

An Analysis of Land-Use in Okayama Prefecture in terms of Industrial Crops

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There are many limitations and difficulties in terms of expanding agricultural lands. Also, some other factors affect the agricultural lands that result in decreases such as climate change, erosion and misuse of the lands. It is clear that these developments in agricultural land use threaten the future of human welfare, social conditions, economic growth and food supply. In this study, we examined the land use and its significance that represent past agriculture and regional characteristics in the Chugoku region including Okayama prefecture and the Seto Inland Sea. Specifically, among the products called as industrial crops, such as cotton, pyrethrum, rush, tobacco, rapeseed, mulberry and tea, were adopted as the indicators. Currently, these landscapes can hardly be seen, only leaves of tobacco and tea can still be seen in mountainous areas. Even in agricultural land use which has almost disappeared now, it may have indirect influence as in the case of reclaimed land and rush products. Therefore, we reaffirmed in this study the reasons for their existence and their significance.

Keywords: industrial crop, cultivated area, rural geography, agriculture, Okayama prefecture

1 INTRODUCTION

Agriculture is a strategic sector for countries as well as human being in the aspects of basic food supply, raw materials for the industry, and employment. Agricultural activities are usually summarized as production of crops, planting and cultivation. Broadly, agriculture is a multidimensional sector that includes the forestry, livestock, and fishery activities with their transportation and trade.

At the same time, agriculture sector has some important functions to provide and fulfil such as nutritional requirements of people, sustainable development, raw materials, internal and external employment and a better environment.

In agricultural and rural geography, we deal with agriculture and fishing village areas characterized by several items such as agricultural crops, agricultural workers, cultivated land, agricultural technology and machinery. We consider comprehensively the target area while paying atten-

tion not only to the temporal change of the indicator but also the spatial difference.

In this research, we restrict the area of Okayama prefecture and deal with crops other than cereals, vegetables, fruit trees and livestock. Generally, it seems that there are not necessarily many studies focusing on crops other than crops called main agricultural products, but such research also has reasonable significance with specific examples of the above crops including craft or industrial crops.

2 INDUSTRIAL CROPS

2.1 Overview

Generally, agricultural crops can be divided into edible crop, craft crop and feed crop; however, this is not a division by plant species, but a classification according to its usage. In this paper, we deal mainly with land use and rural landscape by handicraft crops still cultivated and/or cultivated in the past in Okayama prefecture. In major craft crops, there are the ones like the following, fiber crop such as cotton, rush and mulberry, oil crops such as rapeseed, olive and sunflower, sugar crops such as sugar cane and beet, starch crops such as potatoes and corn, taste crops such as coffee, tea, tobacco and

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hop, crops for spices such as ginger, horseradish and pepper, crops for dyes such as indigo and safflower, and medicinal crops such as ginseng, pyrethrum and poppy, and the like.

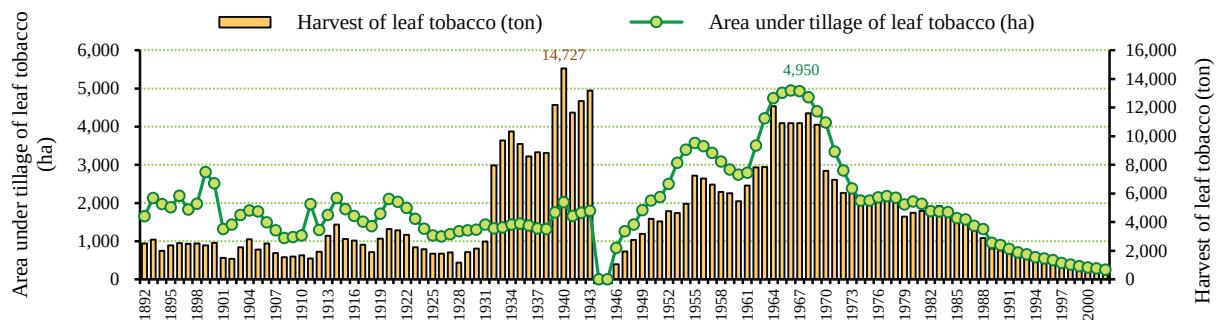
2.2 Leaf tobacco

Tobacco (*Nicotiana tabacum*) is a plant native to the eggplant family in the tropics. Tobacco leaves contain nicotine with strong addiction. Due to the time demands that require health consciousness, the selling price of tobacco has become expensive, its demand and consumption are decreasing.

Tanaka (1984) studied the cultivation of Virginia tobacco in the three districts of coastal dunes in Tottori prefecture. Tobacco is sowed around February 20, and

transplanted in early April. Sprinklers irrigation spread to sand dune fields after the 1950s, mulberry field decreased and the cultivated area of tobacco increased. Tobacco has disaster compensation by Japan Monopoly Corporation, and seeds are distributed free of charge. Leaf tobacco cultivation is labor-intensive and its management is stable. Capital investment is small and agricultural income is relatively high.

According to Yoshida (2011), in Amakusa city, wheat and mulberry gradually changed to tobacco with high profitability in the 1960s and its area expanded until the latter half of the 1970s. After that, production adjustment policy decreased the cultivation of tobacco.



Source; Okayama pref.: "Annual report of Okayama prefecture statistics" in each year

Fig.1 Cultivated area and harvest of leaf tobacco in Okayama prefecture (See **Table 4**)

Although the cultivated area of leaf tobacco did not change significantly before the World War II, it remarkably increased until the 1960s in the second half of the 20th century and increased to about twice the previous growing area. It reached a peak value of 4,950 ha in 1966. However, it turned to a sharp decline after that, the trend continued until the 21st century, it became much lower than the level of cultivation area before the World War II, and the leaf tobacco area of 2002 was only 255 ha. The increase and decrease in the yield of leaf tobacco correspond roughly to the change tendency of its cultivated area, but it is unusual that the yield of tobacco sharply increased from the 1930s to 1943 (**Fig. 1**). The crop yield in 1940 was 14,727 tons, and even in the 1960s it retained more than 10,000 tons of harvest.

Figs. 2 and 3 depict the planted area of leaf tobacco in

Okayama prefecture. **Fig.2** shows the distribution in 1940, which recorded 2,022 ha in Okayama prefecture. Leaf tobacco was cultivated anywhere in Okayama pref.;

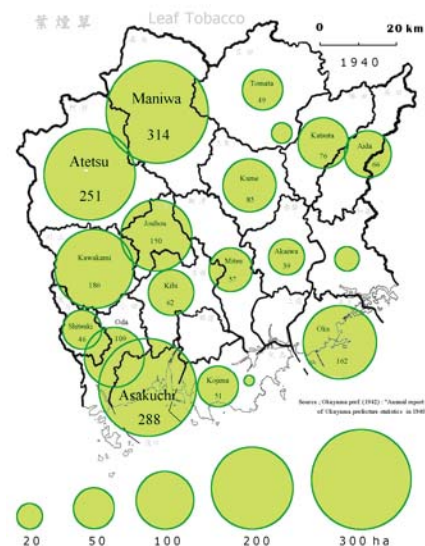


Fig.2 Cultivated area of leaf tobacco in Okayama prefecture in 1940 (See **Table 5**)

however, the area of leaf tobacco was generally large in the west, not in the eastern part. In particular, cultivation

areas of Maniwa county (314 ha), Asakuchi county (288 ha) and Atetsu county (251 ha) were wide.

Fig.3 depicts the cultivated area of leaf tobacco by city and county in 1963. The area of leaf tobacco was 4,218 ha in Okayama pref., and it was cultivated in an area conforming to the peak period. The distribution pattern of harvested amount had not greatly changed since 1940. The areas where leaf tobacco was particularly widely cultivated were Joubou county (416 ha), Oda county (345 ha), Takahashi city (283 ha), Kawakami county (268 ha), Ibara city (261 ha) and Kasaoka city (200 ha), and so on.

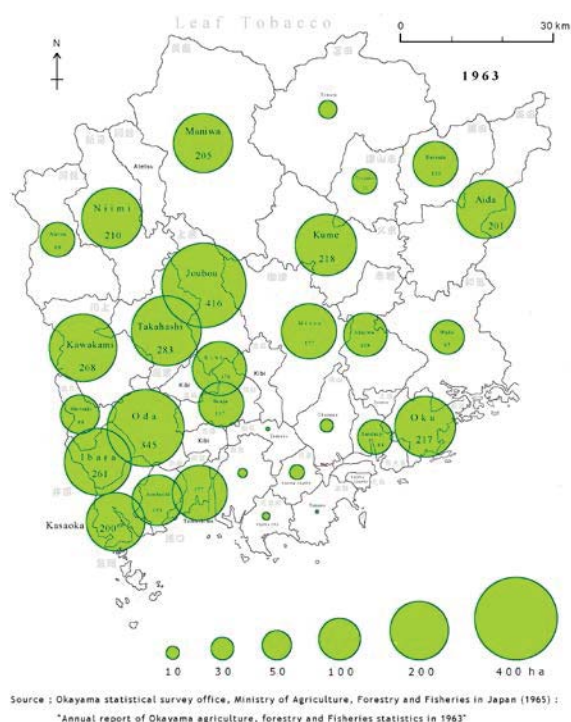


Fig.3 Cultivated area of leaf tobacco in Okayama prefecture in 1963 (See **Table 6**)

2.3 Cotton

Cotton is the fiber derived from cotton seed. Cotton is a generic term for cotton perennials of mallow (*Malvaceae*), and cotton adheres around the seeds. Cotton is hard to stretch as a fiber and it is strong and hygroscopic and has good touch. For this reason, in modern times it is often used for underwear and the like, but also has drawbacks of being easy to shrink and the main component is cellulose.

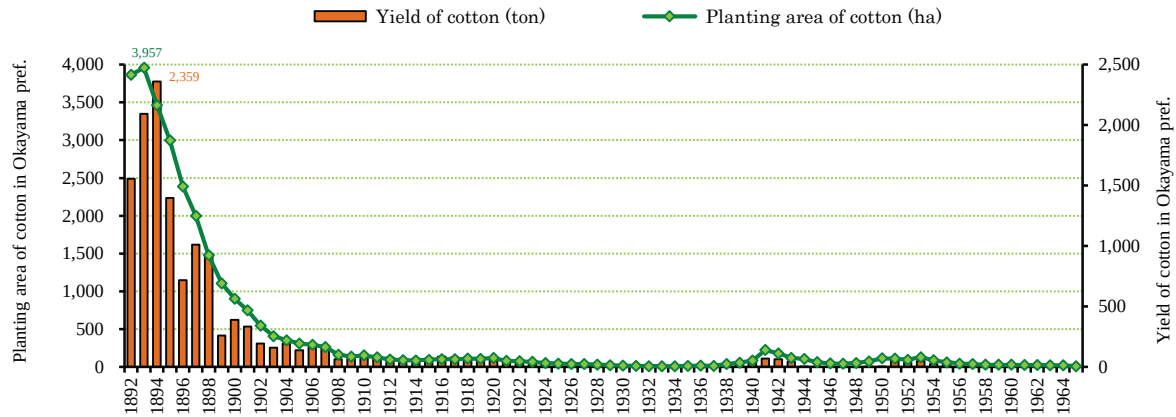
Negita (1940) stated that cotton was better at salty tolerance than rice, so it was suitable for cultivation in a reclaimed land. Okayama, Hiroshima and Kagawa prefectures had been known as cotton production areas from the 17th century to the 19th century and the

spinning and woven fabric industry developed there. However, because cotton had been imported from India and China since the 20th century, cotton cultivation in Japan declined rapidly.

According to Ota (1959), the spread of cotton cultivation to rural villages began around 1560; Osaka pref., the southern part of Hyogo pref. and the southwestern part of Okayama pref. were the main producing regions at that time. After 1639, new settlements were pioneered one after another in the delta area downstream of the Takahashi River and Tamashima Port was built. Salt-resistant cotton was grown in areas near the coast. At Tamashima Port, unpurified cotton, cotton, cotton with seeds were important items along with rice, tea and firewood. In 1790, cotton cultivation was popular in Asakuchi county, but cotton cultivation dramatically decreased in the western part of the county in 1895. However, the former cultivation area was almost maintained in the villages of the eastern part of Asakuchi county. Cotton grown and processed in the vicinity of Kurashiki, Souja, Yakage, Ibara and Kamogata had been transported via Tamashima Port.

Ukita (1955-1956) argued that cotton accounted for 3.4% of the agricultural product price in Japan in 1877, which was important as a product crop. For items other than cotton, cocoons (4.1%), rapeseed (3.5%), tea (1.4%), indigo (1.2%), leaf tobacco (0.6%) and flax (0.6%), etc. were mentioned. In addition, he mapped the detailed distribution of cotton cultivation in Japan in 1877. In Okayama pref., especially Asakuchi County, downstream of the Takahashi River was noted as a cotton cultivation area and Tamashima was crowded as cotton shipping port for Kyushu.

Although cotton is hardly cultivated, it had been cultivated considerably in coastal areas in Japan in the past. That is because there was considerable demand for cotton and because cotton had certain salt tolerance. **Fig. 4** presents cotton planting area and harvest volume in Okayama prefecture. In 1893 cotton was grown in 3,957 ha and 2,359 tons of cotton was harvested in 1894. However, the appearance of cotton work of the 19th century began to disappear rapidly in the 20th century. Until the middle of the 20th century, production statistics on cotton had been reported. However, it has not been published since 1966. **Fig. 5** shows the area of cotton cultivation in Okayama pref. in 1897 by county. A part of the remnant of the Edo period was reflected, and the cultivation area in Asakuchi county and Kuboya county was remarkable. Although cotton cultivation in inland



Source ; Okayama prefecture : "Annual report of Okayama prefecture statistics" (in Japanese) in each year

Fig.4 Planting area and yield of cotton in Okayama prefecture (See Table 7)

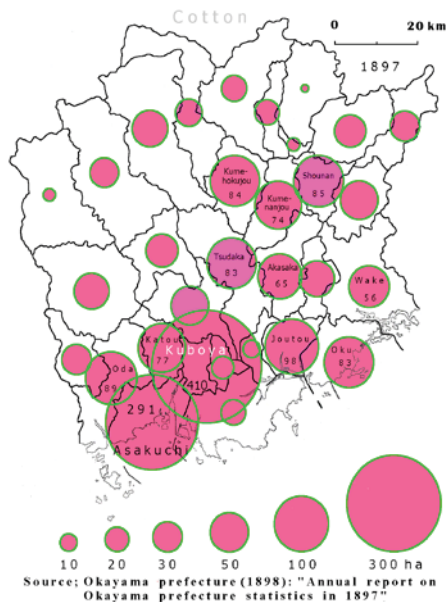


Fig.5 Planting area of cotton in Okayama prefecture in 1897 (See Table 8)

areas was not necessarily wide, the facts cultivated in almost all areas of Okayama pref. were surely left. However, the prosperity of cotton cultivation in the past is not in Okayama pref. as it is in other areas in Japan.

2.4 Rapeseed

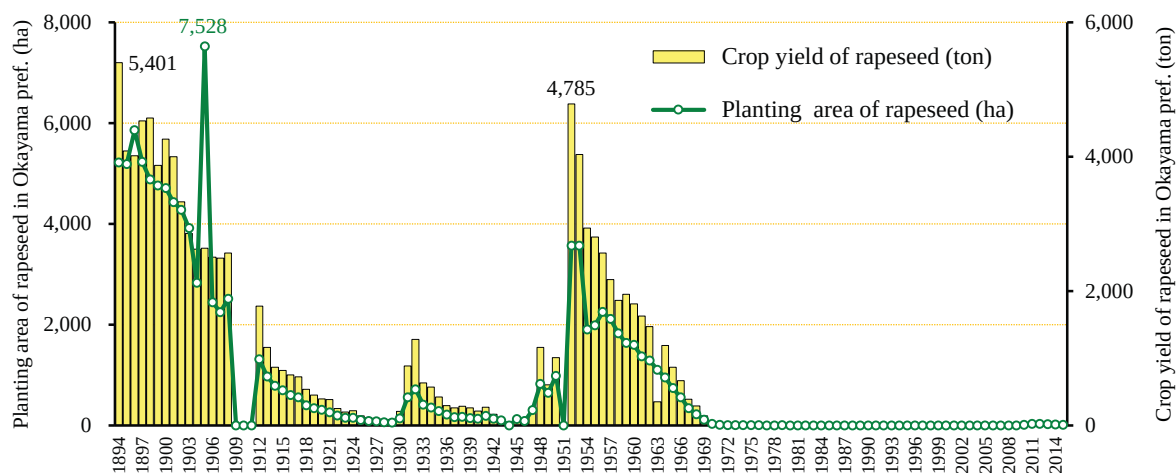
The acreage area of rapeseed, i. e., field mustard in Okayama pref. was 21 ha in 2000 and was cultivated in paddy fields. In 2006, Nanashikibu, a cultivar of rapeseed, was planted at 14.9 ha, its harvest area was 4.6 ha, the harvest was 8.3 tons and the main producing regions were Okayama City and Tsuyama City. In addition, another variety of rapeseed, Kizaki-no-natane, was cultivated in 1.8 ha, and the main producing place

was Tsuyama City.

Shimose and Kurosaka (1985) determined that the salt tolerance of rapeseed was weaker than that of okra or gumbo and Chinese cabbage, as a result of experiments with a low concentration of NaCl, or Na₂SO₄. While referring to the rapeseed oil project in Germany, the rape flower project has been propagated from Shiga pref., and the movement to cultivate rapeseeds in uncultivated areas and unused farmlands is gradually or slowly expanding throughout Japan.

Fig.6 shows the area and yield of rape flower in Okayama prefecture. There were two big peaks in the production of rapeseed from the late 19th century to the beginning of the 20th century and in the 1950s. In addition, there were small peaks in the 1910s and 1930s, respectively. The cultivation area of the 19th century was maintained at about 5,000 ha, and the harvest amount was held at 4,000 tons. However, rapeseed cultivation sharply declined in the early 20th century. In 1952, the area recorded 3,570 ha and the harvest volume was 4,785 tons, forming a peak, however, after that it continued to decline in the 1960s. Even though the area and yield of rapeseed has become very small since the 1970s, agricultural statistics have been reported annually.

Fig.7 depicts the cultivation area of rapeseed in Okayama pref. by municipality in 1955. Since rapeseed cultivation had revived, rapeseed was cultivated throughout Okayama prefecture. Tsuyama City (118 ha), Takahashi City (92 ha), Niimi City (84 ha), Kurashiki City (75 ha) and Souja City (74 ha) were particularly prominent. In addition, cultivated area in Kayou (55 ha), Hokubou (55 ha), Kamogawa (50 ha), Mimasaka (50 ha), Nagi (49 ha) and Kagamino (41 ha) and others were also



Source; Okayama pref. : "Annual report of Okayama prefecture statistics" (in Japanese) in each year

Fig.6 Planting area and yield of rapeseed in Okayama prefecture (See **Table 9**)

quite wide.

In the rapeseed field, a light yellow flower covers the field and it is made a tribute to tell the coming of spring and it has become a subject of songs and literary works. The cultivation area and yield of rape flower in Okayama prefecture are very few at the prefecture level, but they have significance as landscape crops as well as lotus flowers, sunflowers and so on. Even small rape flower fields have the charm of attracting nearby tourists. For example, the German forest (Okayama agricultural park in Akaiwa City), the ranch house (Makiba-no-Yakata) at Misaki-cho and the vast reclaimed land (**Fig.8**) in Kasaoka City are crowded with people at the time of flowering.

2.5 Pyrethrum

Pyrethrum is an aromatic plant of the daisy family, typically having feathery foliage and brightly colored flowers. It is a perennial grass of the Asteraceae, its height is about 60 cm and white flowers (yellow in the middle) bloom in the summer. Origin is the Dalmatian region of the Balkan Peninsula near the European Mediterranean, and grows in wasteland, so it was once grown in Setouchi area and Hokkaido in Japan. According to *Kincho* brand of *Dai Nippon* Pyrethrum (Osaka city), the founder acquired seed of American pyrethrum, and developed mosquito coil in 1890. A lot of pyrethrin (insecticidal component) is contained in the ovary of flowers. It was dried and processed into a powder form, which was used as a raw material for mosquito coils and insecticides for agriculture. Since the second half of the 20th century chemical substances

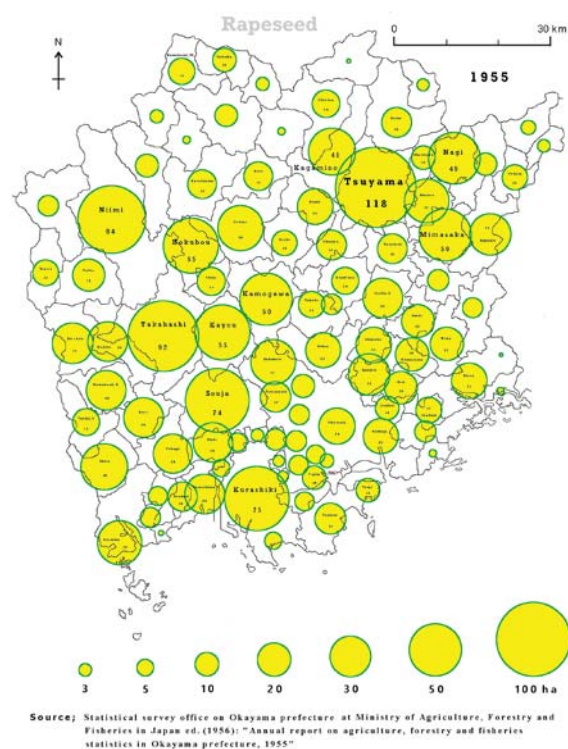


Fig.7 Cultivation area of rapeseed in Okayama prefecture by municipality in 1955

(See **Table 10**)

became the mainstream of insecticidal ingredients, pyrethrum was no longer cultivated for industrial use.

According to Kikuti (1940), with the encouragement of insecticide manufacturers, pyrethrum production in the southern part of Japan developed from around 1907 in Wakayama, Okayama and Hiroshima prefectures. The area of pyrethrum increased to 117.6 ha



Fig.8 Rape blossoms and carp streamers photographed at the Kasaoka Bay reclaimed land in early April 2017

in Okayama pref. in 1917, and the area of pyrethrum increased in counties of Asakuchi, Oda, Shitsuki and Oku where the production of rapeseed and cotton decreased. Pyrethrum was settled in autumn, which was the harvest of rice and it was harvested in the spring before the harvest season of wheat and barley. Therefore, pyrethrum was planted next to rice, wheat and barley.

According to Negita (1990), pyrethrum was imported around 1880 and the cultivated area reached 29,000 ha in Japan in 1936. According to another material, pyrethrum was transferred from the United States in 1886, and began to be grown in Wakayama, Tokyo and Kumamoto prefectures, and so on. A stick mosquito coil was made in 1890, and a spiral mosquito coil was made in 1895 (**Fig. 9**). After the war, improved varieties were cultivated in Kenya and Uganda, synthetic pyrethrin appeared, and cultivation of pyrethrum had become impossible as a business. Practical application of synthetic pyrethroid began around 1955. Currently, pyrethrum is cultivated very slightly for sightseeing in Mukai-shima in Onomichi city (**Fig. 10**). In early May of the year, a pyrethrum festival is held at the flower center located at In-no-shima in Onomichi City, Hiroshima prefecture.

The landscape of the region facing the Seto Inland Sea about a century ago; the flowers of white pyrethrum which wrapped the islands of Setouchi in the early summer were a big special product in Hiroshima pref. in the first half of the 20th century as well as Okayama pref. Pyrethrum was prized as a source of mosquito coil and



Fig.9 Mosquito coil



Fig.10 Pyrethrum (May 8, 2017) at the slope behind Shigei-nishi port at In-no-shima, Onomichi City

Source; free photo material, Onomichiya

insecticide.

Pyrogenic chrysanthemum was brought to Japan for the first time around 1885-1886 and was cultivated in the Hidaka-gawa catchment of Wakayama prefecture. It was first introduced to Mukai-shima Nishi-mura, the former Mitsugi county (at present, Onomichi City) in Hiroshima pref. around 1889. It began to spread generally around 1897, came to be cultivated in 1908 in Shigei village, the former Toyota county (at present, Onomichi City) and the former Koune-shima village (now, Onomichi City), etc.

Growing of pyrethrums in the *Meiji* period was negligible, but in the *Taisho* era it expanded all over the islands and coastal areas of the Seto Inland Sea. The cultivation of pyrethrum in Hiroshima and Okayama prefectures became momentum to surpass Wakayama pref. which was a developed area. In 1920, the highest yield of pyrethrum was Hokkaido, 690 tons for Hiroshima pref., 475 tons for Okayama pref. and 174 tons for Wakayama prefecture.

At the end of this section, let's explain the pyrethrum growing in Okayama pref. using statistical values. **Fig.11** depicts the cultivation area and yield of pyrethrum in Okayama prefecture. The rise of cultivation was clearly the first half of the 20th century. Both area and harvest volume increased sharply in the 1910s. The first peak was 1917, the area was 1,407 ha and the harvest volume was 1,031 tons. The period from 1919 to 1933 was the period of decline / retention. After that, although carefully looked at two peaks in 1935 and 1941, the area never exceeded the first peak. The highest harvest was 1,067 tons in 1941. After the World War II, it was lower than previous production level, and statistical figures of Okayama pref. had been reported until 1969, however, it has not been announced since 1970.

Fig.12 showed Okayama pref. in 1935, which was one of the most prosperous years of pyrethrum growing. We mapped the statistics in the detailed unit area. Clearly, cultivation in Okayama pref. was unevenly distributed in the southwestern part. In current municipalities, growing was concentrated in the areas near Kasaoka city and Kurashiki city. By old small districts, cultivated areas were large in Kitagi-shima (148.8 ha), Shiromi (63 ha), Ooshima (90 ha) and Kurosaki areas (59.6 ha).

The main growing regions of Japanese pyrethrum during the two great wars of the 20th century were Wakayama, Ehime, Kagawa, Okayama, Hokkaido and Hiroshima prefectures. It was cultivated widely, especially in many terraced fields of the coast of the Seto

Inland Sea. Especially in In-no-shima and Shodo-shima Island, the cultivated land of pyrethrum occupied most of arable land area. Until the end of the Second World War, Japan was the world's largest grower of pyrethrum. However, after the war it was necessary to increase food production, the cultivation area of pyrethrum was drastically reduced. Pyrethrins of pyrethrin analogues have also been used as insecticides. In Kenya and elsewhere, pyrethrum has been cultivated as a raw material for insecticides, but it is no longer cultivated for industrial use in Japan. Thus, pyrethrum was cultivated actively in the Setouchi area and islands in the first half of the 20th century. However, at the moment, the aspect of past rural landscapes has almost disappeared.

2.6 Rush

An industrial cash crop of some importance was rush, a *Igusa* reed, a dark green aquatic plant, 3 or 4 feet tall whose small cylindrical stem was used chiefly in making *tatami*. Rush has the capability to absorb moisture comparable to charcoal, when moisture is high, it keeps moisture from innumerable pores and keeps it inside, and when the room dries, it releases moisture stored inside like a sponge and adjusts the humidity of the air. The scent of rush is due to the ingredient "phytoncide", which is the same as the ingredient divergent in the forest. Rush has a mental settlement effect. As Japan's climate has a period of high humidity, *tatami* with the function of absorbing moisture has been used frequently in the rooms of Japanese houses since ancient times.

The outline of rush cultivation is as follows. From the 8th century to the 17th century, rush was grown mainly around Oumi-hachiman City in Shiga pref., and *tatami* mats were produced. Since the latter half of the 17th century, the central area of cultivation moved to the vicinity of Fukuyama city in Hiroshima pref., and the brand of *Bingo-omote* became prominent. In the latter half of the *Edo* period, as *tatami-omote* became used also for homes of ordinary people, rush was grown in various parts of Japan. Okayama area where rush cultivation became popular from around the early *Meiji* period had the largest harvest in Japan until 1967. After 1968, Yatsushiro City in Kumamoto pref. became the main rush cultivation region and the growing area in Okayama pref. continued to shrink rapidly thereafter.

From around 1970 rush cultivation began in Korea and Taiwan and the cultivation began in Ningbo area etc. in China after 1980. China's current main growing area has been shifting to the Sichuan area. Since around 1993,

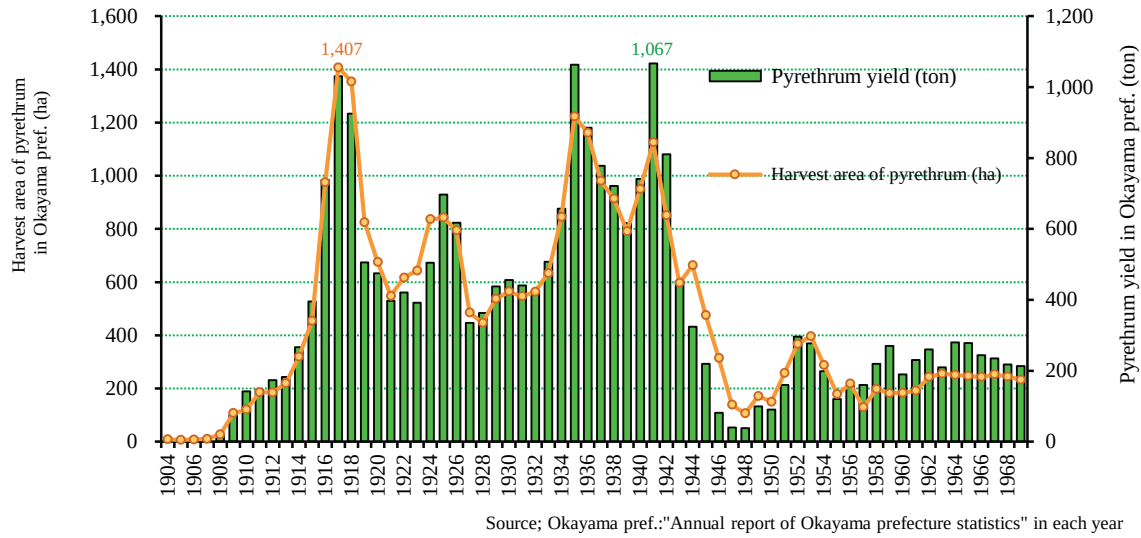


Fig. 11 Harvest area and yield of pyrethrum in Okayama prefecture (See **Table 11**)

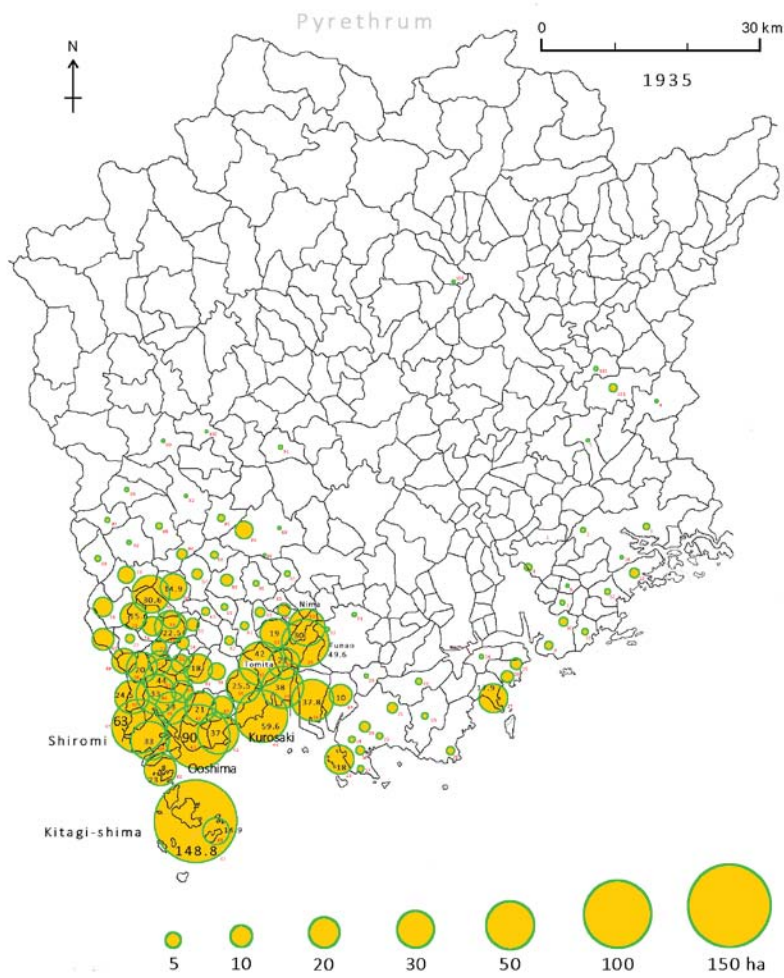


Fig.12 Distribution of pyrethrum cultivation in Okayama prefecture in 1935 (See **Table 12**)

Note; the numbers shown in small red are for distinguishing the areas and correspond to the numbers in **Table 12** of the Appendices.

the cultivation area of rush in China has surpassed that of Japan, the cultivation in Kumamoto pref. continues to shrink. The rush growing region in China has also declined at the peak of 2003 due to the decrease in the demand of *tatami*.

Shimose, Takenaka and Kimura (1987) conducted physiological experiments and pointed out that the salt tolerance of rush was rather strong, but it was inferior to that of Samphire greens (*Salicornia europaea*). Ikeda et al. (1988) pointed out that rush was grown about 5 ha in the vicinity of Tsuyama City in 1912-1925, and it was 41 ha in 1949, 134 ha in 1964 and 219 ha in 1971 in the middle and northern part of the pref. In addition, they cultivated Okayama green, Asanagi and Okayama No. 3 which were a rush variety, and compared them. Moreover, Ikeda (1991) systematically compared the yields and quality of 8 varieties and 28 lines of rush in the southern part of Okayama pref. and summarized various findings. Although accurate evaluation is difficult, it is considered that detailed and precise results are empirically clarified in this field.

Rush is a raw material of *tatami* (Fig.13) which is often laid on the floor of a room in traditional Japanese houses. Rush had been grown in the southern part of Okayama pref. until the middle of the 20th century. In 1994 there were three encouraged rush varieties in Okayama pref., Okayama-No.3, Asa-nagi and Okayama-midori. In 2006, 4 ha of Okayama-No.3 were planted in Kurashiki City, and a yield of 46 tons was harvested.

Fig.14 depicts the cultivated area and yield of rush in Okayama prefecture. Cultivation area and harvest were on an increasing trend until 1940, with some increase and decrease. However, before and after the



Fig. 13 The *tatami* made of rush and rice straw, which the author photographed on Aug. 13, 2017

Second World War, rush growing declined sharply. After the war, the production of rush was rapidly recovered, and continued to increase roughly until the mid-1960s.

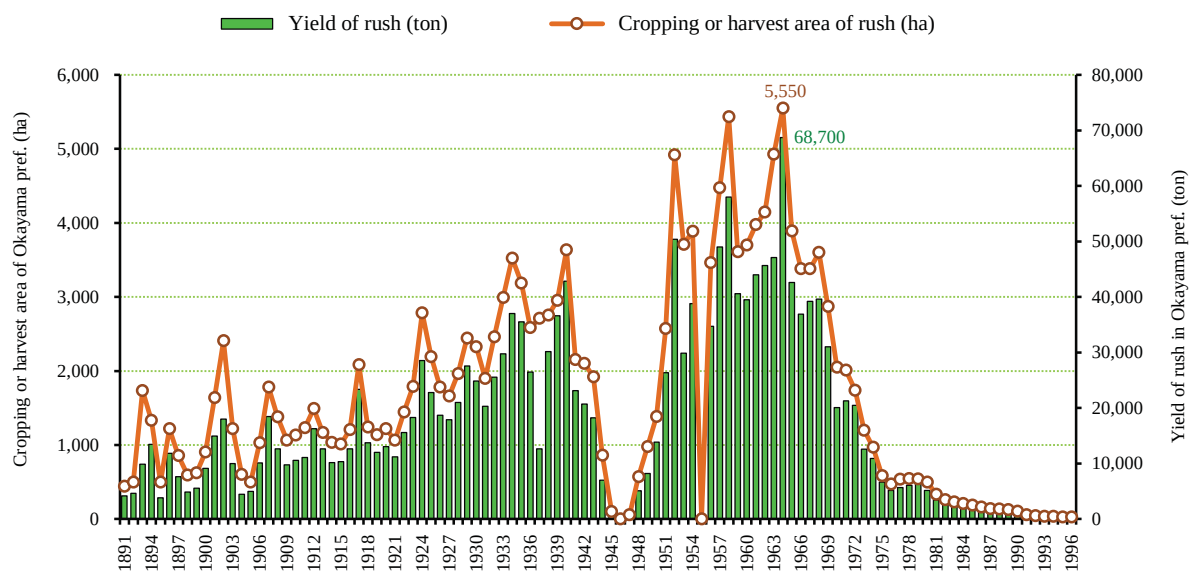
In 1952, 1958 and 1964, the peaks of growing were formed, in particular in 1964 the highest value (area 5,550 ha, yield 68,700 tons) was shown. After that, the main growing area of rush was moved to Shikoku and Kyushu (in particular, Yatsushiro City in Kumamoto pref.), so growing in Okayama pref. decreased rapidly. Officially, statistical figures on rush in Okayama pref. had been announced until 1996. However, in fact, even if growing of rush was slight, the cultivation practices continued in Kurashiki City, Okayama pref. until the middle of the 2010s. Rush has not been cultivated as an industry in Okayama pref., but the dealers who process rush are still in Okayama prefecture. In Hayashima Town, which is located between Okayama City and Kurashiki City, rush festival is held in July every year, processed rush products are sold. In addition, tourists can see the harvesting work which the members of the association preserving rush are harvesting rush with scythes (Fig. 15).

Fig.16 depicts cropland areas by municipalities in 1964 when rush cultivation was popular in Okayama prefecture. The cultivation area of Kurashiki City (1,679 ha) was overwhelmingly wide, concentrated in plain areas such as Okayama City (763 ha) and Souja City (391 ha). Rush cultivation was concentrated in plain areas centered on Kurashiki and Okayama, but it was cultivated a little in inland municipalities as well.

2.7 Tea Garden

Since the amount of tea growing in Okayama pref. is small compared with other prefectures, there are not too many related studies. Sanechika (1997) reported on the outline of maintenance projects such as tea plantations, rural parks, sewers and so on at the Kose area, that is, Kaita area in Mimasaka Town. In this area tea cultivation has been active since the 8th century and harvest of tea leaves is the largest in Okayama prefecture.

Fig.18 depicts the transition of tea growing in Okayama pref. roughly, in the first half of the 20th century, the area of tea declined. The cultivation area of tea which exceeded 600 ha decreased to the level of 300 ha in the 1920s and after that it decreased slightly and stagnated. In the postwar period of about 10 years the area of tea gardens had increased to the prewar level and continued to increase slightly to 389 ha in 1979. The yield of tea leaves rarely exceeded 2,000 tons in the



Source; Okayama pref. : "Annual report of Okayama prefecture statistics" (in Japanese) in each year

Fig.14 Long-term trend of planting area and crop yield of rush in Okayama prefecture (See Table 13)



Fig.15 Manual harvesting work in the rush field near historical folk museum at the Maegata area of Hayashima Town, which the author photographed on July 9, 2006

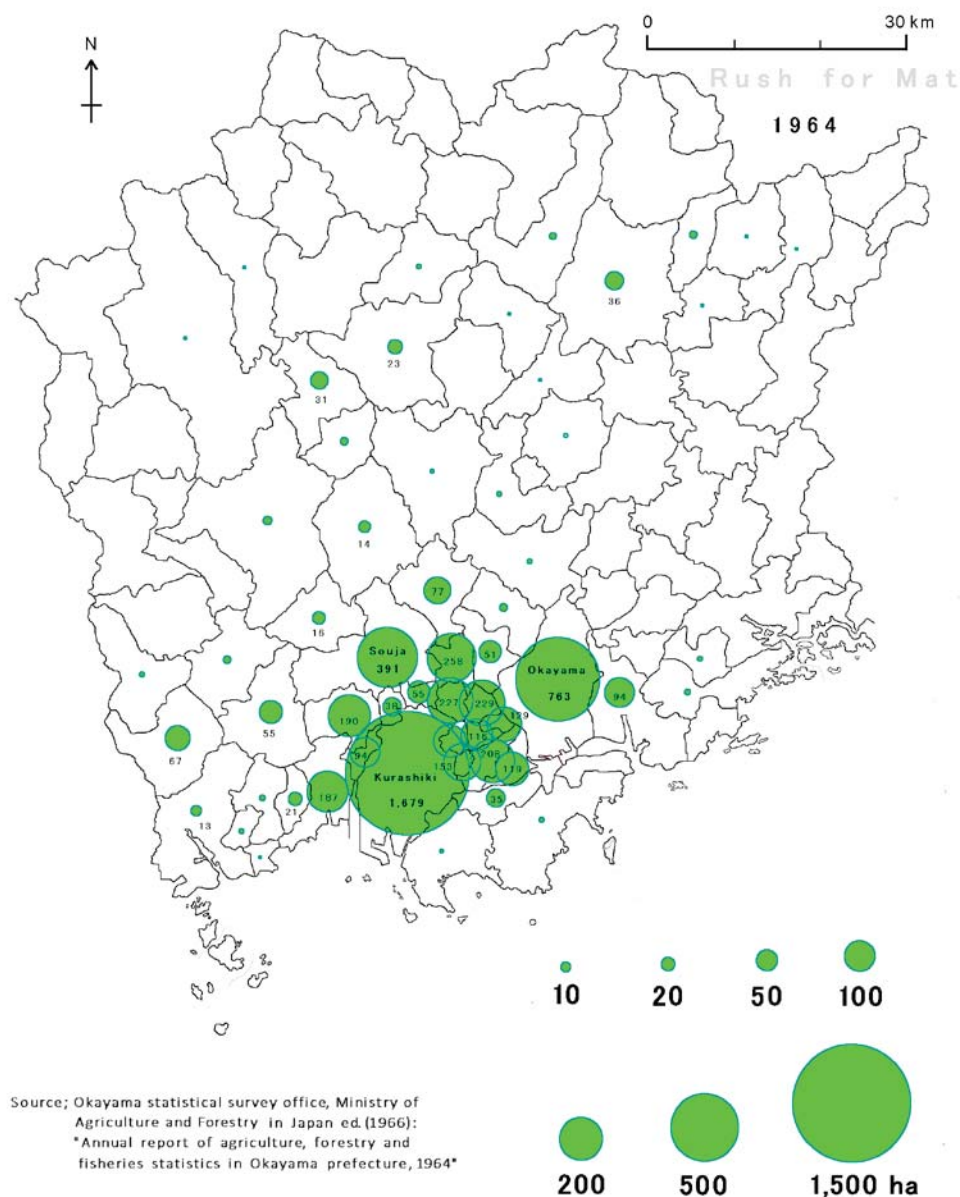


Fig.16 Cropland areas of rush by municipalities in Okayama prefecture in 1964 (See Table 14)

Source, Okayama statistical survey office, Ministry of Agriculture and Forestry, ed. (1966): "Annual report of agriculture, forestry and fisheries statistics in Okayama prefecture, 1964"

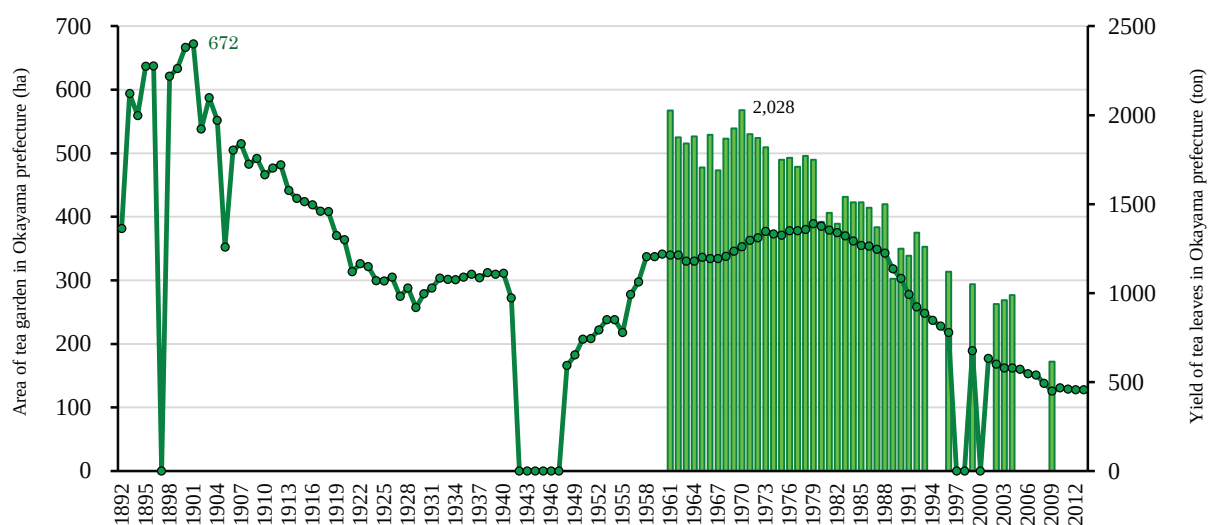
1960s, but thereafter consistently decreased. The harvest volume in 2009 was 615 tons. **Fig. 19** shows the yield of tea leaves in Okayama pref. by municipality in 1979. The tea garden was considerably concentrated in the north-eastern part of Mimasaka City (486 ha), Shouou Town (114 ha), Aida Town (167 ha) and Sakutou Town (98 ha). However, it was also clear that tea was cultivated in a small area in some municipalities including Niimi City (135 ha) and Katsuyama Town (126 ha). However, the decrease in the area of tea garden in Okayama pref. became obvious after 1979 and the tea garden decreased to 128 ha in 2012.

The encouraged varieties of tea in Okayama pref. were as follows. In 1994 there were *Yabu-kita*, *Asa-tsuyu*, *Sayama-midori* and *Koma-kage*. In 1995, among 228 ha, *Yabukita* was cultivated with 208 ha, *Oku-midori* 9 ha, *Kanaya-midori* 5 ha. Among the 184 ha in 2000, the *Yabukita* variety accounted for 164 ha and the main producing regions were Mimasaka Town, Katsuyama Town and Niimi City. In addition, among 151 ha in 2006, *Yabukita* of 138 ha, *Oku-midori* of 8 ha, *Kanaya-midori* of 5 ha, etc. were cultivated. Main producing regions were Mimasaka, Maniwa and Takahashi Cities.



Fig.17 Tea garden in the Kaita area of Mimasaka city photographed on Aug. 27, 2017

Fig.17 shows tea garden in the Kaita area of Mimasaka city. The image on the right is an enlarged picture of tea tree and tea leaves. Several anti-frost fans were installed aside from the tea garden. In this district, tea leaves are picked up three times a year, even now, using machines, and they are processed.



Source; Okayama pref. : "Annual report of Okayama prefecture statistics" (in Japanese) in each year

Fig. 18 Area of tea garden in Okayama prefecture (See **Table 15**)

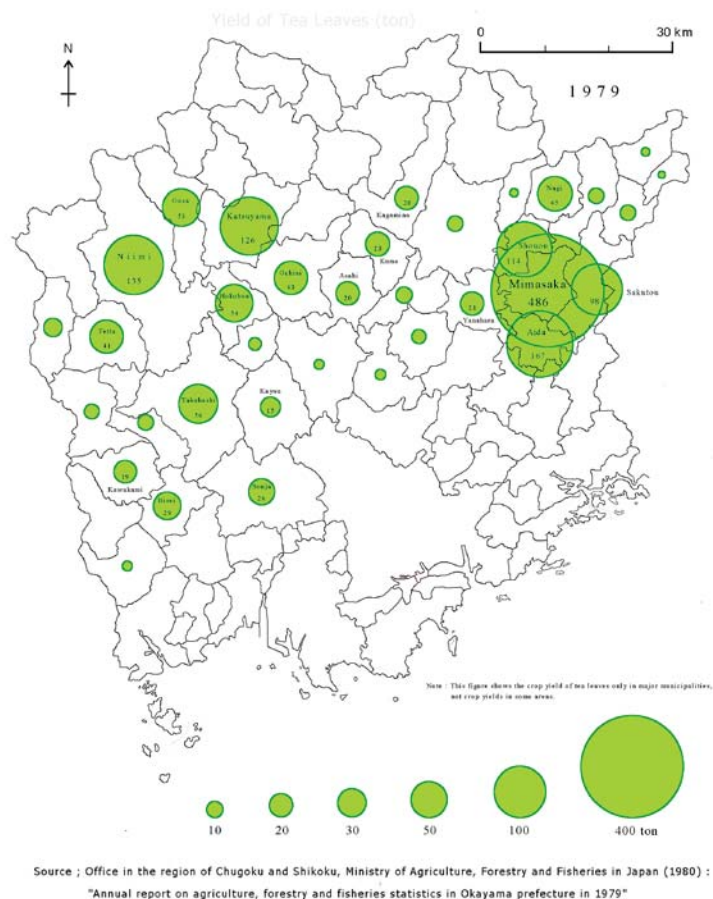


Fig.19 Yield of tea leaves by municipality in Okayama prefecture in 1979 (See Table 16)

Table 1 Harvest (ton) of the unrefined tea grown in 2014 in Okayama prefecture

	Total	Tea cultivated by shielding sunlight	Ordinary tea	Tea out of the standard	Others
Total	127	3 - x	87	37	x
Tea leaves picked up at the 1st time	54	2 - y	45	7	y
Tea leaves picked up at the 2nd time	36	-	28	a	d
Tea leaves picked up at the 3rd time	37 - z	-	-	b	e
Tea leaves picked up at the 4th time	-	-	-	-	-
Tea out of the standard	z	-	14	c	-
Concealed statistical figures ; x, y, z, a, b, c, d, e					
Source: Ministry of Agriculture, Forestry and Fisheries in Japan : "Crop statistics in 2014"					

The cultivation area of tea in Okayama pref. was 125 ha in 2016, compared with 17,400 ha in Shizuoka pref. and 8,520 ha in Kagoshima pref., it was a very small growing area nationwide. Most of the tea leaves cultivated in Okayama pref. are shipped out of the pref.

in the state of coarse tea (tea before becoming a product), mixed with tea from other pref. and become products. However, most recently, tea leaves in the Kaita area of Mimasaka City have been processed and "Setouchi tea" is sold in supermarkets in Okayama and Hiroshima

prefectures in the form of plastic bottles.

Recently, the detailed information on tea has been investigated only in the pref. where production is high, but in 2014 was investigated specially in 47 prefectures. **Table 1** extracts the data of Okayama prefecture out of them. Tea leaves are pinched nationwide four times a year, but three times in Okayama prefecture. Regular or normal tea called “*Sen-cha*” accounts for the majority, and the remaining nonstandard tea is called “*Ban-cha*”. The amount of tea leaves picked up from April to May is the most and is called “*Ich-bancha*”, the first-grade tea or new tea. New tea contains many catechins and caffeine with bitterness and astringency, and it also contains a lot of amino acids which are components of deliciousness and sweetness.

3 OTHER CROPS

Sericulture is an industry or occupation which raises silkworms and produces silk from its cocoon. Sericulture industry cultivates mulberry to keep silkworm and produces cocoons. To make the cocoon silk, the cocoon is processed into raw silk at the spinning mill, and the raw silk is further processed into fibers like silk fabrics. Sericulture industry was once a major industry in Japan. Sericulture, however, declined due to the loss of overseas markets after the Great Depression and the spread of substitutes. Currently, cocoons are being actively produced in China, India, Brazil and others. In Okayama pref. sericulture was thriving and there was an important time supporting the rural economy, so this paper will deal with a spectacular rise of sericulture in the past.

Technology on sericulture is said to have been introduced to Japan through ancient times in China. However, because the Japanese sericulture technology was not excellent, Japan imported silk products from China for a long time. In the mid-19th century, a revolutionary technique of sericulture was developed and invented in Japan, high-quality raw silk came to be produced and raw silk became a major export item. Sericulture grew in Japan in the 20th century and exported high-quality raw silk in large quantities. At that time in Europe, epidemic diseases of silkworm became popular, sericulture industry was destroyed. By around 1900 Japan became the world's leading exporter of raw silk and peaked around 1935. However, due to the Great Depression of 1929 and the World War II from 1941, the exports of raw silk from Japan ceased. Meanwhile in 1940 nylon was invented as a substitute for silk and the

demand for silk shrunk.

Osako (1997) as an expert in sericulture research pointed out that Japanese sericulture industry was once very important as the management that brings a few cash income in rural areas, but it declined due to chemical fiber inventions and the World War II. Osako (1964) also pointed out the area of mulberry-field which was the largest in 1930 had diminished very rapidly in Japan and the mulberry-fields on sand dunes in Tottori pref. was competing with tobacco, vineyards and vegetables. Moreover, Osako (1964) explained that the northern district had become the core area of the distribution of mulberry-fields, taking the place of the central area of Mie pref. and the diffusion of the commercial crops such as sweet potatoes and tea plants is preventing the revival of mulberry-fields.

According to Tabayashi and Fujinaga (2000), the area of mulberry field of Japan in 1995 was about 2% compared with the peak year of 1930 due to the development of rice paddies after the World War II, the conversion from ordinary fields to orchards, labor shortage, and the competition with imported raw silk.

Here, we will examine the transition of mulberry area in Okayama prefecture. **Fig. 20** depicts the area of mulberry fields in Okayama pref. from 1892 to 2002. Although the increase and decrease of mulberry area in the 19th century was not noticeable, it increased markedly from 1905 to 1930, and the area became about six times. In 1930, which showed the peak and the mulberry area was 13,460 ha. **Fig. 21** shows the mulberry area of Okayama pref. by municipality in 1930. Mulberry fields are cultivated in most municipalities in Okayama pref. and there are no special conspicuous areas. However, the mulberry area of the following areas is somewhat prominent; Mimasaka Town (649 ha), Tsuyama City (639 ha), Ochiai Town (579 ha), Yakage Town (554 ha), Kasaoka City (473 ha), Takahashi City (453 ha), Sakutou Town (439 ha), Ibara City (399 ha), Shouou Town (379 ha), Souja City (319 ha), Yanahara Town (321 ha), Kagamino Town (312 ha) and Yoshii Town (310 ha). However, after 1930, the mulberry field sharply declined, and it decreased by about 10 thousand ha by 1943. There was no noticeable increase or decrease in the mulberry area after the war, and in the long term there was a slight decline, reaching 10 ha in 2002.

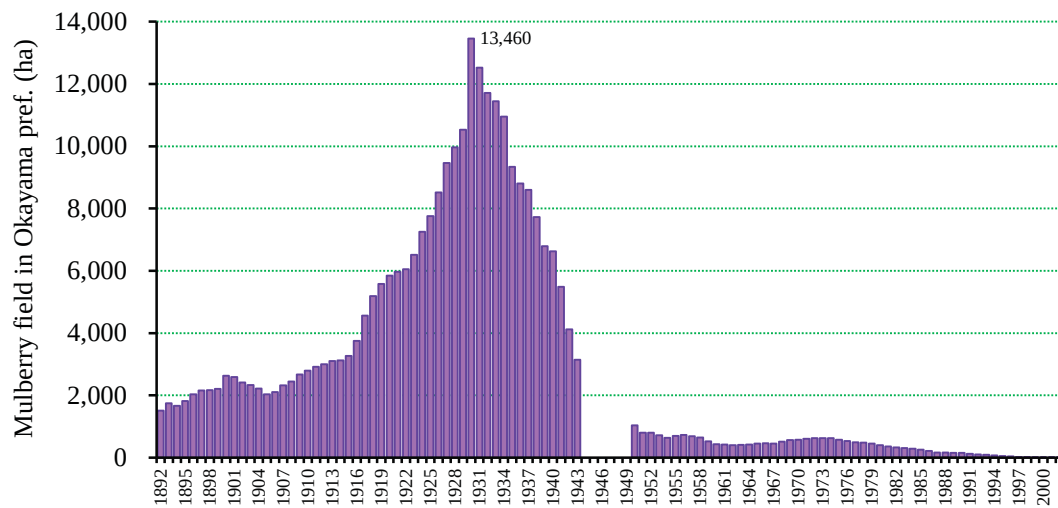


Fig.20 Mulberry field in Okayama prefecture (See Table 17)

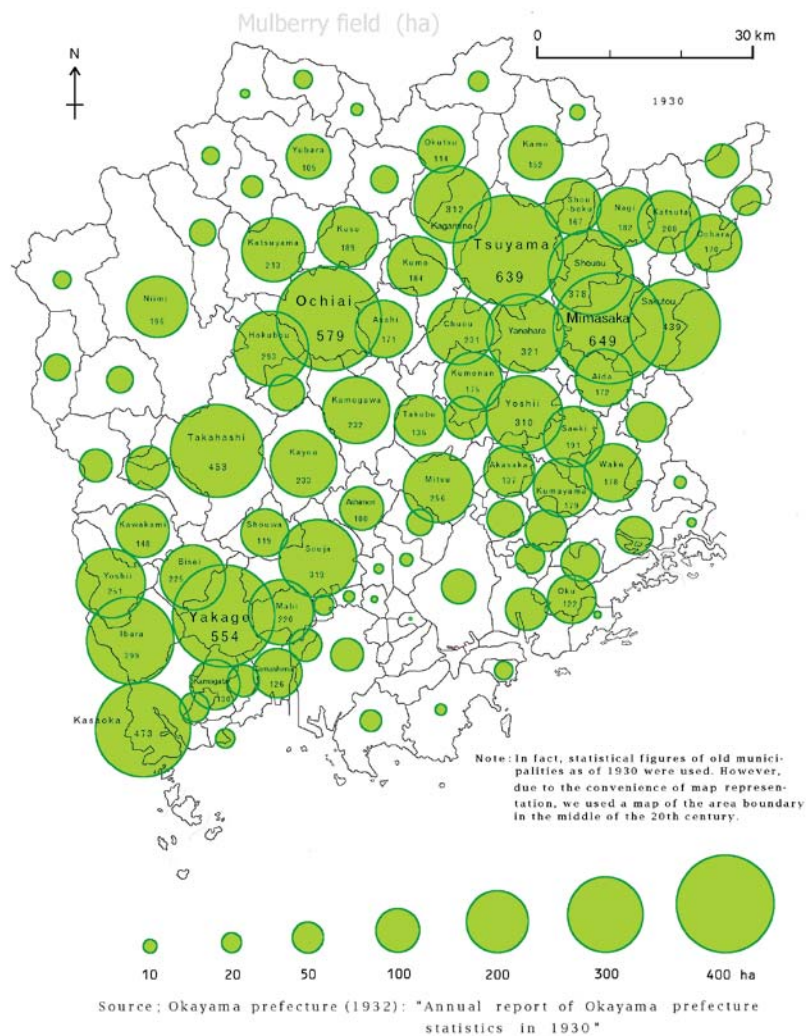


Fig.21 Mulberry field in Okayama prefecture in 1930 (See Table 18)

Table 2 Sericulture in Okayama prefecture around 2000

Year	Farm household of sericulture	Cultivation area of mulberry (ha)	Number of hatched silkworms (100 boxes) *	Weight of raw cocoons (ton) **
1995	70	50	3	11.4
1996	40	44	2	7.1
1997	30	25	1	4.5
1998	25	22	1	3.1
1999	15	16	1	1.7
2000	9	12	0	1.2
2001	7	10	0	0.8
2002	6	10	0	0.7
2003	5	10	0	0.7
2004	3	10	0	0.4
* ; The volume of silkworms that have been swept is the quantity transferred from silkworm farmers hatching the silkworms, and in the case of normal silkworms, 20,000 grains per box are included.				
** ; The amount of cocoons is the weight of raw cocoon harvested by sericulture farmers.				

Table 2 shows the latest sericulture situation in Okayama prefecture. Sericulture farmers were 70 households in 1995, but it gradually decreased and reached 3 households in 2004. The mulberry area in 2004 was 10 ha, which was one fifth of 1995. Both the number of hatched silkworms and the weight of raw cocoons were approaching zero. Sericulture was also popular in Okayama pref. until the first half of the 20th century, but the scenery of sericulture is about to disappear from Okayama pref. in the beginning of the 21st century.

4 CONCLUDING REMARKS

It is observed that there were the number of harvest farm households of several industrial crops in Okayama prefecture (**Table 3**). In 1950, 44% of the farmers (or farm households) cultivated rapeseed. However, this ratio declined to 21% in 1960, it fell to 1.5% in 1970, after which it has not been reported. The number of farmers to harvest cotton was 1,089 in 1960, however, in agriculture censuses there are no cotton statistics records elsewhere. Okayama pref. boasted the largest rush yield in Japan in the middle of the 20th century. According to Table 3, it is clear that 11 % of the farmers were cultivating rush in 1960. Leaf tobacco was cash crop planted at fields in rural area, and it had been grown in Okayama pref. by more than 10,000 farmers until 1970. However, the number of farm households producing tobacco continued to decrease little by little, and the cultivated farmers came to be 613 in 2000.

Tea has long been cultivated not only in Japan including Okayama pref. but also in foreign countries, and in 1950 26,072 farmers cultivated tea in Okayama prefecture. However, the number of tea-growers fell

sharply to 2,987 in 1960 and decreased to 373 in 2000.

On the other hand, sericulture was more prosperous than the present in the first half of the 20th century. 4,688 farm households ran sericulture in 1950, however, the subsequent decline was conspicuous, and there were 249 sericulture farmers in 1990. All of the crops and items described in this paper have remarkable declining trends, and many statistical figures in recent years have not been publicly announced. Among them, the fact that leaf tobacco and tea are being slightly cultivated in Okayama pref. may be more noticeable.

The cultivation of leaf tobacco in Okayama pref. had two peaks, that is, the period from the 1930s to the first half of the 1940s and the 1960s. Price fluctuation of leaf tobacco was small, and it was quite effective to support agricultural income. However, due to the rise of health consciousness to avoid smoking cigarette, its demand has decreased and leaf tobacco cultivation has become a poetic description in the inland mountainous areas in recent years. Since cotton has salt tolerance, it was a valuable commodity crop cultivated much near the reclaimed land on the coast of the Seto Inland Sea until the 19th century. However, in the 20th century, its demand declined sharply, and it came to be hardly cultivated. Surprisingly, the fact that cotton was cultivated in inland areas in the past is not well known.

Brassica was cultivated quite popularly throughout the early 20th century and during the period from the 1950s to the 1960s. Although recent rapeseed production is quite small, among the people who are strongly aware of the environment and energy recycling, expanding movement of oilseed rape production is gradually developing. Pyrethrum was cultivated actively in the southwestern part of Okayama pref. and Hiroshima pref. in the first half of the 20th century. Especially in the

Table 3 Number of harvest farm households of industrial crops and its ratio in Okayama prefecture

Year		Total number of farm households	Number of harvest farm households and its ratio					
			Rapeseed	Cotton	Rush	Tobacco	Tea	Sericulture; Spring silkworm
1950	Number of farm households	177,078	77,604			22,235	26,072	4,688
	Percentage to total farm households		44			13	15	2.6
1960	Number of farm households	172,533	36,416	1,089	19,084	17,620	2,987	2,079
	Percentage to total farm households		21	0.6	11	10	1.7	1.2
1970	Number of farm households	154,081	2,292		14,233	12,854	2,347	1,520
	Percentage to total farm households		1.5		9.2	8.3	1.5	1.0
1980	Number of farm households	134,799			2,511	3,565	1,596	821
	Percentage to total farm households				1.9	2.6	1.2	0.6
1990	Number of farm households	110,451				1,609	1,109	249
	Percentage to total farm households					1.5	1.0	0.2
2000	Number of farm households	90,053				613	373	
	Percentage to total farm households					0.7	0.4	
Note; In the case of 2000, it is not the number of harvest farm households, but the number of								
planted farm households.								
Source ; Ministry of Agriculture, Forestry and Fisheries in Japan : " Census of world agriculture "in each year								

islands of the Seto Inland Sea, it was a valuable crop among agricultural crops. Although Okayama pref. was about to play a central role in rush cultivation in Japan until the 1960s, cultivated areas were restricted to southern part of Okayama pref. including Okayama city and Kurashiki city. The cultivated area has moved to Kumamoto pref. since the 1970s.

Tea growing in Okayama pref. is slightly, however, tea leaves to fulfill local demand have been picked up from ancient times. There are mainly two core areas of tea cultivation, that is, an area mainly in Mimasaka City in the northeastern area and a mountainous area in the western part of Okayama prefecture. Sericulture has long been carried out in Okayama pref., but its peak period was from the 1920's to the first half of the 1940's, and mulberries were cultivated in every area.

It is thought that cultivation of cotton, pyrethrum, rush and mulberry is hardly practiced at present in Okayama prefecture. These are crops which strongly

characterized farming in Okayama pref. in the past and may be common to other prefectures like Hiroshima prefecture. It is also thought that these are inconspicuous agricultural heritage. Cultivation of tobacco, tea and oilseed rape is not always noticeable, but it has been sustainably grown in the limited areas of Okayama prefecture. These are cultivated not only in Okayama pref., but also in other parts of Japan and foreign countries. In addition to major crops, fostering various crops and livestock enrich crop production and food culture.

References

- Ikeda, M. and Nagita, T. (1988): Breeding of "Okayamamidori" a New Variety of Mat Rush Grass. *Bulletin of the Okayama Prefectural Agricultural Experiment Station*, **6**, pp.1-11. (in Japanese)
- Ikeda, M. (1991): A Study on the Quantity, Quality and Stem Color in the Process of Stem Drying of Mat Rush in

- Southern Part of Okayama Prefecture. *Special Bulletin of the Okayama Prefectural Agricultural Experiment Station*, **81**, pp.1-63. (in Japanese with English summary)
- Kikuti, T. (1940): The Producing Districts of "Insect-flower" in Japan. *The Geography*, **3-2**, pp.171-184. (in Japanese)
- Negita, H. (1990): Visiting Chugoku Mountain and Seto Inland Sea. *Chemistry and Education*, **38-4**, pp.429-433. (in Japanese)
- Osako, T. (1961): The Relation between the Decrease of the Area of Mulberry-fields and the Agricultural Structure of the Regions in Northern Mie Prefecture. *Geographical Review of Japan*, **34-2**, pp.68-82. (in Japanese with English abstract)
- Osako, T. (1964): The Decay of Mulberry-fields on the Coastal Sand Dune in Tottori Prefecture. *Geographical Review of Japan*, **37-1**, pp.14-34. (in Japanese with English abstract)
- Osako T. (1997): "Geography of Mulberry Fields", Kokon bookstore in Tokyo, 377p. (in Japanese)
- Ota, S. (1959): Rural Economy of the Cotton District of Bicchu. *Socio-Economic History*, **25(2-3)**, pp.118-149 (in Japanese)
- Sanechika, S. (1997): Aim for the Old Country Feeling with the Aroma of Green Tea, Nature and Tourism. *Journal of the Japanese Society of Irrigation, Drainage and Rural Engineering*, **65-8**, pp.833-835. (in Japanese)
- Shimose, N. and Kurosaka, K. (1985): Soil Tolerance of Okura, Chinese Cabbage and Rape. *Journal of Tropical Agriculture*, **29-4**, pp.203-207. (in Japanese with English abstract)
- Shimose, N, Takenaka, F. and Kimura, O. (1987): Soil Tolerance of Glasswort, Rush and Goldenrod. *Tropical Agriculture and Development*, **31-3**, pp.179-184. (in Japanese with English abstract)
- Tabayashi A. and Fujinaga G. (2000): Recent Trend in Agricultural Geography in Japan. *Regional Studies*, **41-1**, pp.12-34. (in Japanese with English abstract)
- Tanaka, T. (1984) : Cultivation of Tobacco in the Coastal Sand Dune of Tottori Prefecture. *Japanese Journal of Human Geography*, **35-5**, pp.456-472 (in Japanese)
- Ukita, T. (1955-1956): The Cotton Production in Japan during the Edo Era. *Japanese Journal of Human Geography*, **7-4**, pp.266-283, p.330. (in Japanese with English abstract)
- Yoshida, K. (2011): Maintenance Base of Agricultural Land Use in the Middle and Mountainous Area: A Case of Miyakodake-machi, Amakusa City, Kumamoto Prefecture. *Geographical Space*, **4-2**, pp.97-110 (in Japanese)

Appendices

Table 4 Area under tillage and harvest of leaf tobacco in Okayama prefecture

Year	Area under tillage of leaf tobacco (ha)	Harvest of leaf tobacco (ton)	Year	Area under tillage of leaf tobacco (ha)	Harvest of leaf tobacco (ton)	Year	Area under tillage of leaf tobacco (ha)	Harvest of leaf tobacco (ton)
1892	1,655	2,516	1929	1,283	1,916	1966	4,950	10,900
1893	2,135	2,782	1930	1,304	2,164	1967	4,930	10,900
1894	1,970	1,996	1931	1,435	2,655	1968	4,770	11,600
1895	1,886	2,378	1932	1,333	7,959	1969	4,400	10,800
1896	2,193	2,532	1933	1,363	9,696	1970	4,110	7,590
1897	1,829	2,486	1934	1,433	10,328	1971	3,350	6,960
1898	1,984	2,506	1935	1,465	9,457	1972	2,850	6,050
1899	2,811	2,374	1936	1,407	8,596	1973	2,380	6,320
1900	2,520	2,556	1937	1,334	8,876	1974	2,060	5,760
1901	1,323	1,501	1938	1,316	8,827	1975	2,060	5,490
1902	1,434	1,443	1939	1,757	12,173	1976	2,150	5,720
1903	1,684	2,234	1940	2,022	14,727	1977	2,180	5,920
1904	1,808	2,794	1941	1,663	11,653	1978	2,140	5,700
1905	1,783	2,078	1942	1,750	12,461	1979	1,960	4,397
1906	1,492	2,522	1943	1,793	13,178	1980	2,040	4,660
1907	1,283	1,850	1944			1981	1,980	4,800
1908	1,086	1,543	1945			1982	1,790	4,970
1909	1,111	1,596	1946	820	1,060	1983	1,780	5,130
1910	1,148	1,690	1947	1,264	1,947	1984	1,760	4,750
1911	1,973	1,467	1948	1,437	2,758	1985	1,600	4,050
1912	1,291	1,921	1949	1,814	3,180	1986	1,570	4,140
1913	1,691	3,045	1950	2,064	4,241	1987	1,400	3,880
1914	2,128	3,829	1951	2,155	4,058	1988	1,320	2,880
1915	1,842	2,824	1952	2,499	4,764	1989	961	2,160
1916	1,660	2,713	1953	3,056	4,630	1990	900	2,010
1917	1,515	2,430	1954	3,393	5,287	1991	803	1,920
1918	1,392	1,905	1955	3,572	7,248	1992	707	2,080
1919	1,723	2,842	1956	3,492	7,045	1993	654	1,590
1920	2,105	3,507	1957	3,308	6,630	1994	582	1,660
1921	2,030	3,432	1958	3,083	6,107	1995	546	1,550
1922	1,873	3,111	1959	2,873	6,015	1996	506	1,370
1923	1,586	2,248	1960	2,740	5,458	1997	433	1,142
1924	1,323	2,110	1961	2,797	6,545	1998	390	1,168
1925	1,152	1,787	1962	3,508	7,836	1999	350	1,056
1926	1,125	1,791	1963	4,218	7,861	2000	314	819
1927	1,181	1,886	1964	4,742	12,088	2001	287	771
1928	1,263	1,178	1965	4,890	10,900	2002	255	651

Source; Okayama pref.: "Annual report of Okayama prefecture statistics" in each year

Table 5 Cultivated area of leaf tobacco in Okayama prefecture in 1940

Name of city and counties	Leaf tobacco (ha)
Okayama	
Kurashiki	
Tsuyama	12.2
Tamano	3.1
Mitsu	56.5
Akaiwa	38.7
Wake	18.0
Oku	161.6
Joutou	
Kojima	50.9
Tsukubo	
Asakuchi	288.2
Oda	108.5
Shitsuki	45.7
Kibi	62.2
Joubou	150.2
Kawakami	186.2
Atetsu	250.5
Maniwa	313.7
Tomata	49.4
Katsuta	76.1
Aida	65.6
Kume	84.5

Source ; Okayama prefecture (1942): "Annual report of Okayama prefecture statistics in 1940"

Table 6 Cultivated area and yield of leaf tobacco in Okayama prefecture in 1963

Name of city and/or counties	Cultivated area (ha)	Yield (ton)
Okayama	9.34	15.2
Kurashiki	4.68	7.7
Tsuyama	35.48	58.7
Tamano	0.52	0.9
Kojima city	3.2	5.9
Tamashima	176.74	347.9
Kasaoka	200.08	420.2
Saidaiji	67.74	126.4
Ibara	261.26	524.1
Souja	117.37	203.3
Takahashi	282.61	522.9
Niimi	209.74	429.9
Mitsu	177.01	296.6
Akaiwa	108.57	192.0
Wake	65.46	117.5
Oku	217.01	434.3
Joutou	0	0.0
Kojima county	12.31	19.3
Tsukubo	0.57	1.0
Asakuchi	151.32	299.9
Oda	344.55	629.4
Shitsuki	88.1	167.4
Kibi	169.7	290.1
Joubou	416.27	717.3
Kawakami	268.01	541.4
Atetsu	68.31	142.0
Maniwa	204.88	395.2
Tomata	18.49	34.6
Katsuta	119.54	195.7
Aida	200.61	342.3
Kume	218.42	382.4
Source ; Okayama statistical survey office, Ministry of		
Agriculture, Forestry and Fisheries in Japan (1965) :		
"Annual report of Okayama agriculture, forestry and		
fisheries statistics in 1963"		

Table 7 Planting area and yield of cotton in Okayama prefecture

Year	Planting area (ha)	Yield (ton)	Year	Planting area (ha)	Yield (ton)
1892	3,865	1,557	1929	23	12
1893	3,957	2,094	1930	17	11
1894	3,464	2,359	1931	15	9
1895	2,998	1,396	1932	11	7
1896	2,386	717	1933	10	7
1897	1,999	1,010	1934	10	6
1898	1,480	935	1935	16	9
1899	1,108	260	1936	18	11
1900	904	390	1937	15	10
1901	749	335	1938	38	24
1902	549	194	1939	58	23
1903	408	161	1940	84	45
1904	354	194	1941	225	70
1905	312	139	1942	180	64
1906	292	167	1943	121	46
1907	264	173	1944	107	0
1908	164	65	1945	66	2
1909	138	68	1946	46	2
1910	154	80	1947	45	2
1911	128	84	1948	54	3
1912	101	79	1949	75	3
1913	89	70	1950	114	5
1914	87	70	1951	111	58
1915	95	71	1952	95	36
1916	103	86	1953	129	49
1917	103	80	1954	89	24
1918	111	75	1955	62	19
1919	109	74	1956	45	14
1920	119	77	1957	38.7	12
1921	82	50	1958	29.8	9
1922	78	53	1959	30.7	10
1923	69	40	1960	30.7	9
1924	53	20	1961	25.8	8
1925	46	22	1962	25	
1926	40	25	1963	22	7
1927	38	21	1964	21	5
1928	31	17	1965	12	4
Source Okayama prefecture:: " Annual report of Okayama prefecture statistics "					
(in Japanese) in eacy year					

Table 8 Cultivated area and yield of cotton in Okayama prefecture in 1897

Name of city and county	Cultivated area (ha)	Yield (kg)	Name of city and county	Cultivated area (ha)	Yield (kg)
Okayama	0	0	Joubou	34.61	10,897.5
Mino	10.21	476.3	Kawakami	41.85	18,990.0
Tsudaka	82.81	23,006.3	Tetsuta	4.96	1,770.0
Akasaka	65.45	16,582.5	Aka	28.36	8,388.8
Iwanashi	41.16	10,983.8	Mashima	43.54	26,261.3
Wake	55.93	32,328.8	Ooba	24.89	9,948.8
Oku	82.61	4,800.0	Saisaijou	21.82	12,956.3
Joutou	98.08	97,072.5	Saihokujou	20.13	7,016.3
Kojima	20.63	8,115.0	Tounanjou	5.55	1,796.3
Tsuu	16.17	2,820.0	Touhokujou	2.08	1,162.5
Kuboya	410.08	238,796.3	Shouboku	33.12	11,062.5
Asakuchi	291.27	249,225.0	Shounan	84.60	27,832.5
Oda	89.16	38,940.0	Yoshino	29.36	14,197.5
Shitsuki	29.85	9,701.3	Aida	48.69	16,166.3
Katou	76.56	21,798.8	Kume-hokujou	83.90	38,752.5
Kaya	47.60	17,970.0	Kume-nanjou	74.38	30,105.0

Source ; Okayama prefecture (1898) : "Annual report on Okayama prefecture statistics in 1897"

Table 9 Planting area (ha) and yield (ton) of rapeseed in Okayama prefecture

Year	Planting area (ha)	Crop yield (ton)	Year	Planting area (ha)	Crop yield (ton)	Year	Planting area (ha)	Crop yield (ton)
1894	5,221	5,401	1935	283	424	1976	2	3
1895	5,184	4,085	1936	214	296	1977	0	0
1896	5,858	4,016	1937	163	263	1978	1	1
1897	5,231	4,534	1938	169	285	1979	5	7
1898	4,885	4,575	1939	145	259	1980	...	...
1899	4,761	3,871	1940	134	215	1981	...	...
1900	4,713	4,260	1941	187	272	1982	...	...
1901	4,434	4,002	1942	132	166	1983	...	...
1902	4,280	3,329	1943	102	93	1984	...	...
1903	3,915	2,856	1944	0	0	1985	...	...
1904	2,834	2,625	1945	122	74	1986	...	...
1905	7,528	2,638	1946	85	45	1987	...	...
1906	2,445	2,506	1947	302	187	1988	...	...
1907	2,248	2,492	1948	823	1,160	1989	...	...
1908	2,512	2,568	1949	645	605	1990	...	...
1909	0	0	1950	984	1,009	1991	...	...
1910	0	0	1951	0	0	1992	...	...
1911	0	0	1952	3,570	4,785	1993	...	...
1912	1,310	1,774	1953	3,570	4,035	1994	...	...
1913	972	1,160	1954	1,904	2,940	1995	...	...
1914	785	866	1955	1,983	2,805	1996	...	...
1915	696	820	1956	2,251	2,565	1997	...	...
1916	603	749	1957	2,112	2,170	1998	...	...
1917	560	724	1958	1,825	1,860	1999	...	...
1918	399	537	1959	1,636	1,950	2000	...	...
1919	339	449	1960	1,597	1,810	2001	...	...
1920	306	394	1961	1,369	1,630	2002	...	...
1921	257	384	1962	1,289	1,469	2003	...	...
1922	194	249	1963	1,105	350	2004	...	...
1923	152	197	1964	950	1,190	2005	...	...
1924	153	220	1965	739	865	2006	...	...
1925	104	141	1966	556	667	2007	...	...
1926	86	114	1967	343	391	2008	...	...
1927	79	102	1968	220	288	2009	...	...
1928	62	80	1969	110	139	2010	13	10
1929	56	88	1970	32	28	2011	27	11
1930	139	210	1971	13	16	2012	29	8
1931	555	883	1972	6	8	2013	23	6
1932	713	1,279	1973	5	6	2014	15	2
1933	413	634	1974	2	2	2015	12	6
1934	351	571	1975	2	2	... ; not reported		

Source; Okayama pref.: "Annual report of Okayama prefecture statistics" in each year

Table 10 Planting area (ha) of rapeseed in Okayama prefecture in 1955

Name of area	Planting area (ha)	Name of area	Planting area (ha)	Name of area	Planting area (ha)
Okayama	23.60	Koujo	6.94	Tetta	19.14
Kurashiki	74.98	Fujita	10.02	Oosa	9.62
Tsuyama	118.21	Nadasaki	7.14	Katsuyama	14.78
Tamano	17.36	Touji	10.31	Ochiai	37.69
Kojima	5.55	Nanaku	0.00	Mikamo	1.09
Tamshima	28.96	Kibi	7.83	Shinjou	3.07
Kasaoka	35.90	Shou	8.43	Kawakami, M.	12.89
Saidaiji	22.51	Chaya	2.08	Yatsuka	10.02
Ibara	39.97	Hayashima	2.38	Chuuka	3.07
Souja	74.48	Senoo	6.45	Yubara	9.52
Takahashi	91.64	Fukuda	3.37	Kuse	14.98
Niimi	84.20	Kiyone	6.05	Kagamino	40.56
Ichinomiya	7.34	Yamate	2.98	Tomi	0.99
Tsudaka	9.72	Funao	5.26	Okutsu	13.98
Mitsu	22.71	Konkou	15.67	Kami-saibara	0.30
Takebe	12.89	Kamogata	6.45	Kamo	16.26
Kamogawa	50.48	Satoshou	7.44	Aba	2.58
San-you	31.14	Yorishima	0.50	Shouboku	10.02
Akasaka	22.81	Bisei	28.66	Shouou	36.69
Yoshii, A.	28.56	Yakage	27.67	Katsuta	9.02
Kumayama	20.43	Yoshii, S.	13.59	Nagi	49.19
Seto	19.64	Mabi	28.46	Mimasaka	49.59
Bizen	23.11	Takamatsu	17.16	Sakutou	30.94
Hinase	0.89	Ashimori	36.50	Aida	8.33
Mitsuishi	0.20	Ukan	14.28	Oohara	11.60
Yoshinaga	7.34	Kayou	55.04	Higashi-awakura	2.98
Wake	20.53	Hokubou	55.04	Nishi-awakura	3.77
Saeki	19.54	Nariwa	28.66	Kume	23.01
Ushimado	1.09	Kawakami, K.	28.46	Chuuou	16.56
Oku	8.43	Bicchuu	30.74	Asahi	11.50
Osafune	12.20	Shingou	7.93	Yanahara	16.07
Joudou	10.21	Tessei	12.00	Kumenan	13.59
				Fukuwatari	7.64

Source ; Statistics survey office on Okayama prefecture at Ministry of Agriculture, Forestry and

Fisheries ed. (1956) : "Annual report on agriculture, forestry and fisheries in Okayama prefecture, 1955"

Table 11 Harvest area and yield of pyrethrum in Okayama prefecture

Year	Harvest area (ha)	Yield (ton)	Year	Harvest area (ha)	Yield (ton)
1904	9	4	1938	914	721
1905	7	2	1939	791	616
1906	8	4	1940	949	741
1907	10	6	1941	1,125	1,067
1908	27	17	1942	852	811
1909	107	75	1943	597	453
1910	121	142	1944	663	324
1911	186	147	1945	475	219
1912	185	174	1946	314	82
1913	219	182	1947	139	40
1914	320	267	1948	106	38
1915	454	395	1949	172	99
1916	975	739	1950	150	91
1917	1,407	1,031	1951	257	160
1918	1,354	925	1952	367	296
1919	825	506	1953	397	278
1920	675	475	1954	288	199
1921	548	397	1955	179	120
1922	617	420	1956	218	158
1923	643	392	1957	129	160
1924	836	505	1958	198	220
1925	842	697	1959	183	270
1926	795	617	1960	184	190
1927	485	335	1961	191	230
1928	447	363	1962	243	260
1929	537	438	1963	256	210
1930	565	456	1964	251	280
1931	547	441	1965	247	278
1932	564	424	1966	243	244
1933	634	508	1967	253	235
1934	845	657	1968	245	218
1935	1,223	1,063	1969	233	213
1936	1,162	886	after the 1970s	not reported	
1937	981	778	The maximum values are		
			indicated by red numbers.		

Source; Okayama pref.: "Annual report of Okayama prefecture statistics"

Table 12 Cropping or harvest area and yield of pyrethrum in Okayama prefecture in 1935

Name of county and area in Japanese	No.	Name of county and area	Crop area (ha)	Crop yield (kg)	Sales Price (Yen)	Name of county and area in Japanese	No.	Name of county and area	Crop area (ha)	Crop yield (kg)	Sales Price (Yen)
赤磐郡		Akaiwa county				小田郡		Oda county			
渴瀬	1	Katase	0	56.25	30	北川	54	Kitagawa	3.67	3,468.75	1,850
和氣郡		Wake county				小田	55	Oda	3.67	3,011.25	2,008
香登	2	Kagato	0.50	281.25	225	堺	56	Sakai	14.88	12,375	7,095
伊里	3	Iri	0.79	862.5	943	美山	57	Miyama	2.28	1,706.25	1,274
三國	4	Mikuni	0.10	37.5	20	宇戸	58	Uto	1.19	1,260	840
和氣	5	Wake	0.20	150	160	美川	59	Mikawa	3.07	1,046.25	586
邑久郡		Oku county				矢掛	60	Yakage	0.99	641.25	393
邑久	6	Oku	0.20	112.5	72	三谷	61	Mitani	1.39	1,312.5	776
豊原	7	Toyohara	0.50	375	220	山田	62	Yamada	1.79	1,080	605
太伯	8	Taihaku	1.19	900	600	川面	63	Kawamo	1.49	1,406.25	750
朝日	9	Asahi	1.49	1,406.25	825	今井	64	Imai	10.51	7,950	4,346
大宮	10	Oomiya	1.59	1,440	883	神島内	65	Kou-no-shima-uchi	32.73	30,937.5	18,150
鹿忍	11	Kashino	0.99	562.5	345	神島外	66	Kou-no-shima-soto	22.81	17,250	10,120
玉津	12	Tamatsu	0.69	307.5	164	北木島	67	Kitagi-shima	148.76	140,625	80,625
養掛	13	Mokake	1.98	1,800	1,056	真鍋島	68	Manabe-shima	14.88	7,500	4,000
鶴山	14	Tsuruyama	0.10	67.5	54	後月郡		Shitsuki county			
児島郡		Kojima county				高屋	69	Takaya	9.92	9,937.5	5,830
味野	15	Aijino	0.79	660	352	出部	70	Izue	22.51	15,322.5	8,989
赤崎	16	Akasaki	1.59	1,440	887	縣主	71	Agata-nushi	11.80	8,925	4,760
下津井	17	Shimo-tsui	0.89	607.5	486	木之子	72	Ki-no-ko	5.16	4,833.75	2,617
本莊	18	Honjou	18.05	19,785	11,079	往原	73	Ebara	6.64	5,587.5	3,129
福田	19	Fukuda	10.12	12,262.5	7,194	西江原	74	Nishi-ebara	7.83	6,813.75	4,542
藤戸	20	Fujito	0.40	300	160	山野上	75	Yama-no-ue	30.55	31,185	19,127
郷内	21	Gou-nai	2.38	1,620	864	青野	76	Ao-no	15.57	14,711.25	8,238
灘崎	22	Nadasaki	0.99	795	487	井原	77	Ibara	1.59	1,575	924
莊内	23	Shou-nai	0.99	750	500	芳井	78	Yoshii	7.93	4,050	3,024
甲浦	24	Kouura	0.30	281.25	173	明治	79	Meiji	6.25	4,777.5	2,675
鉾立	25	Hokotate	2.58	2,216.25	1,300	共和	80	Kyouwa	0.60	341.25	200
胸上	26	Muneage	2.98	2,625	1,400	吉備郡		Kibi county			
山田	27	Yamada	17.85	16,875	9,900	二万	81	Nima	30.25	34,312.5	18,300
宇野	28	U-no	1.49	1,275	765	穂井田	82	Hoida	19.44	14,700	9,016
琴浦	29	Kotoura	0.99	937.5	550	呉妹	83	Kurese	1.98	1,875	1,000
児島	30	Kojima	2.48	2,156.25	1,277	箭田	84	Yata	3.77	3,375	1,811
都窪郡		Tsukubo county				蘭	85	So-no	0.00	7.5	5
菅生	31	Sugou	0.40	300	176	新本	86	Shin-pon	0.60	345	184
中洲	32	Nakasu	0.40	255	170	久代	87	Kushiro	0.60	562.5	245
浅口郡		Asakuchi county				神在	88	Jinzai	0.10	78.75	32
玉島	33	Tamashima	38.18	25,987.5	15,246	日美	89	Hiyoshi	0.20	187.5	100
連島	34	Tsurajima	37.79	36,705	19,576	富山	90	Tomiya	6.74	8,025	4,280
船穂	35	Funao	49.59	33,750	18,000	上房郡		Joubou county			
長尾	36	Nagao	21.42	15,390	8,618	上竹莊	91	Kamitake-Shou	0.40	15	10
富田	37	Tomita	41.95	34,897.5	19,543	川上郡		Kawakami county			
金光	38	Konkou	25.49	19,275	11,308	成羽	92	Nariwa	0.10	11.25	6
鴨方	39	Kamogata	6.25	5,433.75	2,898	玉川	93	Tamagawa	1.09	450	240
里庄	40	Satoshou	21.42	16,668.75	9,335	日里	94	Hisato	2.48	1,867.5	996
大島	41	Ooshima	90.05	80,017.5	49,077	手莊	95	Te-no-shou	0.89	573.75	306
寄島	42	Yorishima	37.19	35,156.25	19,875	大賀	96	Ooga	0.30	225	150
六條院	43	Rokujowin	10.41	6,300	3,661	高山	97	Kouyama	0.50	187.5	100
黒崎	44	Kurosaki	59.60	54,915	30,752	富家	98	Fuuka	0.40	18.75	10
小田郡		Oda county				宇治	99	Uji	0.20	105	51
笠岡	45	Kasaoka	22.81	20,231.25	11,787	高倉	100	Takakura	0.10	75	50
金浦	46	Kanaura	33.22	26,047.5	14,622	英田郡		Aida county			
城見	47	Shiromi	63.17	62,107.5	36,436	河會	101	Kawai	1.49	1,125	660
陶山	48	Suyama	24.50	21,303.75	11,930	福本	102	Fukumoto	0.40	195	114
大江	49	Ooe	13.49	11,448.75	6,564	久米郡		Kume county			
稻倉	50	Inakura	20.23	13,762.5	7,344	大倭	103	Yamato	0.20	142.5	84
大井	51	Ooi	44.13	41,718.75	24,475						
吉田	52	Yoshida	18.05	15,135	8,713						
新山	53	Niyama	7.74	5,265	2,808						

Source : Okayama prefecture (1937) :

"Annual report of statistics in Okayama prefecture, 1935"

Table 13 Cropping or harvest area and yield of rush in Okayama prefecture

Year	Cropping or harvest area (ha)	Yield (ton)	Year	Cropping or harvest area (ha)	Yield (ton)	Year	Cropping or harvest area (ha)	Yield (ton)
1891	443	4,174	1927	1,661	17,885	1963	4,929	47,100
1892	497	4,657	1928	1,964	20,977	1964	5,550	68,700
1893	1,735	9,883	1929	2,445	27,583	1965	3,890	42,600
1894	1,333	13,472	1930	2,328	24,867	1966	3,380	36,900
1895	498	3,840	1931	1,897	20,284	1967	3,380	39,200
1896	1,219	11,848	1932	2,459	25,542	1968	3,600	39,600
1897	856	7,625	1933	2,993	29,744	1969	2,870	31,000
1898	594	4,878	1934	3,525	36,990	1970	2,050	20,100
1899	624	5,573	1935	3,187	35,496	1971	2,010	21,300
1900	906	9,129	1936	2,584	26,468	1972	1,740	20,500
1901	1,639	14,971	1937	2,711	12,668	1973	1,200	12,600
1902	2,407	17,998	1938	2,753	30,133	1974	970	10,900
1903	1,220	9,982	1939	2,952	36,639	1975	587	6,650
1904	602	4,491	1940	3,636	42,835	1976	471	5,130
1905	499	4,988	1941	2,154	23,106	1977	537	5,660
1906	1,032	10,087	1942	2,101	20,722	1978	547	6,060
1907	1,782	18,468	1943	1,921	18,231	1979	544	6,433
1908	1,380	12,668	1944	862	6,976	1980	500	5,170
1909	1,065	9,750	1945	102	506	1981	336	3,410
1910	1,133	10,589	1946	3	22	1982	260	3,080
1911	1,232	11,094	1947	57	463	1983	233	2,690
1912	1,491	16,254	1948	575	5,126	1984	210	2,480
1913	1,170	12,654	1949	977	8,182	1985	186	2,150
1914	1,034	10,162	1950	1,385	13,859	1986	161	1,820
1915	1,012	10,347	1951	2,572	26,351	1987	139	1,530
1916	1,209	12,668	1952	4,919	50,408	1988	135	1,460
1917	2,086	23,376	1953	3,709	29,873	1989	126	1,380
1918	1,242	13,746	1954	3,888	38,809	1990	108	1,040
1919	1,140	11,997	1955	not reported	not reported	1991	57	491
1920	1,220	13,041	1956	3,461	34,684	1992	47	503
1921	1,063	11,182	1957	4,473	49,000	1993	37	374
1922	1,443	15,595	1958	5,435	58,000	1994	37	391
1923	1,789	18,296	1959	3,610	40,600	1995	28	310
1924	2,786	28,546	1960	3,699	39,500	1996	26	261
1925	2,193	22,800	1961	3,977	44,000	The maximum values are indicated by red numbers.		
1926	1,781	18,702	1962	4,146	45,646			

Source: Okayama pref.: "Annual report of Okayama prefecture statistics"

Table 14 Harvest area of rush in Okayama prefecture in 1964

Area name	Harvest area (ha)	Area name	Harvest area (ha)
Okayama	763.4	Kiyone	37.6
Kurashiki	1,678.6	Yamate	54.5
Tsuyama	36	Funao	93.5
Tamano	3	Konkou	20.5
Kojima	2	Kamogata	3.3
Tamashima	186.7	Satoshou	2.9
Kasaoka	13	Yorishima	0.1
Saidaiji	94	Bisei	6
Ibara	67	Yakage	55
Souja	390.8	Yoshii, S.	3
Takahashi	8.5	Mabi	189.8
Niimi	0.1	Shouwa	15.9
Mitsu	2.8	Takamatsu	257.8
Ichinomiya	51.1	Ashimori	76.7
Takebe	2.5	Ukan	5.9
Tsushima	5.7	Kayou	14.2
Kamogawa	1.5	Hokubou	31.4
Oku	3.5	Oosa	0.9
Osafune	2.5	Ochiai	23
Nadasaki	35	Kuse	3
Koujo	208	Kagamino	5
Fujita	119	Katsuta	0.7
Kibi	229.3	Shouou	0.2
Chaya	152.7	Nagi	1.2
Hayashima	115.6	Shouboku	6.1
Senoo	109.4	Chuuou	0.2
Shou	226.8	Kumenan	0.7
Fukuda	128.5	Kume	0.1

Source, Okayama statistical survey office, Ministry of Agriculture and Forestry, ed. (1966) :

“Annual report of agriculture, forestry and fisheries statistics in Okayama prefecture, 1964”

Table 15 Cultivation area and yield of tea in Okayama prefecture

Year	Tea garden (ha)	Yield of tea leaves (ton)	Year	Tea garden (ha)	Yield of tea leaves (ton)	Year	Tea garden (ha)	Yield of tea leaves (ton)
1892	382		1933	301		1974	373	1,330
1893	594		1934	301		1975	371	1,750
1894	559		1935	305		1976	378	1,760
1895	637		1936	309		1977	378	1,710
1896	637		1937	304		1978	380	1,770
1897			1938	312		1979	389	1,750
1898	621		1939	310		1980	385	1,400
1899	634		1940	311		1981	379	1,450
1900	667		1941	272		1982	375	1,390
1901	672		1942			1983	370	1,540
1902	538		1943			1984	362	1,510
1903	587		1944			1985	355	1,510
1904	552		1945			1986	354	1,480
1905	352		1946			1987	349	1,370
1906	505		1947			1988	343	1,500
1907	515		1948	166		1989	318	1,080
1908	483		1949	182		1990	303	1,250
1909	492		1950	207		1991	278	1,210
1910	466		1951	208		1992	258	1,340
1911	477		1952	222		1993	248	1,260
1912	482		1953	238		1994	237	-
1913	441		1954	238		1995	228	-
1914	429		1955	218		1996	218	1,120
1915	424		1956	278		1997	-	-
1916	419		1957	298		1998	-	-
1917	409		1958	337		1999	189	1,050
1918	408		1959	337		2000	-	-
1919	371		1960	341		2001	177	-
1920	364		1961	340	2,026	2002	168	939
1921	314		1962	340	1,875	2003	162	960
1922	326		1963	330	1,842	2004	162	988
1923	322		1964	330	1,881	2005	160	-
1924	300		1965	336	1,707	2006	153	-
1925	299		1966	334	1,890	2007	151	-
1926	305		1967	334	1,690	2008	138	-
1927	275		1968	338	1,868	2009	126	615
1928	288		1969	346	1,925	2010	131	
1929	257		1970	353	2,028	2011	129	
1930	279		1971	363	1,893	2012	128	
1931	288		1972	367	1,871	2013	128	
1932	303		1973	377	1,819			

Source; Okayama pref.: "Annual report of Okayama prefecture statistics"

Table 16 Cultivation area and yield of tea leaves in Okayama prefecture in 1979

Region name	Cultivation area of tea garden (ha)	Yield of tea leaves (ton)	Production of tea before distribution (ton)
Okayama pref.	389	1,750	440.7
Tsuyama	3	9.3	2.4
Ibara	2	3.9	0.8
Souja	7	26	5.8
Takahashi	22	56.4	11.7
Niimi	20	135	29.7
Takebe	3	4.4	1.1
Kamogawa	8	3.8	0.9
Bisei	5	28.5	7.1
Ukan	2	5.9	1.3
Hokubou	14	53.5	11.3
Kayou	5	14.8	3.3
Nariwa	4	9	1.9
Kawakami	4	19	4.3
Bicchuu	3	8.5	1.8
Oosa	8	52.8	11.8
Tetta	6	41.4	9.1
Tessei	3	13.2	2.9
Katsuyama	23	126.2	29.9
Ochiai	13	42.6	10.3
Kagamino	5	20.2	4.7
Katsuta	4	9.5	3
Shouou	24	114.4	30.2
Nagi	14	45.1	14.1
Shouboku	1	2.5	0.7
Oohara	5	9	2.9
Higashi-awakura	1	2	0.6
Nishi-awakura	1	2.6	0.8
Mimasaka	76	485.5	129.5
Sakutou	30	97.5	26.6
Aida	30	167	45.5
Chuuou	3	9.8	2.5
Asahi	5	20.4	4.7
Kumenan	3	7.5	1.9
Kume	5	22.5	5.2
Yanahara	7	21	4.8
Other municipalities	20	59.3	15.6

Source ; Office in the region of Chugoku and Shikoku, Ministry of Agriculture, Forestry and Fisheries in Japan (1980) : "Annual report on agriculture, forestry and fisheries statistics in Okayama prefecture in 1979"

Table 17 Cultivation area of mulberry field in Okayama prefecture

Year	Mulberry field (ha)	Year	Mulberry field (ha)	Year	Mulberry field (ha)	Year	Mulberry field (ha)
1892	1,507	1920	5,846	1948		1976	532
1893	1,751	1921	5,974	1949		1977	493
1894	1,664	1922	6,052	1950	1,041	1978	480
1895	1,818	1923	6,511	1951	800	1979	455
1896	2,034	1924	7,248	1952	800	1980	401
1897	2,153	1925	7,758	1953	718	1981	359
1898	2,163	1926	8,520	1954	638	1982	331
1899	2,208	1927	9,460	1955	704	1983	306
1900	2,626	1928	9,963	1956	726	1984	284
1901	2,589	1929	10,533	1957	684	1985	253
1902	2,412	1930	13,460	1958	649	1986	214
1903	2,333	1931	12,518	1959	523	1987	169
1904	2,223	1932	11,712	1960	436	1988	164
1905	2,031	1933	11,443	1961	418	1989	155
1906	2,107	1934	10,946	1962	406	1990	154
1907	2,321	1935	9,340	1963	408	1991	127
1908	2,447	1936	8,806	1964	427	1992	108
1909	2,669	1937	8,595	1965	456	1993	95
1910	2,796	1938	7,730	1966	468	1994	76
1911	2,923	1939	6,794	1967	458	1995	50
1912	2,996	1940	6,625	1968	519	1996	44
1913	3,108	1941	5,482	1969	562	1997	25
1914	3,127	1942	4,121	1970	581	1998	22
1915	3,268	1943	3,148	1971	612	1999	16
1916	3,747	1944		1972	625	2000	12
1917	4,562	1945		1973	632	2001	10
1918	5,192	1946		1974	623	2002	10
1919	5,574	1947		1975	576		
Source; Okayama pref.: "Annual report of Okayama prefecture statistics" in each year							

Table 18 Area of mulberry field by municipality in Okayama prefecture in 1930 (ha)

Name of municipality	Mulberry field (ha)	Name of municipality	Mulberry field (ha)	Name of municipality	Mulberry field (ha)
Okayama	60.50	Ushimado	2.68	Ochiai	578.58
Kurashiki	54.74	Oku	122.08	Yubara	104.73
Kojima	23.40	Osafune	79.34	Kuse	188.93
Tamashima	125.95	Nadasaki	0	Mikamo	23.31
Saidaiji	93.02	Hayashima	0	Shinjou	15.67
Tsuyama	638.68	Shou	1.98	Kawakami, m.	4.17
Tamano	6.94	Fukuda	0.40	Yatsuka	16.86
Kasaoka	472.96	Yamate	6.94	Chuuka	7.04
Ibara	399.17	Touji	17.65	Kamo	151.74
Souja	318.74	Kiyone	20.73	Tomi	38.18
Takahashi	452.53	Funao	54.45	Okutsu	114.05
Niimi	195.67	Konkou	52.56	Kami-saibara	20.93
Bizen	74.08	Kamogata	129.72	Aba	11.80
Ichinomiya	8.83	Yorishima	17.16	Kagamino	311.80
Tsudaka	35.21	Satoshou	44.43	Katsuta	208.26
Takamatsu	4.66	Yakage	553.69	Shouou	377.55
Ashimori	100.36	Bisei	224.53	Nagi	181.69
Mitsu	256.07	Yoshii, S.	250.71	Shouboku	167.31
Takebe	135.67	Mabi	220.17	Oohara	169.59
Kamogawa	231.57	Shouwa	119.21	Higashi-awakura	44.43
Seto	88.07	Ukan	66.74	Nishi-awakura	57.52
San-you	69.02	Hokubou	293.26	Mimasaka	649.09
Akasaka	137.26	Kayou	233.45	Sakutou	438.64
Kumayama	179.01	Nariwa	98.58	Aida	172.36
Yoshii, A.	310.41	Kawakami, k.	147.57	Chuuou	231.17
Joudou	46.21	Bicchuu	54.45	Asahi	171.37
Hinase	3.87	Oosa	36.99	Kumenan	175.24
Mitsuishi	7.04	Singou	16.26	Kume	184.36
Yoshinaga	82.21	Tetta	35.31	Yanahara	321.42
Saeki	190.61	Tessei	35.31	Fukuwatari	97.59
Wake	177.72	Katsuyama	213.42		
Source ; Okayama prefecture (1932) : "Annual report of Okayama prefecture statistics in 1930"					