Recommendations for Private Rubber Industry in Mengla County of Yunnan Province

Wanzhen ZHANG[1], Haolun HUANG[2], Huide HUANG[2]*

1. Chinese Academy of Tropical Agricultural Sciences, Haikou 571101, China; 2. Institute of Science and Technology Information, Chinese Academy of Tropical Agricultural Sciences, Danzhou 571737, China

Abstract This paper discussed the area and yield of private rubber industry in Mengla County of Yunnan Province. The private rubber industry in Mengla County has such problems as lack of specialized technical personnel, poor technical training effect, and short production life of rubber trees. Finally, it came up with recommendations, including establishing and improving specialized technical service stations in townships, strengthening specialized technical management organizations, providing specialized technical management personnel, realizing specialization of technical training, and establishing standard rubber farmer cooperatives.

Key words Private rubber industry, Development, Recommendations

1 Introduction

Mengla County is a county in the southernmost area of Yunnan Province. Its north, east and south end is contiguous to the Lao People's Democratic Republic. Its west faces each other with Burma across the river. The average altitude is 1 000 m, average temperature of the whole year is 21 ℃, the average temperature of the coldest month is 15.3 ℃, and the extreme lowest average temperature is 5.8 ℃. The annual sunshine hours reach 1 852 h, accumulated temperature equal to or greater than 10 ℃ is 7 665 ℃, the average annual rainfall is 1540 mm, the annual average wind speed is 0.7 m/s, the static wind rate is above 60%, the dry and rainy seasons are distinct, and annual average relative humidity reaches 85%. Mengla County has abundant light energy, rich heat source and plentiful rainfall, deep and fertile soil, which are suitable for production of natural rubber. At present, Mengla County is the largest county planting natural rubber in China. Natural rubber makes active contribution to economic prosperity of Mengla County, border stability and social progress.

2 Area and yield of private rubber industry

Under the guidance of "natural rubber development action plan" of the Western Development Strategy and building "biological resource development innovation project and green economy" development strategy of Yunnan Province, the natural rubber industry of Mengla County has realized considerable development and natural rubber industry has become characteristic and superior industry of agricultural economic development of Mengla County. By the end of 2013, the private rubber planting area in Mengla County reached 81 800 hm^2, the rubber trees reached 37 million, and the rubber yield exceeded 80 000 tons. The area, number of trees and yield of natural rubber are listed in Table 1.

Table 1 Area, number of trees and yield of private rubber in Mengla County

Township	Area hm^2	Number of trees	Number of tapping	Yield of dry rubber//t
Mengla	6 645	2 899 274	1 822 788	6 936
Mengpeng	14 039	6 346 044	4 100 568	22 223
Mengman	7 783	3 598 419	3 251 889	12 357
Menglun	8 605	3 854 096	2 849 888	8 452
Shangyong	4 880	2 299 765	785 270	2 313
Mengban	9 102	4 161 763	566 358	1 127
Guanlei	12 457	5 605 904	4 166 760	17 259
Yiwu	6 629	3 135 506	382 810	979
Xiangming	5 998	2 749 438	677 895	1 924
Yaoqu	3 669	1 678 227	461 740	536
County-level authorities	1 133	494 950	488 950	6 000
Tropical crop companies	914	401 743	301 883	1 064
Total	81 854	37 225 129	19 856 799	81 170

3 Existing problems in private rubber industry

3.1 Lack of specialized technical personnel Mengla County has superior natural conditions such as high temperature and plentiful rainfall and moist climate, which are suitable for planting rubber trees. Therefore, Mengla County is one of the most suitable regions for rubber tree plantation. Nearly all farmers in Mengla County plant rubber trees. However, private rubber features small production scale and independent management, so it is difficult to expand production. What's worse, the separate, conservative, weak, and closed characteristics of small peasant economy are strong. In addition, the existing rural management system lacks specialized rubber management personnel. The management and service of private rubber industry lag behind and it is difficult to make improvement.

At present, planting area of private rubber trees in Mengla

Received: August 20, 2014 Accepted: November 3, 2014
Supported by Special Project of Fundamental Research Funds for Central Public Welfare Research Institutes in Chinese Academy of Tropical Agricultural Sciences (1630012012014001).
* Corresponding author. E-mail: HYY336@163.com

County has reached 80 000 hectares. The whole county and townships have 22 rubber management people, including 9 county – level people and 13 township level people. Most are not specialized personnel. As a result, townships lack specialized management organizations and technical personnel, difficult to suit for demand for prosperous development of the rubber industry.

3.2 Poor technical training effect To cultivate new farmers, improve their professional quality, and help them grasp rubber tapping skills, several departments of Mengla County have actively launched rubber tapping training classes combining with rural labor transfer sunshine project. These departments include Party school of the county, Personnel Bureau, Department of Civil Affairs, Bureau of Agriculture, Poverty Alleviation Office, Immigration Office, Social Security Bureau, Agricultural Broadcasting and Television School, and vocational middle schools. They actively strive for relevant projects and funds and participate in rubber technical training. According to reports, December 27 – 31, 2013, Agricultural Broadcasting and Television School of Mengla County held 2013 Sunshine Project Rubber Tapping Training in village committee of Mengban Village. A total of 100 farmers participated in this training. Before training, the president of Agricultural Broadcasting and Television School of Mengla County introduced policies related to central sunshine project rubber tapping training, invited four certified and qualified social technicians to give lectures. These technicians explained knowledge about rubber tapping skills, rubber tree land management, and prevention and control of plant diseases and insect pests. During training, it distributed 100 sets of teaching materials, 100 sets of various training rubber materials, headlights, rubber barrels, and rubber knives, having a total of 30 000 yuan.

Many departments of Mengla County have plan of holding rubber technical training. They have trained numerous farmers. According to statistics of Mengla County rubber technical extension station, Mengla County trained 12 680 person/times in 2013. The Mengla County rubber technical extension station trained 4 523 rubber farmers and held 36 times of training classes in 2012, and trained 4 554 farmers and held 39 times of training in 2013.

According to our field survey in more than 10 rubber planting points in Mengla County in June 2014, the private rubber production still lacks specialized technology. The rubber tapping technology is backward. A considerable part of rubber trees fail to realize rubber tapping in accordance with rubber tapping technology. Rubber trees are greatly injured, and most parts of Mengla County have not extended new rubber tapping technology. This reflects that the rubber training classes held by many departments are poor in training effect.

3.3 Short production life of rubber trees Due to rising of rubber price in recent years, local farmers are enthusiastic in planting rubber trees and nearly all suitable areas are planted with rubber trees. Farmers pay close attention to planting rubber trees but neglect rubber tapping technologies. As a result, rubber tapping is not standardized and rubber tapping technologies are weak. Many rubber tree gardens have problems of uneven tapping, injury of tapping surface, and high consumption of tree skin. These seriously influence restoration of rubber tree regeneration skin, reduce productivity of rubber tree garden, and shorten economic life of rubber trees[1]. Separate family operation mode of private rubber industry leads to poor planting technology, disorderly planting varieties, extensive fostering management, low rubber tapping technology, and poor appearance of rubber trees, weak growth, and low yield.

Rubber tapping is a highly technical manual job. Rubber tapping technology directly influences yield, rubber tree growth, restoration of regeneration skin, economic life, and production cycle of rubber tree garden. Workers with excellent rubber tapping technology can increase 20 – 30% yield, injure fewer trees, consume less tree skin, and the tapping surface is smooth, regeneration skin recovers rapidly, and tapping surface has little injury[2]. Private rubber tree gardens have the problem of no plan for tapping surface, varied tapping height, lack of effective and specialized training, serious injury of rubber trees, and high consumption of rubber skins. When the rubber price is high, rubber farmers may take one time of tapping daily, or even twice a day. As a result, the rate of dead skin is high. Most rubber trees of private rubber tree gardens have only life of 10 – 20 years, 50% shorter than normal production cycle of rubber trees.

4 Recommendations for development of private rubber industry

4.1 Providing specialized technical management personnel Private rubber tree planting is separate, the planting area is small, and it lacks specialized technical management and organization. In consequence, private rubber industry remains at the state of no organization and management. At present, weak technical services for application and extension of new technologies lead to weak ideological awareness of rubber farmers for scientific development of rubber. Some rubber farmers rely on gifted natural conditions and pay little attention to technical management of rubber tree gardens. Rubber production technologies are backward and rubber tree garden management has no technical standard. All management measures are random. Rubber farmers attach great importance to rubber tree planting, but neglect rubber tree garden management, value collection but belittle fostering, focus on rubber tree planting but neglect rubber tapping. In consequence, rubber trees have short economic life and the economic benefits are relatively low.

Therefore, the private rubber industry should establish and improve township specialized technical service station, strengthen specialized technical management organization, and provide specialized technical management personnel, to satisfy technical guidance and service of the rubber industrial development.

4.2 Specialization of technical training The private rubber technical training should avoid formalization, and overcome the problem of only considering political achievements but seeking no

practical training effect, and backward scientific and technological services for rubber farmers. Many departments have held various technical training classes, but the training organizations have few technicians good at rubber production technologies. Scientific and technological service system is not perfect. It is difficult to perform constant scientific and technological service responsibilities and difficult to bring into full play technical consultation and technical guidance functions for private rubber industrial development. Therefore, it is recommended to take management of rubber technical training classes through specialized department, practice specialization of technical training, to invite specialized technical personnel to take charge of technical training, to carry out constant tracing technical guidance and services for rubber farmers and improve technical training effect.

4.3 Establishing standardized rubber farmer specialized cooperatives Rubber trees are perennial tropical arbor. Their economic life is as long as 30 – 40 years. They have higher technical requirements. With the private rubber tree gardens entering the rubber tapping and putting into production period, as well as gradual increase of tapping area and release of productivity, the private rubber industry becomes an essential part of China's natural rubber industry and will bring into play more and more significant role, and the position of rubber industry will gradually rise[3]. At present, private rubber tree planting is separate, so it is difficult to improve awareness of rubber farmers for scientific rubber planting and tapping. To effectively guide rubber farmers to popularize advanced and practical rubber production technologies, unify and standardize rubber production technical measures, increase content of production science and technology, constantly improve scientific and technological quality of rubber farmers and technological level of production and operation, and increase economic benefits of rubber, there must be a proper organization to fulfill this great mission. As for actual situations of rural areas, in combination with our field survey of implementation effect of rubber farmer specialized cooperatives, especially the survey of Qiongzhong Fudao Rubber Farmer Specialized Cooperative of Hainan Province, we conclude that it is appropriate to establish standardized rubber farmer specialized cooperatives. Standardized rubber farmer specialized cooperatives can take unified technical management and technical training of rubber farmers, implement production and technical measures, unify rubber tapping system, and unify rubber collection and sales, which are favorable for improving technical level of rubber tapping workers, increase economic output value of rubber and extend economic life of rubber.

References

[1] CHUAN XX, BAI YB, LI JT, *et al*. Natural rubber industry and its development in Dehong and Lincang regions of Yunnan Province[J]. Tropical Agricultural Science & Technology, 2012, 35(2): 9 – 15. (in Chinese).
[2] YE DL, LI XM. To improve the rubber industry growth level of MenLa County, Yun Nan Province by seizing the development opportunity[J]. Chinese Journal of Tropical Agriculture, 2007, 27(3): 43 – 47. (in Chinese).
[3] QI DL, WANG XQ, ZHANG ZY, *et al*. Current situation of Chinese natural rubber industry and development suggestions[J]. Chinese Journal of Tropical Agriculture, 2013, 33(2): 79 – 87. (in Chinese).

(From page 59)

2012, No. 1 document of central government clearly stated "energetically cultivating new professional farmers". In 2013, the Ministry of Agriculture launched the pilot project of new professional farmers in the whole country. In response to this call, the foxtail millet industry took this opportunity, implemented education and training, certification and registration, and policy support measures oriented towards key large planting farmers, attracted and cultivated a good many high quality foxtail millet producers and operators, to support the development of foxtail millet industry and ensure qualified successors of the foxtail millet industry.

4.4 Encouraging mechanized planting Machinery scientific research departments should actively develop agricultural machinery for whole process of the foxtail millet production and strengthen development of light-duty special machinery for foxtail millet, such as sowing machine, harvest machine, and thresher, to satisfy demand of foxtail millet production in major production areas. Existing subsidy policies for agricultural machinery and tools are favorable for research and development of the foxtail millet machinery and favorable for simplification of production technologies. As long as suitable agricultural machinery is developed for the foxtail millet industry, the foxtail millet planting households can obtain fund subsidy, which will not only reduce the production cost but also increase labor production efficiency. Wide use of agricultural machinery not only stimulates enthusiasm for research and development, but also promotes mechanization of foxtail millet planting, so as to realize benign development of the foxtail millet industry.

References

[1] CHEN SK. Mastering SPSS statistics analysis[M]. Beijing:Tsinghua University Press, 2010. (in Chinese).
[2] WU XZ. Statistics:Conclusion from the data[M]. Beijing:China Statistics Press, 2009. (in Chinese).
[3] LI ST, ZHAO M, LIU B, *et al*. The existed problems of millet industry in Chifeng City and its countermeasures and prospects[J]. Inner Mongolia Agricultural Science and Technology, 2010(1): 82 – 83. (in Chinese).
[4] REN YM, LI YF, YANG Z, *et al*. Status and suggestion of millent industry development in Shuozhou Region[J]. Rain Fed Crops, 2010, 30(4): 312 – 313. (in Chinese).
[5] LI SG, ZHAO Y, WANG HJ. An investigation report on the needs of millet industrial zone construction and industrial benefit improvement[J]. Journal of Hebei Agricultural Sciences, 2010, 14(11): 149 – 152, 169. (in Chinese).
[6] TIAN GL. Development situation and countermeasures of millet industrial in Chaoyang District[J]. Heilongjiang Agricultural Science, 2010(12): 162 – 163. (in Chinese).
[7] MA JJ. Study on rural leading enterprises development in Hebei Province [J]. Agricultural Economy, 2011(8): 27 – 28. (in Chinese).
[8] QIU FC. New development trend of millet industry in China[J]. Modern Rural Sciences and Technology, 2013(7): 71 – 72. (in Chinese).