

Problems and Solutions of Walnut Cultivation in Sanmenxia

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Abstract: Walnut is a kind of plant with higher economic value. With the development of society, walnut planting has developed into an industry, especially in recent years. Walnut has promoted the development of mountain economy. This article mainly discusses some problems existing in the walnut cultivation process, and methods or measures to solve various problems in walnut cultivation.

1. Introduction

Walnut has strong stress resistance and barren tolerance. Its fruit has high economic value, and it has a wide range of uses. It is an economic tree species favoured by fruit farmers. However, there are many problems in walnut planting. As a result, factors such as poor quality, low yield, and poor efficiency restrict the development of the walnut industry. We must take effective measures to overcome it. Planting walnuts can promote regional economic development and help people improve their living standards.

2. Some Problems in the Current Walnut Cultivation Process

During the cultivation of walnuts, due to the influence of cultivation experience, technology and natural factors, there are some problems in walnut cultivation, which are manifested in the following aspects:

2.1 Uncertainty of Main Varieties

The disorderly development after the introduction of a large number of varieties has not identified the main walnut planting varieties, resulting in a variety of varieties in the orchard, including early-fruited and late-fruited varieties, and multiple varieties mixed. The results vary greatly, and the maturity period is not consistent. Poor commercial quality affected the economic benefits of the orchard.

2.2 Focusing on Revenue But Not Management

We have formulated local standard “Walnut Production Technology Regulations”, which provides technical training and guidance throughout the year. The city conducts walnut production technology training for more than 5,000 persons per year. The technology application focuses on walnut science and technology demonstration parks and standardized production parks. In production, the concept is out-dated, and production is still carried out according to the traditional management pattern. First, the importance of walnut income and management is not recognized, and advanced technologies cannot be used well.[1] The configuration of pollination trees, tree-shaped pruning, and pest control techniques are still unable. Let farmers form an understanding, and do not produce pollination trees, or indefinite dry pruning. The second is driven by interest. Harvested when the walnut is immature, resulting in severe reduction in walnut production. Reduced quality coupled with some people in the countryside receiving green peel walnuts. Some farmers are afraid that their walnuts will be stolen and harvest in advance. Some farmers who are unwilling to harvest are also forced to harvest in advance. In the management of walnuts, basic management measures such as plastic trimming, weed removal, and fertilization expansion are

unwilling to use, resulting in unstable production and even harvest failure when the weather is bad.

2.3 Poor Pest Management

For any planting industry, pests and diseases are unavoidable, as is the cultivation of walnuts. If the prevention and treatment of pests and diseases is not done in time during the cultivation process, the best time will be missed if measures are taken after the occurrence of pests and diseases, not only will it increase the cost of walnut cultivation also seriously affects the fruit of fruit trees. Preventive measures or prevention methods for diseases and insect pests must be scientific and reasonable. Not only should you pay attention to the choice of good preventive measures, but also pay attention to the amount of pesticides and the side effects of pesticides. If the amount is excessive, it may cause tree death and fruit shedding.

2.4 Improper Management Measures

In the actual cultivation process, in order to facilitate the shaping of fruit trees, some fruit farmers often use low-fixed stems to manage fruit trees in the later trimming of fruit branches. This kind of trimming will make the crown very close to the ground, which will bring later fruit tree management. It is troublesome, and will cause the stem to mop, and finally reduce the canopy to obtain normal light and reduce walnut yield. Some canopies are more shaped, which can cause the canopy to form late and extend the shaping period. In terms of fruit tree flower and fruit management, many fruit farmers lack the necessary understanding of sparseness, resulting in a lot of flowers and waste of nutrients and water. There are also some fruit farmers who do not understand the meaning and significance of artificial pollination at all. The pollination operation is not standardized, which greatly reduces the fruit yield of fruit trees.[2] At this stage, most of the cultivated walnuts in China use the early fruit type. Many fruit farmers fail to pick dense fruits in time, which will have a certain impact on the growth of other surrounding fruit trees, and it is very easy for the fruit trees to prematurely decay due to too many fruits.

2.5 Cultivation Density is Too Dense

The density of fruit trees is closely related to the variety characteristics, the level of cultivation garden management, and the soil conditions in the garden. Walnuts, like other fruit trees, have many cultivation densities. In some places, few considerations are given to restrictive factors of cultivation density. In the actual cultivation process, only one-sided dense planting is considered, and dense planting is regarded as a guarantee of high efficiency and high yield. Because the planning plan is not standardized, the characteristics of the cultivated varieties and the pruning methods are not fully understood, and the results often shift out, the early canopy is closed, and the quality is low.

3. Methods or Measures to Solve Various Problems in Cultivated Walnuts

3.1 Pay Attention to Water and Fertilizer Management, and Scientifically Trim Fruit Trees

Water and fertilizer management plays a decisive role in the success of walnut cultivation, especially for walnut trees growing in mountainous areas. Water and fertilizer management plays an important role in its growth. When planting walnuts, we must ensure that good tree tray work and management are in place in the garden and make full use of mulching technology to increase fertility. Before fertilizing the fruit trees, it is necessary to carefully survey the site conditions, and formulate a scientific fertilization plan according to the actual growth conditions of the fruit trees, to ensure that the type and amount of fertilization conform to the growth conditions of the fruit trees, and strictly implement the correct fertilization operation during the fertilization process. In addition, when trimming fruit trees, it is necessary to adjust the structure of the fruit tree in a timely manner. It not only focuses on the cultivation of main branches and side branches, but also makes full use of long branches to cut off diseased and insect branches and dry branches in time to ensure that the space between the fruit trees is fully utilized.

3.2 Adhere to Reasonable Close Planting

In order to make rational use of land resources, planting densities should be set reasonably according to the characteristics of cultivar branches, garden conditions, and management levels to ensure adequate lighting and sufficient growth space. If the soil layer is deep and the terrain is relatively flat, plant 4mX6m wide and narrow rows appropriately. When the tree is large, you can go to a row to make the density 8mX6m, which is convenient for mechanical operation. However, in densely planted plots where soil is relatively barren, slopes are large, and fertilizer and water conditions are poor. In addition, walnuts with early maturity have early results and relatively small tree growth. [3] The planting density is suitable for row spacing of 3-4mX5m. The row spacing of late-set walnut seedlings can be larger than that of early-set walnuts.

3.3 Focus on Flower and Fruit Management and Effectively Prevent Various Diseases and Insect Pests

When the fruit tree is blooming, it is necessary to properly operate the sparse flowering to ensure that each fruit tree has a certain number of male flowers. This can not only save nutrition and water, but also improve the fruit tree fruiting rate and increase yield. At the same time, during the cultivation of fruit trees, we must do a good job in controlling pests and diseases. We must first carefully prepare a pest and disease test report, and then control pests based on the pest and disease test report. You can choose to use artificial control, agricultural control, biological control or physical control. For the prevention and treatment law, if chemical law is adopted for prevention and control, the amount of medicine used must be restricted and the overuse of medicine is prohibited.

3.4 Reasonable Intercropping

For walnuts, reasonable intercropping is to select some short-stem crops when the tree is young, without affecting the normal growth of the tree. Common short-stem crops are peanuts and soybeans. Intercropping crops and walnut fruit tree trunks must be more than 1 meter apart. Note that intercropping crops cannot be vegetables and wheat. Wheat is a water-requiring crop. During the ripening season, the branches below the canopy of the peach core tree will be dried, resulting in a prolonged walnut fruit time.[4] Because there is no profit in the early stage of walnut planting, it is reasonable to carry out the planting of Chinese medicinal materials under the forest. It is recommended to grow oil peony and Sedum aizoon. The cultivation of radish and soybean is also distributed in this area.

4. Conclusions

There are still many problems in walnut cultivation technology. We must continue to explore and summarize from all aspects to strive for the highest yield and maximize the benefits. Seedling quality, natural conditions, planting methods, and management methods are all factors that affect the success of walnut cultivation. We must comprehensively analyse various problems in the cultivation process and pay attention to each link of cultivation to improve the fruit farmers' Management work to solve various problems in time to ensure the quality of walnut cultivation according to the cultivation situation.

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