

<<银杏复合经营生态学基础>>

图书基本信息

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内容概要

Agroforestry is rapidly being transformed from an empirical , largely anecdotal collection of beliefs and practices into an emerging science in the field of natural resource management. The book is a major contribution towards this goal. This book reported findings from seven different pot and field trials and field Ginkgo agroforestry systems mainly including interactive effect of light , moisture and nutrient on Ginkgo , intra-specific competition of ginkgo , inter-specific competition between Ginkgo and crops. It provides the most authoritative analysis available up to now of the various hypotheses that Ginkgo and crops , if properly chosen and managed , have a potential to increase productive capacity of the systems. The main value of this book is that it brings together a substantial amount of original contribution to human knowledge from fundamental research , applied research in pot trials and observations of real Ginkgo agroforestry systems in the field.

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作者简介

Following an undergraduate degree in Forestry Sciences and an MSc in Silviculture from Nanjing Forestry University (NJFU), Nanjing, P. R. China, Fuliang Cao (English name Sam) received his PhD in Forest Ecology at the University of British Columbia, Can

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章节摘录

In the past 50 years, Ginkgo plantations have increased greatly due to the increasing demand for its nuts, and Ginkgo cultivation has now extended to more than 20 provinces. The total number of nut-producing trees is 0.7-0.8 million, and the average total production of nuts is 5,000-6,000 tons a year (He et al. 1997). As pharmaceutical usage of the species developed in the early 1980s, Europe began to establish leaf-producing plantations. The manufacture of extracts of leaves has developed rapidly since 1990, promoting the establishment of leaf-producing plantations in China. It is estimated that yield of dry Ginkgo leaves in China reached 8,000 tons in 1996. Of this, half was harvested from leaf-producing plantations and half from mature trees that have borne nuts already (Ding 1999). The leaves of young trees contain more active compounds than those of old trees, and consequently industry prefers to buy leaves produced from seedlings rather than from grafted plants in orchards. The total area of leaf plantations in China is now estimated to be about 15,000 hectares (Li 2000, Cao 2003). Ginkgo is currently one of the most important cash crops in China. In the past ten years, a large area of Ginkgo plantations has been established for nut-and-leaf production because farmers can get a high profit and a quick return on their investment. In 2000, China accounted for more than 70% of the total world Ginkgo resources and produced more than ten thousand tons of nuts and 80 thousand tons of leaves (Cao 2003). About two-thirds of the nuts and leaves produced are exported to Japan, the US, Korea, and Germany (Zheng 1992). Since the 1950s, China has experienced a rapid growth of population. The area of arable land has decreased drastically and the environment has been degraded as industrial development has taken place. Jiangsu, a southeastern province of China, has to support a population of approximately 40 million on a land area of only 102.6 thousand km². This population is growing at an annual rate of 2%. Jiangsu is one of the four most developed provinces in China, and therefore a large portion of arable land has been converted to industrial use. The combination of high population density and decreasing amount of arable land has resulted in serious land shortages for several decades, and with the continued growth of the population these shortages are likely to get worse. Because of its limited and diminishing arable land resource, China is facing a challenge to provide food for the growing population. Agroforestry management systems may offer one of the most effective ways to solve this problem. China has a long history of agroforestry. During the Shang and West Zhou Dynasty (1600-800 B.C.), farmers planted trees in or around crop fields, and grew fruit-bearing plants and vegetables, and farmed domestic animals in their home yards for self-sufficiency. Since then, various forms of agroforestry developed gradually, and formed the foundation for the Chinese farming economy for more than 3000 years. Because of the economic, ecological and social benefits, there is a strong pressure to convert monoculture food crop systems into systems of agroforestry. Modern agroforestry systems could be very beneficial to the development of China's rural economy (Hsiung (Xiong) and Chandler 1996, Cao 2003).

In the last 20 years, many scientists have studied agroforestry in China, and agroforestry systems have been adopted widely in rural areas. Many different tree species are used in agroforestry to protect soil and food crops from wind and drought damage and from erosion. Examples include intercropping fruit trees and wheat, and *Fraxinus* and *Paulownia* intercropped with strawberries and wheat (MacDicken and Vergara 1990). Other tree species used for interplanting include rubber tree, *Paulownia* spp., *Ziziphus jujuba*, *Populus deltoides*, *Diospyros kaki*, *Fraxinus chinensis*, *Morus cathayana*, *Metasequoia glyptostroboides*, *Taxodium ascendens*, and *Taxodium distichum* (Xiu 1986, Wen 1989, Jiang 1990, Lou 1996).

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