水旱灾害与湖北农业可持续发展

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内 容 提 要

本书客观地描述了湖北省水旱灾害历史和发展趋势，辩证地分析了水旱灾害与农业可持续发展之间的关系，综合利用各种统计资料系统研究了水旱灾害对湖北省农业可持续发展的影响，其中运用C—D生产函数重点分析了水旱灾害对湖北省粮食生产的影响，运用主成分分析和相关分析方法测评了水旱灾害对湖北省农业可持续发展的影响，并以此为基础探讨了重构与完善湖北农业防灾减灾体系的原则和战略措施，提出了促进农业减灾技术创新的政策选择。

序　言

湖北是一个农业大省，也是一个频繁遭受自然灾害侵害的省份，洪水、干旱等自然灾害对农业发展有着极为重要的影响。历史记载表明，湖北省完全无水旱灾害的年份极少。尽管新中国成立以来，政府高度重视农业自然灾害的防治，不断加大财政投入，但水旱灾害依然严重，大旱大涝约两年一遇，其中大旱十年三遇、大涝五年一遇。农业是人类生存和发展的基础，农业的持续发展是人类社会、经济持续发展的基础，没有农业的持续发展，就不可能有人类社会、经济的持续发展，农业可持续发展已经为人们普遍接受和认同。农业可持续发展的核心内容是强调农业发展与保护资源、保护生态环境的协调一致，形势日益复杂、损失急剧增长的自然灾害对湖北省乃至全国的农业可持续发展造成了威胁，已成为实施可持续发展战略最严重的阻碍之一。从这个意义上讲，本书将选题定位于湖北省水旱灾害与农业可持续发展研究并探讨农业防灾减灾具有重要的理论意义与实践价值。

本书在研究中既注重理论与方法的创新，同时又有内容体系的创新。综观全书，我认为有三个特点值得注意：一是本研究运用主成分分析法和相关分析法分析水旱灾害对农业可持续发展系统的影响，这是一次有益的探索。作者力图从研究方法上进行突破，以准确描述水旱灾害对整个农业可持续发展系统的影响，并找出问题的主要矛盾，为农业防灾减灾的政策制定

提供指导。从中不难看出作者强烈的创新意识。尽管研究方法还不够成熟，或者有值得斟酌的地方，但是作者的探索勇气应当给予鼓励。二是提出了一些有新意的理论观点。在农业防灾减灾的农户与政府行为分析中，提出了市场机制调控农户行为并不能实现减灾要素的最佳配置，政府必须对市场进行干预，以达到有效调控农户减灾行为的目的；在阐释自然灾害与农业可持续发展的辩证关系时，以人与自然关系的演变历程为起点，落脚于“减灾就是发展”的辩证观点。三是本研究政策分析有重要的现实意义和实践参考价值。本书在运用制度经济学理论剖析现阶段我国自然灾害管理模式及其弊端的基础上，探讨了重构与完善湖北农业防灾减灾体系的原则和战略措施，在详细分析农业减灾技术创新面临的制约因素的基础上，提出了促进农业减灾技术创新的政策选择。我认为，这是一本既有理论深度，又有现实意义的学术专著。关于自然灾害和农业可持续发展的研究文献都是浩如烟海，但是将两者结合起来研究并不多见，本书在这方面进行的努力，显然会在一定程度上丰富这一领域研究的理论及实践成果，对提高同类研究水平是有益的。我愿意将本书推荐给大家。

本书作者是我的学生，他在我院获得管理学学士后，被推荐免试硕博连读，攻读并获得了农业经济管理学博士学位。他具有比较深厚的理论基础，特别是攻读博士学位期间一直致力于农业可持续发展和灾害经济学研究，先后发表了数篇有关论文，本书是在他博士论文的基础上修改、增补而成的。2005 年 9 月，刚刚博士毕业的他响应中组部、团中央的号召，毅然投身到支持西部大开发的洪流中。2006 年 9 月，他圆满完成为期一年的贵州挂职服务工作，带着优异的成绩回到华中农业大

学。尽管重新回到教师岗位，需要一些时间去适应，但是他秉持一贯的勤奋和踏实的作风，一回到学校就马上投入到博士论文的修改和完善工作中。希望作者能够以本书的出版为起点，保持优良的作风，继续努力与求索，为农业经济科学的发展与繁荣做出自己的贡献。我期待着他能够推出更多更好的研究成果。

是为序！

雷海章

2006年12月

中文摘要

人类在思考如何实施和促进农业可持续发展，从而解决面临的资源短缺、环境污染和生态破坏等一系列问题的同时，往往容易忽视资源短缺、环境污染和生态破坏都将造成农业灾害。农业灾害会导致农业不可持续发展或削弱其可持续发展能力。农业是人类生存和发展的基础，农业的持续发展是人类社会、经济持续发展的基础，没有农业的持续发展，就不可能有人类社会、经济的持续发展。农业防灾减灾，成为农业发展不可绕开的难题。湖北省地处长江中游地带，位于洞庭湖之北，经济建设与资源、环境、生态和人口增长的矛盾十分突出，而且是我国自然灾害特别严重的少数几个省区之一，尤以水旱灾害威胁最大，发生最频繁，影响范围最广。因此，湖北省能否有效地实现水旱灾害防灾减灾，是关系到整个地区能否可持续发展的大问题，也是关系到整个国家能否可持续发展的大问题。这正是本论文研究的基本出发点。

本书包括导言在内共八章。第一章导论主要阐明本研究的背景、目的、意义及研究思路、方法与框架。第二章是对湖北省水旱灾害历史的描述及评价，并着力分析了湖北省水旱灾害发展趋势。第三章是水旱灾害与农业可持续发展的思辨。本章以人与自然关系的演变历程为起点，研究了水旱灾害与农业可持续发展之间的关系，落脚于“减灾就是发展”的辩证观点。第四章是系统研究水旱灾害对湖北省农业可持续发展的影响，其中运用 C—D 生产函数重点分析了水旱灾害对湖北省粮食生产的影响。第五章是运用数理经济方法测评水旱灾害对湖北省农业可持续发展的影响。本章在运用主成分分析法计算出湖北省农业可持续发展水平

指标的基础上，对湖北省农业可持续发展水平与灾害直接经济损失进行了相关分析，直观地反映了水旱灾害对湖北省农业可持续发展的影响程度。第六章从经济学角度分析了农户的防灾减灾行为，并以此为基础，阐述了政府应该如何调控农户的防灾减灾行为。在以上分析的基础上，第七章运用制度经济学理论剖析了现阶段我国自然灾害管理模式及其弊端，结合世界各国灾害管理发展趋势，探讨了重构与完善湖北农业防灾减灾体系的原则和战略措施。第八章从技术创新理论入手，系统阐述了农业减灾技术创新的内涵、特点及作用，运用公共物品理论探讨了农业减灾技术创新模式，并在详细分析农业减灾技术创新面临的制约因素的基础上，提出了促进农业减灾技术创新的政策选择。

关于水旱灾害研究的文献很多，关于农业可持续发展的研究文献更是浩如烟海，但是将两者结合起来研究并不多见。研究选题本身具有一定的开拓与创新。除此之外，本论文在内容体系及方法论上的创新主要体现在以下几个方面：

第一，阐释了自然灾害与农业可持续发展的辩证关系。在全面建设小康社会的大背景下，水旱灾害几乎成为湖北地区实现腾飞的瓶颈。人类只是认识到自然灾害严重阻碍了农业可持续发展，本论文从一个新的角度阐释了自然灾害与农业可持续发展的辩证关系。

第二，系统地构建了湖北农业防灾减灾体系和湖北农业防灾减灾的技术创新模式。当前，湖北省农业防灾减灾体系存在诸多问题，论文结合世界各国灾害管理发展趋势，依据政府为主原则、多元主体原则、可持续原则、效益原则和预防为主原则，系统地构建了包括灾害法律体系、灾害教育体系、灾害管理体系、灾后保障体系等在内的湖北农业防灾减灾体系。论文以技术创新的相关理论为指导，基于我国还处于农业现代化起步阶段的现实，提出建立政府供给主导型农业减灾技术创新模式是较为现实的选择。在此基础上，论文针对农业减灾技术创新面临的若干制约因素，

提出了促进农业减灾技术创新的相应政策。

第三，运用主成分分析法和相关分析法分析水旱灾害对农业可持续发展系统的影响。在研究方法上将主成分分析和相关分析运用于水旱灾害对农业可持续发展系统影响的分析，以准确描述水旱灾害对整个农业可持续发展系统的影响以及影响结果的排序，从而找出问题的主要矛盾，为防灾减灾的制度创新和技术创新提供指导。

第四，对农户的防灾减灾行为进行经济学透视。本文从经济学的角度深入分析了农户的防灾减灾行为，为政府调控农业防灾减灾行为提供了经济学依据。

关键词：水旱灾害；农业可持续发展；主成分分析；制度创新；技术创新。

Abstract

While thinking how to implement and promote sustainable development of agriculture, so that to solve such a series of problems as the resource shortage, environmental pollution and ecological disruption faced, etc., the human is often apt to ignore that the resource shortage, environmental pollution and ecological disruption would cause agricultural disaster. Agricultural disaster will cause agricultural unsustainable development or weaken the ability of sustainable development, and agriculture is the foundation of human's survival and development; The sustainable development of agriculture is the foundation of the human society and the sustainable development of economy. Without sustainable development of agriculture, it is impossible to accomplish the sustainable development of human society and economy. So disaster prevention and reduction of agriculture becomes the difficult problem, which can't be avoided in the process of agricultural development. Hubei province stands in the middle range of Changjiang River, lies in the north of Dongting Lake; the contradiction among economic construction and resource, environment, ecology, population growth is very conspicuous. And Hubei is one of the minority provinces of our country, where the natural disaster is very serious, threaten biggest with the floods and droughts particularly, and it is most frequent to happen, and the coverage is the widest. So, whether Hubei province could realize floods and droughts prevention and reduction effectively or not is the big problem that concerns the sustainable development of the whole

area, and the country too. This is the basic starting point studied by the thesis.

Including introduction, there are eight chapters in this thesis. Chapter one is the introduction. It expounds the background, purpose, meaning, thinking, method and frame of the research mainly. Chapter two is the description and appraisal on floods and droughts history in Hubei, and put forth effort to analyze the development trend of floods and droughts of Hubei. Chapter three is the thought between floods and droughts, agricultural sustainable development. This chapter regards developmental course of relation of people and natural as the starting point, has studied the relation between floods and droughts, agricultural sustainable development, and stays in the dialectical view of "reducing natural disasters is the development" at last. Chapter four researches the impact on agricultural sustainable development of Hubei of floods and droughts systematically. And among them use C-D function to analyze the impact on social economy in Hubei of the floods and droughts especially. Chapter five use the method of mathematics and economic to test and assess the impact on agricultural sustainable development of Hubei of the floods and droughts. This chapter is on the basis of using the approach of analysis of the main composition to calculate out the index of agriculture sustainable development level in Hubei, have carried on relevant analysis to analyze the sustainable development level of agriculture of Hubei and the direct economic losses of disaster that floods and droughts caused, and have reflected the influencing degree to agricultural sustainable development of Hubei of the floods and droughts intuitively. Chapter six analyzed the disaster prevention and reduction behavior of peasant households in terms of economics. Based on this, it has explained how the government should adjust and controls the behavior of disaster prevention and reduction of

peasant households. On the foundation of the above analysis, chapter seven of thesis uses system economics to analyze the management mode of natural disaster of our country and it's drawback of the present stage thoroughly, and use the development trend of the disaster management of the countries all over the world for reference, and has probed into the principle and strategic measure of reconstructing and improving the system of agricultural disaster prevention and reduction of Hubei. Chapter eight proceed with technological innovation theory, explain the connotation, characteristic and function of technological innovation of disaster reduction of agriculture systematically, use the theory of public articles to probe into the technological innovation mode of the reduction of disaster of agriculture, and have put forward the policy choice of promoting technological innovation of the reduction of disaster of agriculture on the basis of analyzing the restriction factor faced in technological innovation of the reduction of disaster of agriculture in detail.

There are a lot of documents studied about the floods and droughts, the research documents about agricultural sustainable development are more voluminous, but the research that can combine the two together is actually rare. So the selected title itself is worth opening up and innovating. In addition, this innovation on content system and methodology of the thesis should mainly reflect in several following respects:

First, the article has explained the natural disaster and the agricultural sustainable development dialectical relations. Under the great background of building well-to-do level in an all-round way, the floods and droughts nearly become the bottleneck in the process of soaring of Hubei. The human being just realizes that the natural disaster has hindered agricultural sustainable development seriously. The present paper has explained the natural disaster and the agricultural sustainable

development dialectical relations from a new angle.

Second, the article systematically constructed the system and technical innovation pattern of Hubei agriculture disaster prevention and reduction. Presently, the system of agricultural disaster prevention and reduction of Hubei have many problems, The paper integrated disaster management tendency of various countries, based on government primarily principle, many main bodies principle, sustainable principle, benefit principle and prevention primarily principle, Systematically constructed disaster prevention and reduction system including the disaster legal system, the disaster education system, the disaster management system, the disaster safeguard system and so on. The paper takes the technical innovation related theory as the instruction, proposed that the establishment of agriculture disaster prevention and reduction technology innovation pattern which taking government supplies as leading factor. In this foundation, Paper proposed the corresponding policies which promote agriculture disaster reduction technology innovation in view of faces which restrict the agricultural disaster reduction technology innovation.

Third, the paper use principal components analytic method and correlation analytic method analysis the effect which flood and drought disaster produce on agricultural sustainable development system. The paper apply principal components analytic method and correlation analytic method to analyze the systematic influence of the floods and droughts on the agricultural sustainable development, so as to describe the influence of floods and droughts on the whole system of the agricultural sustainable development and the sequencing of influence result, thus finding out the principal contradiction of the question, and then offering guidance for system innovation and technological innovation of disaster prevention and reduction.

Fourth, the paper grasp the essence of peasant household's behavior against natural disasters carrying on the economic perspective. This article analyzes the behavior of disaster prevention and reduction of peasant households in terms of economics, and offers the economics basis for government behavior of controlling agricultural disaster prevention and reduction.

Key Words: Floods and droughts; Agriculture sustainable development; Principal components analytic method; System innovation; Technical innovation

目　录