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Preface

This book contributes to the literature by addressing the dynamics of China's grain production, consumption and trade with a particular focus on examining China's demand for feedgrain vis-à-vis its demand for foodgrain and likely implications on grain trade, given that China is now a member of the WTO.

We have written this book primarily for researchers, officials in government trade departments, and food traders who are interested in China's food issues in general and foodgrain and feedgrain issues in particular. The book will also be of great interest to university students who study broad agricultural trade and agricultural policy issues such as grain demand and supply, foodgrain consumption trends, feedgrain market developments, and grain trade.

The book is a result of extensive collaborative work. In the past two decades we have devoted much effort to studying China's grain issues. Our passion for this topic is rooted in our personal experience in China during the 1960s and 1970s of not having enough food. We have developed our understanding of important grain issues through our discussions, evident in various parts of this book. Apart from our own collaborative work, our colleagues, experts in their respective fields, have also made invaluable contributions to the completion of the book. We are most grateful for their contribution and collaboration.

Much of the discussion on China's feedgrain issues benefited from a research project on "China's Regional Feedgrain Markets: Development and Prospects", funded by Australia's Grains Research and Development Corporation (GRDC). GRDC's funding support enabled us to examine China's feedgrain market in great detail and is greatly acknowledged. In particular, we wish to thank Dr Mike Taverner, GRDC Program Consultant, for being instrumental in the design and implementation of that project.

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Zhang-Yue Zhou
Wei-Ming Tian

INTRODUCTION

Chapter 1

China's Grain: An Issue that Concerns Many

Zhang-Yue Zhou and Wei-Ming Tian

China's grain will always be an issue – unless grains can be produced in hydroponic systems without much reliance on arable land. Too much grain in China can be a problem, causing a depressed price and income for grain farmers both in China and overseas. Too little grain can also be a problem, causing the Chinese government great concern about food security and driving up the world grain price due to increased imports – an undesirable consequence for many developing importers. Hence, China's grain problem is indeed an issue not only for China but also for the rest of the world. Not surprisingly, it has attracted attention worldwide.

In the past several years, however, interest in China's grain issue has somewhat relaxed, because of China's relative grain surplus. During the past five years (1999-2003), China exported about 50 million tonnes of grains net. Even after its accession to the WTO in December 2001, China still net exported some 30 million tonnes of grains during 2002-2003, contrary to the expectation by many that it would import a large amount of grains. China exported grains during these years even when its grain output had consecutively dropped each year by about 60 million tonnes from its peak in 1998. This unforeseen surplus seems to have led to a degree of complacency about China's grain problems.

The complacency, however, was short-lived. In late 2003, prompted by increased domestic grain prices, concerns about China's grain problems were renewed. Price fluctuations are a normal phenomenon in the market; nonetheless, the fact that an increase in grain prices can cause so much concern to the government, traders and consumers confirms that China still has a grain problem. There may be short-term comfort in China's grain demand and supply situations; but long-term comfort is not warranted.

Indeed, China's grain problem is far from over, and it will continue for a long time. However, it is no longer a simple issue of total quantum, matching total supply with total demand. Increased consumer income in the past two decades has resulted in significant structural changes in grain consumption in China, e.g., increased demand for higher quality foodgrains and for animal products – thus, the derived demand for feedgrains. To respond to changes in consumer demand, China's grain industries have made adjustments to the varieties of grains. In

addition, major grain production has tended to shift from the southern to the northern regions in the past two decades.

These changes, together with the accession by China to the WTO at the end of 2001, pose various important questions related to the future development of the Chinese grain economy. What are the structural changes in foodgrain consumption in both rural and urban areas of China? How is foodgrain consumption affected by animal product consumption? Is China producing enough grains to meet both the demand for foodgrain and the increasing demand for feedgrain? How will the further opening up of the grain market affect China's grain production and domestic trade? How will the WTO accession and the Doha Round negotiations affect China's international grain trade and, in turn, the overall international grain market?

1.1 Why This Book

While there is no shortage of literature on China's grain issues, studies that incorporate recent important developments and examine the above-mentioned issues from a systematic perspective are scarce. Studies with an up-to-date assessment of the Chinese grain economy will be useful. This book attempts to fill the void in the literature. It examines how China's foodgrain and feedgrain demand and supply have evolved in the past two decades and how such changes will impact on China's grain trade in the era of its WTO membership. In view of the increasing importance of China's feedgrains, this book pays particular attention to addressing China's feedgrain issues in the broad context of grain demand and supply in China and the world.

Why is it important to address feedgrain demand in the broader context of overall grain demand? Globally, the next three decades will see a strong increase in demand for feed, especially cereal feed. The increasing demand for feed is driven by the increasing demand for animal products, especially in developing countries. According to a recently released report by FAO, *World Agriculture: Towards 2015/2030*, per capita meat consumption in developing countries rose by 150% and that of milk and dairy products by 60% between 1964-66 and 1997-99 (FAO 2002, p. 5). Increase in animal product consumption is projected to continue, in both developing and developed countries (Bruinsma 2003, p. 159).

The increased consumption of animal products will require more animal feed. However, pasture has only limited potential as a source of additional feed in the future. Mixed crop-livestock production systems will also have limited potential for increasing animal products.

An increasing share of livestock production will come from intensive industrial livestock production systems. In recent years, production from these systems has grown twice as fast as that from traditional mixed farming systems, and more than six times faster than from grazing systems. Increased intensification will require more feedgrain, and the demand for feedgrain will be strong.

The FAO report suggests that, by 2030, global aggregate consumption of all cereals should increase by about one billion tonnes from the 1.86 billion tonnes of

1997/99. Of this increment, about 50% will be used for feed, 42% for food, and the remainder for other uses (e.g., seed, industrial non-food and waste) (Bruinsma 2003, pp. 65, 74). Thus, feed use of cereal grains will be the most dynamic element driving the world cereal economy and will account for an ever-growing share in aggregate demand for cereal grains.

In short, increasing demand for animal products will drive a strong demand for feedstuff, especially feedgrains, to produce additional livestock. However, globally it seems there is a lack of awareness of this emerging trend. It is important to address feedgrain demand in the broader context of overall grain demand.

It is even more important to examine China's feedgrain demand and its increasing importance in China's overall grain economy. According to FAO, the rapid expansion of worldwide livestock production is, to a large extent, attributable to the remarkable growth of livestock industries in China. During 1989-99, world annual growth rate of total livestock production was 2%. Excluding China, this rate, however, was merely 0.8%. Hence, the demand for feedgrain by China's fast expanding livestock industries deserves particular attention and needs to be addressed in the context of China's broader grain economy.

1.2 Objectives and Features

Our book is written with a view to making a contribution to the literature by addressing the dynamics of China's grain production, consumption and trade with a particular focus on China's demand for feedgrain *vis-à-vis* its demand for foodgrain and the likely implications on international grain trade. Through this book, we attempt to achieve the following major objectives:

1. To highlight the trends in China's grain production, consumption and trade and to examine forces that drive these changes
2. To simulate China's regional feedgrain demand, supply and trade flows after the WTO accession
3. To predict China's future grain demand in the context of international trade reforms
4. To draw implications on international grain trade.

This book has the following major features:

- China's grain issues are examined from a systematic perspective with a particular attention to factors peculiar to China that affect grain demand and supply.
- It highlights the most recent developments in China's grain economy and provides the latest assessments on consumption trends of foodgrain, feedgrain, and animal products in China.
- A special emphasis has been placed, in view of the increasing importance of feedgrains, on examining China's feedgrain issues in the broad context of grain demand and supply in China and the world.

- It provides comprehensive accounts of China's feedgrain demand, supply, marketing and regional trade flows.
- It constructs a regional feedgrain demand and supply balance sheet for China: this is the first of its kind, and is invaluable for future studies.
- It offers projections on China's grain imports by 2010.

1.3 Outline

Apart from this introductory chapter (Chapter 1) and the final conclusions chapter (Chapter 13), the book comprises another eleven chapters grouped into two parts. Part One (Chapters 2-8), 'Foodgrain and Feedgrain', deals with issues related to China's foodgrain and feedgrain demand and supply, while Part Two (Chapters 9-12), 'Grain Trade', deals with issues concerning China's grain trade domestically and internationally.

In the second chapter, we highlight the policy environment in which China's grain economy operates, thus placing the subject matter into perspective. Issues examined in this chapter include recent developments in the Chinese grain policies that affect grain production, consumption, reserves and trade. The chapter also sheds light on how China's grain policies may evolve given the changing grain demand and supply situations both domestically and internationally, and especially given that China is now a member of the WTO.

Having established a broad picture of the policy environment, we turn in Chapters 3, 4 and 5 to examine China's grain production and consumption. Chapter 3 highlights the recent trends in China's grain production. Important issues covered in this chapter include changes in the level and composition of grain production, dynamics in grain production patterns at the regional and crop levels, the use of technologies in grain production, and changes in production costs. This chapter will also identify important factors that may affect China's long-term grain supply capacity. Chapters 4 and 5 look into the dynamics of foodgrain consumption in rural and urban areas, respectively. Direct consumption of grains by the Chinese has started to decline, not only in urban areas but also in rural areas. We examine the changing patterns of direct human consumption of grains and discuss causes that have led to such changes.

Increase in income is mainly responsible for the decline in direct human use of grains, as consumers can afford to buy more relatively expensive foods, such as fruits and animal products. Increased demand for animal products leads to increased demand for grains to feed the animals. Indeed, many have argued that any future increase in total grain demand in China will be mainly caused by an increasing demand for feedgrains. In this context, it is important to understand which animal products and how much of them the Chinese are consuming as this provides a foundation to examine future demand for animal products and thus feedgrains. This is the subject of Chapter 6.

In Chapter 7, we pay particular attention to the current status of China's feedgrain production and consumption. Firstly, the patterns of China's feedgrain production are highlighted. This is followed by a discussion about where, how, and

how much feedgrains are used in China. In this chapter, we also offer our views on the prospects of China's future feedgrain production and consumption.

Believing that feedgrain demand in China will become the major component of China's total grain demand in the future, a number of studies have been devoted to projecting China's feedgrain demand and supply. However, there exist substantial discrepancies in demand and supply projections and the subsequent quantity of imports required. In Chapter 8, we review these studies and explore the reasons for the vast discrepancies in their findings. We then highlight the areas for which research priority should be given in order to derive more plausible projections for policy formation and marketing activities. These considerations also serve our own modelling work in later chapters.

In the second part of the book (Chapters 9-12), we deal with China's foodgrain and feedgrain trade. In Chapter 9, we present an overview of China's recent foodgrain and feedgrain trade both domestically and internationally. We first focus on the changing patterns of domestic grain trade. We then examine the sources and destinations of China's grain imports and exports, and changes in the composition of grains imported and exported. In addition, major provinces that provide exports and those that absorb imports will also be identified.

Given that China is now a member of the WTO, its grain market operations are subject to WTO rules. Further reforms are expected to the domestic market and it will increasingly operate under a free trade regime. It is thus useful to see how China's domestic feedgrain markets will evolve, particularly at the regional level. In Chapter 10, we construct a regional feedgrain demand and supply balance sheet, which is a pioneer effort and fills a gap in this important area. Based on this balance sheet (where free trade is assumed), we simulate the effects on regional feedgrain demand, supply, price, and trade flows under various scenarios (e.g., technological improvements in feedgrain production and animal raising; increase in income; increase in animal product export; and imposition of regional trade restrictions, i.e., if free trade was not completely allowed). Based on the simulation framework, we also present the 2010 scenarios of China's feedgrain demand, supply, trade flows and imports.

Since joining the WTO, China has been in the process of carrying out trade reforms including grain trade. Consequently, China's future grain demand and supply will be increasingly linked to and affected by the international market. In Chapter 11, we examine China's grain demand and supply in the context of the world market, taking into consideration the possible impacts of China's WTO membership and the new round of WTO negotiations. In this chapter, how the world grain market will evolve and how this will affect China's grain production, import and export is simulated under a number of scenarios (e.g., China's fulfilment of its WTO commitment; all regions cut their import tariff rates; all developed economies remove their export subsidies on agricultural products completely; and all developed economies remove their domestic support to agricultural products completely). Simulation results on China's grain production, import and export are given for 2010.

In relation to findings in the earlier chapters, Chapter 12 looks at China's grain issues from various angles. In particular, it sheds light on relationships between

feedgrain requirement and foodgrain consumption in China. It also examines the impact of economic growth and demographic changes on demand for foodgrain and feedgrain with reference to a number of other countries in Asia and other regions. The findings are used to draw implications for China's future foodgrain and feedgrain consumption and for international grain trade.

References

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