fodder and production, cows are often ill, they have reproduction disorders and are very young at the time of removal from herd, thus production is far from sustainable one. Slovenian breeders should be also aware of the mentioned facts.

QUALITY OF PRODUCTS

In developed countries as well as in Slovenia consumers have already been aware of quality food that can only be prepared from quality agricultural products. The freshness of products, which in fact means short time between picking and consuming, is very important. The quality depends also on treatment of products, temperature, transport, etc. Long transport requires protection, in most cases chemical measures are necessary, which on the other hand worsen the quality of products. Most products, especially vegetal one are best when fresh and when transport is not too long. Thus domestic production and self-supply are positive approaches. Domestic products that we consume fresh are produced in our own environment and contain microorganisms we are familiar with and, therefore, they hardly provoke diseases. On the other hand, foreign microorganism on imported food can easily provoke various diseases.

The quality of products depends on production system and kind of fodder animals are fed on. Haiger (2005, cited in Flachowski, 2003) gives a nice example. Due to higher energy concentration in rations maize silage replaces grass and grass silage that subsequently affects the health value of milk and beef. Rumen microorganism can produce fatty acids that are important for human and are deposited in milk and meat. Those are polyunsaturated fatty acids – linolic (omega 6) and linolenic (omega 3). The ratio of their amount is very important. Conjugated linolic acid is important too. The first two prevent hart diseases and arteriosclerosis (they diminish bad LDL cholesterol), while conjugated linolic acid has anti-cancerogenous function, prevents diabetes and strengthens the immune system. Studies show that certain vegetal oils are the source of good fatty acids. Thus the nutrition with these plants affects the fatty acid composition in animal products. Grazing and rations of hay and grass silage increase the content of fatty acids in milk and meat twice to fife times and the ratio of omega acids improves in comparison with products of animals that consume maize silage and concentrates. Grazing has a positive effect on flavour of meat. The mentioned example points to the influence of ration composition on the quality of products and on human nutrition. Consumers are well aware of the above facts and often criticize the production systems. Civil society frequently claims about these relations. Therefore cattle producers should consider above relations and plan the systems of production and cattle nutrition in view of consumer satisfaction.

CONCLUSIONS CONCERNING SLOVENIA

Since we are members of the EU some people as well as experts and liberal democrats, who believe in globalisation that augment their profits, think that self supply with agricultural products is not important. Food prices increase by 40% in one year (Nedeljski dnevnik, June 22, 2008). Slovenia has become a great importer of food. Hence self supply should be stimulated because food prices will certainly increase in future. It means we should think about increasing the production of some foods and especially the level of self supply. Environmental impact and claims for quality of produced foods would challenge the cattle production as well. In Slovenia

we should not think only about cattle, their demands and wellbeing but also about higher grain production since only half of needed grain is produced now. Demands on preservation of fertile agricultural lands, cultural landscape, country way of life in accordance with culture and nutrition, consumers' wishes, etc. are very important too. All above facts contribute to the sustainability of agriculture and to our identification and we should not lose them. Since cattle production is the most important agricultural branch in Slovenia the above conditions could be achieved only by sustainable cattle production.

Only one third of arable surfaces are used for fields in Slovenia. Grain is best used by human, thus it is not wise to include grain into rations for animals more than it is necessary from the point of view of balance. In Slovenia grassland prevails, therefore it is reasonable to produce cattle with middle degree of requirements. Such cows yield about 5 000 to 7 000 kg of milk and good calves for beef production when fed on forage with low addition of concentrates. Quality forage can be produced on our grasslands from which cows can yield about 5 000 kg of milk and only the rest from concentrates. The same practice should be introduced also in plains where forage can be produced by grass-clover mixtures and stubble sowings that should be sown because of rotation. Such cow production will contribute to limitation of monocultural production and introduction of rotation. Subsequently the necessary organic mass (feeding plants have a lot of roots) will be obtained with addition of organic manure, resulting in preservation of humus, health and fertility of soil. Such production is acceptable from ethologic point of view because it enables a complex production with no metabolic and other disorders and misery. Fattening bulls should have the same treatments. Such cattle production will contribute to quality of cattle products and to preservation of farm type of agriculture as well as to farm type country that has been developed over centuries due to specific way of farming. It is not strange that in Slovenia the share of Simmental breed exceeds 50% of all cattle. In sustainable cattle production, which is the most appropriate for Slovenia, the share of Simmental breed should be preserved or even increased. Certainly the process of increasing the share of black and white Holstein breed is reasonable from the economic point of view because it means specialization and thus industrialization of production, but factors that enable sustainable production are neglected. In the last few years milk production was more economic than beef production. Farm size encourages farmers to produce milk as it is work intensive and provides suitable income on small size farms. In future such orientation should be omitted. High yield Holstein-Friesian breed claims good fodder and is grown in plains where conditions for maize silage production are good. In plains more feeding plants are produced for cattle as needed due to rotation. For that reason fewer surfaces are sown with grain. Such an orientation is bad from the national economy point of view. The agricultural policy and experts should find such measures that direct farmers to sustainable cattle production.

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