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HISTORY OF CULTIVATION AND PROCESSING OF INDUSTRIAL HEMP IN SLAVONIA AND BARANJA

POVIJEST UZGOJA I PRERADE INDUSTRIJSKE KONOPLJE U SLAVONIJI I BARANJI

ABSTRACT

Industrial hemp is a very useful cash crop which is in the area of Slavonia, Baranja and Srijem bred for centuries, and was used in the diet of humans and domestic animals as well as raw materials in the artisan trades, and later in the industry. In the second half of the XX century products from hemp replaced by synthetic materials so that the production of hemp decreased and the 90s almost stopped. In recent years interest in industrial hemp and its processing increases significantly and is the world's growing at a substantial rate. According to a series of articles in recent literature of hemp processing produces thousands of products. This paper provides an overview of growing hemp and its' industrial processing in Slavonia and Baranja region in the XIX and XX century.

Keywords: Industrial hemp, Hemp processing, Agricultural production, Slavonia and Baranja

SAŽETAK

Industrijska konoplja je vrlo korisna ratarska kultura koja je na području Slavonije, Baranje i Srijma uzgajana stoljećima, a služila je u prehrani ljudi i domaćih životinja te kao sirovina u obrtničkim dje-latnostima i kasnije u industriji. U drugoj polovici XX. stoljeća proizvode od kudjelje zamjenjuju sin-tetički materijali tako da se proizvodnja konoplje smanjivala te je u 90-tim godinama gotovo i pre-stala. Posljednjih nekoliko godina interes za industrijsku konoplju i njenu preradu značajno raste te je u svijetu njen uzgoj u značajnom porastu. Prema nizu napisa u recentnoj literaturi od konoplje se danas proizvodi više tisuća proizvoda. U ovom radu se daje pregled uzgoja konoplje te prikaz in-dustrijske prerade konoplje na području Slavonije i Baranje u XIX i XX. stoljeću.

Ključne riječi: *Industrijska konoplja, Prerada konoplje, Ratarska proizvodnja, Slavonia i Baranja*

1. Introduction

Industrial hemp is a very useful cash crop which is in the area of Slavonia and Baranja bred for centuries, and was used in the diet of humans and domestic animals as well as raw materials at

home, artisan trades and, later, in the industry. Growing hemp does not require large financial investments and should not be treated with pesticides nor herbicides. As oil crop hemp is extremely useful in crop rotation and cleaning arable soil. The need for human work in this culture is large (about 150 hours per ha) compared to grains (about 30 hours); so at harvest time employ seasonal workers. Climatological and soil management conditions in the area of Slavonia, Baranja and Srijem are most suitable for the cultivation of hemp; other regions in Croatia not grown hemp - so that the development of production of hemp in the Slavonia region is also development of the cultivation of this crop in the country.

At the end of the eighteenth, the nineteenth and early twentieth century in Slavonia, Baranja and Srijem built from a dozen processing plants so-called „kudeljara“ - who used hemp from regional areas. In the second half of the XX. Century products from hemp significantly replaced by synthetic materials and cheaper raw materials (sisal, manila, etc.) So that the production of cannabis decreased and the 90s in our area stopped.

Although the tradition of growing and processing of hemp in Slavonia and Baranja region no more than significant papers about the past of this sector of the economy in the Republic of Croatia and Slavonia. Statistical sources - due to frequent changes in the state system and the administrative authorities - do not allow the creation of a consistent time series, and few scientific and professional papers and other sources only sporadically and marginally talk about production of hemp and its industrial processing.

At the beginning of XXI. century, interest on industrial hemp and its processing plant in the world is growing significantly and its growing at a substantial rate. According to a series of articles in recent literature of hemp is now produces more than thousands products.

The aim of this study is, therefore, the search of data and processing determination of the essential elements in the history of hemp cultivation through the mosaic from the existing literature.

2. Growing of industrial hemp in the Republic of Croatia

The first written evidence of the cultivation of hemp in the area of Slavonia and Baranja region dates back to the mid-sixteenth century; Book „List of Sandžak Požega 1579“ provides an overview of tax revenues among which states "one tenth of flax, hemp, garlic and onions, cabbage and beets". [23] It should also specify the sources of the cultivation of hemp in the estate of the 1868th year; the construction of the so-called. Albrechtovog embankment* (from village Zmajevac to village Kopačevo) opened a new possibility of using the land for agricultural production and - as in the neighboring province of Vojvodina - in the field of sputtering, and here it is, production of hemp.[4] According to data from the Statistical Yearbook of the Kingdom of Croatian and Slavonia [19] seeding surface hemp ranged from 13,500 to over 16,000 acres (approximately 0.55% of the total area under arable crops); Fig. 1.

In the period between the two world wars (1918th to 1941st) areas under hemp have increased; The Kingdom of Yugoslavia was the third producer and exporter hemp in the world (after the USSR and Italy), and Slavonia was the second region in the country for producing hemp (behind Vojvodina). In 1933, the Sava Banovina under hemp was 6124 ha (20% of the area in the Kingdom of Yugoslavia) Production of hemp fibers increased from 4475 tonnes of 1921/23. to 9175 tonnes in 1935/39. year.[19] Also - surface and the nature of growth in the period after II World War; Fig. 2.

* Albrecht Friedrich Herzog von Teschen (1847.- 1895.)

Figure1 Sown areas hemp in the Kingdom of Croatia and Slavonia in the period from 1890th to 1905th year - acres [19]

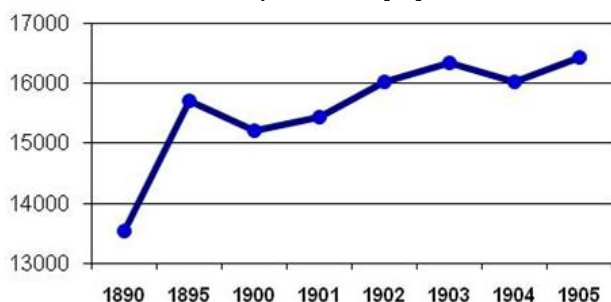
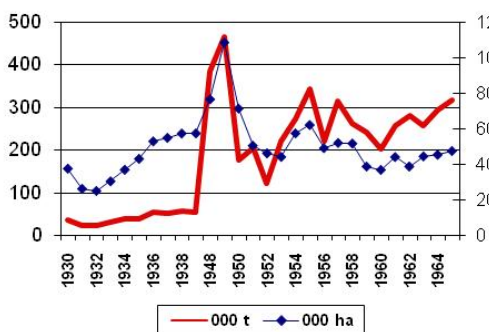


Figure 2 Sown areas and yields hemp in Yugoslavia in 1930-1964; ha [21]



As already mentioned - in the second half of the XX. Century hemp fibers replace synthetic materials and cheaper raw materials (sisal and manila) and the cultivation hemp decreases and early 90s in the area of Croatia stops: Fig. 3 – 4.

Figure 3 Sown areas and yields hemp in Croatia 1961-1992 year; ha = left, t = right side of graph [20]]

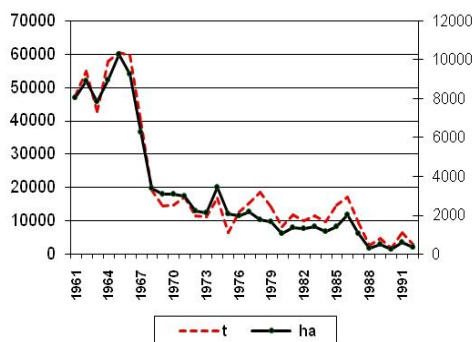


Figure 4 Area sown hemp in Croatia 1961st-1992nd - state and private sector – ha; [20]
Average yield hemp in Croatia were increasing from 6 t/ha in 1961 to over 10 t/ha in 1989; Fig. 5.

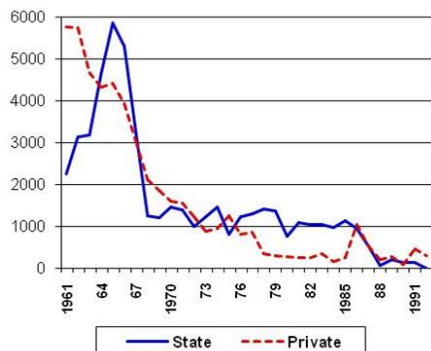


Figure 5 Average yield hemp in Croatia in period 1961 -1992 - t/ha [20]

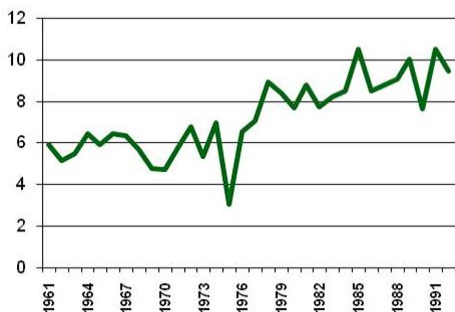
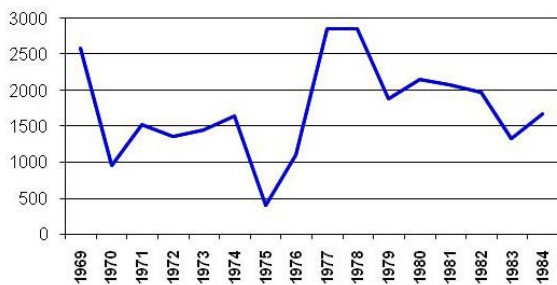


Figure 6 Purchase hemp IPK Osijek cooperation from private producers in the area of Slavonia and Baranja in the period 1969th-1984th - t [9]



3. Processing of hemp in the Republic of Croatia

The first weaving flax and hemp in the area of today's Croatia was founded by Count Batthyay in Ozalj 1720 - which worked until the end of the century. The first manufactories ropes of hemp was established in 1763 in the city of Rijeka to the utilization of hemp from Croatia and Slavonia. Later is established a large manufactories ropes by nobleman Adamovich in Cepin (Osijek) - which has exported its products to Western Europe all the way to Amsterdam [2]

According to reports of Chamber of trade and Crafts in Osijek from different years [2] [10] collected these data of hemp processing capacity in the area of the Pozega and Virovitica County:

1881 - 1 hemp plant (Osijek) and one factory of ropes goods (Osijek)

1888 - 2 hemp plants

1913 - 10 textile factories including plant for processing flax and hemp
in Osijeku (1901) and Vukovar (1905)

1925 - 5 plant for processing flax and hemp

Zdenka Šimončić-Bobetko study [14] states that the Banovina of Croatia in 1938 was 13 hemp plant with 575 employees and a capital of 29.5 million. dinars and gives the following data (tab. 1) about the beginnings of the industrial processing hemp in Croatia:

Table 1 Enterprises for the production of hemp fibers on the Croatian territory

Company	Headquarters	Year of establishment	Number of Workers	Drive power (HP)	annual production (in wagons)
Vukovar hemp Inc..	Vukovar	1905	191	350	80 - 120
Slavonia hemp Inc.	Vladislavci	1903	150	105	40
Hemp and flax ind. Inc.	Vladislavci	1903	87	135	30 - 40
Hemp K. Pfeiffer	Tenjski Antunovac	1910	106	50	15 - 20
Hemp Ovčara,	Čepin	1913	70	60	15 - 20
Hemp G. Reisner	(Vrbik) Osijek	1918	39	12	-
Hemp Agro society	Viškovci	-	93	40	-
Total			736	752	180 - 200

Source: *AJ Fond MTI* 65, 1934, box 569, 571; 1937, box 568, 571, 1938, box 471. *Lakatos industrija Hrvatske i Slavonije*, Zagreb 1924, pp 313–314; *Privredni almanah Jugoslovenskog Lloyd*, Zagreb 1929, pp 54; M. Kolar-Dimitrijević, *Položaj tekstilnih radnika Slavonije poslije velike svjetske krize*, Zbornik 10, *Historijskog Instituta Slavonije*, Slavonski Brod 1973, pp 82, 85–87.

Petar Anic in the book [4] regarding hemp brief states: "The primary processing dealt with the" First Slavonia mechanical weaving cloth" Ivan Friedler, founded in 1901, and at this factory in Vladislavci. Both plants are processed flax and hemp. Apart from these two weaving in Osijek was founded weaving in 1921 by Alfred Kuch. Post in Osijek there were a number of smaller hemp-spinning mill. These are largely due to poor interest of producers for the cultivation hemp after World War II liquidated or working with smaller capacity.

In the monograph "Three centuries of Belje" Janos Foldvari indicates that in 1983 the farm Belje in the area of Brestovac in the Baranja 400 acres of arable land was under hemp "which is processed in Brestovac hemp plant". [4] Zdenka Šimončić-Bobetko points out: "Slavonian hemp-spinning mill, between the two world wars, had worked for a few months during the year, at the time of processing of hemp, but had no permanent workers." [14] Ivo Wine [14] states that in the period 1920 - 1940.

In new fixed investments processing-manufacturing industry for flax and hemp in Croatia invested 50 million dinars (in 1938 prices), which made up 27% from total investment in textile industry.

In several sources stated that the "Paper Mill Rijeka" in 1962 founded hemp plants in Vukovar, Odzaci, Otok and Koška, ensuring a regular supply of raw material so".[3] In the Monograph "Slavonia 64" states the fact that the IPK Našice produced 200 wagons of hemp fibers as cooperation with the „Paper mill Rijeka. [7] In the monograph "Slavonia 1964" in the list of companies referred to Kudeljara by municipality: B.Manastir (Darda), Donji Miholjac (Črnkovci), Đakovo (Viškovci and Tomašanci) and Osijek (Kudeljara Seles). But in the same book - review by type of production is mentioned and Kudeljara Vladislavci. [7] In the monograph "Slavonia 1965" points out that the production of Slavonian Kudeljara significant contributory force-export industry in the region, particularly exported hemp and tow. [8] Community sports fishing associations Đakovo (founded 1977) on its official website under the heading "Fishing waters" - as one of the places for fishing - describes pond former Kudeljara "Kešinci". [22]

3.1. Industrial processing of hemp in Croatia

Unlike hemp production (crop farming activity) as well as the production of hemp fibers (industry) that took place only in the region of Slavonia - further industrial processing of hemp in Croatia took place in the spinning and weaving and garment manufacturing plants in several factories in the area all Croatian. Figures 7 - 10 shows the industrial production of goods from hemp on Croatian territory.

Figure 7 Production of hemp fibers and yarns * (* mixed with sisal and manila) in Yugoslavia from 1980 to 1987 - t [5]

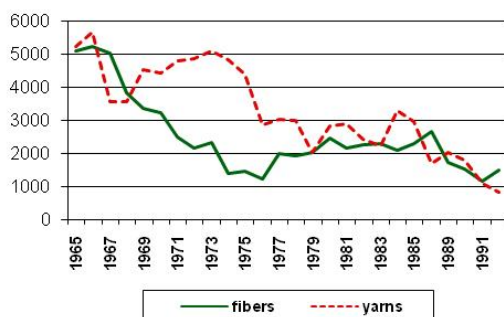


Figure 8 Production of hemp and semihemp* textile (*+sisal and manila) in Croatia 1980 -1987 /000 m² [5]

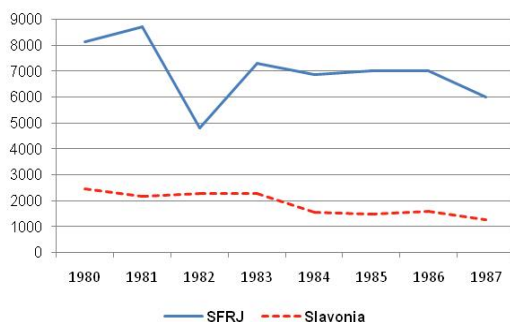


Figure 9 Production of hemp fibers and yarns * (*+ sisal and manila) in Croatia 1965 -1992 / t [5]

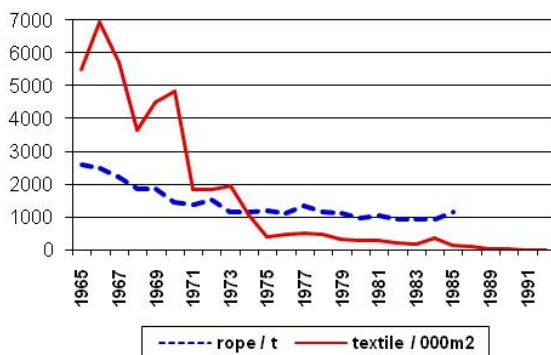
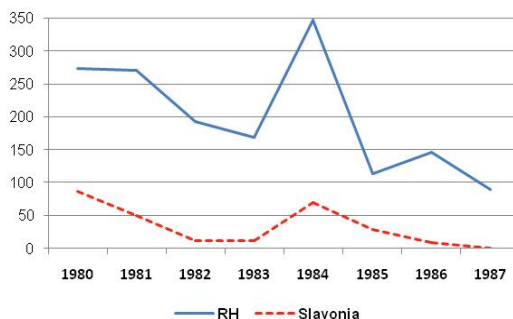


Figure 10 Production of rope and semihemp textile * (*+sisal and manilla) in Croatia 1965 -1992 / t; 000 m² [5]



As can be seen from the graph 7-10, the industrial production of goods from hemp (hemp fiber and yarn, hemp and semi hemp textile and rope products) on the Croatian territory in constant decline since the mid-60s of XX century - how this happened and on the world market. The reasons have already been mentioned: the increasing presence of synthetic fibers and natural plant overseas raw material (sisal and manila) in the textile and rope products.

3.2. Return of cultivation of hemp in Croatia

At the beginning of XXI century, interest on industrial hemp and its processing plant in the world is growing significantly and its growing at a substantial rate. Multi-decadal practice has shown that the ropes of hemp in shipping better and longer in use of synthetic ropes sisal or manila hemp raw materials and re-used for this purpose. It should be noted that according to recent scientific literature - today hemp processing produces thousands of different products in the textile, chemical, food and car industry and building material industry.

At the beginning of the second decade of the XXI centuries, and the renewed interest in the cultivation of hemp, the truth just because hemp oil and use in healthy eating. Repeated cultivation of industrial hemp in Croatia legalized at the beginning of 2012 in a manner that is permitted sowing varieties of hemp with the EU variety list. The condition for breeding is getting permits to grow hemp from the Ministry of Agriculture (the Rules), and prerequisites are: registered farm, the

land in the clean-owned or leased at least 1 ha, registered in ARKOD and impunity for the crime of abuse of narcotic drugs

Thus, according to reports in the press (official statistics it is not recorded) in 2012 began to grow hemp on ten acres; first breeder of industrial hemp in Croatia originated from the Vukovar area, particularly a company Cannabio Ltd. from Sotin. According to the Ministry of Agriculture in the Republic of Croatia in 2013 was planted 176 ha hemp, and 2014 658 ha.

4. Conclusion

Industrial hemp is - a very useful cash crop - cultivated for centuries in the area of Slavonia, Baranja and Srijem. Hemp has been used for human consumption and domestic animals, and as a raw material at home, artisan trades and, later, as a raw material in industry. Written sources dating back to the cultivation of hemp in the area of Slavonia, Baranja and Srijem from the middle of the XIX century. Climatological and soil management conditions in the area of Slavonia, Baranja and Srijem are most suitable for the cultivation of hemp; other regions in Croatia are not grown hemp - so that the development of production of hemp in the area of Slavonia region is also the development of the use of this culture across the country.

Growing hemp in Slavonia area statistically monitored since 1890; seeding the surface of hemp by the early XX century ranged from 7.425 ha to over 8,800 hectares (approximately 0.55% of the total for the full land under agricultural crops). Between the two world wars in the Sava Banovina (Croatia) hemp was seeding about 6,000 ha. After II. World War hemp production is increasing and reaches an area of about 10,000 ha (maximum 1967). From that year on the surface hemp is constantly decreasing and the production is abandoned in the early 90-ies of XX century.

In hemp industrial in the region of Slavonia and Baranja first capacity to build the mid-nineteenth century and the first half of the XX century built a dozen hemp processing plants - the so-called. „kudeljara“ - who used hemp to regional areas.

Although the long tradition of hemp growing and processing hemp in the Slavonia region more than significant no complete works about the past of this sector of the economy in the Republic of Croatia, and Slavonia and Baranja; production and processing of hemp is occasionally mentioned, and several papers by local authors in the past 50 years.

This research was started pieces of the mosaic from the existing literature, followed by searches for documents from public and private archives.

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