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## **National Government's effort to make Technical Improvement: Revival of Tea Industry in Fujian from 1935 to 1941**

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### **Abstract:**

The tea industry in Fujian suffered a severe blow during the ten-year civil war. To save itself, the tea industry launched a series of technical improvements with new technologies and equipment under the policies of the National Government. The developmental conditions of the tea institution, vocational education and production agencies in Fujian from 1935 to 1941 with the newly discovered archives, which made up for the deficiency of such studies, are examined in this paper. During the anti-Japanese war period, people in the Chinese tea trade made indelible contributions under policy incentives to the development of China's tea industry. Such contributions allowed the tea industry in Fujian to momentarily recover in terms of human capital and technical improvement, and compensated for the national economy to a certain degree.

**Key Words:** Fu'an, Revival of tea industry, The experimental field of tea industry, Demonstrating tea plant, Tea-manufacturing machine

## 1. BACKGROUND OF THE REVIVAL OF TEA INDUSTRY IN FUJIAN

*The Book of Tea* (Cha Jing, 茶经), written by Lu Yu 陆羽 of the Tang Dynasty, states that tea 'is produced in Fuzhou 福州 and Jianzhou 建州, and it tastes quite well' (Fujian, 1999, 180). Tea production in Fujian flourished during the Qing Dynasty. However, with the promotion of tea planting in other countries and regions, the tea industry of Fujian was edged out of the international market. In the 1930s, some intellectuals promoted the 'scientific movement' in China (中国科学化运动) to try and save the industry with science and save the country with industry. Wu Juenong 吴觉农, who was considered the 'Tea Saint Contemporary China', was one of the intellectuals who led the movement. He and other Chinese tea people proposed strategies to successfully save the tea industry. He studied the failure of Chinese tea in the international market and illustrated the dark side of the tea industry in China (Wang Xufeng, 2003, 25). Wu Juenong found that the failure was caused by foreign firms that extorted Chinese tea stations, which in turn oppressed teahouses. Therefore, the teahouses exploited by foreign firms and tea stations transferred the losses to the tea farmers. The government immediately took relevant action to resolve this situation. A series of policies was created to confront the difficulties in the international market and to promote the tea industry in Fujian. The National Government intended to enhance the regional economy by revitalizing tea planting and production.

The director of the Fujian Department of Finance, Chen Ticheng 陈体诚, and the director of the Department of Education, Zheng Zhenwen 郑贞文, agreed to set up the 'Fu'an Tea Experimental Field (福安茶业改良场)' in Fu'an County in 1935<sup>1</sup> and established the 'Fu'an Agriculture Vocational School of Fujian Province (福建省立福安农业职业学校)'. In 1938, the Department of Education integrated the Fu'an Agricultural School into the Fujian College of Agriculture. In August 1938, the Fu'an Tea Experimental Field was integrated with the Agricultural Improvement Office of Fujian. In September, the field was moved to Chishi Town 赤石镇, Chong'an County 崇安县, in northern Fujian Province. The 'Fujian Tea Demonstrated Plant 福建示范茶厂' was set up in Fu'an (Huang, 1940, 35), and the original Fu'an Tea Experimental Field was transformed into the branch factory of the Tea Plant (Zhang, 1978). On 1 April 1938, the Tea Industry Administration Office was set up in Fujian, which was renamed the Tea Industry Administration Bureau on 1 April 1939 (Huang, 1939, 33). The 'controlled procurement and distribution (统购统销)' of tea was started in an attempt to save the tea industry in China and enhance the provincial economy of Fujian.

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<sup>1</sup> Fu'an Tea Industry Experimental Field 福安茶业改良场 is hereinafter referred to as 'Fu'an Tea Field 茶场'; Fujian Demonstrative Tea Plant 福建示范茶厂 is hereinafter referred to as 'Fujian Tea Plant 茶厂'.

## 2. SCIENTIFIC RESEARCH INSTITUTION AND TECHNOLOGY TRANSFER OF THE TEA INDUSTRY

Fu'an Tea Experimental Field, Anhui Qimen 祁门 Tea Field, Hunan Anhua 安化 Tea Field and Jiangxi Xiushui 修水 Tea Field were the four earliest research institutions engaged in the improvement of tea production (Fang and Liao, 1986, 7). In August 1935, Fu'an Tea Experimental Field was established in Fu'an by the Fujian Department of Construction. The field was located in Shekou Town 社口镇, the well-known 'Panyong congou (坦洋工夫)' black tea production centre. This provincial institution tested the varieties and cultivation of tea. The institution was also subordinated to the Agricultural and Forestry Office of Fujian Department of Construction (Fujian, 1999, 409). In 1937, the tea-making test was added, and the tea factory was established in the Fu'an Tea Field. After the outbreak of the anti-Japanese war, the Fu'an Tea field was moved to Chishi Town, Chong'an County, and was renamed the Chong'an Tea Experimental Field. In 1938, the Fu'an Tea Experimental Field was reset by the Tea Industry Administration Bureau. Meanwhile, three tea production offices were established in Shekou Town, Tangxi Town 棠溪镇 and Muyang Town 穆洋镇 of Fu'an. In 1940, the Fujian Demonstrative Tea Plant was established, which included all tea fields and tea production offices. In 1942, the Trade Committee of the Ministry of Finance of the National Government took over the Fujian Demonstrative Tea Plant and set up the first national tea research institute, which was renamed the Chong'an Tea Field in 1946 (Fujian, 1999, 411).

At that time, people who studied the tea were attracted by the government to conduct academic studies to develop the tea industry. The Fu'an tea field recruited substantial talents as technical forces of scientific research. Some of these talents became tea experts, such as Li Lianbiao 李联标<sup>2</sup>, Zhuang Canzhang 庄灿彰<sup>3</sup> (Chi, 2005, 50), Zhuang Wanfang 庄晚芳, Tong Yunyi 童衣云, Zhang Tianfu 张天福, Chen Chuan 陈椽 and Lin Fuquan 林馥泉. Three of the above mentioned were top ten experts in the tea industry in China. Forward-looking policies laid a human capital foundation for the future development of the tea industry of China.

Aside from forming an expert team, the Fu'an Tea Experimental Field introduced a large-scale tea manufacturing machine from Germany to process black tea in 1936. The entire set of the black tea manufacturing equipment was purchased from Iida Factory of Japan. The equipment was installed in 1936 and put into production in 1937, and marked the beginning of machine tea

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<sup>2</sup> Li Lianbiao 李联标 (1911–1985) investigated the tea field at the beginning of the liberation and led the tea re-structuring. After 1958, he presided over the Tea Research Institute of Chinese Academy of Agricultural Sciences, and from 1964 to 1965, he presided over the investigation and development in new tea fields in Gansu, Tibet. In the 1970s, he participated in the investigation of the new tea field in Shandong. In the 1980s, he was devoted to the training of researchers and presided over the study on tea varieties.

<sup>3</sup> Zhuang Canzhang 庄灿彰 wrote *Anxi Tea Investigation* 安溪茶叶之调查 in 1963.

production in Fujian Province. In the same year, '81 boxes of tea were produced, and sold to the British Yuchang Foreign Firm 裕昌洋行 in 75 silver dollars per fifty kilograms (the highest price of general black tea was about 56 silver dollars)' (Zhang, 1978), which was approximately 34% higher than the previous tea price. Machine-produced tea brought higher profits. Machine-made tea was superior to manually produced tea in appearance, shape, flavour and colour (Huang, 1939, 39). In 1938, excluding the tea left for canning and bag packaging, 28 boxes of tea remained and were examined by China's Tea Corporation 中国茶叶公司, the Commodity Inspection Bureau 商检局, Wangyutai Tea House 汪裕泰茶号, as well as the experts Wu Juenong and Feng Shaoqiu 冯绍裘. The experts believed that the quality of 'Jianhong (建红)<sup>4</sup>' significantly improved and was even as good as 'Keemun (祁红)<sup>5</sup>'. The product was sold at 130 Hong Kong dollars per fifty kilograms by the Tea Industry Administrative Bureau, which was approximately 37% higher than the highest price of black tea, which was sold at 95 Hong Kong dollars by Fu'an, Shouning 寿宁. One year later, the quality of tea improved, and tea price increased by 3%. The tea made by machine was better than hand-made tea.

Given the high profit, the machinery tea production employed by the Fu'an Tea Field became popular, and many manufacturers from other areas went there to ask for the production methods. The tea processing technique spread to other areas for the first time after the technological improvement at the Fu'an Tea Field. Many tea manufacturers scrambled for the advanced technology and improved the proportion of machine-produced tea, which also affirmed the determination of tea producers in studying advanced tea manufacturing technology. After witnessing the success of the Fu'an Tea Industry Experimental Field, the Fujian Government planned to appropriate more funds for purchasing additional machines for tea production. However, the anti-Japanese war period caused the decline of fiscal revenue, and the sea was blocked by the Japanese army, which made purchasing the machines difficult. Finally, the attempt to make mechanised tea production popular in all areas of Fujian failed.

Aside from producing tea, the Tea Experimental Field also assisted in supervising the tea prices of the teashops in Fu'an. The Tea Field publicised the price of primary tea (毛茶) to prevent tea merchants from lowering the price freely to exploit the tea farmer. The adulteration and rough picking-up behaviours of tea merchants were banned (Huang, 1940, 35). Hence, the tea field stabilised the tea market.

### 3. TEA INDUSTRY VOCATIONAL EDUCATION AND TALENT CULTIVATION

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<sup>4</sup> Jianhong 建红, is a famous type of black tea in Fujian Province.

<sup>5</sup> Keemun 祁红, is the treasure of kungfu tea. Its main producing area lies in Qimen County, Anhui Province.

Wu Juenong illustrated the failure of Chinese tea in *Standard of Tea Reform in China* 中国茶叶改革方准. He believed one of the reasons for this failure is that China lacked talents in the tea industry. He suggested establishing tea specialists and dispatching students overseas, to ‘earnestly set itinerant teachers, establish the tea studying institute, and set tea specialty in agricultural schools’ (Wang Xufeng, 2003, 25). In the Republican period, Fujian Province established schools of agriculture, forestry, silkworm and tea. The schools successfully cultivated technicians and launched the training and promotion of surrounding technologies. In 1935, the Director of Fujian Department of Finance, Chen Ticheng, and the Director of the Department of Education, Zheng Zhenwen, agreed to set the ‘Provincial Fu’an Agricultural Vocation School of Fujian Province’ as the vocational education unit for tea talents. The school aimed to cultivate tea talent and improve tea technology, starting the development of ‘integrated research and study’. In 1938, Fu’an Agriculture Vocational School was integrated into Fujian Agricultural College by the Fujian Department of Education.

### 3.1 Vocational education condition reflected by *Fu’an Agricultural School Journal*

The newly discovered archives of *Fu’an Agricultural School Journal* 安农校刊<sup>6</sup>, which included articles about talents devoted to the tea industry and translations of leading foreign data, were compiled and printed by Fu’an Agricultural Vocation School of Fujian. The frontispiece displayed tea factories, tea fields and the tea manufacturing machines of the Tea Experimental Field, as well as the school song, teaching photos and studying and candid photos of students. The journal also covered the history, operation and technology of tea, with abundant contents. The appendix contained teaching materials and teaching outlines of the tea courses<sup>7</sup> (Fu’an Agricultural School Journal, 1937, 59), the administration table, staff list,

<sup>6</sup> *Fu’an Agricultural School Journal* 安农校刊(1937) Vol.1, No.2, Catalogue: Zhang Tianfu 张天福, *Implementation of Improved Fujian Tea and Vocational Education* 改良福建茶叶与职业教育的实施. Fan Zeyao 范则尧, *Outline of the Tea Distribution in China* 中国茶叶分布的梗概. Chen Hanjie 陈汉杰, *Calendar of the Operation of Tea Industry* 茶业经营年中行事历. Tong Yiyun 童衣云, *Negligence and Error in Tea Manufacturing and Production* 制茶处理上的疏忽和错误. Tong Yiyun 童衣云, *Black Tea Refine Screening Sequence Table* 红茶精制筛分顺序表. Tong Yiyun 童衣云, *Introduction to Tea Inspection* 茶之检验概说. Lin Chuanguang 林传光, *Transportation and Sales Cooperation Organized for Revitalizing Fu’an Tea Industry* 复兴福安茶业声中急应组织的产销合作社. Wang Jingji 王景纪, *Introduction to the Tea History in China* 中国茶史概说. Jian Qi 剑杞, *Book of Tea* 茶籍一束. Zhong Di 中砥(trans), *Tea Industry in China* 中国的茶业. Zhuang Wanfang 庄晚芳 and Tong Yiyun 童衣云, *Imperfection and Remedial Measures after the Unified Control of Keemun* 本年祁红实行统制后之不完善处及其补救办法. Tong Yiyun 童衣云, *Introduction to Fu’an Tea Industry Experimental Field* 介绍福安茶业改良场. Cha Tiao 茶茗, *Three Principles of Revitalizing the Tea Industry in China* 复兴华茶三大原则.

<sup>7</sup> *Courses and Outlines of the Department of Tea* 本校茶业科课程及教材大纲, *Fu’an Agricultural School Journal* 安农校刊, 1 (1937), 59. The courses included: History of Tea Industry, Geography of Tea Industry, Tea Plantation, Tea Production, Tea Operation, Tea Pest and Disease Damage, Tea Inspection, Study on Tea, Manufacturing Mechanics, General Idea of Tea, Crop Science, Vegetable Gardening, Fruit Tree and Flowers, Forestry, Livestock Breeding, Apiculture and Agriculture Products Manufacturing.

comparative statement of students' number, native place and age, student union song and rest song. Courses covered all aspects of tea production. Students also personally practiced in the fields.

Aside from the cultivation of professional skills, the curricula also paid considerable attention to physical, aesthetic and moral education. The curricula enhanced the patriotism of the students as the nation was undergoing hardships. All these approaches prepared for the perfection of student personalities and expressed the purposes of education so that students could become reserve talents in tea production. Moreover, education policies had long-term prominent positive effects on the accumulation of human capital.

### 3.2 Fujian tea talent cultivation

The staff of Fu'an Agricultural Vocational School should not be underestimated. Aside from the scientific talents of the tea field, technical forces that could be recruited at the time were also hired. The school cooperated with the Tea Experimental Field and relied on each other. 'The establishment of tea course in the school and Fu'an Tea Experimental Field aimed to revitalize the industry in Fujian; meanwhile, the school worked closely with the field, for fulfilling the responsibility of tea talents and improving the tea technology' (Tong, 1937, 49). In 1939, the Tea Administration Bureau enrolled 50 students and transferred approximately 30 from the school for training in the Tea Administration Bureau. Then the bureau 'dispatched these students to each country and tea stores for guidance' (Huang, 1940, 35). In addition, 'the technicians' team from Fu'an Tea Experimental Field showing the improved methods by the simple tools in all villages' and investigated the living conditions of the tea farmers. The six-month internship allowed students to gain deeper experience in the tea industry and realise disadvantages, such as tea price<sup>8</sup> and large-scale application.

**Table 1 Staff of Fu'an Agricultural Vocational School (some)** (Fu'an Agricultural School Journal, 1937, 68–69)

Teachers	Education background	Disciplines
Jiang Zhongdi 江中砥	Bachelor of Education of Fukien Christian University	Chinese, Citizen, English
Li Tingsui 李廷绥	Bachelor of Science of Fukien Christian University	Mathematics, Mechanics
Chen Guirong 陈桂荣	Bachelor of Science of Fukien Christian University	Biochemistry, Agricultural Product Manufacturing, Tea Tree Disease Damage, Apiculture
Lin	Bachelor of Agriculture, Henan	Agronomy, Crop Science,

<sup>8</sup>Tea price 山价, namely the most basic price charged by the owner of the tea hill, was also called the field cost 山本费. Tea price did not include freightage.

Chuanguang 林传光	University	Animal Husbandry, Tea Operation
Wang Shihao 王世浩	Returning from study in Japan	
Fan Zeyao 范则尧	Agriculture Specialty of Jinling University	Silviculture, Fruit Tree and Flower, Tea Industry Geography
Liu Yangwen 刘仰文	Agriculture Specialty of Jinling University	
Wang Jingji 王景纪	Advanced Normal Specialist of Great China University	Chinese, Tea Industry History
You Tongru 游通儒	Non-completion in Fukien Christian University	Physical Education
Zhang Tianfu	Bachelor of Agriculture, Jinling University	Tea Plantation, Study on Tea Industry
Zhuang Canzhang	Bachelor of Agriculture, Jinling University	Tea Tree Breeding and Cultivation
Tong Yiyun	Graduated from Suzhou Bowen High School	Tea Making and Inspection
Chen Hanjie 陈汉杰	Graduated from Fujian Provincial A-class Agricultural School	Tea Plantation, Vegetable Gardening

The teacher resource was quite abundant, and integrating so many talents during the Anti-Japanese War was not easy. Most teachers were the technical force and teaching talents from the university, and taught numerous students in the difficult environment. Some of the students even became celebrities in the tea industry of China<sup>9</sup>. Many students made significant contributions to the tea industry. Some stayed in the Tea Experimental Field to conduct research, and some entered Fu'an Tea Plant to guide workers in production. From 1935 to 1941, Japan was steadily invading China. The vocational school cultivated substantial backbone forces for the tea cause, and the graduates in such a vocational education context went to various places of the country to fully apply what they had learnt. The radiation of such human resource gradually reflected significant power and long-range influence.

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<sup>9</sup> For instance: Wu Zhenduo 吴振铎, Lin Fu 林复, Li Mengchang 李孟昌 and Li Wenqing 李文庆, celebrities in Taiwan Tea Industry. Cai Runsheng 蔡润生, researcher of Shanghai Institute of Materia Medica. Huang Linqi 黄麟琪 and Chen Shixiong 陈士雄, engineers of Fu'an Tea Plant. Zhu Longwen 朱龙文, chief engineer of Fujian Tea Plant. Tai Dachuan 邵大传, Zhu Hongshou 朱鸿寿, engineers of Jiangsu Province Department of Agriculture. et al.

#### 4. TEA PRODUCTION, TRANSPORTATION AND SALES AND COST BENEFIT

The trial in Fu'an Tea Experimental Field was successful; hence, Fujian Province planned to popularise mechanised tea production. However, the plan failed because of limited funds and the sea transportation blockade. In 1939, the manager of China's Tea Company, Shou Jingwei 寿景炜, and provincial consultant, Xu Xueyu 徐学禹, discussed establishing the 'State and Provincial Collective Tea Garden and Demonstrative Tea Plant' (Huang, 1939, 39). In 1940, Fujian Demonstrative Tea Plant (福建示范茶厂) jointly organised with the Fujian Government, China's Tea Company and Fujian Trading Company in Chong'an. In 1941, the plant was renamed the Tea Research Institute. In 1946, the institute was taken over by the Tea Test Field, Central Laboratory of Ministry of Agriculture and Forestry.

##### 4.1 Development History and Production Structure of Fujian Demonstrative Tea Plant

In 1939, the Tea Company of China and Fujian Government co-invested 1,000,000 Yuan to establish the Fujian Demonstrative Plant. The 'central authority and the provincial authority discussed the establishment of this plant for unifying the management and control, relieving the tea farmers, improving the research varieties and enhancing the production' (Zhang, 1978). The tea plant was essentially a tool for economic regulation by the National Government. The tea plant was established in January 1940 in Chong'an with several branches, including Fu'an Branch, Fuding 福鼎 Branch, Zhenghe 政和 Tea Production Office, Xingcun 星村 Tea Production Office and Wuyi 武夷 Tea Production Office. Chong'an was the largest domestic tea plant in China<sup>10</sup>. The Tea Experimental Field was taken over by the Fujian Tea Plant. Since then, the tea research system of Fujian Province was divided into Chong'an in northern Fujian Province and Fu'an in the east. Chong'an Primary Tea Vocational School was set in the Fujian Tea Plant, and set up 'industry-university-research' development. The school cultivated the talents, and then the students practiced in the plant. In addition, Chong'an started the vocational education of the tea industry in Fujian. The Tea Plant set up a scientific department named 'Tea Manufacturing Institute', which was a significant innovation. The technicians mainly included 'vice plant manager Zhuang Wanfang, tea manufacturing institute director Chen Chuan, Lin Fuquan, technician Chen Shizhong 陈时中, Liang Daxin 梁达新, Wang Shiyi 王世亿, technicians Wu Zhenduo 吴振铎, Zhang Zhengzhong 仇郑重, Huang Tongsun 黄桐孙, Zhang Buhan 张步韩, Zhang Hongjing 张鸿经, Wu Zhaolin 吴肇麟, etc.' (Zhang, 1978). These technicians continued to improve the technologies, for instance, 'searching 44 tea varieties inside and outside of Fujian province, establishing the tea variety garden, tests on the cutting,

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<sup>10</sup> Zhang Tianfu 张天福 was the plant manager of the Fujian Demonstrative Tea Plant, associate professor in the Department of Tea, Jiangsu and Anhui Skills Technical College, and president of Chong'an Primary Tea Vocational School.



sowing and planting by combining the production', and also conducted tests such as the grading of Fujian tea, fluorine content of Wuyi rock tea and design of a simple tea roller. In the improvement of fluorine content of Wuyi rock tea, the plant cooperated with the Department of Chemistry of Fukien Christian University (协和大学). This cooperation was an example of the combined study efforts of a plant and a university.

The regular affairs of the Tea Plant included cultivation, manufacture, experiment, transportation and sales. Zhenghe Tea Production Office, Xingcun Tea Production Office and Wuyi Tea Production Office were directly affiliated with the Tea Plant. The livestock farm and lumber mill were sideline fields. The first and second tea areas focused on improving tea variety and were affiliated with the Tea Plant. Fuzhou Service Office was responsible for product promotion and procurement and was administrated by the business department of the Tea Plant. The cultivation included the opening, planting and the daily management of tea. The manufacturing included the arrangement of factories, the management and the guidance of tea production. The experiments included improving tea varieties, testing tea propagation and tea seed storage, confirming tea seed sowing and tea planting season, naming and classifying Fujian tea, researching fluorine content of tea and designing the simple tea roller. The transportation and sales service included the arrangement of the amount and variety of tea production, cooperating with local tea farmers, tea storage and sales, presenting the national tea industry technical symposium and the compilation and printing of manuals and meteorological surveys. The sidelines that were launched mainly included the livestock farm and lumber mill. Wooden cases were used for storing the tea, but local wood was quite expensive; the construction of factories also required substantial wood. Therefore, a lumber mill was established to satisfy the demand, and it sold to other tea merchants as well. In 1941, the Japanese army invaded Hong Kong and blocked sea travel, which made exporting tea impossible. In August 1942, the Fujian Demonstrative Tea Plant was taken over by the Tea Research Institute 茶叶研究所 of Trade Committee of Ministry of Finance 财政部贸易委员会. Wu Juenong described, 'The tea research institute was set in Wuyi Mountain, where the previous Fujian Demonstrative Tea Plant was, and there were also a dozen of famous tea factories and tea fields' (Wu, 1987, 406).

## **4.2 Introduction to the Fu'an Branch**

Fu'an was the central zone of tea production in eastern Fujian, and the yield of black tea took up more than half of the total yield of the province in a period of significant prosperity. The Fu'an Tea Experimental Field was affiliated with the Tea Industry Improvement Office. The Tea Improvement Test Region was operated by the Tea Management Bureau and three model tea production plants, namely, Shekou, Tangxi and Muyang. Three tea production offices were merged to form the Fu'an Branch. After the merge, four tea production offices were set, namely, the previous three tea production offices and a newly added Yangtou Tea Production Office.

Shouning established the tea production office, which was affiliated with the Fu'an Branch. Moreover, the Xietan 斜滩 and Wuqu 武曲 joint-venture tea production offices were added. [44] The Fu'an Branch was equipped with excellent equipment, production technology and scientific and technical personnel and produced tea both by machine and hand. The raw tea of machine-produced tea was manually planted, while the raw tea of manually produced tea was mainly purchased from tea farmers or through cooperation with various qualities. The tea manufacturing machines mainly included a rolling machine, de-blocking machine, screening machine and drying machine. The finished tea also had different names, for instance, machine-made tea was named 'Jianhong', while manually-made tea was named 'Minhong (闽红)' and 'Chunxiang (春香)'. The tea production period was divided into early spring, secondary spring, tertiary spring and autumn tea. The price of tea was different during different tea production periods. The provincial tea plant was favourable for tea farmers, and previous tea dealers may lower the price. Later, the government forbade the lowering of prices; the provincial tea plant was fair in trade, and the 'income of tea farmer increased a little' (Gao, 1940, 21).

### 4.3 Production efficiency analysis of Fu'an Branch

Fu'an Branch did not operate for a long time because of the war. The production efficiency of Fu'an Branch was analysed using the collected data.

#### 4.3.1 Output value

The output of Fu'an can be learnt through historical data, as shown in the following table. The data was obtained from the *Historical Data of Tea Research Institution and Occupational Education in Fujian*.

**Table 2 Amount of exported tea of Fu'an Branch, Fujian Demonstrative Tea Plant in 1940**

Tea Variety		Manufacturer	Pieces	Gross weight (Jin 斤)	Total value (Yuan 元)
Standard tea	Kungfu 工夫(Jianhong)	Shekou Tea Production Office	112	5 824	9 786.40
	Kungfu	Shekou Tea Production Office	2 520	126 000	164 031.50
	Kungfu	Muyang Tea Production Office	1 855	100 183	131 848.60
	Kungfu	Yangtou 阳头 Tea Production Office	2 281	120 690	164 967.50
	Kungfu	Tangxi Tea Production Office	2 080	111 770	151 628.80
	Total		8 848	464 467	622 262.80
stand dard		Shekou Tea Production Office	1 073	59 355	21 504.60

	Muyang Tea Production Office	463	28 294	11 370.60
	Yangtuo Tea Production Office	821	46 880	17 453.60
	Tangxi Tea Production Office	791	45 318	19 328.49
	Total	3 148	179 847	69 657.29
Total		11 996	644 314	691 920.09

Substandard tea refers to the tea stalk, gunpowder tea, camellia oil, sifting tea and tea powder. In the same year, the tea production condition of other branches of Fujian Demonstrative Tea Plant was as follows: Fuding Branch had a total value of 372 784.30 yuan, Xingcun Tea Production Office had a total value of 71 280.90 yuan and Zhenghe Tea Production Office had a total value of 43 767.04 yuan. Fu'an Branch nearly took the largest percentage, which was approximately twice that of Fuding Branch.

#### 4.3.2 Cost

When Fu'an Branch started, it encountered an uncontrolled rise in prices, and the high price of raw tea resulted in the production of tea cost. The cost produced in the production and sales process in Fu'an Branch was understood from the cost statement.

**Table 3 Cost sheet of the Fu'an Branch in 1940**

Abstract	Fu'an Branch	
	Sub-total (Yuan)	Total (Yuan)
Tea production cost		586 941.44
Less: Inventory	1 503.33	
Consignment sales		
Presented and daily use	6.72	1 510.05
Cost of selling		585 431.39
Add: Marketing cost		
Tax	8 894.83	
Delivery charge	5 366.36	
Packing expense	73 932.40	
General promotion cost amortization	179.22	
Others	14.14	88 386.95
Gross cost of merchandise sold		673 818.34

The sales cost = tea production cost – inventory – consignment sales – presented and daily use,  
total cost of sales = marketing cost + tax + delivery charge+ packing expense + general

promotion cost amortisation + others, in which the tea production cost consisted of two parts, namely, the manufacturing cost and factory affair cost. The manufacturing cost consisted of the raw materials, manual work, materials, depreciation, rent and other rent. The salary and administrative management cost constituted the factory affair cost. The total cost of sales was 673 818.34 yuan.

### **4.3.3 Proceedings from production**

The data contained the overall balance sheet and income statement of the Fujian Demonstrative Tea Plant, but no data of the Fu'an Branch. Therefore, the productivity effect was calculated according to the simple calculation of gross output and total cost. In this instance, the total revenue was only the total revenue export tea sales, and some tea sold in the domestic market was not listed. Approximately 464 987 jin of standard tea and 198 087 jin of sub-standard tea was produced. The standard tea for export sales was 464 467 jin, while the sub-standard tea was 179 847 jin, thereby accounting for 99.8% and 90.9% of the total amount of the standard and substandard tea, respectively. The majority of the tea was intended for export. In the table 2, the price per jin could be obtained by dividing the amount with the total export, namely, standard tea was 1.34 yuan/jin, while sub-standard tea was 0.39 yuan/jin. Supposing the price of the tea sold in the foreign market and the domestic market was the same, the total value of the standard tea sold in the domestic market was 622 959.46 yuan, while that of the sub-standard tea was 76 721.90 yuan. Then, the total value of the tea would be the sum of the two, that is, 699 681.36 yuan. The profit of Fu'an Branch in 1940 was the difference between total value and total cost or approximately 25,863.02 yuan. The income profit rate was the ratio of the total profit and total value of output, approximately 3.7%, while the cost-profit ratio was the ratio of total profit and total cost, approximately 3.84%. Compared with the general rate of profit, which was approximately 10%, the two values were not high; however, the above data were from the year 1940. Fuzhou was occupied by the Japanese army in 1941, which was pressing on business, and any profit was seen as positive. Fu'an Branch was established on 1 April 1940, and the above data were only the profit of the last three quarters and did not include other losses. At the end of August 1940, the Yangtou Tea Production Plant suffered from typhoon; 367 cases of tea of all varieties suffered from water damage, and 289 cases drifted away.

Nevertheless, in 1940, the Fujian Demonstrative Tea Plant produced '123 boxes of Kungfu tea made by machine, 8 763 boxes of Panyong congou, 1628 boxes of Shouning Kungfu and 3320 boxes of substandard tea' (Zhang, 1978). Regardless of the product difference, the annual production was roughly calculated at 13 807 boxes. After Fuzhou was occupied by the Japanese army in April 1941, the Supervisory Board of Fujian province ordered the Fujian Tea Plant to stop purchasing raw tea, while Yangtou, Muyang and Tangxi stopped production. Only Shekou Tea Production Office continued production. The majority of tea was sold in the domestic market. On 12 May 1941, the Tea Plant telegraphed to inform Fu'an Branch to sell the inventory material, and other assets were moved to the hinterlands in China. In April 1942, the

Fujian Demonstrative Tea Plant ended production. In August, it was renamed the Tea Research Institute of Trade Committee of Ministry of Finance, which was the earliest national tea scientific research institute established in China (Xia, 2008, 255).

## 5. CONCLUSION

The years 1935 to 1941 were the most difficult as this was the period when China was invaded by the Japanese army. After the Lugou Bridge Incident in 1937, the Japanese army gradually invaded south China. Tea was a significant export product that could create foreign exchange. In such a global political economic pattern, tea production was severely damaged. In modern times, countries such as Japan, India and Indonesia began to produce tea and gradually became competitors of China. Machine-produced tea became an inevitable trend. To revitalise Chinese tea, the contemporary national government and Fujian authority established the Fu'an Tea Experimental Field, Fu'an Agricultural Vocational School and Fujian Demonstrative Tea Plant, and formed the factory-school-research system. Hence, the tea industry was temporarily revitalised when Fu'an established the tea experimental field to study tea processing technology, brought in agricultural talents to establish Fu'an Agricultural Vocational School to cultivate the talents for tea industry and established the Fujian Demonstrative Tea Plant to disseminate industrial practices. Whether in the tea field, school or tea plant, the researchers, teachers and managers were all from universities, agricultural academies or overseas returnees. After the agriculture students graduated, they went to tea stores, became technicians or engaged in scientific research, playing a vital role in the production and sale of the tea industry and reflecting the innovation and ductility of occupational education. The significance is long range. The profit was 3.7% based on the production cost and benefit of Fu'an Branch; quantitative research allowed us to gain a clear understanding of the specific production. Aside from the material benefit in production, the promotion and effect of production technology are intangible. After years of development, Fu'an finally became the pioneer in scientific research on the tea field.

## REFERENCES

- [1]Chi Zongxian 池宗宪, *Tie Guanyin* 铁观音, (Beijing, 2005).
- [2]Compiled by China Grand Tea Culture Editing Committee 中国茶文化大观编辑委员会编, *Dictionary of Contemporary Tea Men in China* 中华当代茶界茶人辞典, (Beijing, 1995).
- [3]Fang Yonggui 方永圭 and Liao Qiwei 廖奇伟, 'Anhua Tea Field and Anhua Tea 安化茶场与安化茶叶', *Anhua Historical Accounts* 安化文史资料, 3(1986), 7.
- [4] Fujian Chorography Compilation Committee 福建省地方志编纂委员会, *Fujian Provincial History Agricultural History* 福建省志·农业志(Beijing, 1999).

- [5] Gao Chengxue 高诚学, Introduction to Fu'an Tea Industry, *Fujian Tea Quarterly* 闽茶季刊, 1 (1940),21.
- [6] Huang Qiang 黄镗, 'Introduction to Tea Industry in Fujian in the Revival Path (I) 复兴道上之福建茶业概观 (上)', *Fujian Political Monthly* 闽政月刊, 4(1939), 33-39.
- [7] Huang Qiang 黄镗, 'Introduction to Tea Industry in Fujian in the Revival Path (II) 复兴道上之福建茶业概观 (下)', *Fujian Political Monthly* 闽政月刊, 6(1940),35.
- [8] Lin Renchun 林仁川, *Fujian Foreign Trade and Customs History* 福建对外贸易与海关史, (Xiamen 厦门, 1991).
- [9] Wang Jiabin 王家斌, 'Recalling the Famous Tea Expert Mr. Li Lianbiao in China 缅怀我国著名茶叶专家李联标先生', *Tea Industry in China* 中国茶业, 8 (2011),9.
- [10] Wang Xufeng 王旭烽, *Tea Saint: Bibliography of Wu Juenong* 茶者圣: 吴觉农传 (Hangzhou, 2003).
- [11] Wu Juenong 吴觉农, 'Some Memories and Feelings in Chong'an Tea Research Institute 我在崇安茶叶研究所的一些回忆和感想', *Selected Works of Wu Juenong* 吴觉农选集, (Shanghai, 1987).
- [12] Xia Tao 夏涛, *History of Tea in China* 中华茶史, (Hefei, 2008).
- [13] Zhang Tianfu 张天福(ed.), *Historical Data of Tea Research Institution and Occupational Education in Fujian* 福建省茶叶科研机构和茶叶职业教育的历史资料, (Wuyi Mountain: Archives of Wuyi Mountain 武夷山市档案馆,1978).
- [14] --, 'Courses and Outlines of the Department of Tea 本校茶业科课程及教材大纲', *Fu'an Agricultural School Journal* 安农校刊, 1 (1937),59.
- [15] --, 'List of Staff of Fu'an Agriculture Vocational School of Fujian Province 福建省立福安初级农业职业学校教职员一览表', *Fu'an Agricultural School Journal* 安农校刊, 1 (1973), 68-69.