Korean J. Ginseng Sci.
Vol. 16, No. 1, 75~77(1992)

The Present Situation and Prospect of Jilin Ginseng Production

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Present Situation of Jilin Ginseng Production

Development of production : Jilin Province is the main productive area of China ginseng. Under the guide of the country policy, the area and yield of Jilin ginseng have got a great development. According to the statistics, the Jilin ginseng area in 1990 is 72 times more than that in 1949 and the ginseng yield grows 300 times than that in 1949. The growing rate of the ginseng area is 24.2% per year and the ginseng yield is 22.4% per year from 1949 to 1990 in Jilin Province.

The ginseng planting zone was only limited in a few counties and cities some years ago, but now it distributes to 21 counties and cities. Except the ginseng planting in the area where the forest has been cut down, there are also some other forms, such as ginseng planting in the farming fields or under the forests.

At the present time, the highest per unit area yield is 3.6 kg/m^2 (average of a million m^2) and the ginseng ratio of the 1st and 2nd grades is more than 85~90% in some production counties in Jilin Province. The highest per unit area yield is 7.1 kg/m^2 in a few ginseng experimental farms.

Ginseng production is developed in the fields, at the same time, some researches are also carried out, for example, development of new products and technological process, integrated utilization of ginseng and so on. The quality of red ginseng is increased obvioulsy following the improvement of the quality of the raw material ginseng and the perfection of the process. Some of the Jilin red ginseng, such as Huang Feng Ginseng, Xin Kaihe Red Ginseng, and Changbai Mountain Red Ginseng have got the international goldden prize. The activated ginseng, fresh keeping ginseng and some other new products have been created. Ginseng process has turned into mechanization from hand working, and some of the processes have become automation.

Improvement of cultivation : China is the earlist country to plant ginseng in the world. Up to now, the history of ginseng cultivation is nearly 1700 years. The standard ginseng cultivation is more than 460 years in Jilin province. Our ancestry have accumulated a wealth of experiences in field selection, field plough, seed selection, seedling selection and the light adjustment and so on. All of these are the base that we develop our ginseng business. Today, our production techniques have got greater improvement than that of the traditional experiences. Some main points are:

Improving ginseng shed to give light scientifically; Ginseng is a kind of shade plant which is afraid of the direct sunlight. Particularly, under the conditions of high temperature and dry, it is very easy to be damaged by sunlight. However, ginseng is still a green plant, it relies on light to create and accumulate nutrition as well. In order to provide a suitable light conition for ginseng growing, some Chinese scientists have determined the photosynthetic compensation point and saturation point. The range of the photosynthetic compensation point of ginseng is from 250~400 LX, and the photosynthetic saturation point is from 15~35 KLX. According to the parameters mentioned above, we improved the shed structure. Through our comparing experiments, we think that the arch adjustable light shed is a kind of ideal ginseng shed. Comparing with the one side slope shed, the arch adjustable light shed can provide more well-distributed light to the ginseng beds which are under the arch shed. The water situation is also more even, and the effective light intensity each day is higher on the ginseng

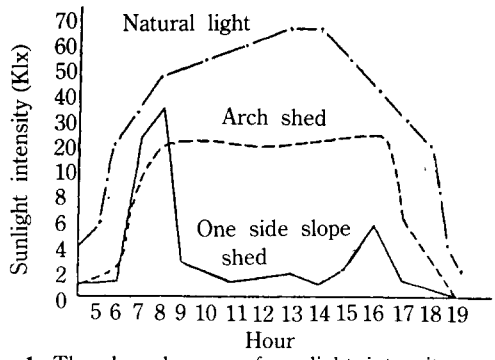

Fig. 1. The day changes of sunlight intensity under different sheds.

beds under the arch shed than those under the other sheds. Fig. 1 shows the difference.

Turning the fixed shed lid into the adjustable shed lid is another step to improve the ginseng shed. According to different growing period of ginseng, the light intensity is adjusted by moving the shed lid. In this case, the light intensity on the leaf canopy could be always kept around the light saturation point in order to ensure that the ginseng could always receive the light intensity which is nearby the light saturation point from seedling emerging to plant withering. This new shed ensures the energy sources of ginseng photosynthesis and provide a energy base for ginseng high photosynthetic accumulation.

Providing nutrition by a prescription : Some works about the regulation of ginseng fertilizer needing have been reported by the experts of South Korea and Japan. Chinese experts investigated the tendency of gineng fertilizer needing and soil fertilizer situation in the main ginseng productive zone in Jilin Province. According to the characteristic of Jilin ginseng, we provided different nutrition in different ginseng fields in order to ensure the fertilizer requirement of ginseng growing. The ginseng fertilizer is consisted of soybean pie, oil residue, sesame, perillaseed and some trace elements. The nutrition is given to ginseng mainly by base fertilizer, and then by additional fertilizer which is mainly put beside the roots, and sometimes on the leaves.

It should be pointed out that, at the present time, providing the fertilizer or nutrition to ginseng is based on the target of high quality and yield. If some measures which can not make ginseng to reach the international targets of the compositon, such as those of ginsenoside, polysaccharides, volatile oils, resistant old phenol, those measures would not be carried out.

Strenthing water mangement in the growth phase : In the shed which is allowed sunlight passing through but not soaking and just under the condition of 60% content of water in the bed soil, we detected some physiological targets of ginseng, its transpiration intensity is 6.25 g/m^2 hr, the transpiration coefficient is 167.95 g, the transpiration ratio is 6 g, total water requirement is 135 kg/m^2 (26 strain ginsengs) during the whole growth phase, the requirement is about 2.8%, 17.2%, 10.7% and 41.3% of the total seperately at the twelveth day in early seedling phase, the tenth day of flourishing seedling phase, the fifth day by flowering phase, the seventieth day of fruiting phase, and during the nourishing phase after fruiting the requirement is about 28.3% of the total. According to the model of water requirement coefficient and the water state in the soil of ginseng producing areas, we replenish water to ginseng plants by stages.

At present we mainly take the measures of ditch irrigating in rows or in beds, but seepage irrigation and spray irrigation taken by small districs. It should be better to combine irrigating with adding manure in small amount and by many times, just after and before sunrise or about sunset, at the same time adding suitable amount of antibiotic fertilizer. We use the method of irrigating that can prevent ginseng from infecting some diseases or rottening after irrigating.

Making the bed higher, planting slantingly two rows of seedling on the wide ridge, standardizing seeds and seedlings : For cultivating fine seedling and gain fine ripe ginseng, we preparated and turned up the soil in depth and made the bed higher (above 25 cm), thus we increase the length of the main body of ginseng. It is the measures of the intensive cultivation to plant slantingly two rows of seedings on the wide ridge. By now, we are spreading the measures because it can make planting quick and nice, saving the labours in irrigating and

adding manure.

Standardizing seeds and seedlings is also one of the measures to manage ginseng enterprise well. And the measures have been carried out by Chinese government since 1989. In Jilin Province we are planting the pure variety of Ma ya ginseng and will reproduce the variety of Yellow fruit ginseng in some scales.

Besides out mentioned methods, we are spreading the multiple-farming measures to prevent and cure some ginseng diseases, for example, increasing the intensity of sunlight under the sheds, applying manure and irrigating by scientific methods, getting the varieties and eliminate through inferior strains by selection, and filling the gaps with seeding on time, and so on.

It should be pointed out that we gradually improved the mechanization level of ginseng production during changing the productive techniques of ginseng.

Prospect of Jilin Ginseng Enterprise

We are facing the period of adjusting and reorganizing the ginseng production, and we will plant ginseng in a plan way and preparation. To protect the ecological environment and nature resources near the Changbai Mountain main range, we are changing the rotation system from ginseng-tree rotation to ginseng-grain or ginseng-medicinal plant rotation step by step, and we will further reach the goal which we can produce high quality and yield ginseng. Changing technique, that is prefecting the shed construction, carrying out the intensive production, enhance the link of breeding, improving the technology level of processing ginseng and popularizing the automation of processing production-lines. Moreover, we will learn the advance techniques and experiences from foreign countries, and meanwhile we will make a thorough study on the new products and comprehensive utilization of ginseng.