

Progress and problems estimating China's cotton supply and demand

Stephen MacDonald
ERS/USDA

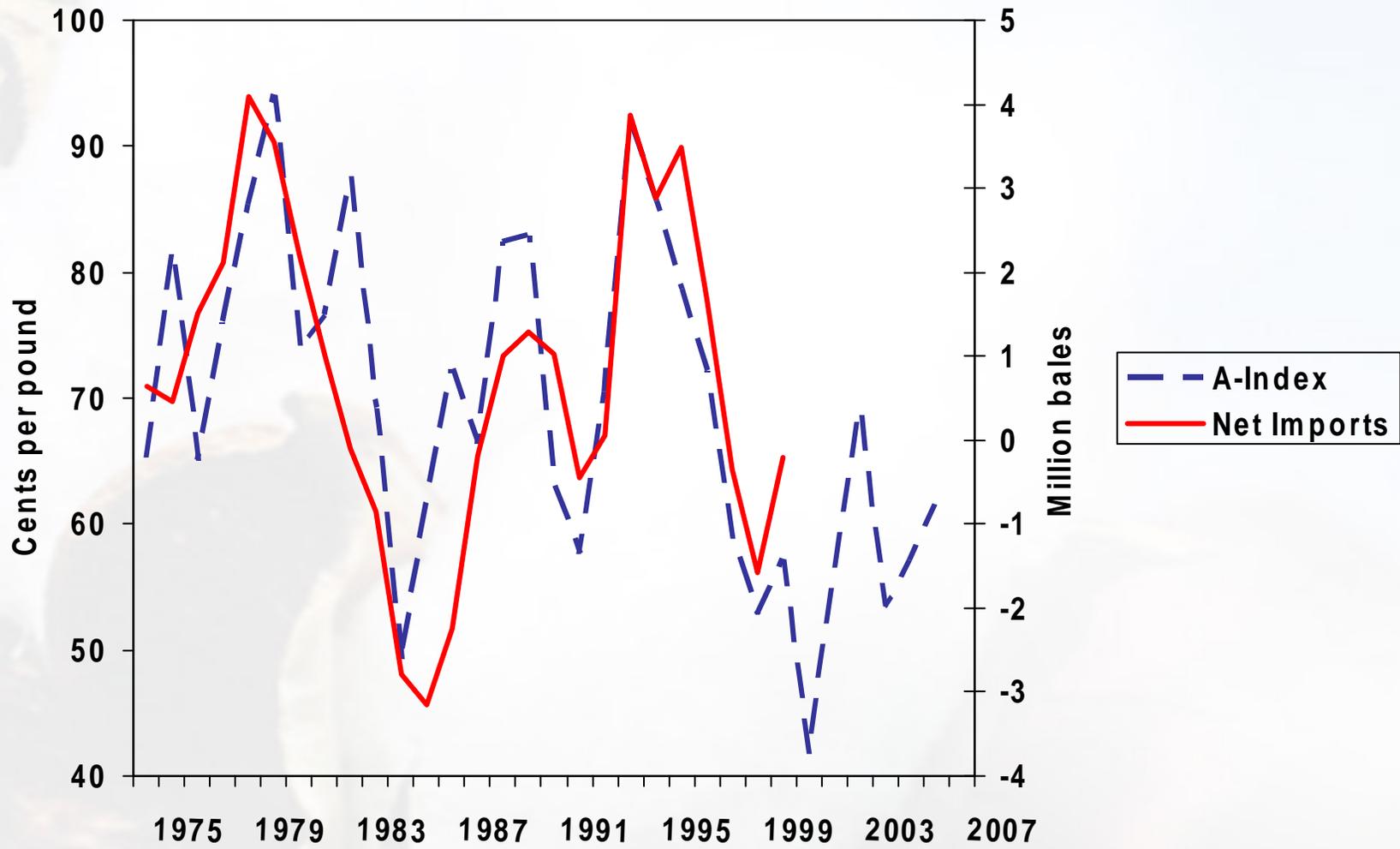
USDA Outlook Forum 2007



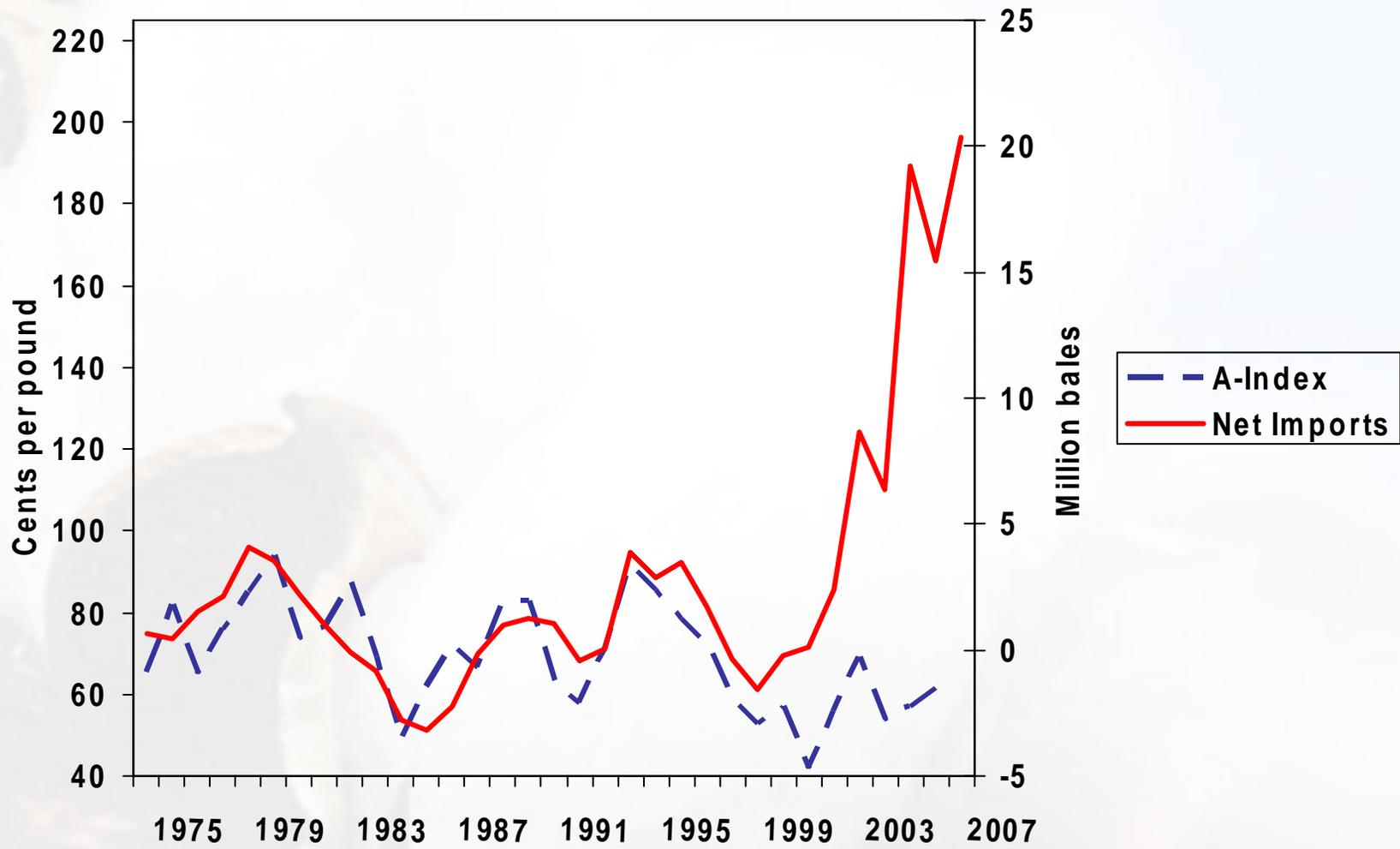
Old Patterns Persist for Cotton

- China has changed significantly since 1978
 - Market reform
 - Integration with world economy
 - Availability of economic information
- Costly uncertainty remains:
 - Import volume unpredictable, variable
 - Key aspects of supply and demand unknown
 - No official cotton consumption estimates
 - Questions about production estimates
 - Government stockholding remains secret

China's net cotton imports and world cotton prices: highly correlated

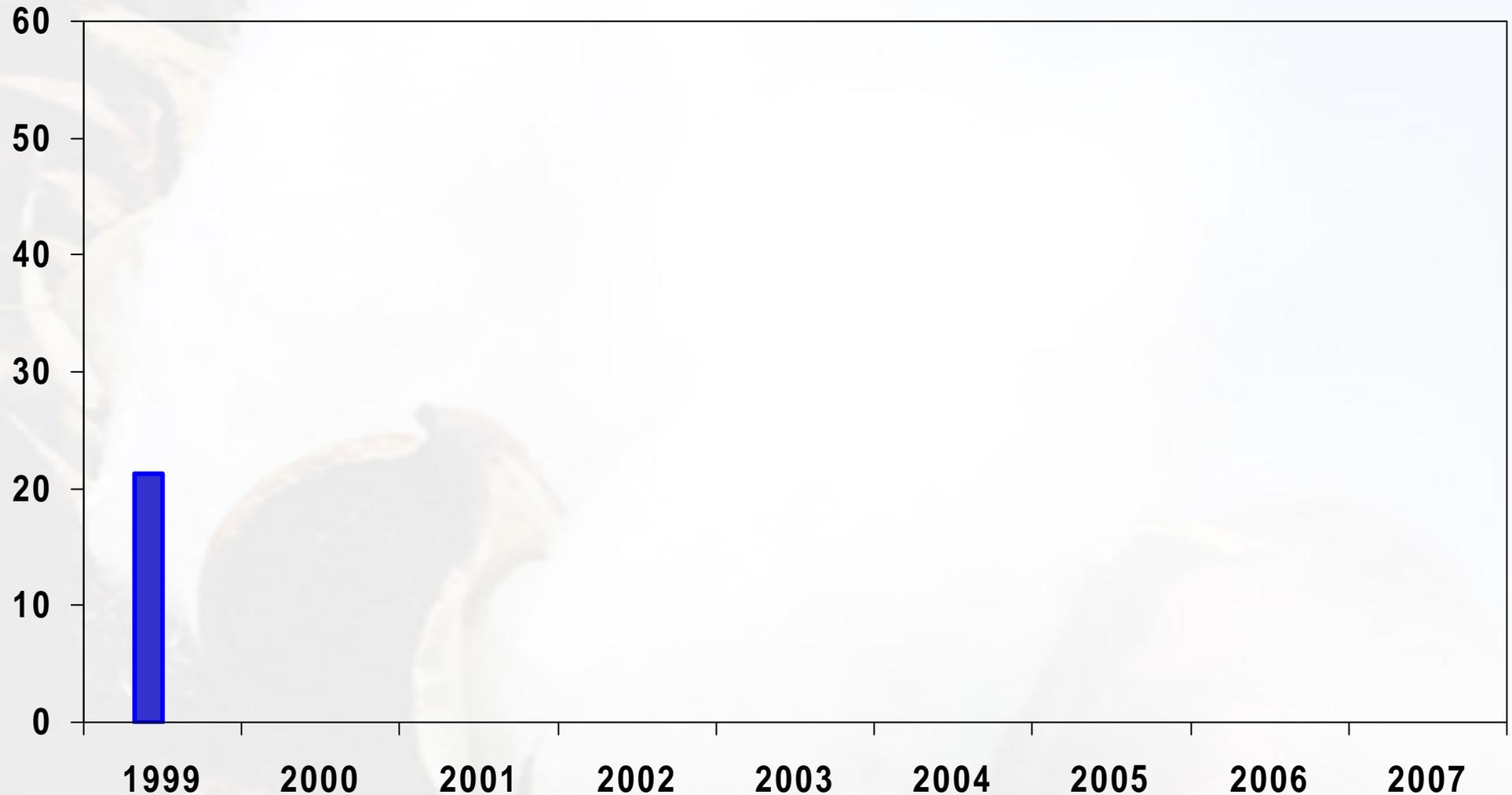


Rapid and profound change in China's cotton sector



China's cotton consumption grows with trade liberalization and economic growth

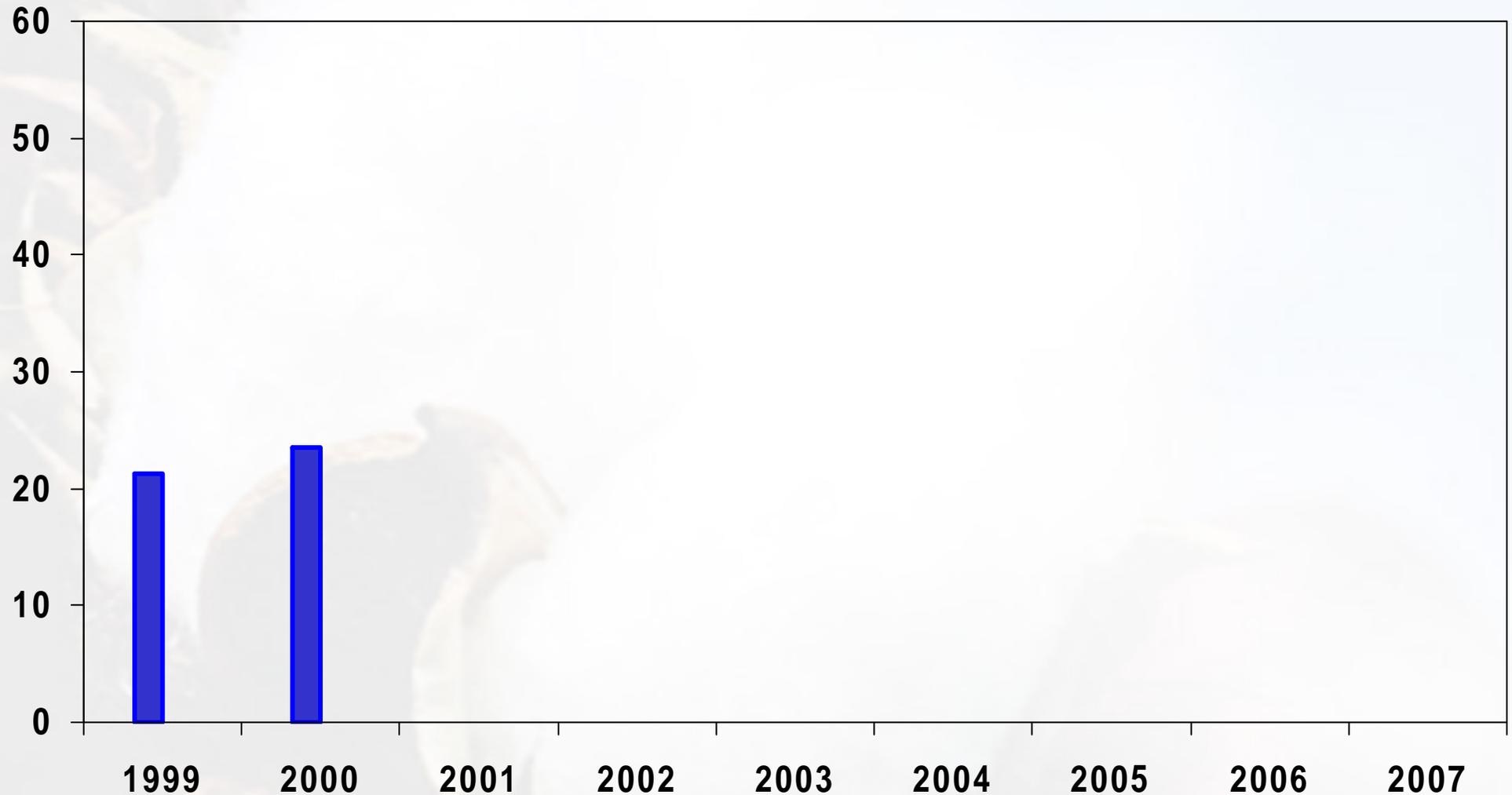
Million bales



August-July marketing years

China's cotton consumption grows with trade liberalization and economic growth

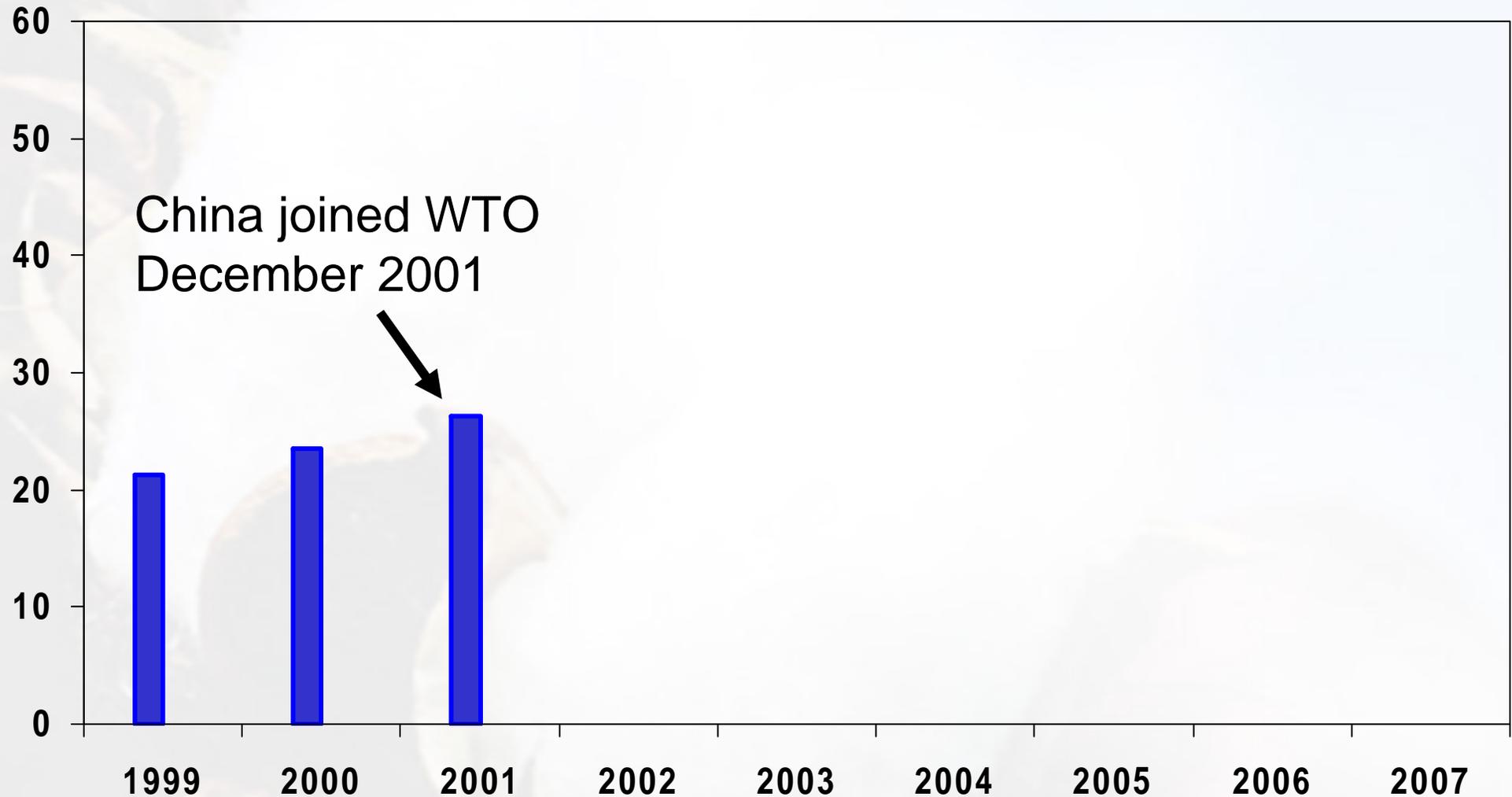
Million bales



August-July marketing years

China's cotton consumption grows with trade liberalization and economic growth

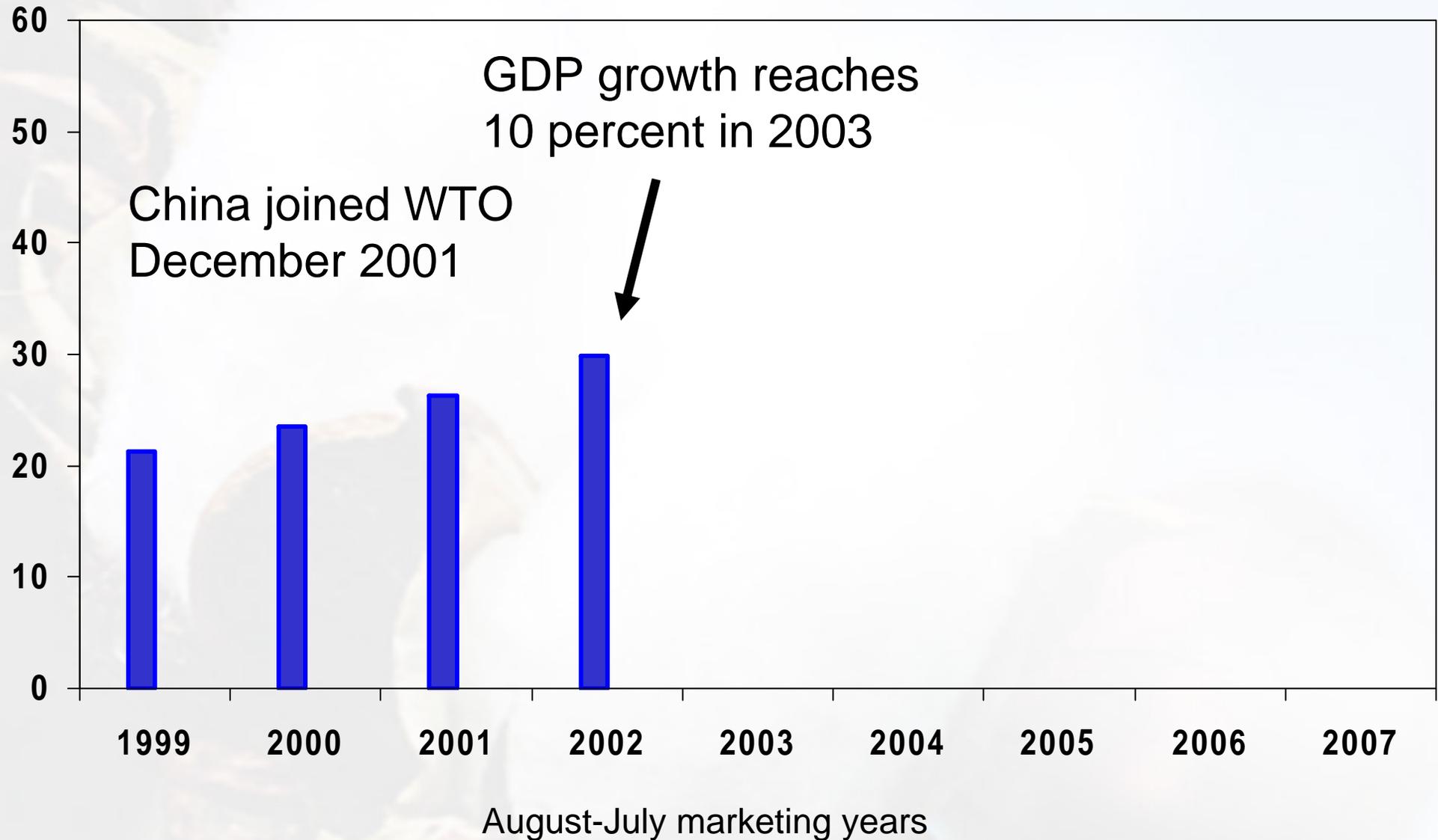
Million bales



August-July marketing years

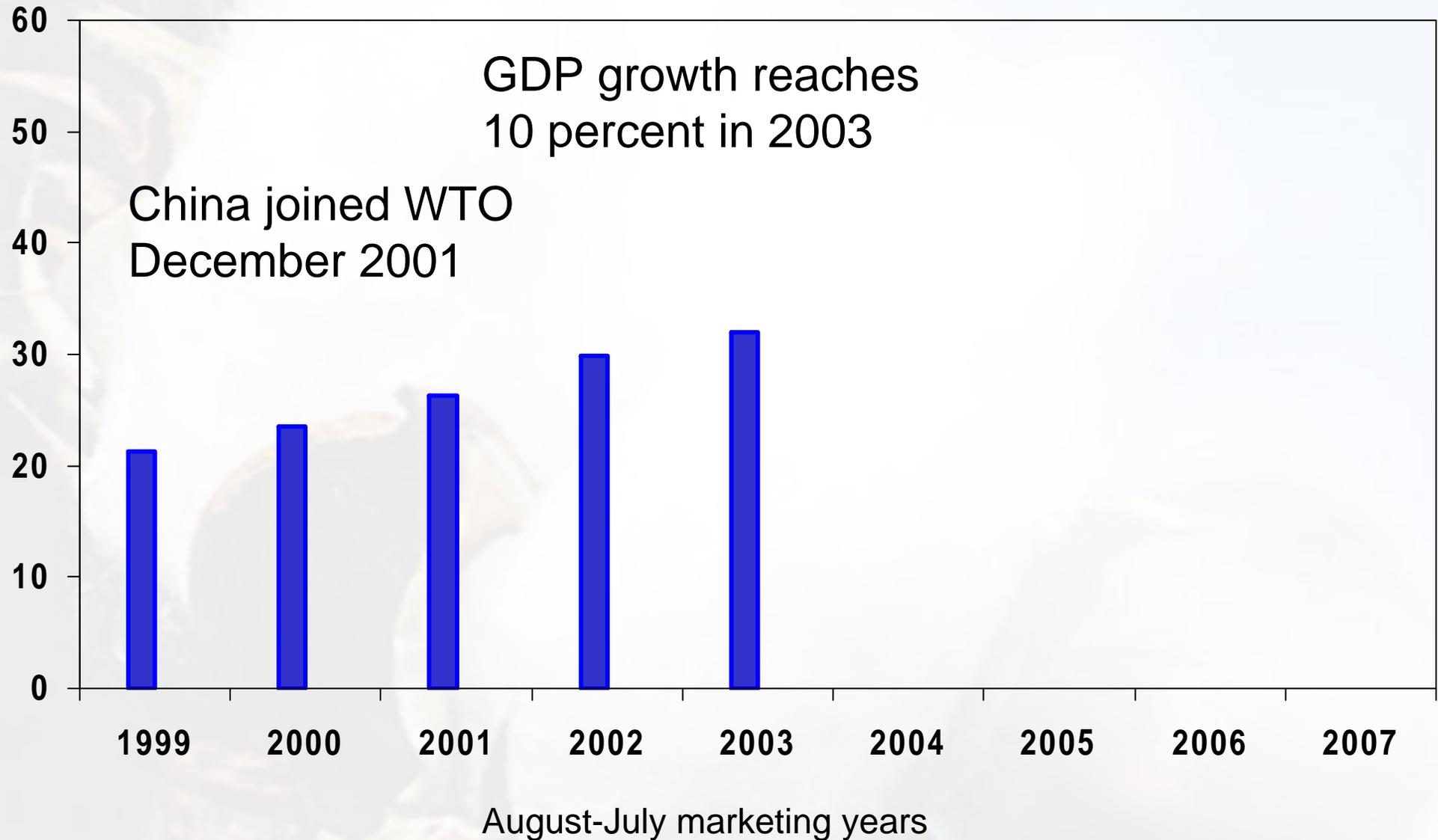
China's cotton consumption grows with trade liberalization and economic growth

Million bales



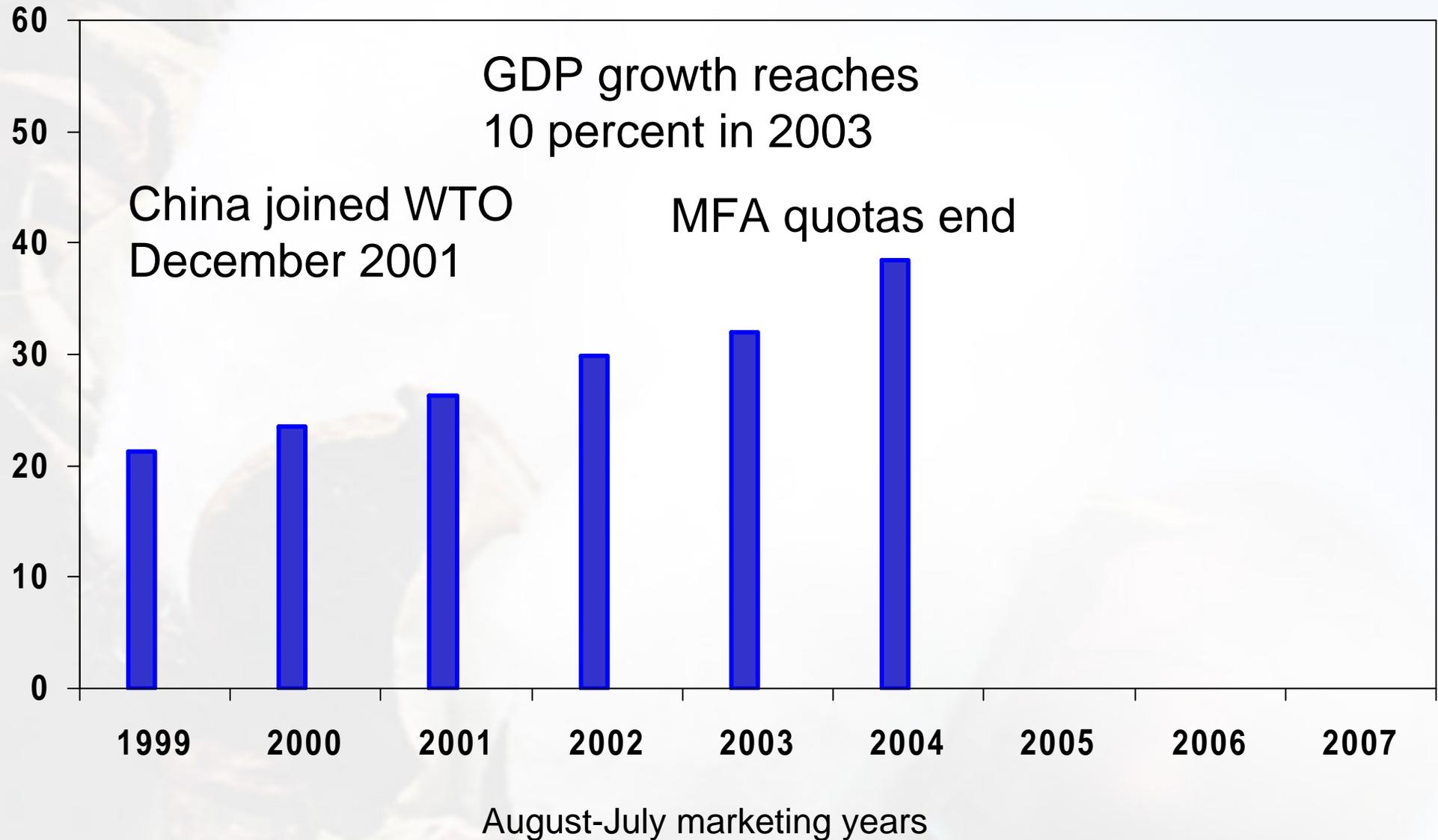
China's cotton consumption grows with trade liberalization and economic growth

Million bales



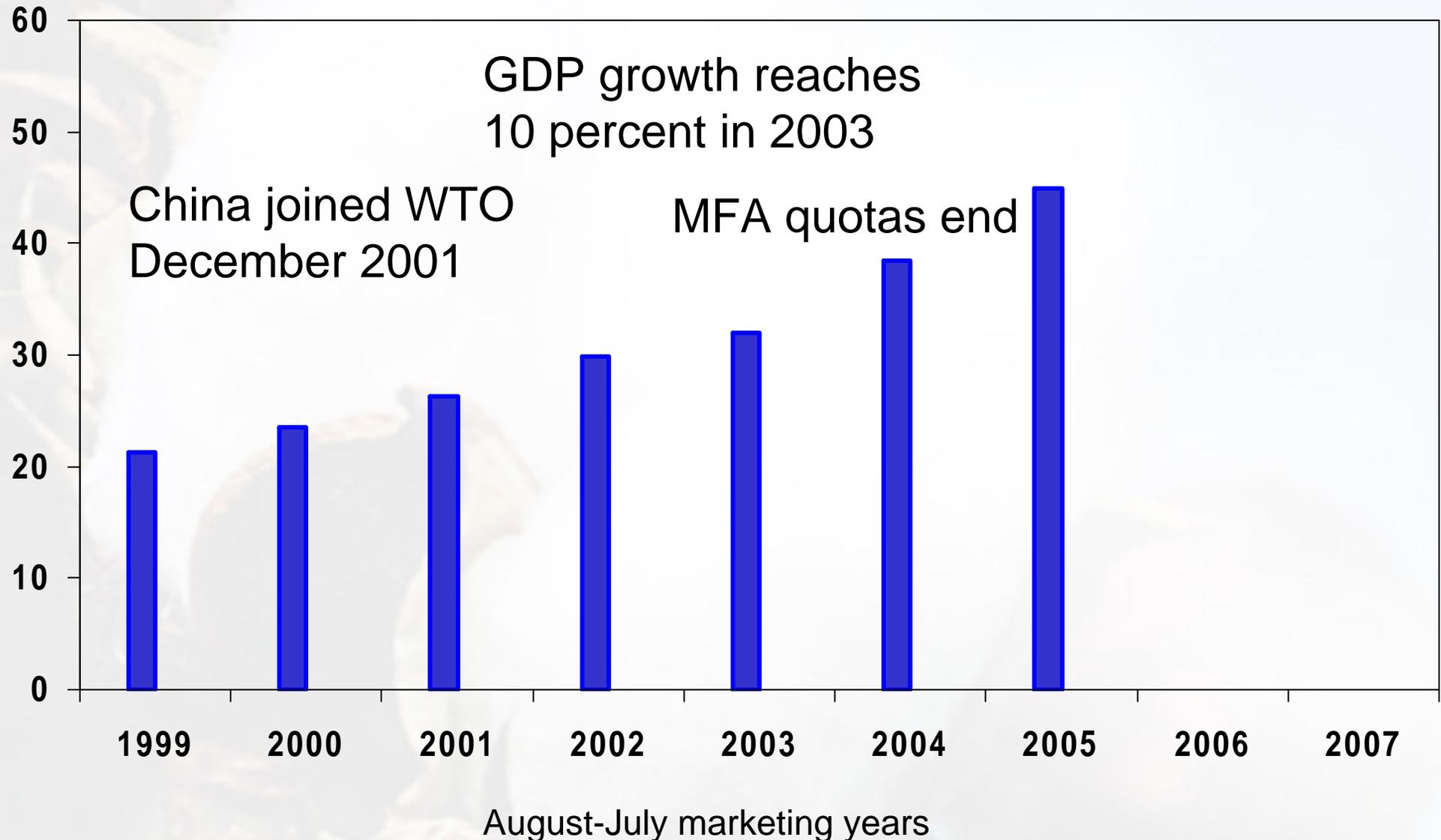
China's cotton consumption grows with trade liberalization and economic growth

Million bales



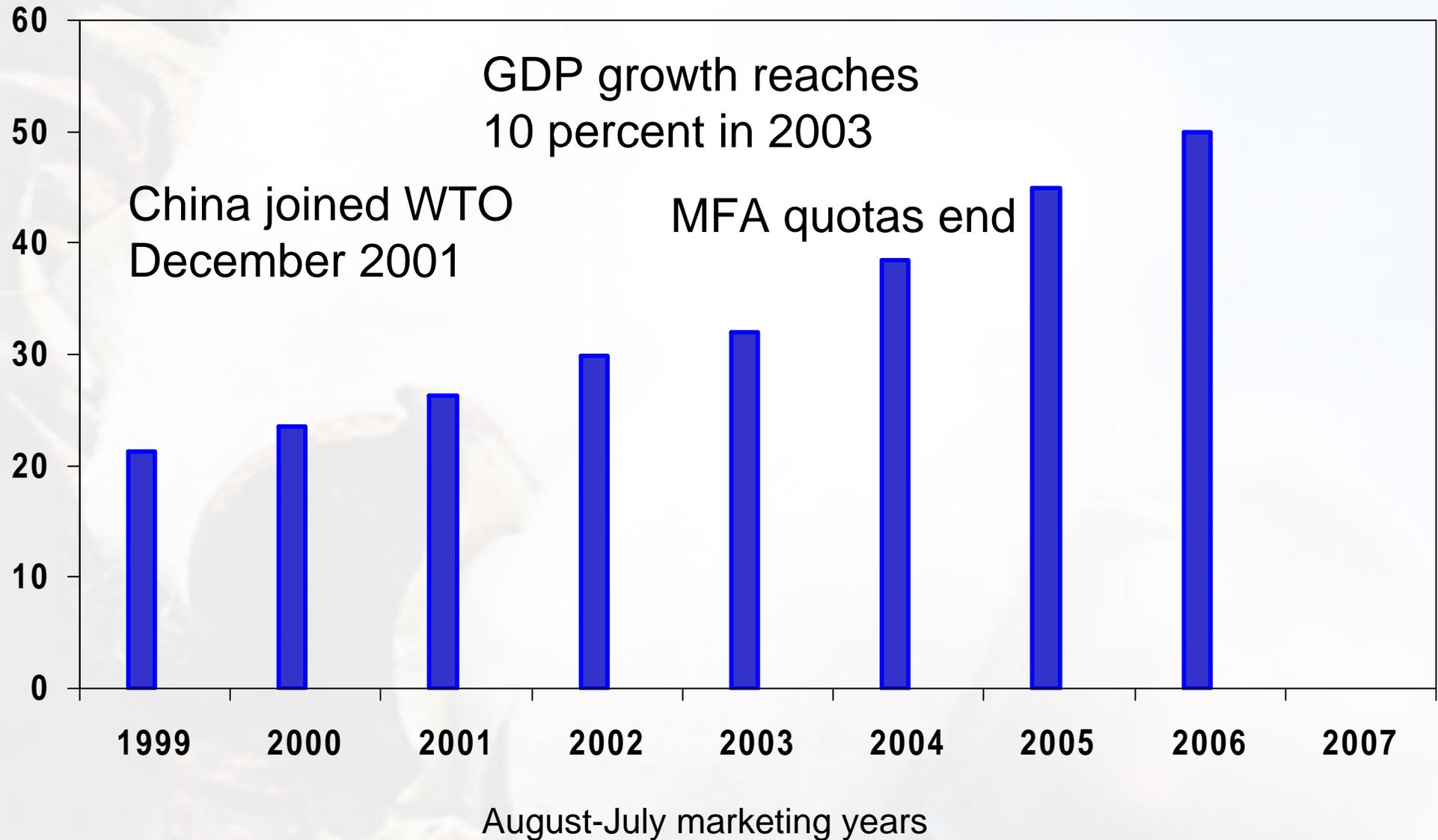
China's cotton consumption grows with trade liberalization and economic growth

Million bales



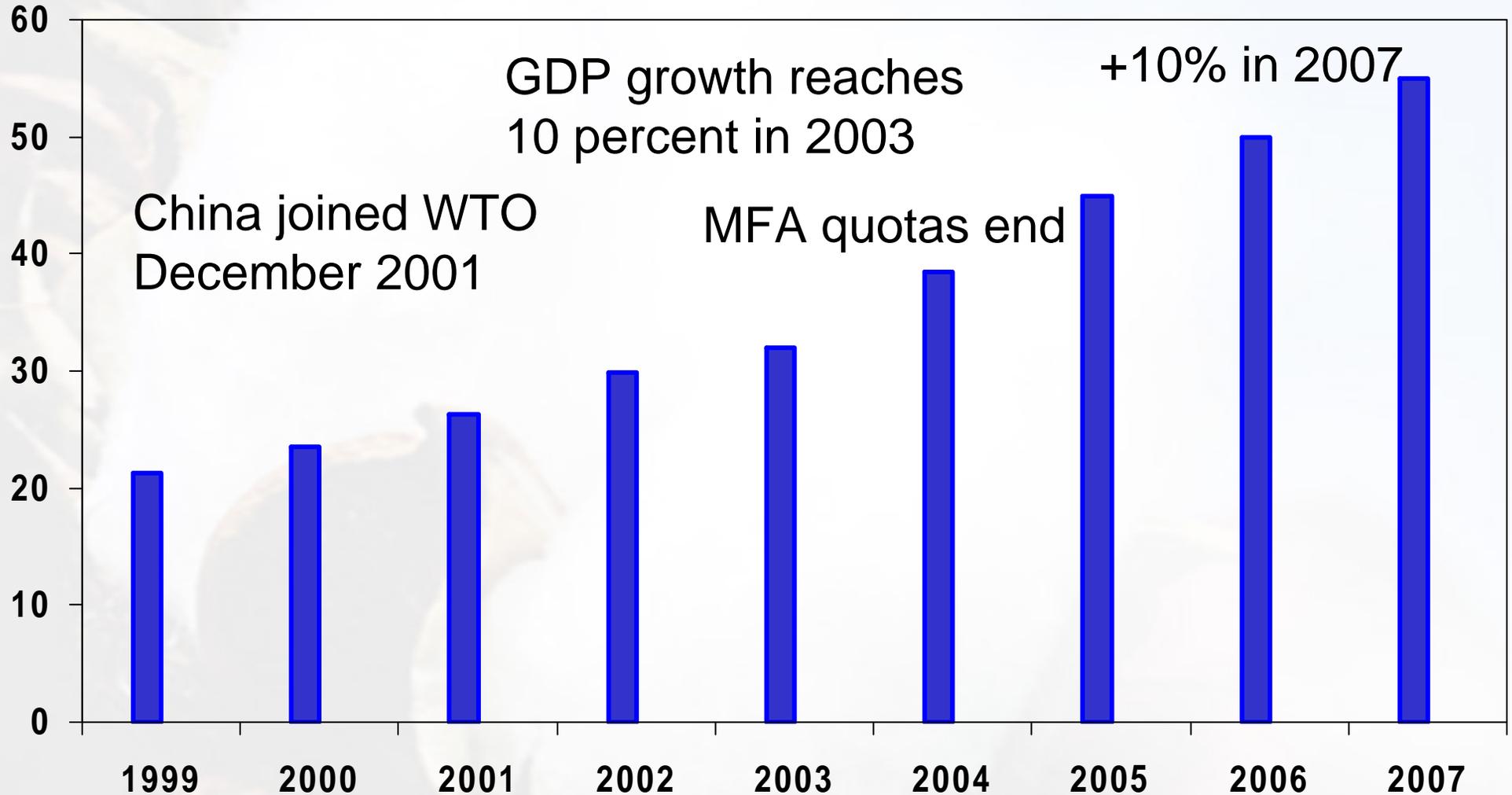
China's cotton consumption grows with trade liberalization and economic growth

Million bales



China's cotton consumption grows with trade liberalization and economic growth

Million bales

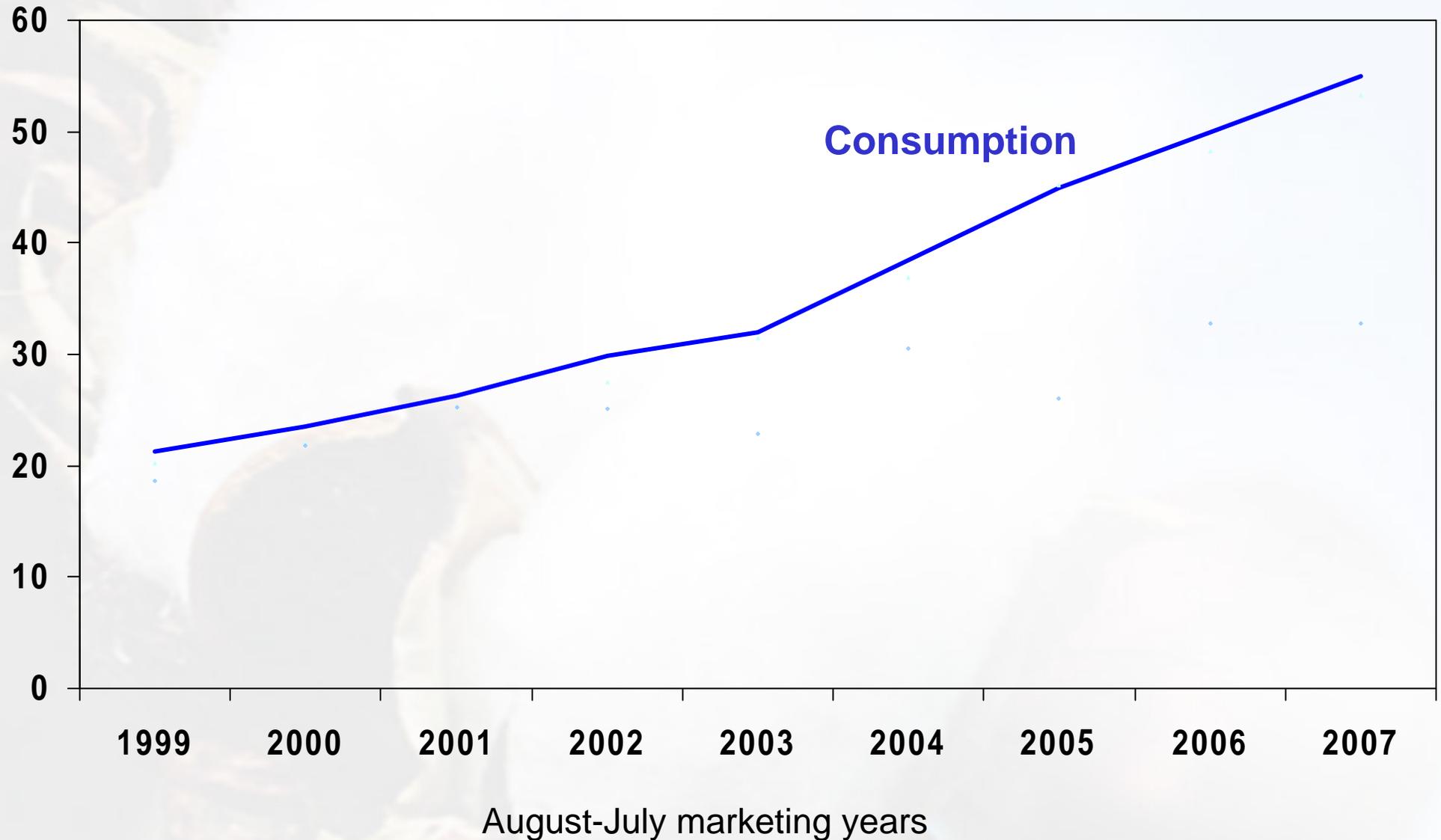


Source: USDA

August-July marketing years

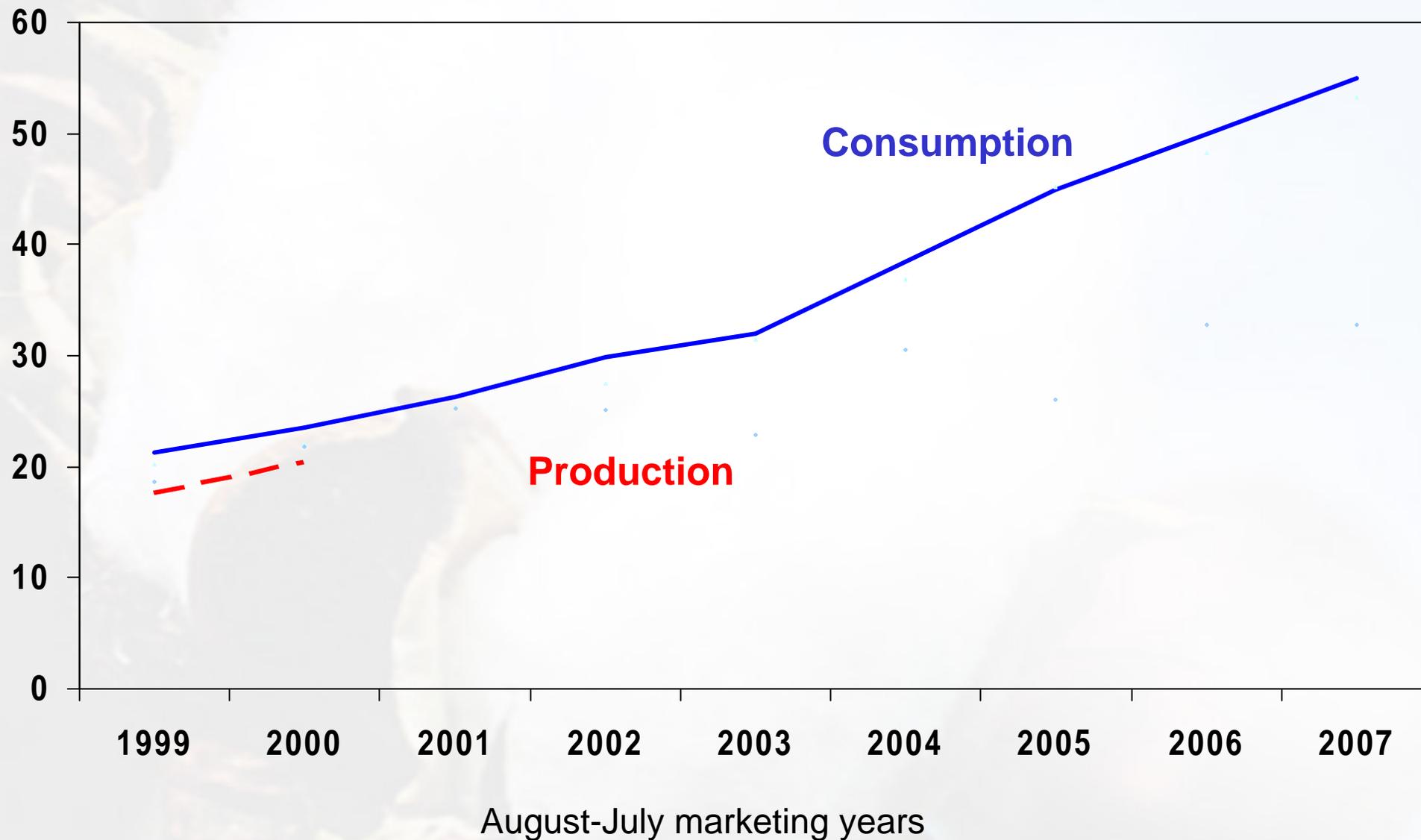
China's cotton consumption grows with trade liberalization and economic growth

Million bales



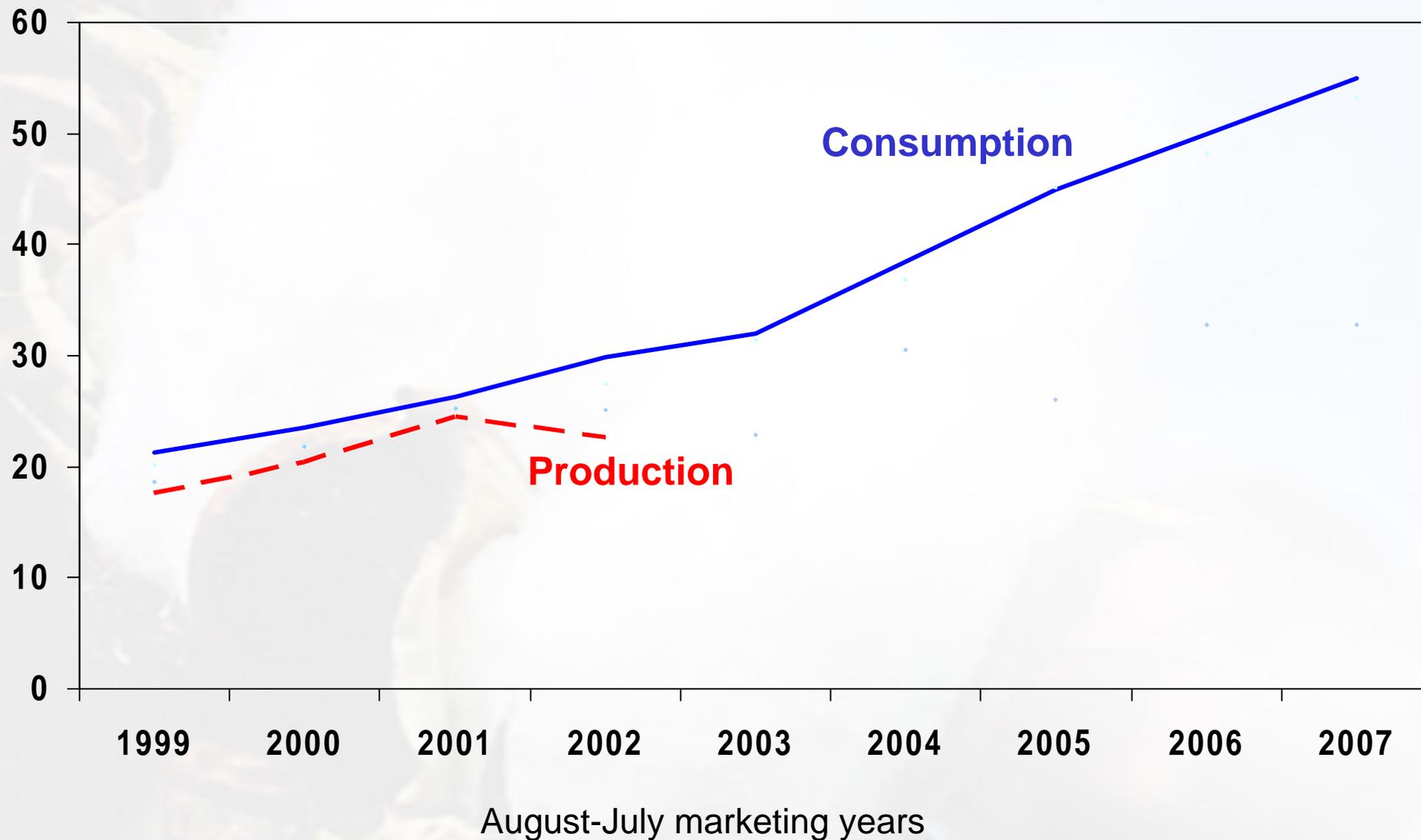
China's cotton production growing more slowly

Million bales



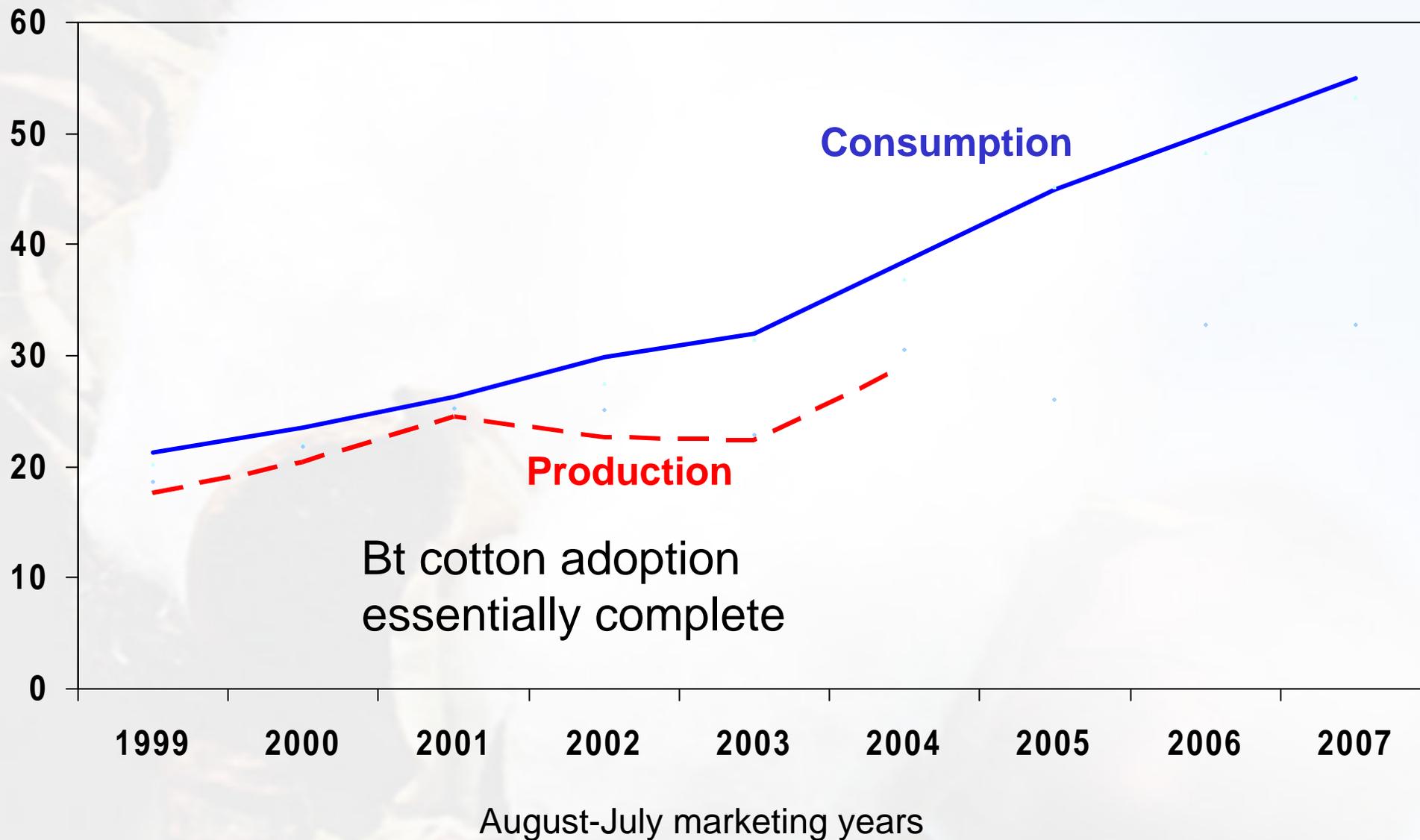
China's cotton production growing more slowly

Million bales



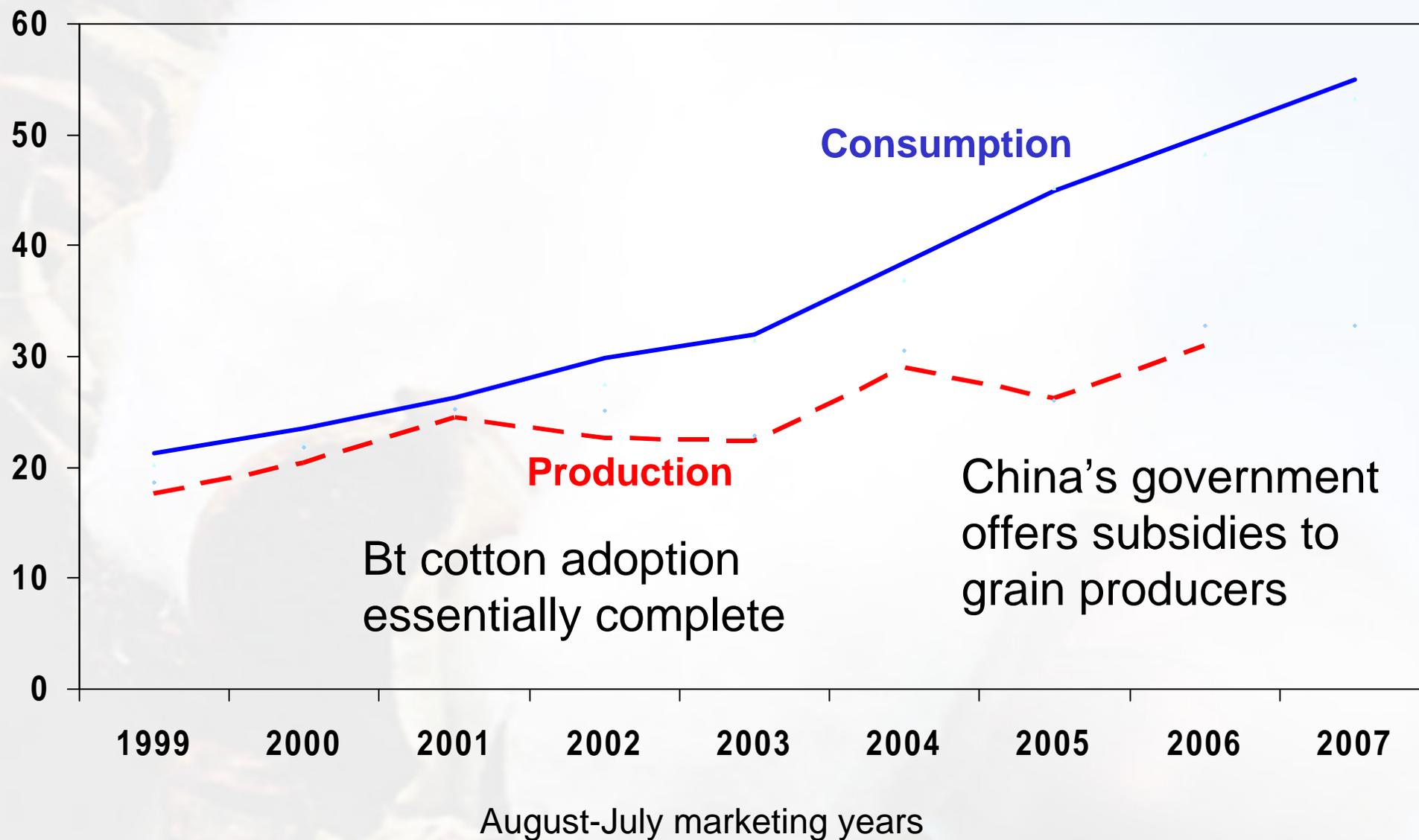
China's cotton production growing more slowly

Million bales



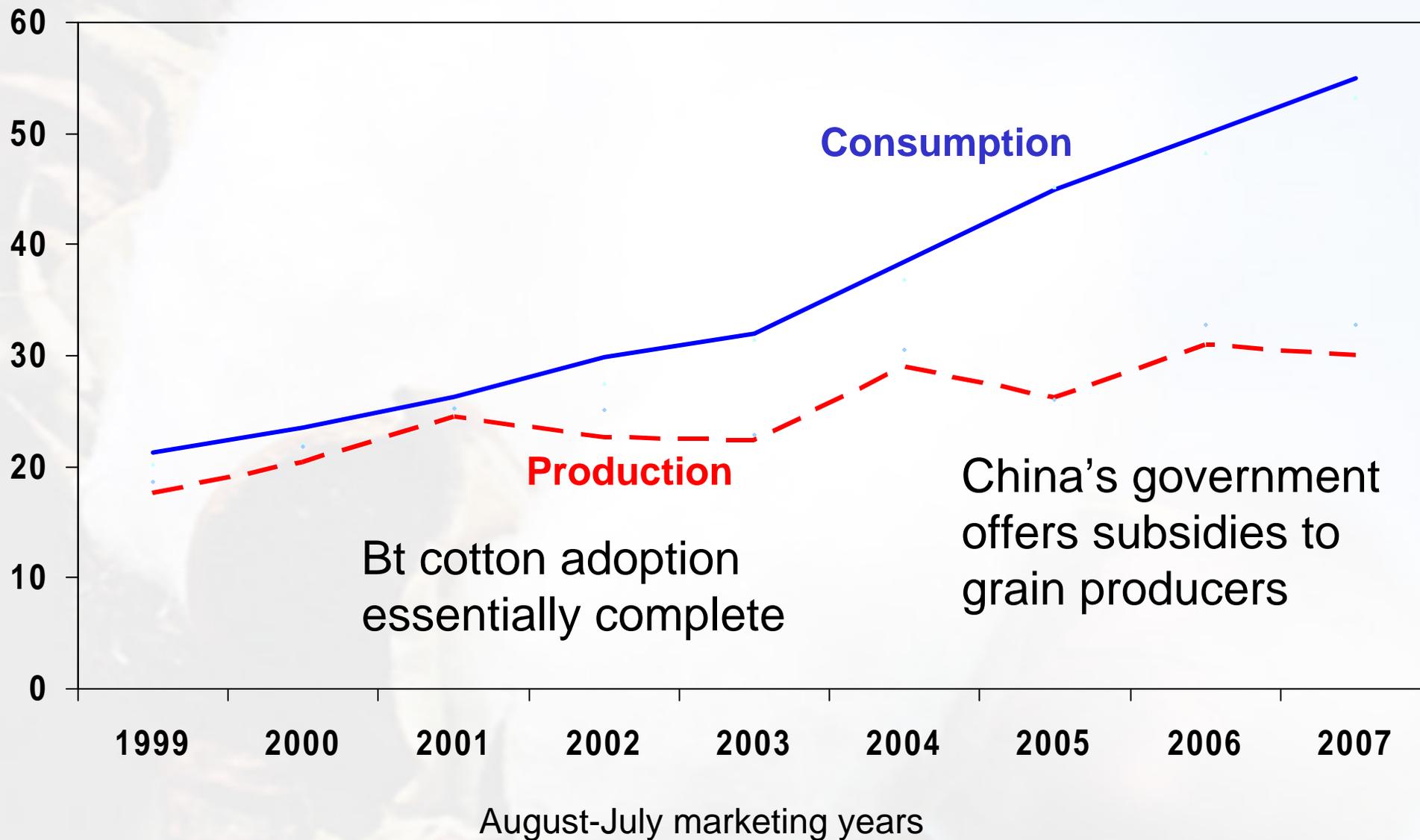
China's cotton production growing more slowly

Million bales



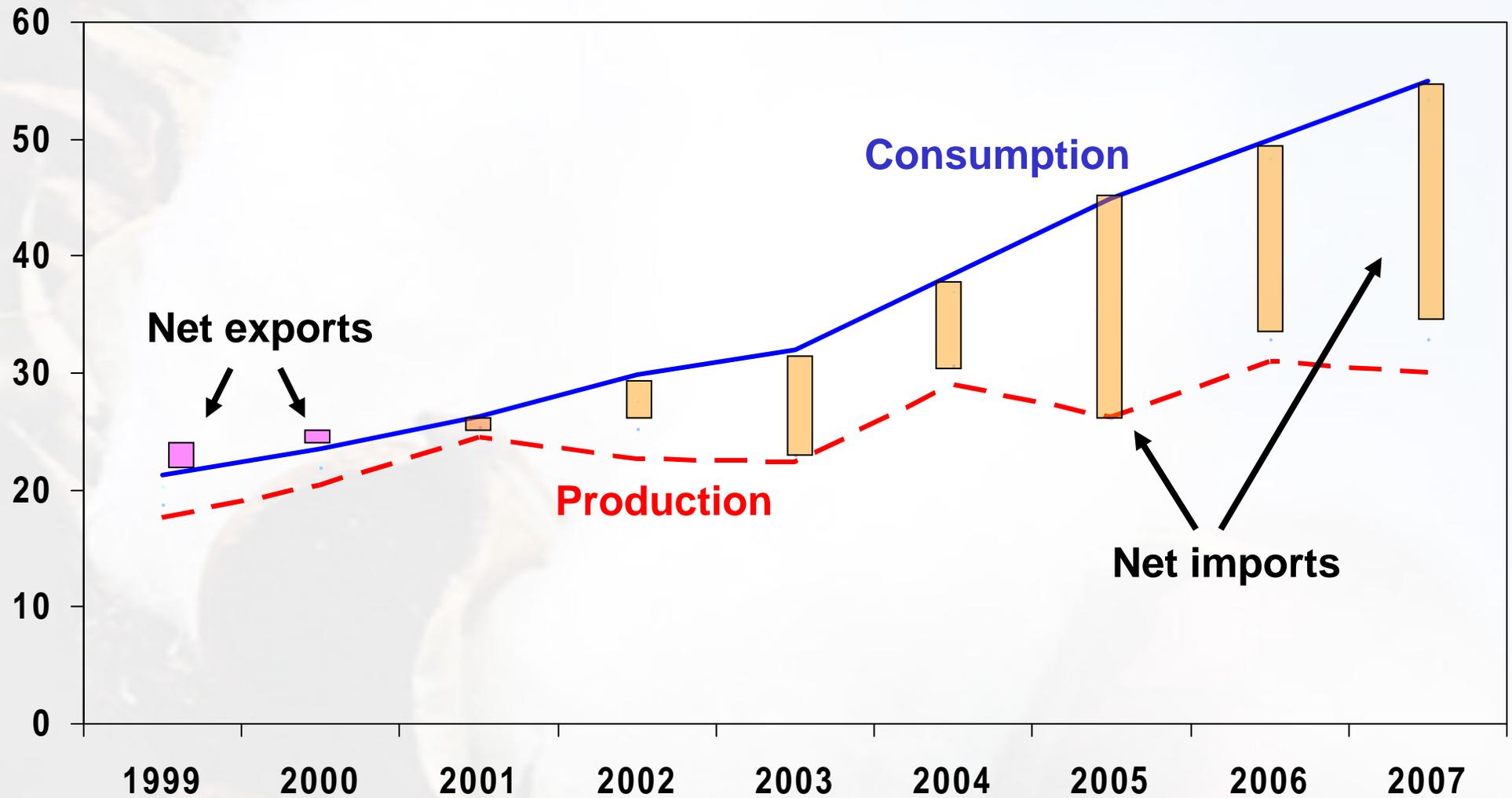
China's cotton production growing more slowly

Million bales



China's import needs: similar to consumption-production gap

Million bales



Source: USDA

August-July marketing years

China's consumption key to world cotton markets

- China buys 40 percent of world's imports
- Imports correlated with consumption
- Consumption more likely to keep growing than production
 - Global textile trade liberalization (Dec. 2004)
 - Global income growth above historical average
 - China's income growth even faster
 - Land limited in China: grain production is primary focus of agricultural policy

Problem: estimating China's cotton consumption

- Cotton's share of yarn production unknown
 - 64 percent: "conventional wisdom" estimate
 - >60 percent: no empirical basis
 - derived from cotton supply and demand balance
- Yarn production data flawed
 - Economic Census revealed significant errors
 - No corrections to historical data
 - Root source of 2004 errors may remain

Progress: new approach for estimating China's consumption

- Calculate cotton in China's textile exports
- USDA has estimated cotton fiber in U.S. textile trade since 1960
 - “fiber-equivalence”
- U.S. imported nearly 5 million bales of cotton in 2006 as textiles from China
 - Implies China exported 31 million bales, more than half of total consumption

“Fiber-equivalence:” textile mill consumption of cotton to produce garment



$$* \quad 0.40 \text{ kg/sweater} \quad = \quad 0.40 \text{ kg fiber}$$

$$0.40 \text{ kilograms fiber} \quad * \quad 45 \text{ percent cotton} \quad = \quad 0.18 \text{ kg cotton}$$

$$0.18 \text{ kilograms cotton} \quad * \quad (1 + 22 \text{ percent waste}) \quad = \quad \mathbf{0.22 \text{ kg cotton}}$$

HS 6110909026: Sweaters, women's, other fibers, subject to cotton restraints

Clothing exports dominate trade

China's textile trade in cotton mill use equivalents, 2006

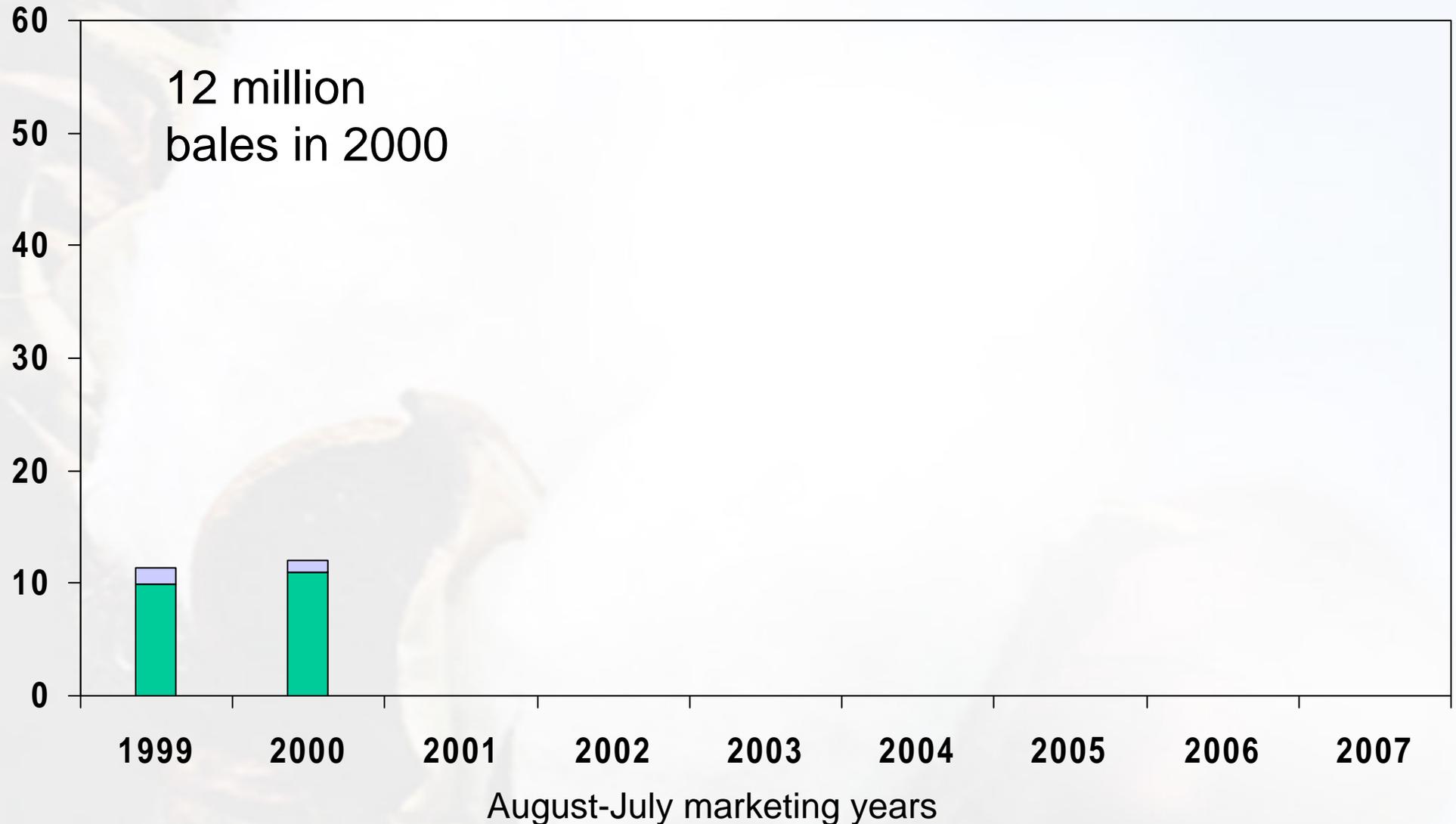
	Exports	Imports	Net Exports
	Million bales		
Yarn	3	4	-2
Fabric	11	3	8
Clothing, etc.	27	1	26
Total	41	8	32
	Percent increase		
Yarn	19	14	-6
Fabric	11	-2	17
Clothing, etc.	17	-8	18
Total	15	5	18

Calendar years

Source: ERS calculations based on data from China Customs

Net exports of China's cotton textiles are rising

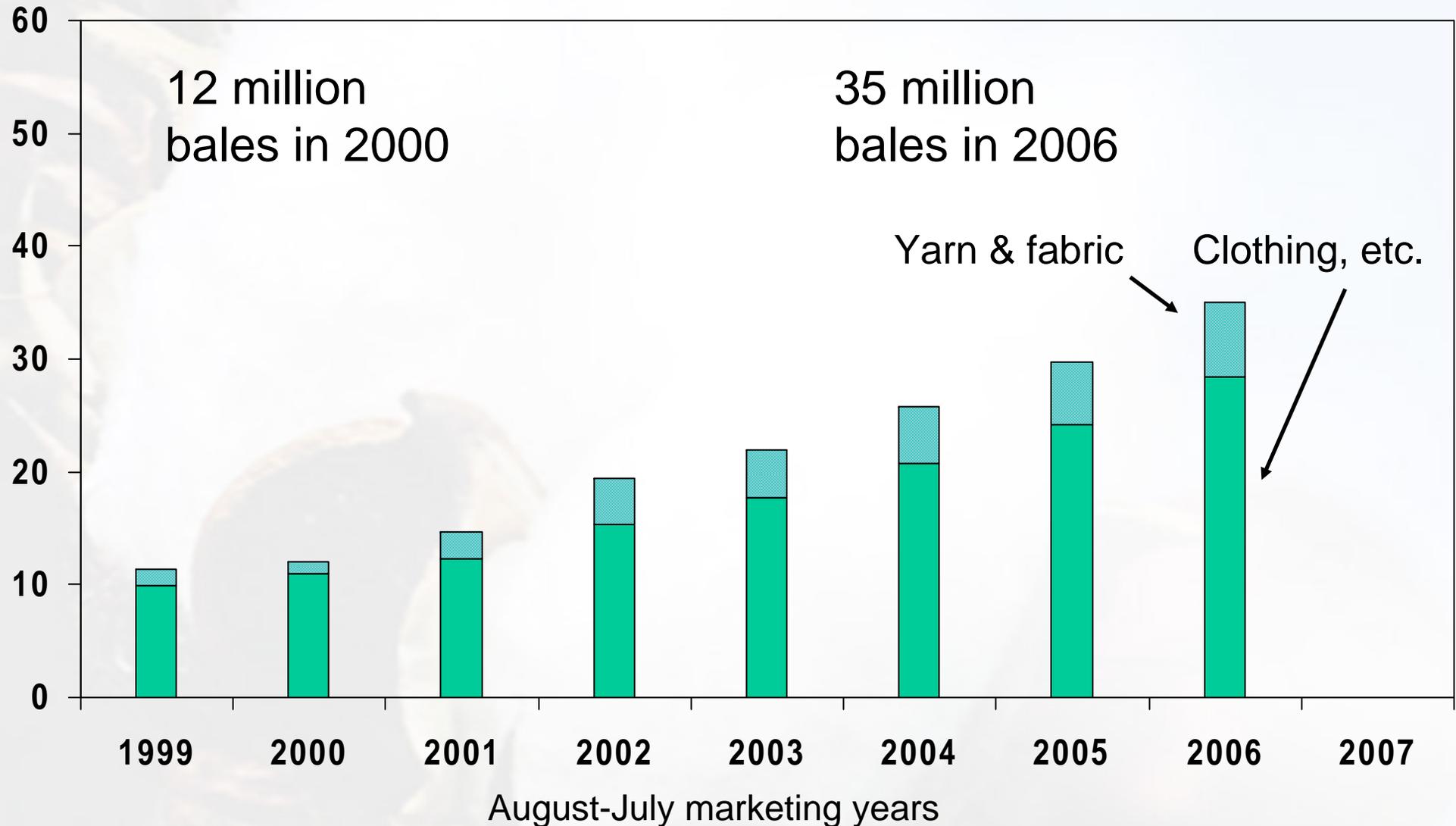
Million bales



Source: ERS calculations based on China Customs data.

Net exports of China's cotton textiles are rising

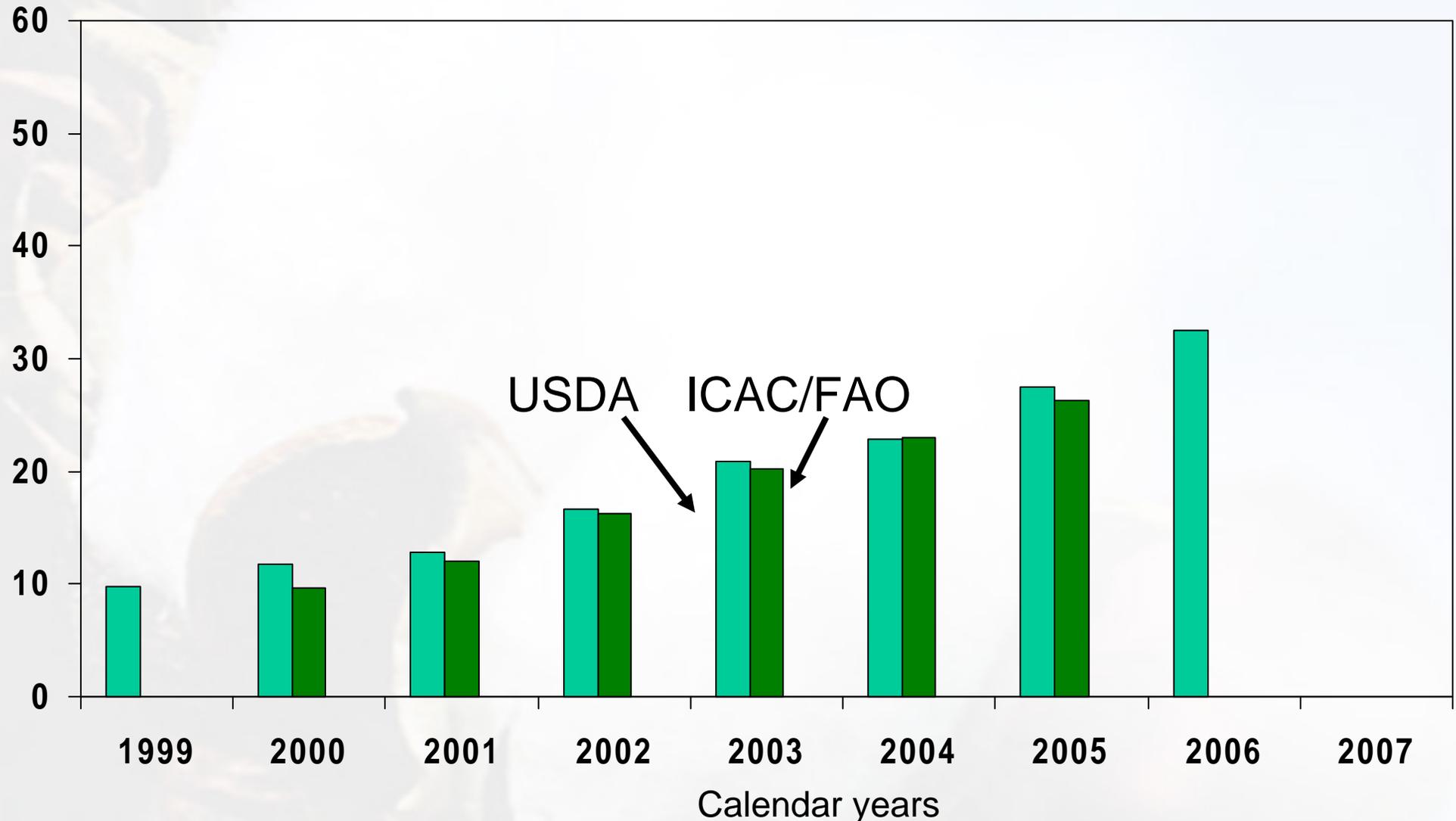
Million bales



Source: ERS calculations based on China Customs data.

Net exports of China's cotton textiles: USDA & ICAC/FAO have similar estimates

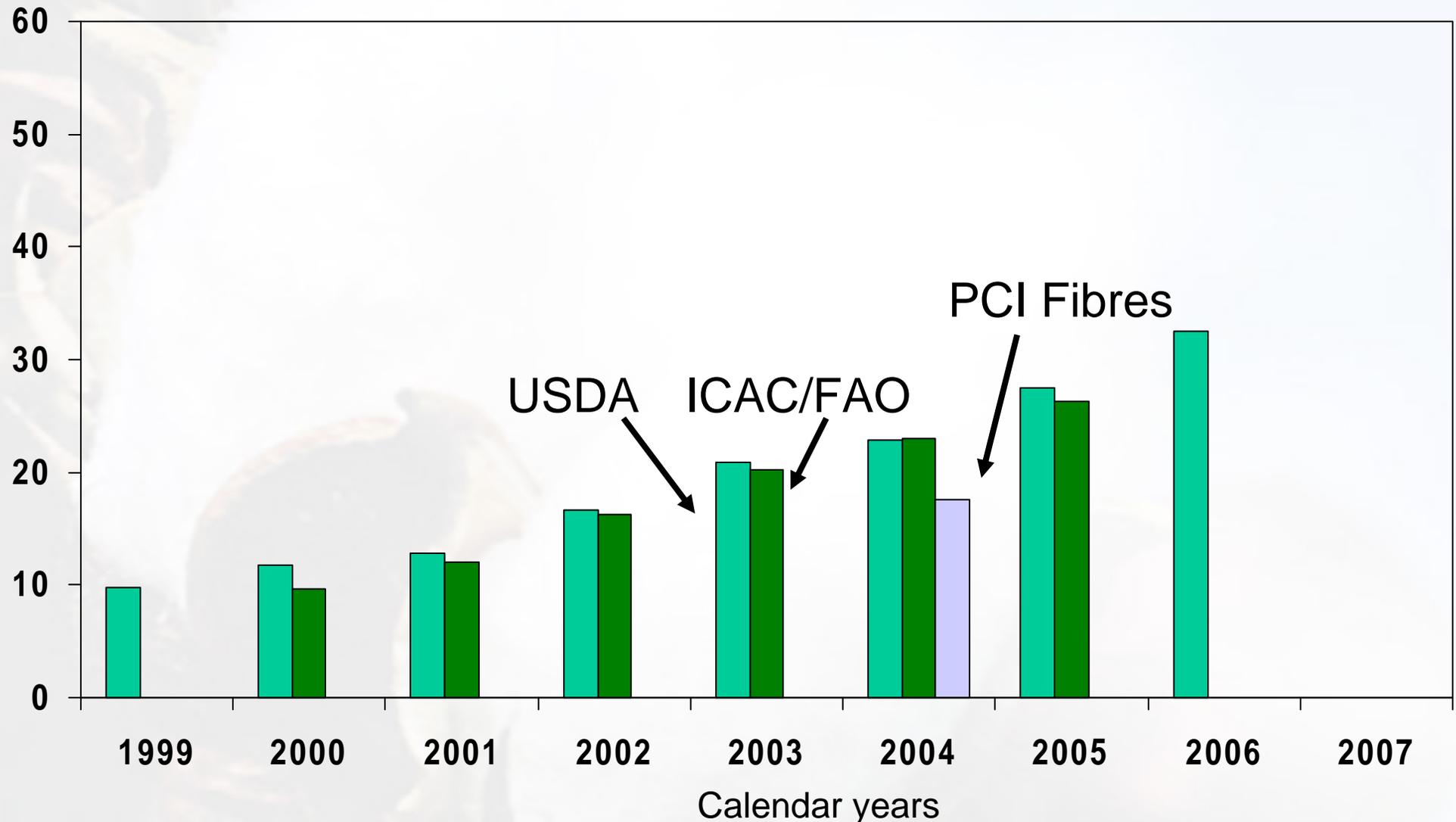
Million bales



Source: ICAC/FAO and ERS calculations based on China Customs data.

Net exports of China's cotton textiles: other sources estimates differ

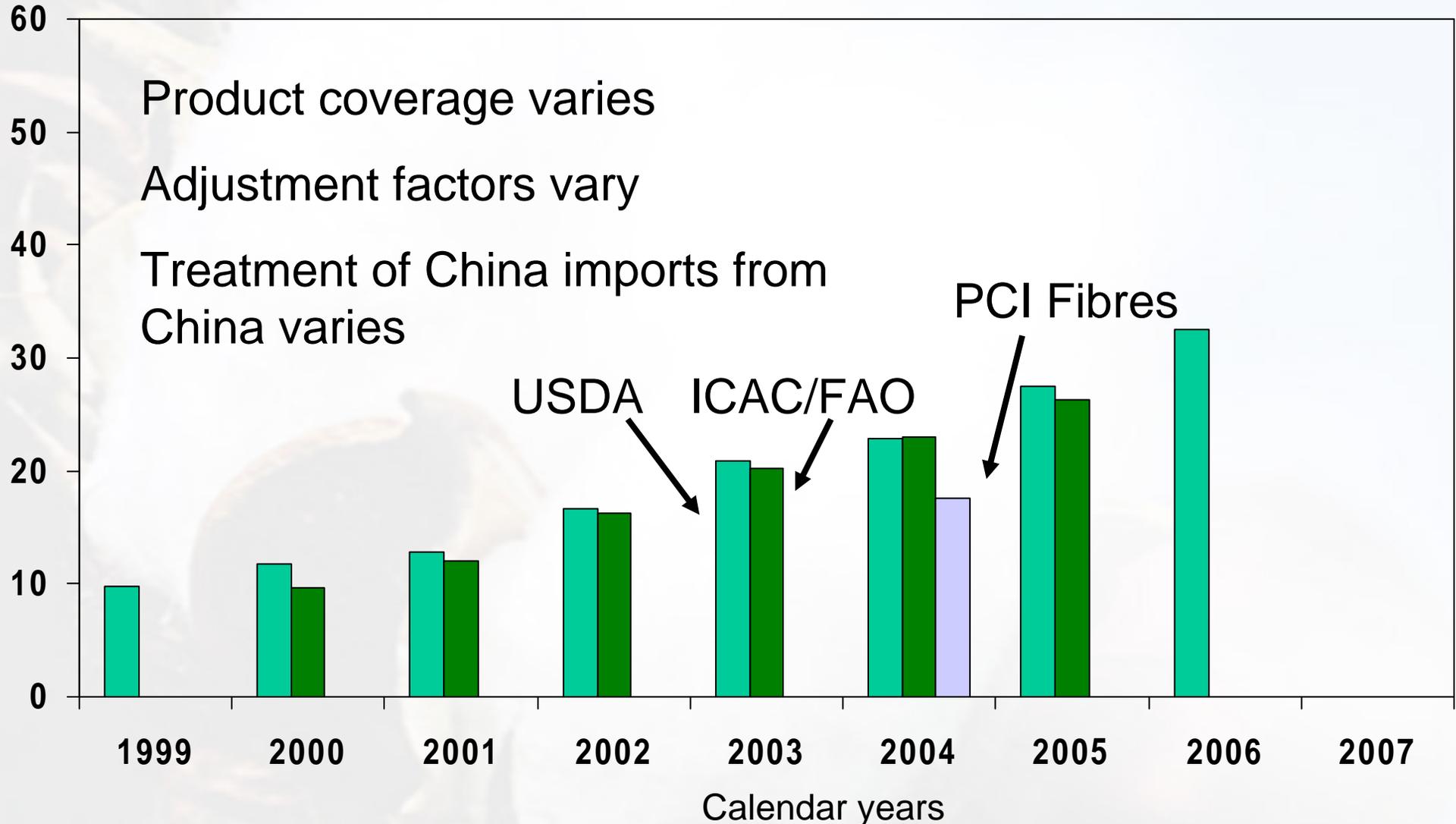
Million bales



Source: ICAC/FAO and ERS calculations based on China Customs data.

USDA and ICAC/FAO estimates exceed other estimates

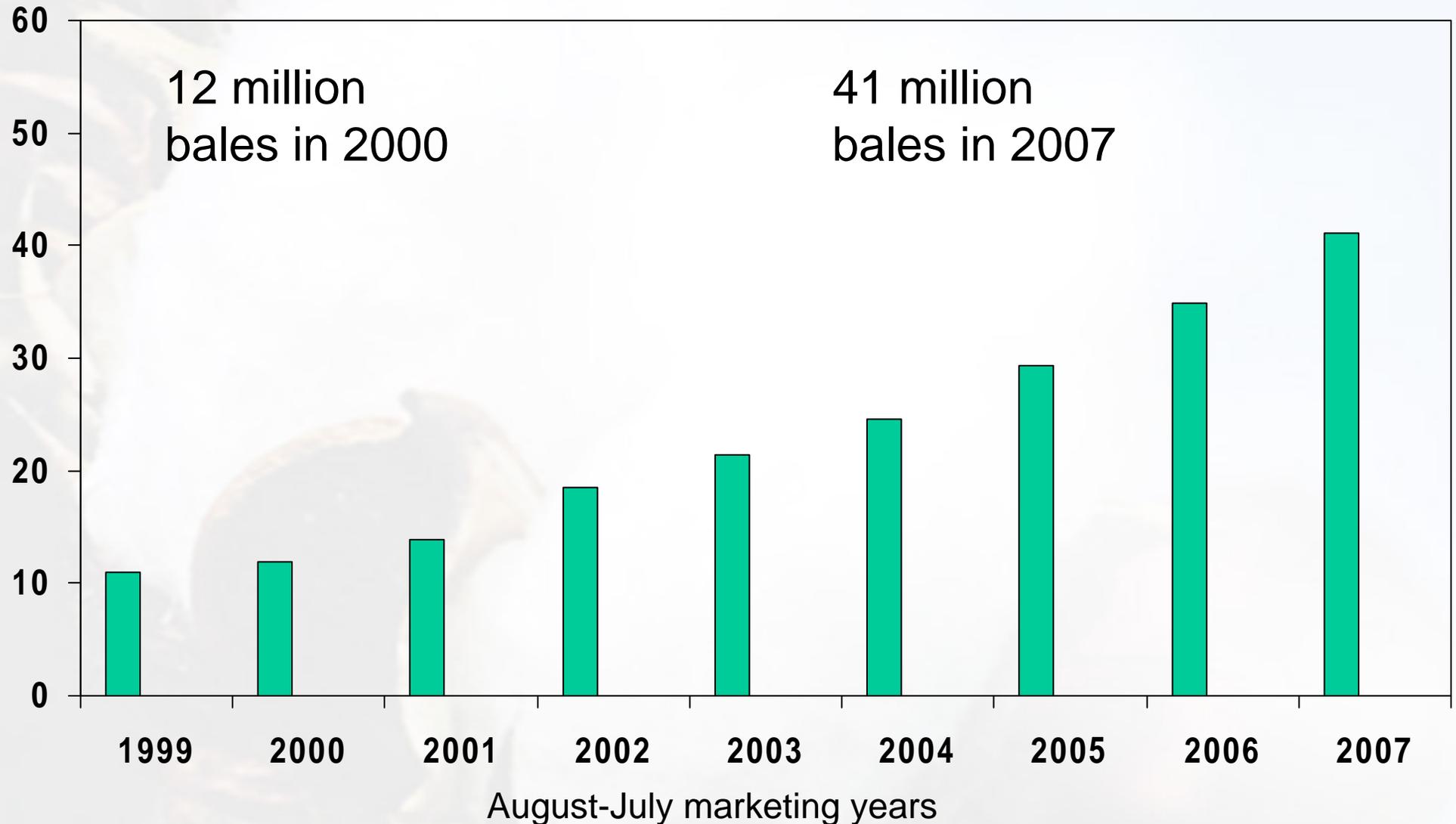
Million bales



Source: ICAC/FAO, PCI Fibres, and ERS calculations based on China Customs data.

Net exports of China's cotton textiles rising 18 percent in 2007

Million bales

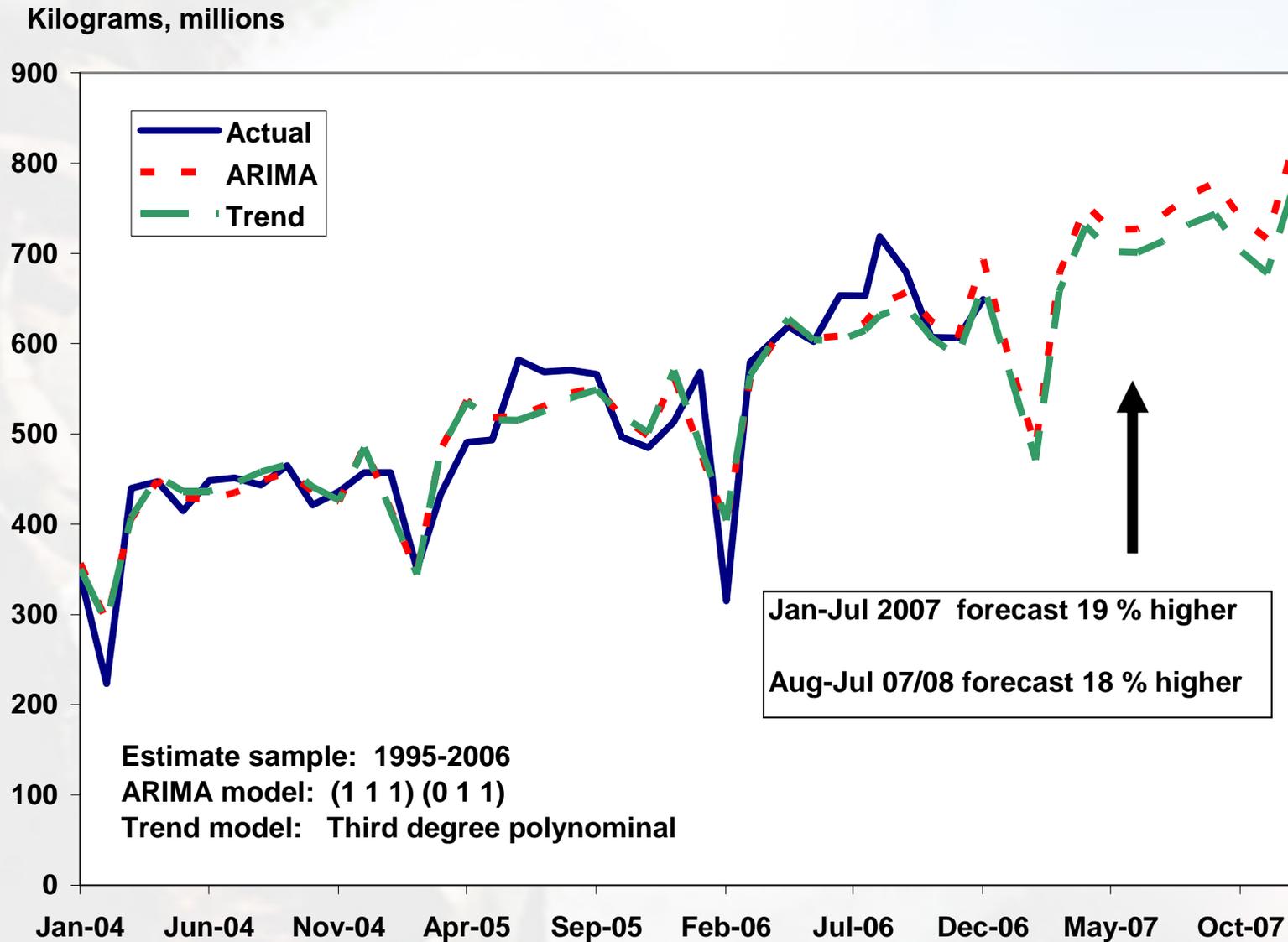


Source: ERS calculations based on China Customs data.

Outlook: continued growth in China's textile exports in 2007/08

- Economic & policy developments favor increase
 - Continued strong world economy
 - Slow (4 percent) nominal RMB appreciation
 - No new significant Textile Safeguards
 - Limited impact: 1) VAT rebates less generous and 2) government trying to curb excessive investment and inflation
- Large investments increased capacity in 2006
- Government officials forecasting 15-20 percent increase in exports in 2007

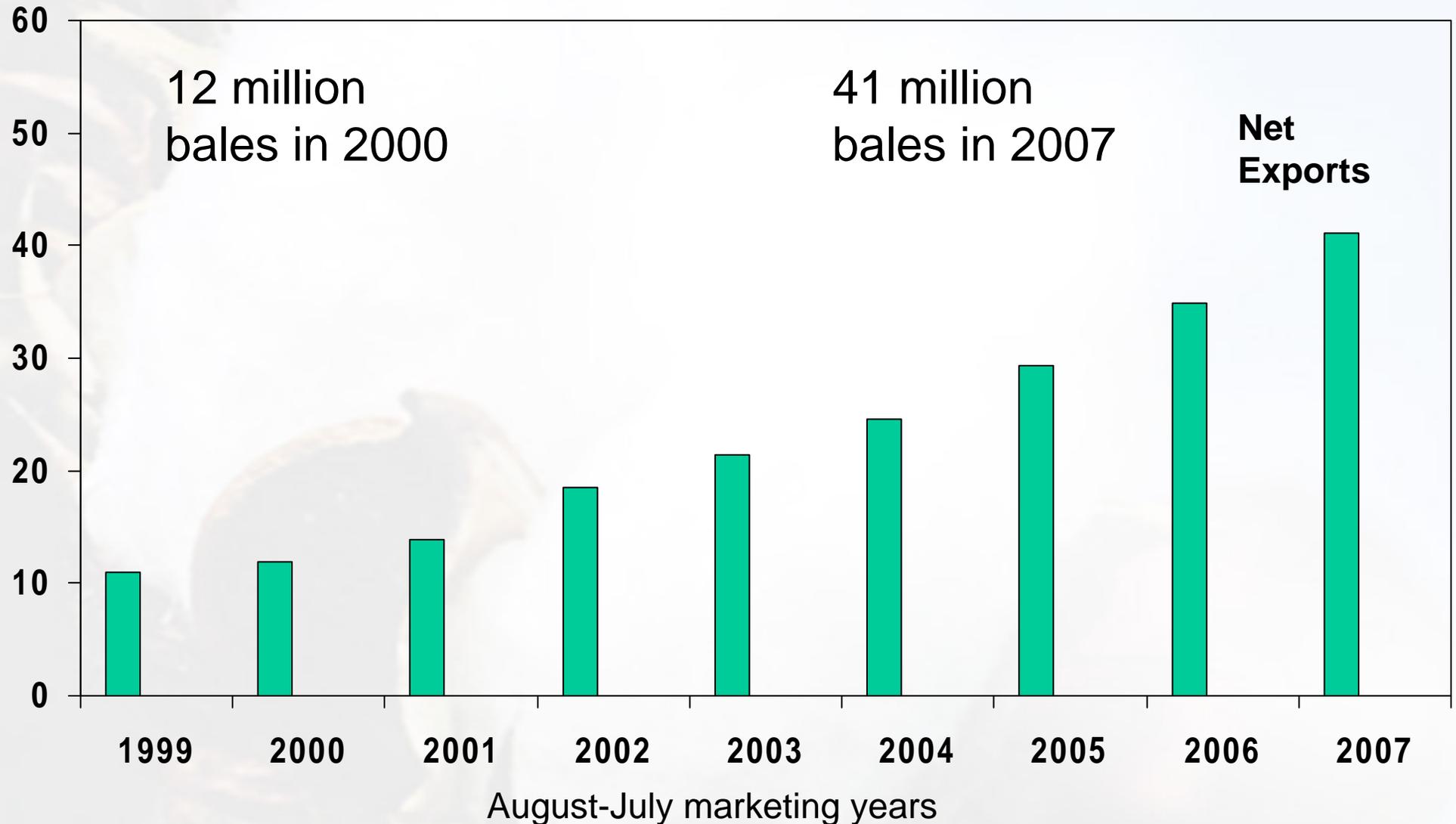
Net exports of China's cotton textiles rising 18 percent in 2007



Source: ERS calculations based on data from China Customs

Net exports of China's cotton textiles rising 18 percent in 2007

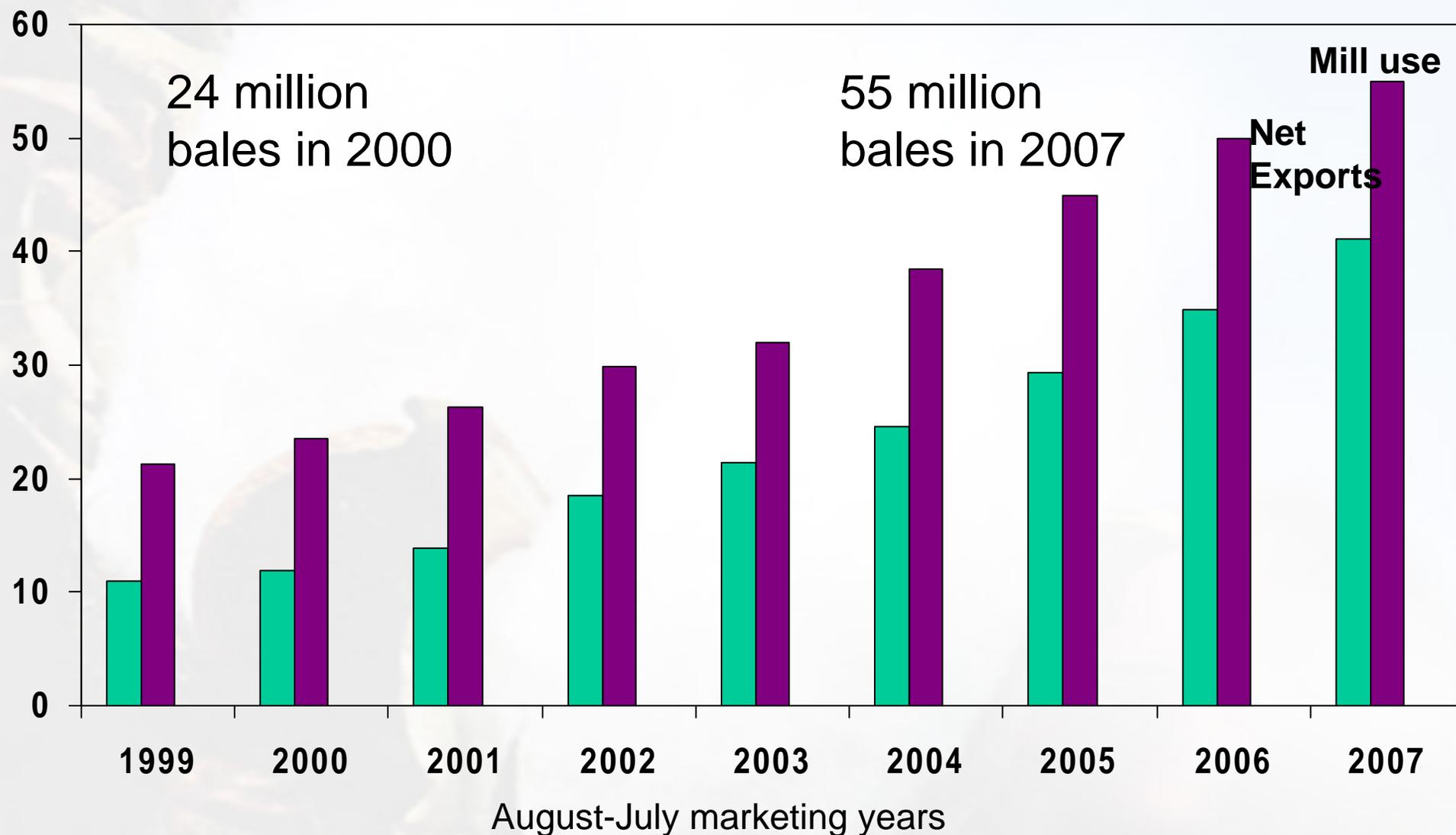
Million bales



Source: ERS calculations based on China Customs data.

Total mill consumption of China's cotton rising 10 percent in 2007

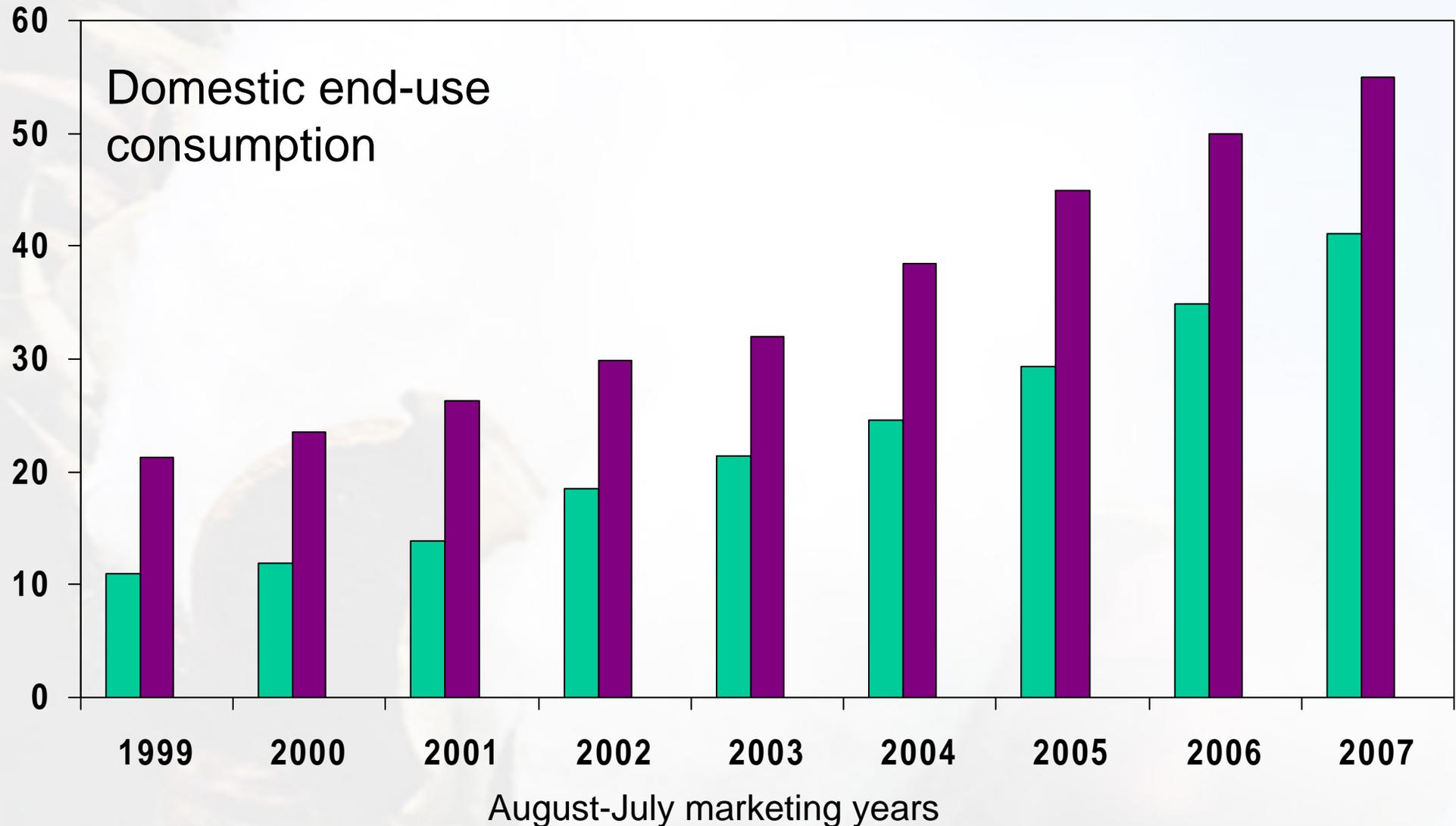
Million bales



Source: USDA and ERS calculations based on China Customs data.

China spins cotton for domestic end-use consumption as well as exports

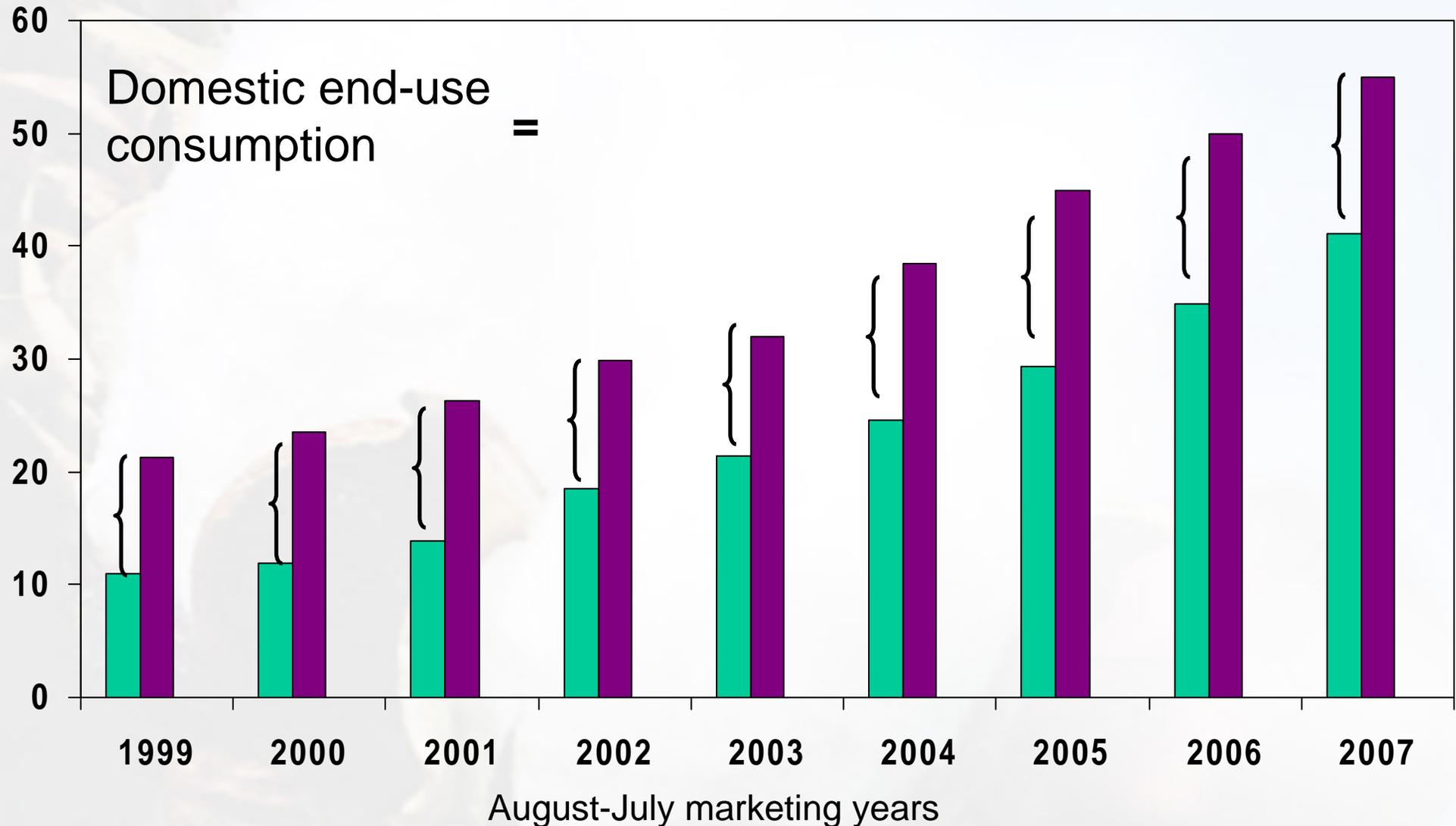
Million bales



Source: USDA and ERS calculations based on China Customs data.

China spins cotton for domestic end-use consumption as well as exports

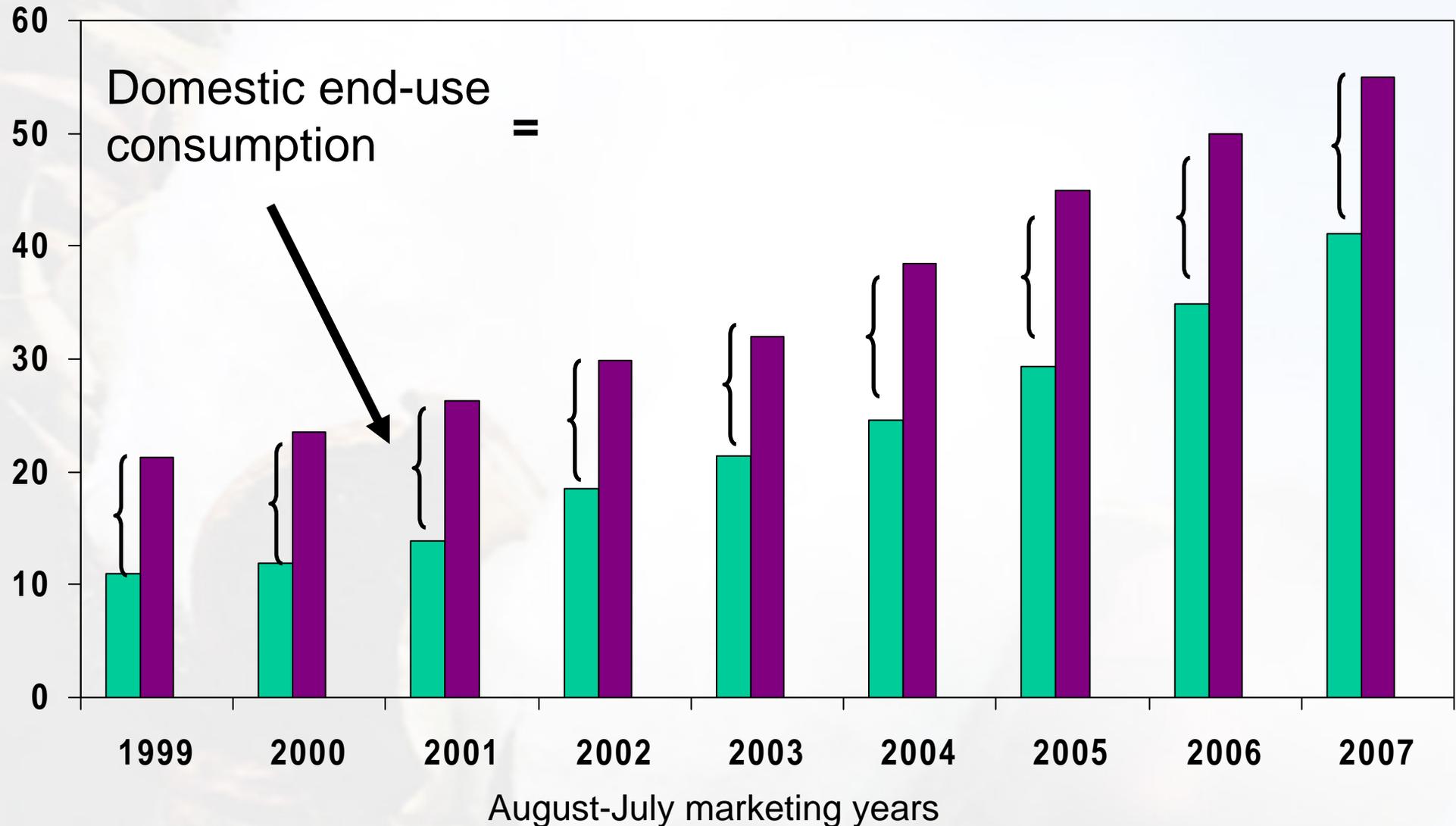
Million bales



Source: USDA and ERS calculations based on China Customs data.

China spins cotton for domestic end-use consumption as well as exports

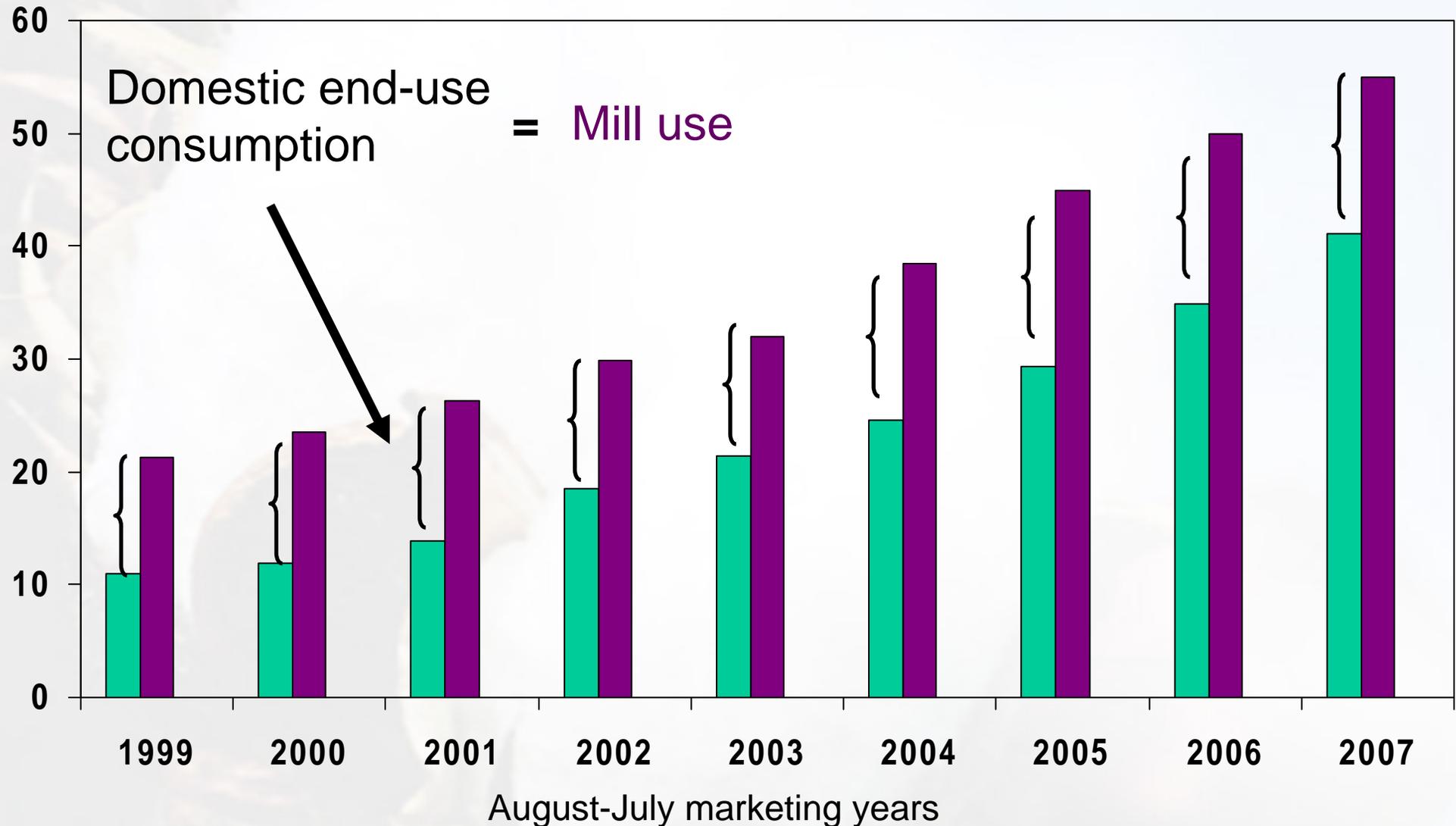
Million bales



Source: USDA and ERS calculations based on China Customs data.

China spins cotton for domestic end-use consumption as well as exports

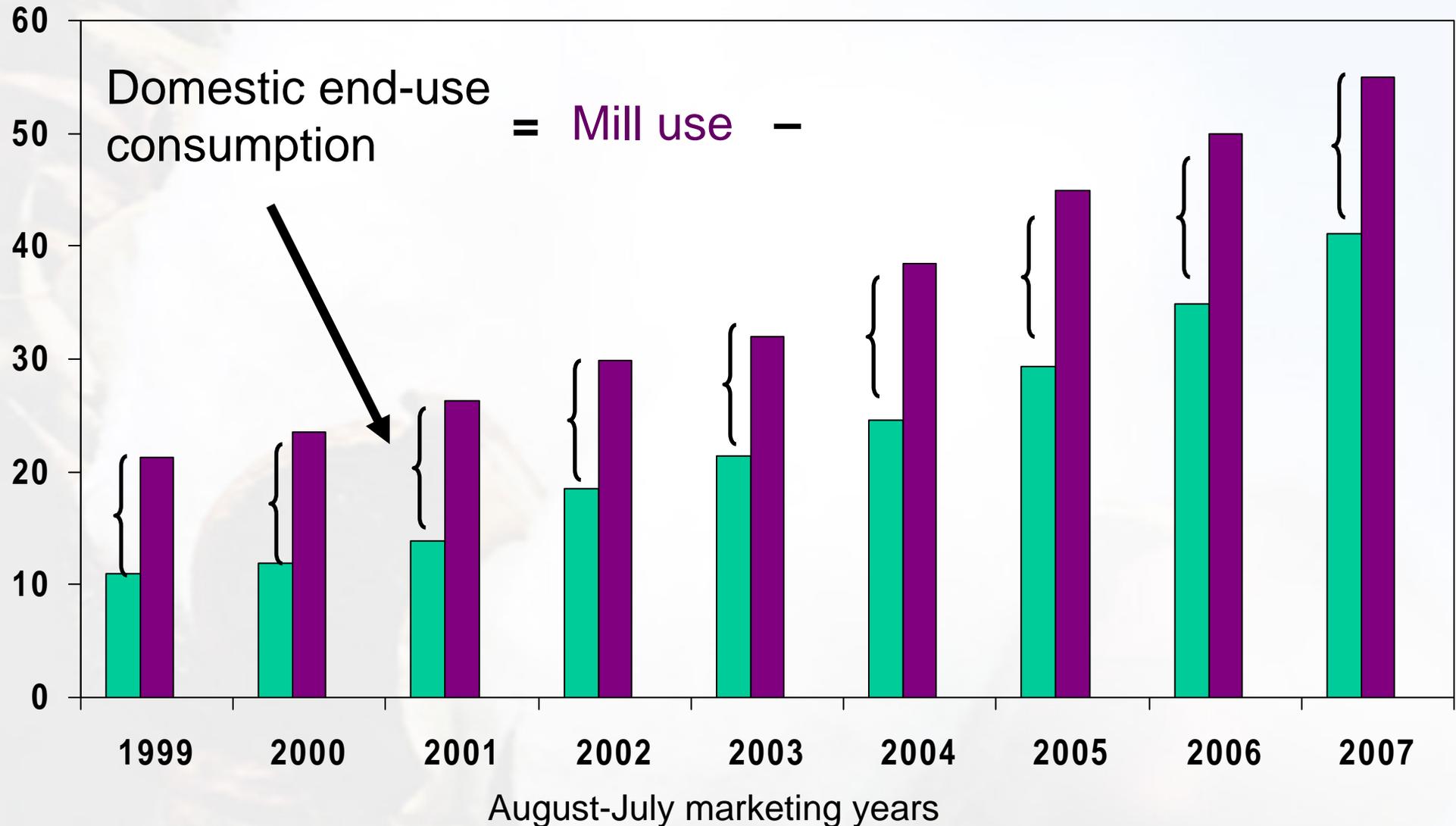
Million bales



Source: USDA and ERS calculations based on China Customs data.

China spins cotton for domestic end-use consumption as well as exports

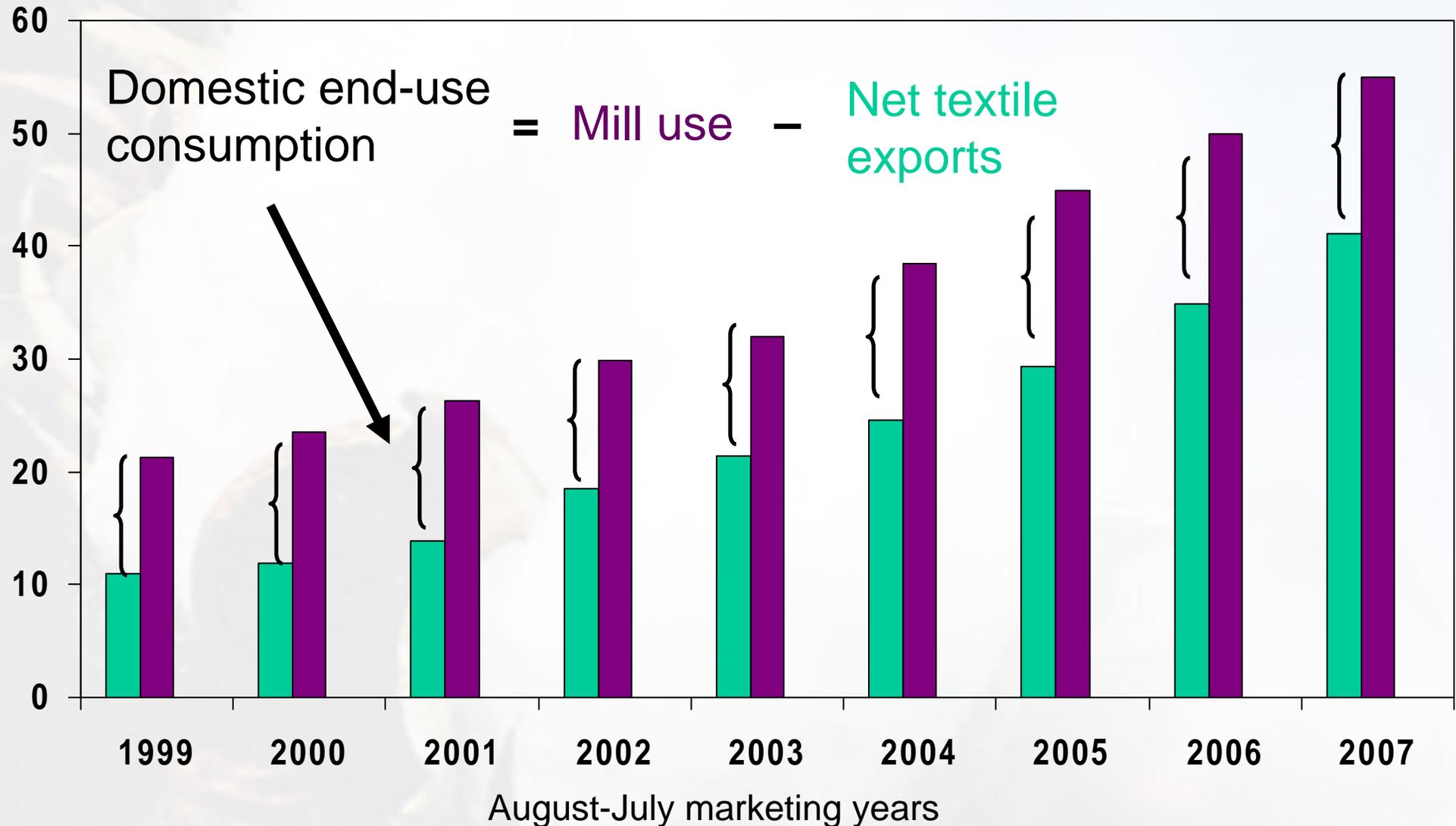
Million bales



Source: USDA and ERS calculations based on China Customs data.

China spins cotton for domestic end-use consumption as well as exports

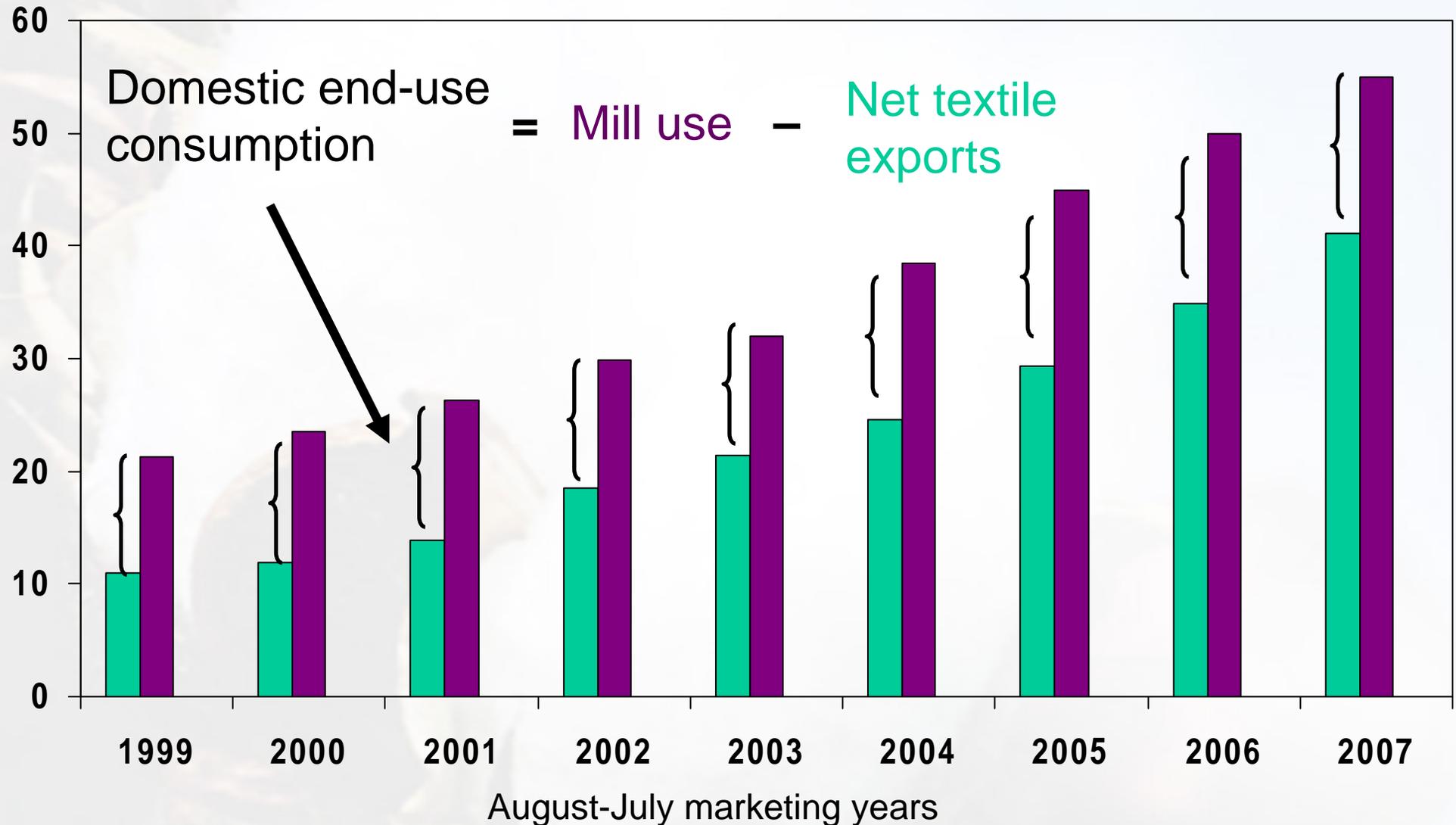
Million bales



Source: USDA and ERS calculations based on China Customs data.

China spins cotton for domestic end-use consumption as well as exports

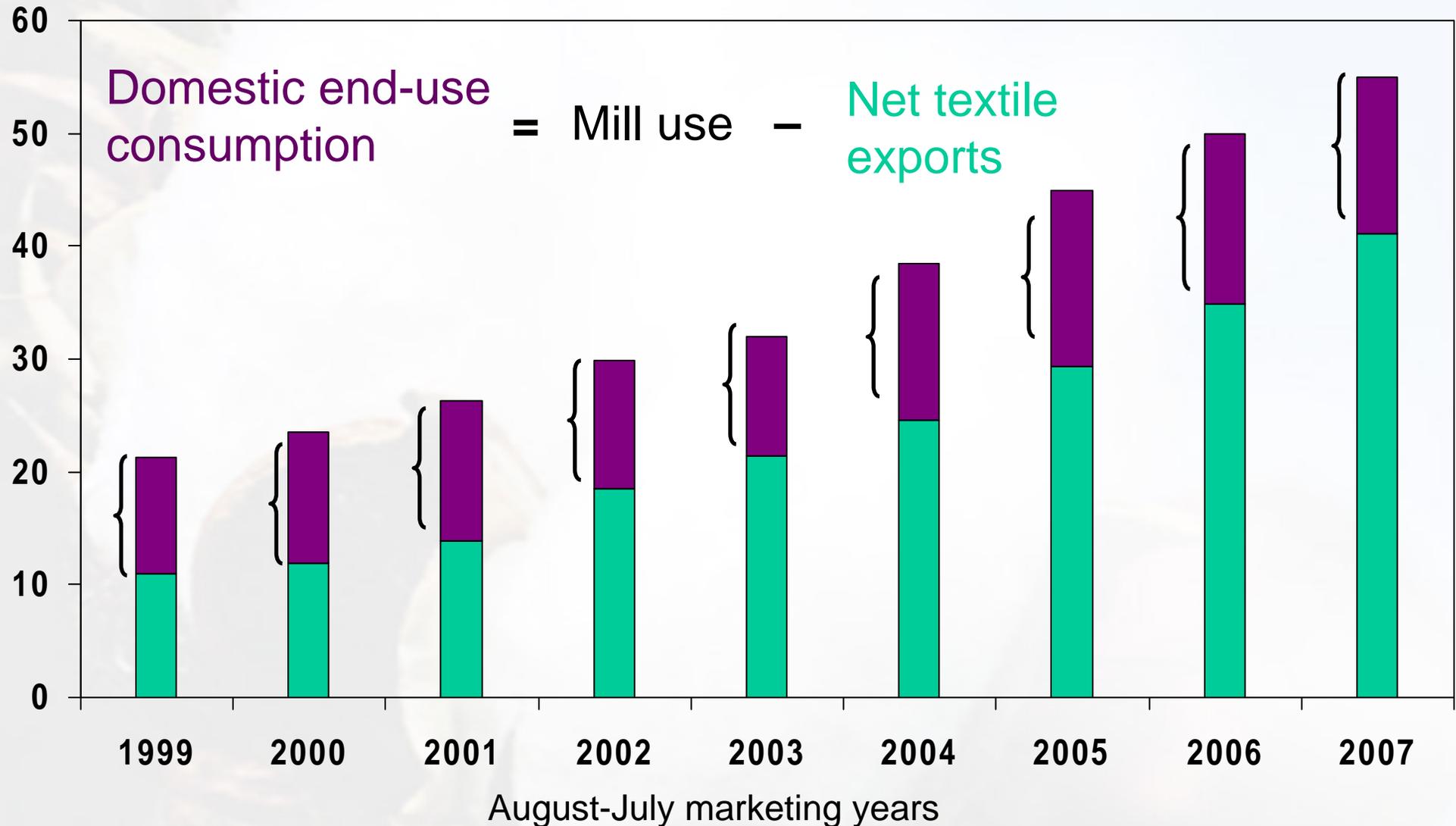
Million bales



Source: USDA and ERS calculations based on China Customs data.

China's domestic end-use consumption of cotton textiles = 15 million bales, 2006

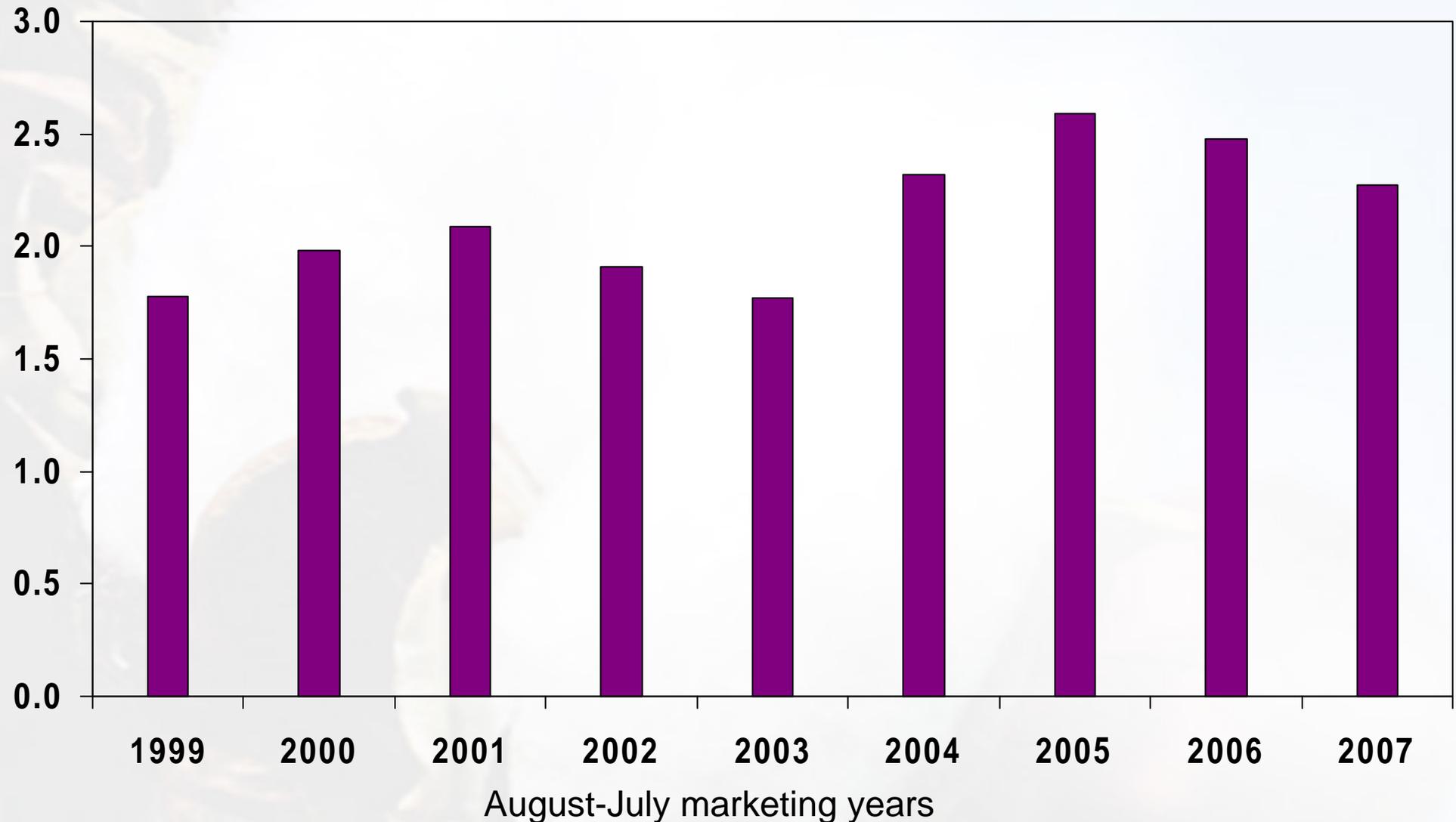
Million bales



Source: USDA and ERS calculations based on China Customs data.

China's domestic end-use consumption of cotton textiles = 2.5 kg/capita, 2006

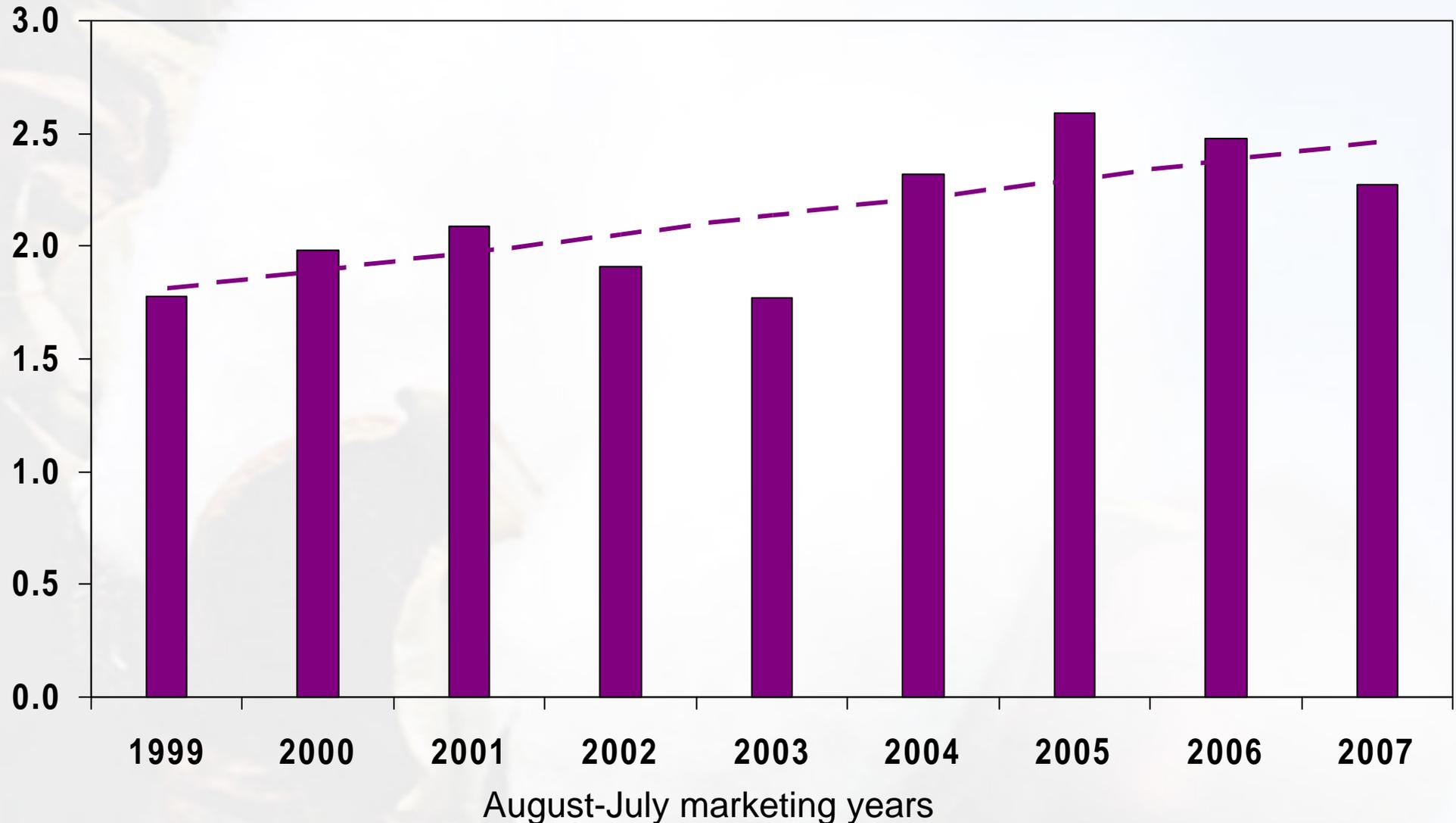
Kilograms/capita



Source: ERS calculations based on USDA and China Customs data.

China's domestic end-use consumption of cotton textiles = 2.5 kg/capita, 2006

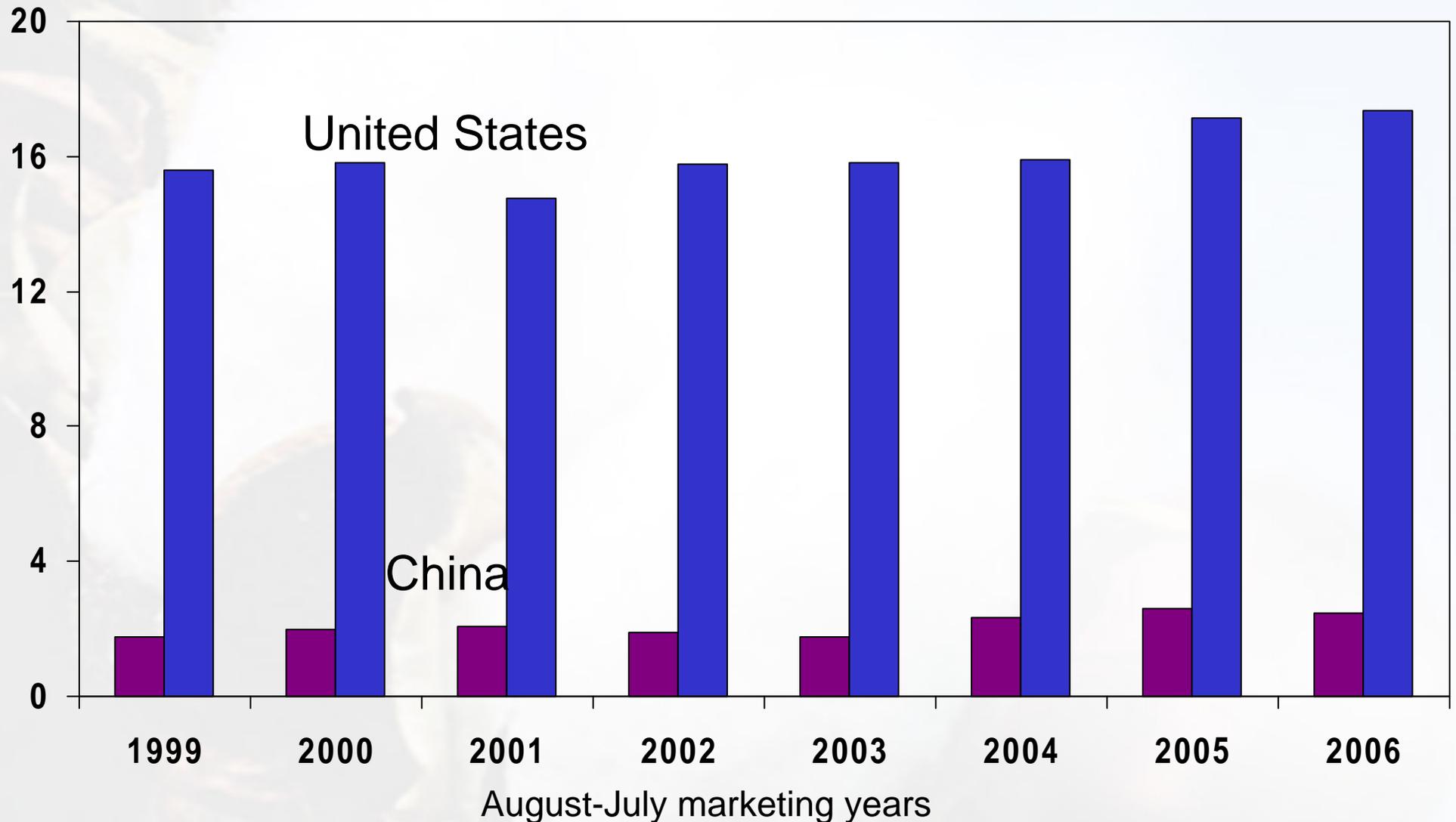
Kilograms/capita



Source: ERS calculations based on USDA and China Customs data.

U.S. per capita cotton end-use 600-700 percent above China's

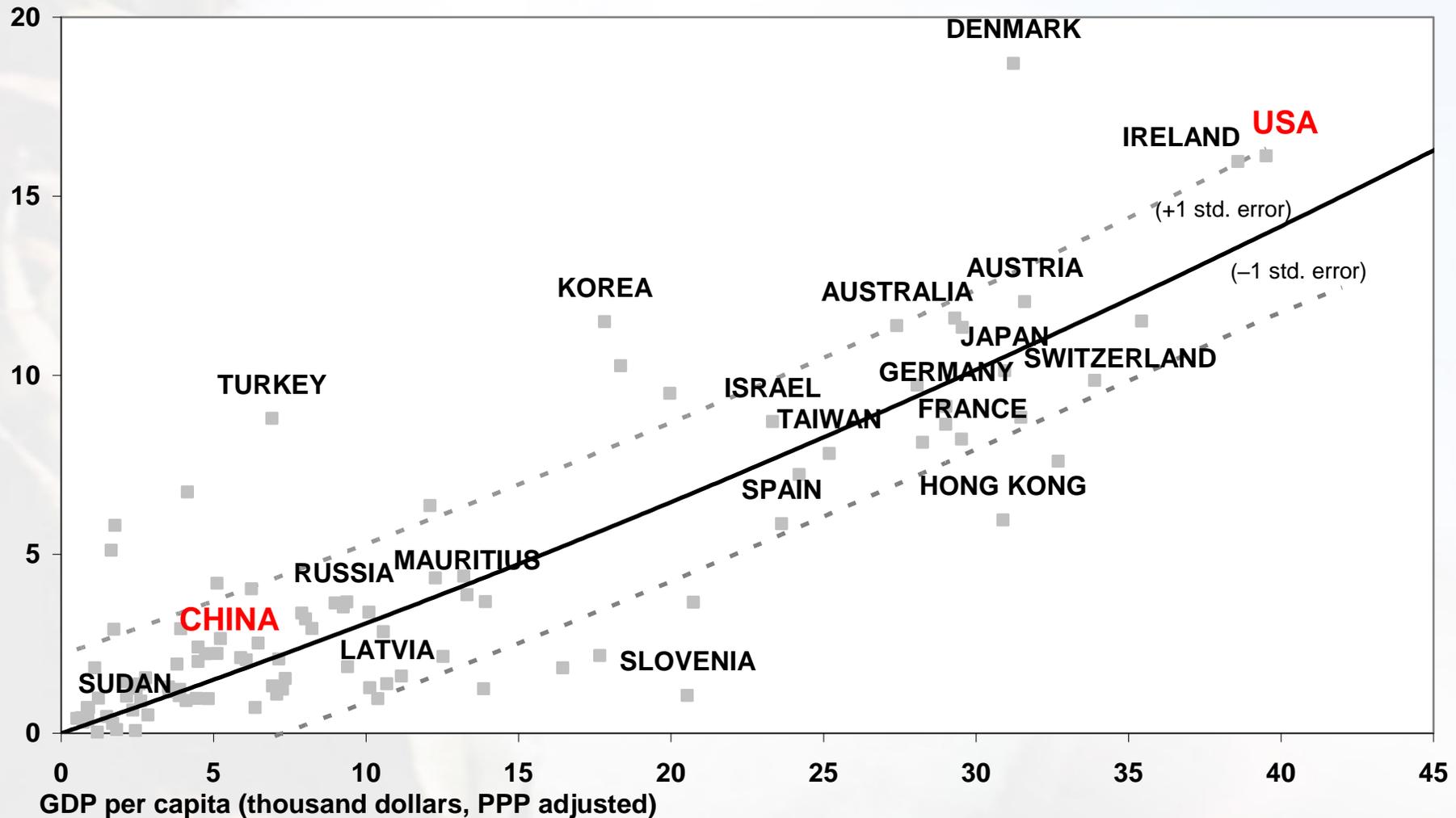
Kilograms/capita



Source: ERS calculations based on USDA, China Customs, and U.S. Census data.

China's cotton end-use per capita corresponds to income

Kilograms of cotton end-use consumption per capita



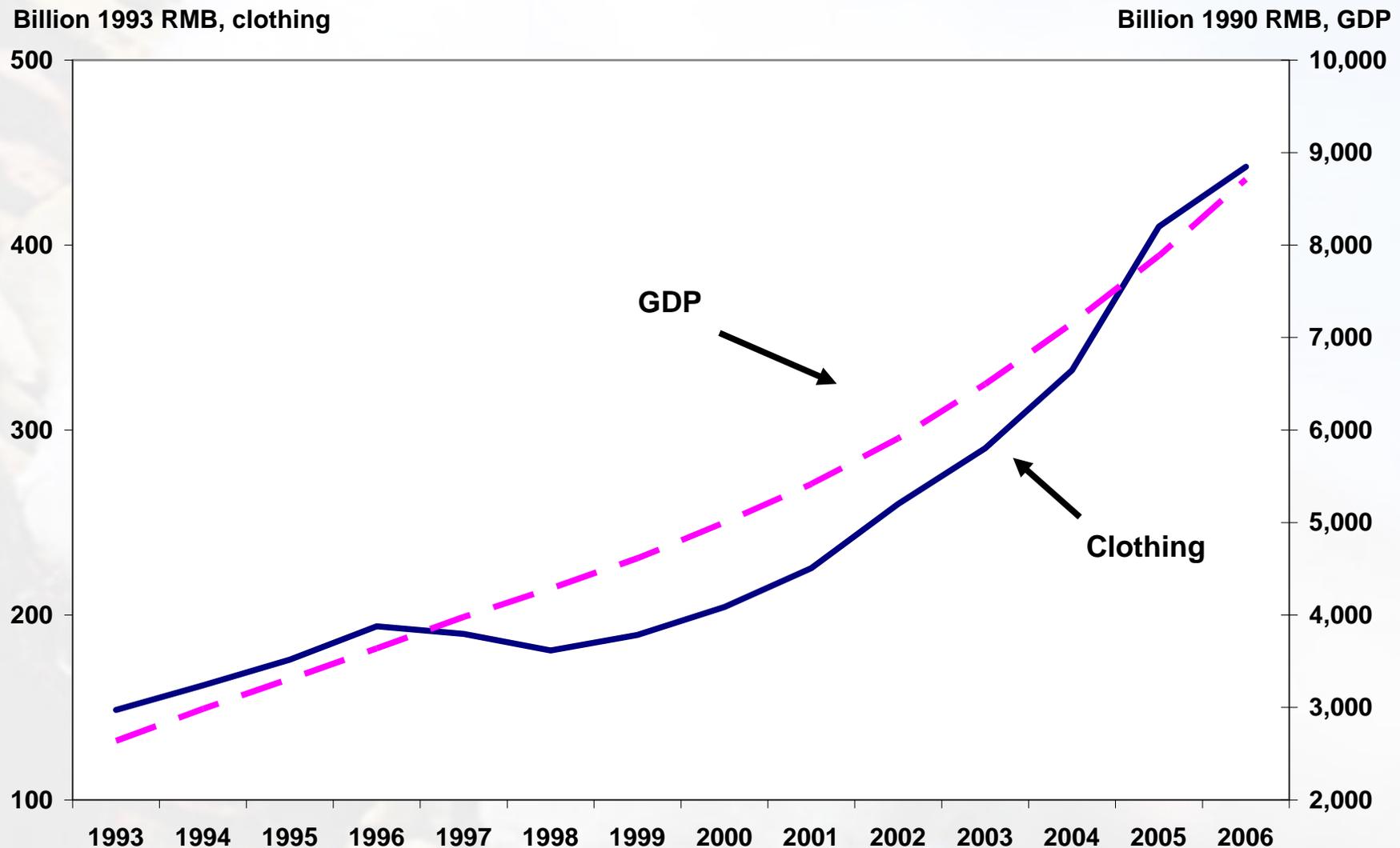
Source: ICAC/FAO, World Bank, and ERS calculations (2004 data)

China's end-use consumption of cotton textiles: estimates & outlook

- Variety of estimates for 2004 (kg/capita):
 - Derived from income = 1.5
 - USDA (implied) = 2.1
 - ICAC/FAO = 2.2
 - USDA (if 64% cotton share) = 2.9
 - PCI Fibres = 3.1
- China's economy has been growing strongly
 - This implies end-use could be considerably higher in 2007

China's clothing expenditure outpaces income growth

China: real clothing expenditure and GDP, 1993-2006



Source: National Bureau of Statistics (China), GlobalInsight, and ERS calculations

Forecasting end-use: impact of China's growing economy

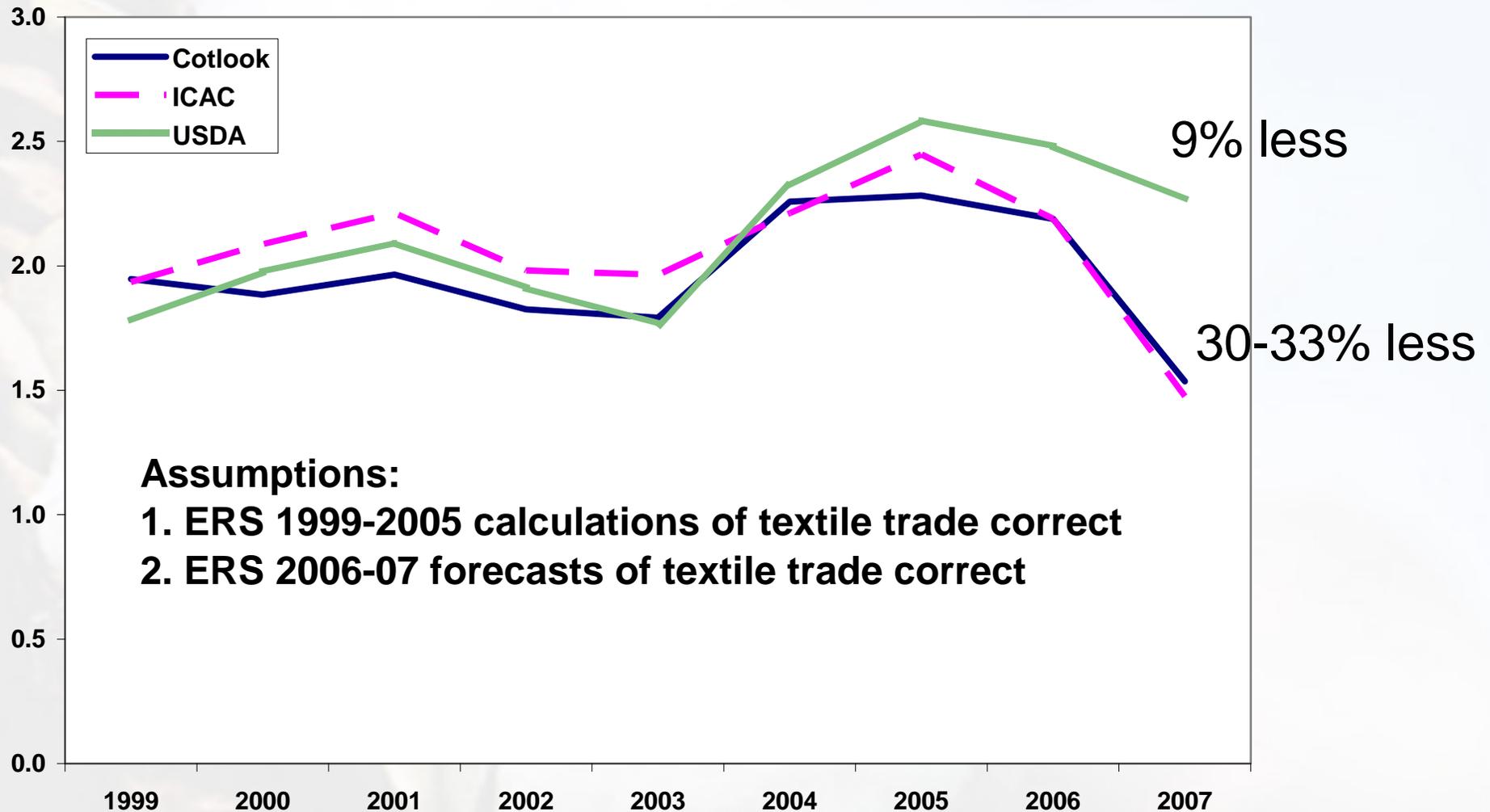
- ERS research suggests textile income elasticity about 0.9
 - China's GDP growing more than 10%
- NBS data on clothing expenditure suggests expenditure elasticity of 1.2
 - Expenditure rose 23% in 2005
- Income and expenditure outlook suggests end-use growing:
 - 2007 estimate = 3.0-3.7 kg/capita
 - Since 2004, up 58%

Will households in China consume more cotton textiles in 2007?

China's total cotton mill use				Assumption: Textile net exports
USDA	ICAC	Cotlook		
Million bales				
2006	50	48	48	35
2007	55	50	51	41
Change	5	2	3	6
Percent				
Change	10	4	5	18

Will China's households consume less cotton textiles in 2007?

Kilograms per capita (implied by mill use estimates)



Assumptions:

1. ERS 1999-2005 calculations of textile trade correct
2. ERS 2006-07 forecasts of textile trade correct

Source: ERS calculations based on data from USDA, China Customs, ICAC, and Cotlook.

Problems remain despite progress in understanding China's cotton sector

- Production and trade data unable to account for even conservative mill use estimates
 - USDA and ICAC have added very large “residual” to China supply estimates
- Factors pointing to errors in production estimates:
 - Press highlights alternative Xinjiang estimates
 - Government trade & stock policy suggests more cotton in Xinjiang
- Surveys report commercial stocks, but government stocks unknown

Steps to reduce cost of global cotton market uncertainty

- Additional information and research needed
 - Increased global cotton policy transparency
 - Continued exchanges with China's government, industry, and associations on consumption and production
 - Additional research:
 - Further analysis of ICAC/FAO world dataset
 - Closer examination of additional information from other countries

Acknowledgements and link to further information

- All USDA China forecasts are produced by an Interagency Commodity Estimates Committee including ERS, FAS, and WAOB.
- China fiber-equivalence estimates have benefited from support by ERS/MTED, assistance from China Team, and Information Services Division.
- Valuable contributions from outside USDA as well
- ERS Cotton Briefing Room:
 - <http://www.ers.usda.gov/Briefing/Cotton/>