

Rice Quality, Standard and Value Chain in China

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SUN Changpo, Ph.D., Professor, currently the chief engineer of Standards and Quality Center, NAFRA, engaging in the research and management of grains quality and safety. He serves as the member of the 2nd National Food Safety Risk Assessment Expert Committee and the 2nd National Food Safety Standard Review Committee, and has published 72 research papers with the highest individual article impact factor of 16.683.



□ 约有三分之二的中国人口以大米为主食

Rice is the major staple food for nearly two-thirds of the Chinese population

□ 近10年来，中国稻谷产量一直稳定在2亿吨以上

Rice output in China has been maintained above 200 million tons in the past 10 years

□ 强化绿色导向、标准引领和质量安全监管，不断提高稻米质量

Rice quality in China is continuously improving through strengthening green orientation, the leading role of standards, and supervision over grain quality and safety

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01

稻米质量的定义

Definition of rice quality

稻米质量

Rice quality

食品安全 Food safety

重金属 Heavy metal
真菌毒素 Mycotoxin
农药残留 Pesticide residues
有毒有害菌类、植物种子 Harmful and toxic fungi and seeds

常规质量 General quality

稻谷：出糙率、整精米率、杂质、水分等
Paddy: husked rice yield, head rice, extraneous matters, moisture, etc.
大米：碎米、加工精度、不完善粒等
Milled rice: broken rice grain, milling degree, defective grains, etc.

储存品质 Storage quality

脂肪酸值 Fatty acid value
色泽、气味 Color and odor
品尝评分 Tasting assessment value

加工品质 Processing quality

常规质量+ general quality+
稻谷：出米率等
Paddy: milled rice yield
大米：垳白度等
Milled rice: chalkiness degree (chalk kernels)

食用品质 Cooking and Sensory Traits

食味值：是米饭的气味、外观结构、适口性、滋味、冷饭质地等综合得分
Tasting value: It is the comprehensive score of smell, appearance structure, physical characteristics, taste, the texture of cooked and cooled rice

营养品质 Nutritional quality

维生素 Vitamins
微量元素 Minerals
膳食纤维 Fiber
蛋白质 Protein



02

质量促进稻米价值链发展

Quality promotes the upgrading
of the rice value chain



可持续的粮食价值链发展

Sustainable food value chain development (SFVC)

随着居民收入增加，家庭倾向于将更多的钱花在更高价值的粮食中，而不是增加粮食消费量。同时，消费者需求的变化成为粮食价值链各环节创新和价值创造的核心驱动力，从而持续改善粮食供给，并使消费者受益。

As their incomes increase, households tend to spend more money on higher-value food rather than increasing the amount of food they consume. In turn, this evolution of consumer demand becomes a core driver of innovation and value creation at each level of the FVC, leading to continuous improvement in the food supply and increasing benefits to consumers.

Source: *Developing Sustainable Food Value Chains – Guiding Principles*, FAO, 2014, Rome.



质量是发展中国家粮食价值链升级的强大引擎

Quality is a powerful engine in food value chain (VC) upgrading in developing countries

Source: *Rice quality: How is it defined by consumers, industry, food scientists, and geneticists?* Trends in Food Science & Technology 92 (2019) 122–137.

优质粮食工程 “湖州模式” the Quality Food Project

稻米价值链
Rice value Chain

生产 Production

收购、储存、加工
Purchasing,
Storage, and
processing

销售 Sales

餐桌 Fork

成效
Effects

农民增收 Farmers'
income increase

企业盈利
Corporate profit
increase

消费者获益
Consumer benefits

经济和社会效益
Economic and social benefits

平均每亩增收160元
Increase income by 160 yuan per mu

每吨可增加利润约600元, Increase
profit by about 600 yuan per ton

吃到本地好大米
Taste local quality rice

“南粳”系
列优质稻米
Quality Rice
with the
variety of
“NANJING”



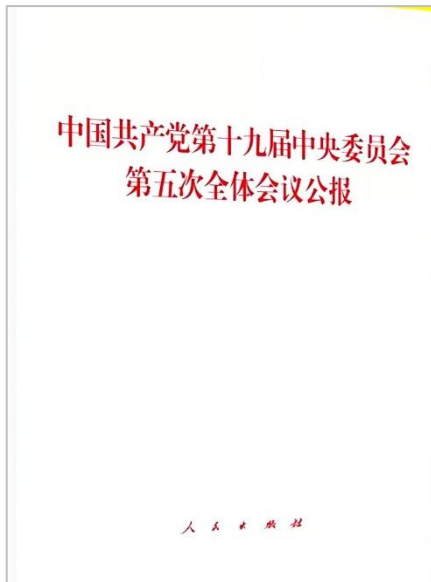
03

中国稻米标准体系与质量提升

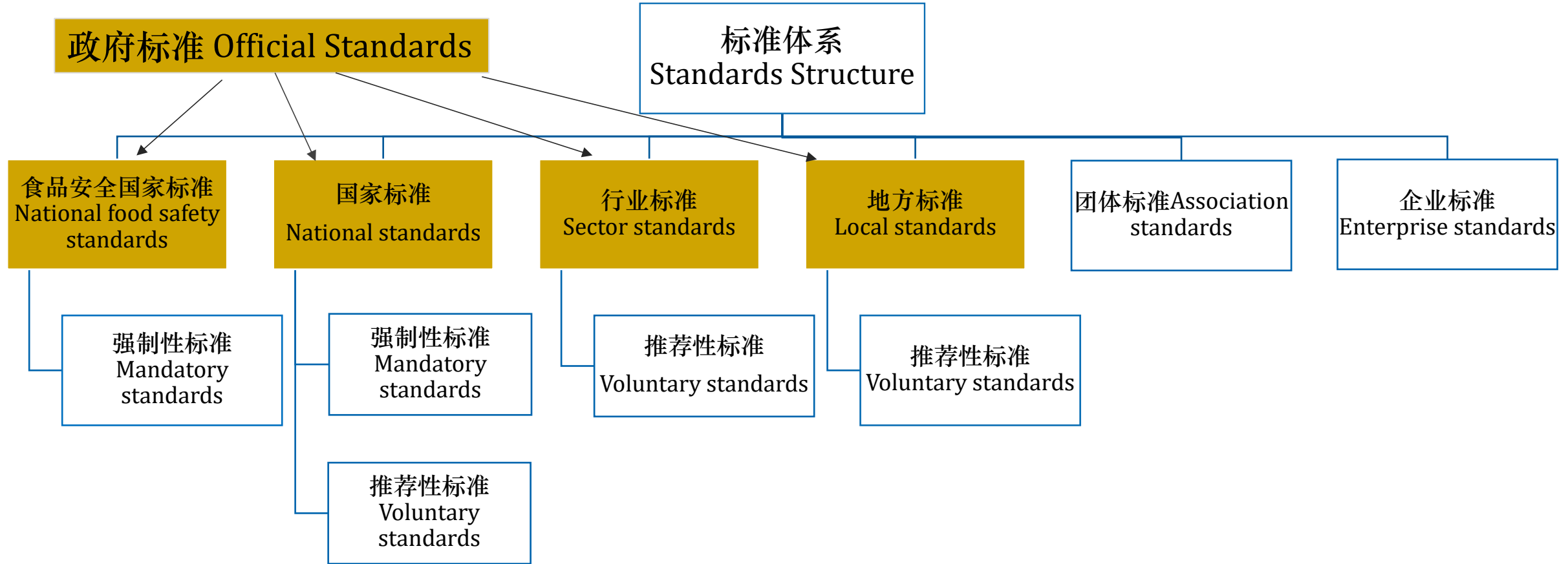
Rice standards and quality
improvement in China

发挥标准对粮食产业高质量发展的引领和支撑作用

Giving full play to the leading and supporting role of standards in high-quality development of grain industry



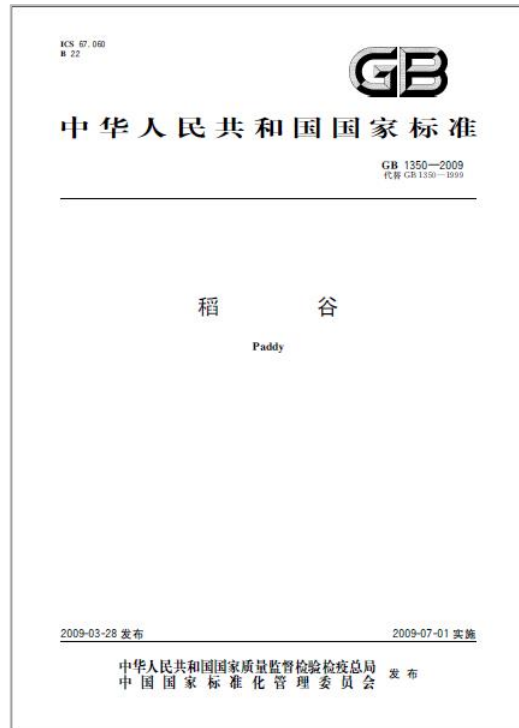
- 绿色导向
Green orientation
- 标准引领
The leading role of standards
- 质量安全监管
Quality and safety supervision



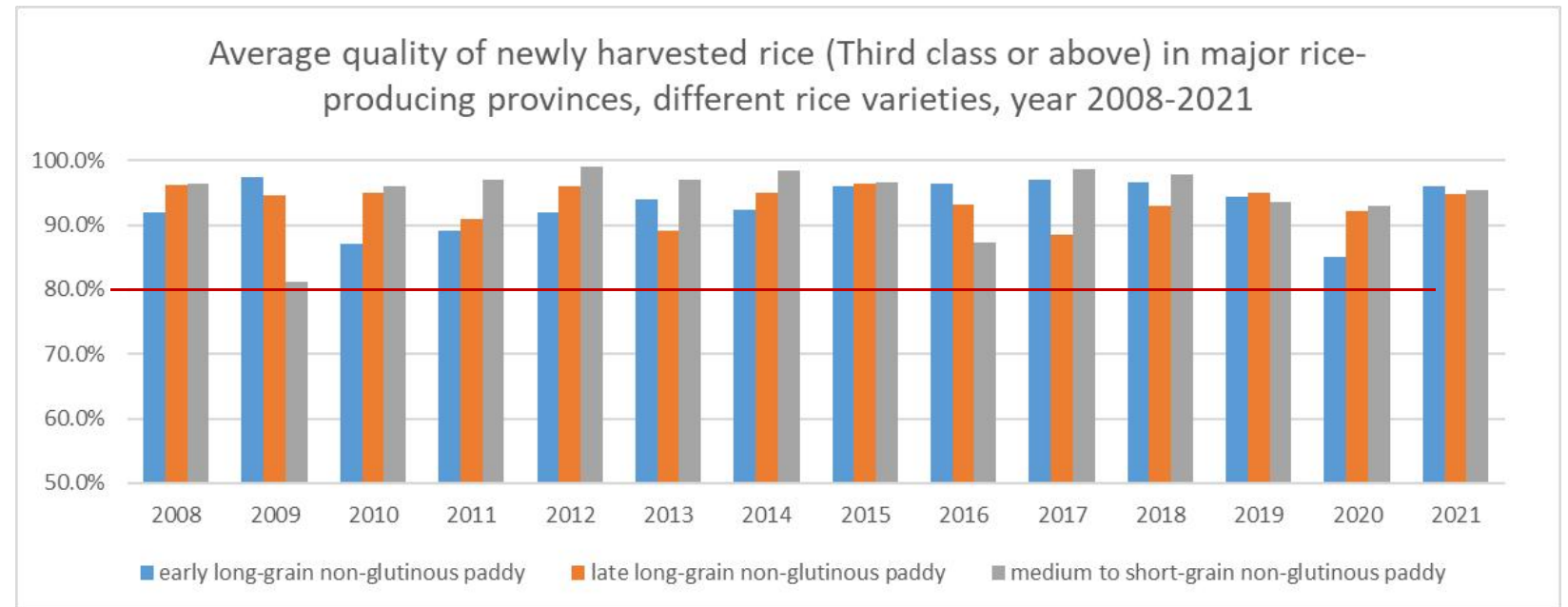
(1) 强化安全底线标准

Reinforce the safety standards as the bottom line

- 规定了稻谷的分类、质量分级和检验方法等要求
- This standard specifies the requirements for the classification, quality grades and inspection methods of paddy rice



GB 1350-2009 《稻谷》
Paddy



(2) 抓好关系民生标准制修订

Strengthen the elaboration of standards related to livelihood



GB/T 1354-2018
《大米》
Milled rice

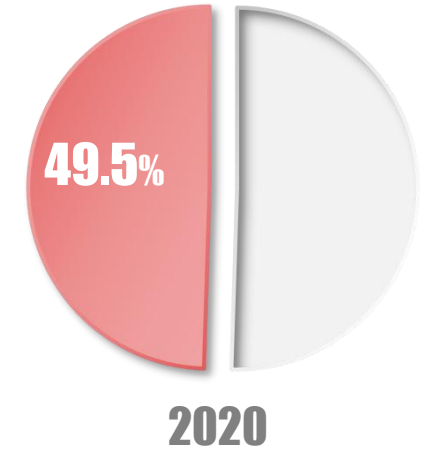
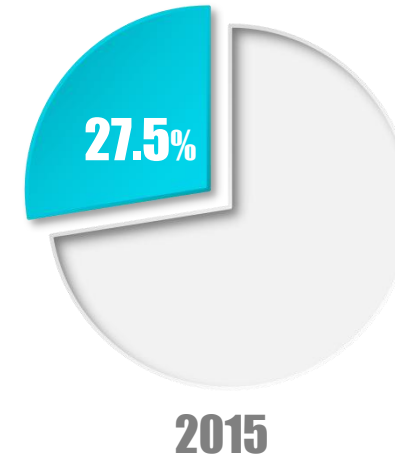
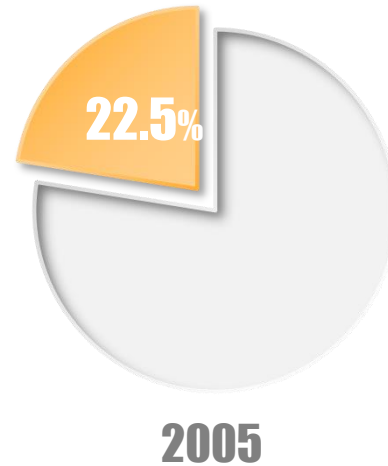
- 规定了普通食用商品大米和优质大米的质量要求
- This standard specifies the requirements for the quality requirements for common edible commercial rice and high-quality rice
- 设置“加工精度”指标上限，保留更多营养成分，引导企业适度加工
- Set the upper limit of the “milling degree” index, retain more nutrients, and guide enterprises to moderate processing

(3) 增加优质粮油标准供给

Elaborate more standards on high-quality rice products



GB/T 17891-2017
《优质稻谷》 High Quality Paddy



2005—2020年，中国稻米的优质率从22.5%增长到49.2%
The high quality rate of Chinese rice increased from 22.5% to 49.2% from 2005 to 2020.

(3) 增加优质粮油标准供给

Elaborate more standards on high-quality rice products

- 《中国好粮油 稻谷》 (LS/T 3108—2017)
The Grain and Oil Products of China – Paddy
- 《中国好粮油 大米》 (LS/T 3247—2017)
The Grain and Oil Products of China – Milled Rice
- 《中国好粮油 生产质量控制规范》 (LS/T 3247—2017)
The Grain and Oil Products of China – Guideline for Production
Quality Control



中国好粮油

中国好粮油 为健康中国加油

(4) 创新标准化运行机制，优化标准供给结构

Innovation in standardization operation mechanism to optimize the standard supply structure

- 组织开展粮油产品企业标准“领跑者”活动，14项大米企业标准被评为“领跑者”

Organizing “frontrunners” activity of Enterprise Standards for grain and oil products, and 14 rice standards of enterprise were granted as “frontrunners”

- 组织开展粮油领域团体标准培优工作，8项大米团体标准列为培优对象

Organizing training activity for Association standards, including 8 items for milled products

