



Available online at www.sciencedirect.com

ScienceDirect



REVIEW

Edible agro-products quality and safety in China



LI Zhe-min^{1,2}, SU Nian-si^{1,2}, DONG Xiao-xia^{1,2}, YANG Yan-tao³, WANG Yu-ting¹, XIAO Hong-li^{1,4}

¹ Agricultural Information Institute, Chinese Academy of Agricultural Sciences, Beijing 100081, P.R.China

² Key Laboratory of Digital Agricultural Early-Warning Technology, Ministry of Agriculture, Beijing 100081, P.R.China

³ Institute of Agricultural Economics and Development, Chinese Academy of Agricultural Sciences, Beijing 100081, P.R.China

⁴ Beijing Senior Expert Technology Center, Chinese Academy of Sciences, Beijing 100046, P.R.China

Abstract

Ensuring an acceptable level of edible agro-products quality and safety is necessary to provide adequate protection for consumers. It is the first time that we analyzed the edible agro-products quality and safety issues in the supply chain, including production, processing, circulation, and consumption. The results indicate that the agro-products quality and safety levels improves steadily, and the supervision system and standardization system are both enhanced significantly, however, certain challenges still remain in each stage of the supply chain and the entire supervision process. Finally, five recommendations regarding four aspects (production, processing, circulation, and consumption) are concluded.

Keywords: edible agro-products quality and safety, food safety, supply chain, supervision

1. Introduction

Edible agro-products, including various edible plants, live-stock products, aquatic products and the corresponding products of primary processing, are the main sources of food for human consumption (MOC *et al.* 2005). Therefore, it is important to ensure the quality and safety of edible agro-products. The quality refers to the positive and negative attributes that influence a product's value to the consumer, and the safety refers to limiting the presence of those hazards that may make product injurious to the health of the consumer (WHO 2015).

The quality and safety of edible agro-products are not only a focus of social concerns but also a hot topic in scientific research. There has been a lot of research on agro-products quality and safety in recent years. Most previous studies have focused on one specific category of edible agro-products and/or one specific stage of the supply chain. Specifically, these studies can be classified into four aspects. First, many scholars have systematically and empirically analyzed the influencing factors on the quality and safety controls of farmers and enterprises in the production and primary processing of edible agro-products regarding vegetables, meat and dairy products (Henson and Holt 2000; Boger 2001; Herath *et al.* 2007; Cranfield *et al.* 2010; Jiang *et al.* 2012; Sun *et al.* 2012; Zhang *et al.* 2014). Some of these scholars have argued that cooperation organization and scale economy significantly improve quality and safety management (Ren and Ge 2008; Wang and Qiao 2011; Zhong and Chen 2014; Gu and Guo 2015). Other studies also indicated that the best way to guarantee edible agro-products quality and safety is to make sure it is safe from the source (Henson *et al.* 2005). Second, regarding ap-

Received 2 April, 2015 Accepted 27 August, 2015
Correspondence LI Zhe-min, Tel: +86-10-82105203,
E-mail: lizhemin@caas.cn

© 2015, CAAS. All rights reserved. Published by Elsevier Ltd.
doi: 10.1016/S2095-3119(15)61116-9

plication and management of technology, Li and Sun (2011) indicated that the environmental protection technology is the key point that affected edible agro-products quality and safety by using the decision making trial and evaluation laboratory method. Third, in the circulation of edible agro-products, Ren and An (2010) indicated that most dealers, consumers, and regulators in wholesale markets were aware of the importance of agro-products quality and safety management, however, they were confused on how to play their roles. Fourth, studies on consumption are mainly focused on consumers' perception and countermeasures of edible agro-products quality and safety (Frewer 2000; Feng and Li 2008; Kim 2008; Zhang and Liu 2010; Quan and Zeng 2014).

Although there are a few macro-assessments and studies on edible agro-products quality and safety in the whole supply chain, most are focusing on one specific industry. Zhang and Wang (2010) analyzed the current quality and safety management in the dairy industry based on supply chain management theory and proposed a new management method that included traceability, transparency, testability, timeliness, and trustworthiness. Zhong and Kong (2012) also used dairy industry as an example and indicated that the production method mainly affected the edible agro-products quality, while the transaction method mainly affected the safety.

Therefore, analyzing the current status and problems of China's edible agro-products quality and safety in the whole supply chain, including production, processing, circulation, and consumption, is theoretically and practically important.

2. Overview of edible agro-products quality and safety

After experiencing various food safety incidents in recent

years, the Chinese government paid close attention to the edible agro-products quality and safety. Considerable efforts have been made for establishing a quality and safety supervision system that can significantly improve edible agro-products safety levels.

2.1. Improvement in the quality and safety level of China's edible agro-products

In recent years, China's edible agro-products quality and safety levels have generally improved with some fluctuations, which varied depending on the product categories. The Ministry of Agriculture of China (MOA) conducted a routine monitoring on edible agro-products quality and safety in 151 medium and large cities in 31 provinces (districts and municipalities) in 2014 (MOA 2015). According to the report, 96.9% of total edible agro-products met China's food safety standards in 2014 and this rate has been maintained at 96% for three consecutive years since 2012; among which, 96.3% of vegetables met China's food safety standards, with an increase of 3.3% compared with that in 2006 and this rate remains at 96% for seven consecutive years; 99.2% of livestock and poultry products met China's food safety standards, with an increase of 0.7% compared with that in 2006 and this rate is around 99% for six consecutive years; 93.6% of aquatic products met China's food safety standards, with an increase of 2.6% compared with that in 2006 when malachite green was first detected (Fig. 1); 96.8% of fruits met China's food safety standards, and this rate remains at around 96% for three consecutive years (data in 2010 and 2011 are unpublished); 94.8% of tea met China's food safety standards, which is equal to that in 2009 when tea was first included as an item for inspection. However, the fluctuation amplitude of the rate of tea is much larger than that of the other categories.

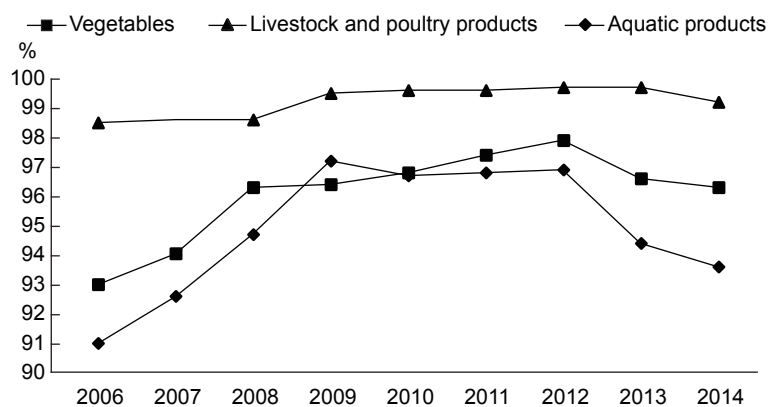


Fig. 1 Percentage of vegetables, livestock products, and aquatic products meeting China's food safety standards in the 2006–2014 routine monitoring. Data source: Wu and Qian (2012), Chen (2013, 2014).

Download English Version:

<https://daneshyari.com/en/article/4494109>

Download Persian Version:

<https://daneshyari.com/article/4494109>

[Daneshyari.com](https://daneshyari.com)