Research and related work on grain loss and waste in China

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July 18th, Taibei, China

Outline

- 1.Basic status of grain loss and waste
- 2.Overview of postharvest loss and waste investigation
- 3.Investigation method of consumption section
- 4.Work Development and Future Work

- **1.Basic status of grain loss and waste**

1.Basic status of grain loss and waste

- 20 years ago, people began to pay attention to the postharvest loss and waste and realized the importance of figuring out the amount of loss and waste.
- SAG made a preliminary assessment on postharvest loss and waste in 2013, in which we mainly focus on 4 important sections.

1.Basic status of grain loss and waste

- Postharvest process

Storage

Dry

Transportation

Harvest

Processing

Consuming

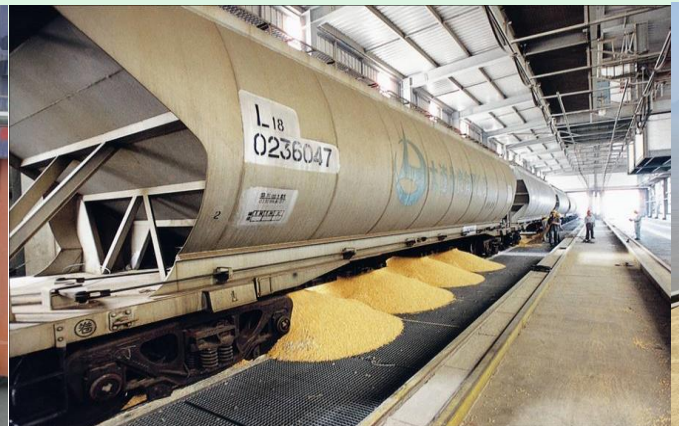
Retail

1.Basic status of grain loss and waste

- Farmer storage
  - Annually, more than 50% of the grain output are stored by farmers.
  - Weather, improper storage methods and facilities effected the quantity and quality of grain

1.Basic status of grain loss and waste

- Storage and transportation
- ➢ The percentage of packaged grain transportaion is more than 80%. Grain are easily spilled out during transportation and removal
- ➢ Quality declines during storage which bring nutrition loss and edible quantity decrease as well



1.Basic status of grain loss and waste

- Food Processing
  - Due to excessive manufacture process, the nutrition loss and edible part become unedible
- Food Consuming:
  - Table waste & food reach sell-by date

◆Overview of postharvest loss and waste investigation

2. Postharvest loss and waste investigation

- SAG started a specific investigation of loss and waste after grain harvest since 2015,which would last 3 years.
- Study Objectives: Assess current status of grain loss and waste comprehensive, systematically, scientificly , analyse the causes of grain loss and waste, find the best way to reduce it.

2. Postharvest loss and waste investigation

- **Definition of grain and grain loss & waste**

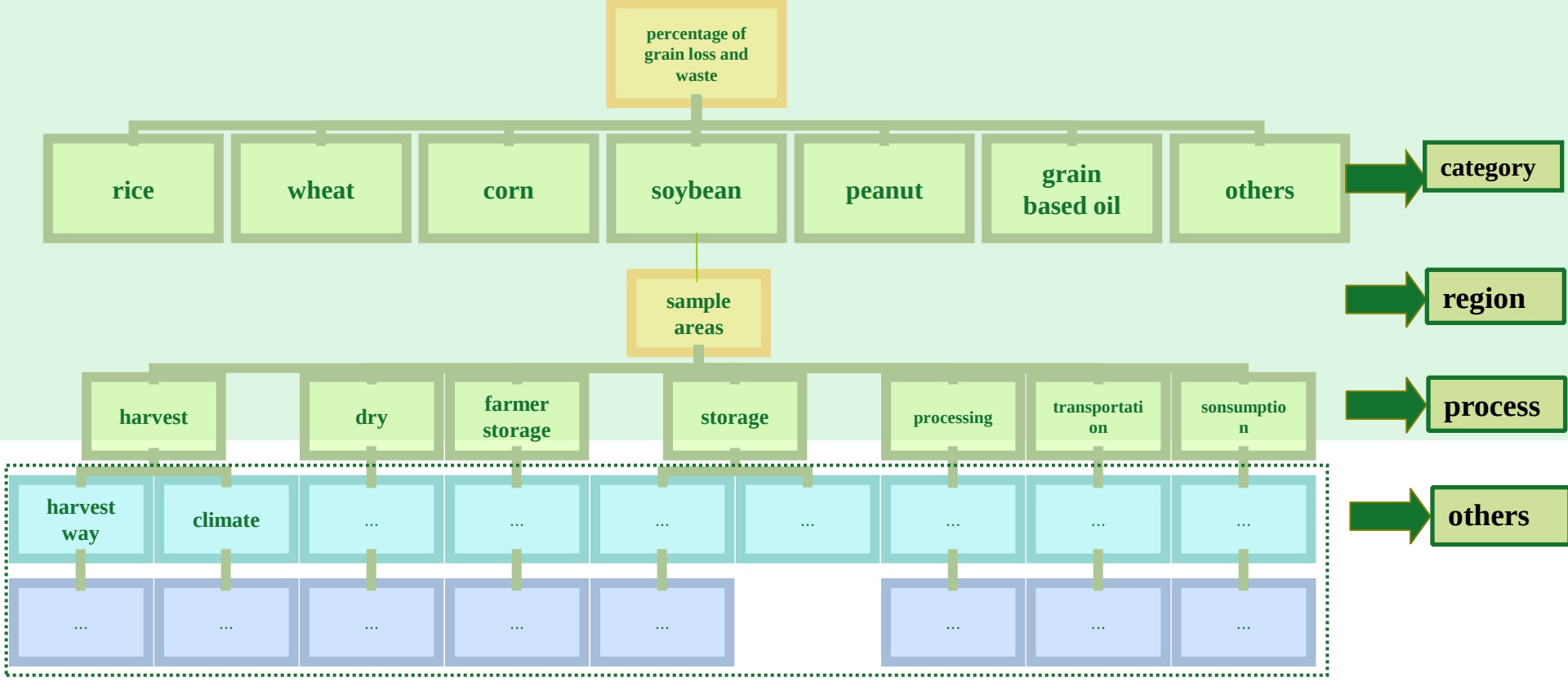
➢ **grain**

raw grain ; grain based food; oil crops; meat, eggs& milk

➢ **grain loss and waste**

Discarding, deterioration of grain, which is attacked by pathogens, pests and rodents resulting from inproper economic behavior and storage facility, technology, management etc.

- Dimension Structure of Investigation



- 3.Investigation method of consumption section

3.Investigation method of consumption section

- Investigation Subjects

Household consumption
- Urban consumption
- Rural consumption

Social consumption
- Restaurant
- Dining hall（institution, school and company）

3.Investigation method of consumption section

- Sampling method
- Overall consider consumptive habits, economic development difference , population distribution, representativeness, take samples from 12 provinces or cities in 11 regions.

3.Investigation method of consumption section

- Data collection：

➢ Data collection was done by investigation teams of provincial statistical bureaus and the team members of research program

➢ We collect sample information, consumption records and survey questionnaire

3.Investigation method of consumption section

- **Household consumption survey questionnaire**

费调查问卷

地区	省、市、自治区	市、县(区)、乡、村

1. 家庭食物浪费调查问卷表

该项调查系国家粮食局 “2015粮食公益性行业科研专项项目” 实施的调查项目之一。该调查严格按照《中国人民共和国统计法》(2009年)执行。调查表中所涉及到的个人数据只用于该研究，承诺其他一切个人信息严格保密。

家庭成员构成					
家庭成员标号	与食物记账者关系	年龄	职业	教育程度	是否在单位或者学校食堂就餐（画“○”）
1	记账者(食物管理者)				早餐 午餐 晚餐
2					早餐 午餐 晚餐
3					早餐 午餐 晚餐
4					早餐 午餐 晚餐
5					
6					

第一天 月日 (请记入)

食物购买情况

品种	数量/重量(斤)	金额(元)

食物摄入与浪费情况

早餐

就餐地点	家庭成员
外出就餐	
单位或者学校食堂	
在家就餐	

选择在家就餐的请填写下表

摄入食物种类(请画“□”)	重量	浪费数量(g)(如果没有浪费请记入“□”)	浪费比率(%)
粮食			
蔬菜			
食用植物油			
猪肉			
牛羊肉			
蛋类			
水产品			
乳制品			
蔬瓜果			
豆制品			

午餐

就餐地点	家庭成员
外出就餐	
单位或者学校食堂	
在家就餐	

摄入食物种类(请画“□”)	重量	浪费数量(g)(如果没有浪费请记入“□”)	浪费比率(%)
粮食			
蔬菜			
食用植物油			
猪肉			
牛羊肉			
蛋类			
水产品			
乳制品			
蔬瓜果			
豆制品			

晚餐

就餐地点	家庭成员
外出就餐	
单位或者学校食堂	
在家就餐	

选择在家就餐的请填写下表

摄入食物种类(请画“□”)	重量	浪费数量(g)(如果没有浪费请记入“□”)	浪费比率(%)
粮食			

3.Investigation method of consumption section

- A novel investigation system based on Wechat
- Steps：
  - 1. Subscribe related Wechat public number by scanning two-dimension code
  - 2. Within one week, respondents upload photos of each meal before and after for data collection

3.Investigation method of consumption section

- **Social consumption survey questionnaire**

地区	省、市、自治区	市、县（区）、乡、村	人员编号	调查日期

问卷调查表

（以上信息由调查员填写）

2. 外出就餐浪费调查问卷表

该项调查系国家粮食局“2015 粮食公益性行业科研专项项目”实施的调查项目之一。该调查严格按照《中国人民共和国统计法》(2009 年) 执行。调查表中所涉及到的个人数据只用于该研究，承诺其他一切个人信息严格保密。

201　年季度

访问时间

序号	月	日	访问开始时间	访问结束时间
1			____ 时____分	____ 时____分
2			____ 时____分	____ 时____分

请采用 24 小时制。

第一部分：个人信息【被调查人为买单或者点菜人】

1. 买单人的信息【请在相应选项上打勾】

A. 年龄　①20 岁以下　②21－30 岁　③31－40 岁　④41－50 岁　⑤51－60 岁　⑥60 岁以上

B. 性别　①男　②女

C. 就业状况 ①全职工作　②兼职　③无业或失业 ④退休　⑤家务　⑥军人　⑦学生　⑧不适用

D. 就业部门 ①政府部门　②事业单位　③国有企业　④私营企业　⑤外资企业（包括港澳台企业）　⑥个体工商业　⑦不适用

E. 月收入　①3000 元以下　②3000－5000 元　③5000-8000 元　④8000－10000 元　⑤10000－15000 元　⑥15000 元以上

F. 教育程度①小学或以下　②初中　③高中　④大学　⑤硕士　⑥博士

G. 是否有海外学习、工作经历？ ①有　②无

H. 是否有常住居民（半年以上）①是，来当地有多少年了----（年）？②否

I. 籍贯---------省（直辖市/自治区）

J. 您是否有过务农经历？　①有　②无

K. 您是否本餐餐饮店的会员？ ①是　②否

2. 您是否之主要负责这次点菜的人？①是　②否

3. 本次就餐原因　①商务/公务　②家庭聚会　③朋友聚会　④工作聚餐　⑤日常就餐　⑥其他，请注明----------

4. 您来这家餐饮机构就餐的频率？
①几乎每天 ②每周 1 次　③每半月 1 次 ④每月 1 次 ⑤少于每月 1 次

5. 您平均外出就餐（除食堂外）的次数？
①几乎每天 ②每周 3－4 次 ③每周 1-2 次 ④每半月 1 次 ⑤每月 1 次或以下

6. 您当前这家机构店内的地方有多少次？
①几乎每天 ②每周 3－4 次 ③每周 1-2 次 ④每半月 1 次 ⑤每月 1 次或以下

7. 您在进入餐厅就餐后是像下面的方式提示点餐的？【可多选】？
①没有注意到　②点餐时　③就餐时

8. 今天本店有打折活动吗？①有　②无　③不知道

9. 您认为我国的下列各自然资源的匮乏程度如何？【请划√】

	①不严重	②不太严重	③较严重	④很严重	⑤不清楚
水					
耕地					
能源					
矿产					

10. 与大多数人相比，您个人觉得下列意识程度如何？【请划√】

	①很弱	②较弱	③较强	④很强	⑤不清楚
环保意识					
健康意识					
节俭意识					

11. 您认为我们国家目前是否有食物匮乏的担忧？①有　②无

12. 您家里是否有一起居住的 50 岁以上的成员（过去一年内累计在您家居住超过 3 个月）？ ①有　②无

13. 您注意到媒体关于减少食物浪费的公益广告了吗？ ①是　②否

14. 您平时在外就餐时，如果有剩余，是否会打包带回？
①从来不剩　②从来不打包　③偶尔打包　④经常打包

15. 如果打包，大部分打包回家的食物最终去向哪里？
①吃掉　②给宠物吃掉　③餐余处理掉　④不适用

3.Investigation method of consumption section

- Data collection
  - On site measurement researchers upload datas to data collection platform by hand-held apparatus periodically

- **4.Work Development and Future Work**

4.Work Development and Future Work

- We are continuing the following work
  - Promote scientific and civilized catering consumption mode
  - Reduce food loss and waste in all sections
  - Promote resource utilization of food waste
  - Raise pubic awareness

4.Work Development and Future Work

- “n+1” type order
- “clear your plate”campaign
- half-portioned dishes in dining hall or cafeteria
- Pack and take away

4.Work Development and Future Work

- SAG started the Grain Security Project since 2014.

➢ Unblock logistics channels

➢ Restore storage facilities

➢ Complete the emergency supply system

➢ Ensure grain and oils quality & safety

➢ Enhance grain and oils market monitoring and early warning

➢ Promote grain conservation and loss-reduction

4.Work Development and Future Work

- Public awareness increasing events by SAG

"Love Food Save Food"Publicity week on World Food Day

4.Work Development and Future Work

National Food Science and technology activity week

Popular science lectures

Social practice base for students

Experiencing events on investigation of grain saving

4.Work Development and Future Work

Release manuals on grain saving and reduce losses and grain saving tools

4.Work Development and Future Work

4.Work Development and Future Work

4.Work Development and Future Work

- SAG will promote public awareness on food saving and loss reduction through series of events and programmes
- Continuing reporting on food loss situation, the meanings of food safety and social benefits of loss reduction through mass media

4.Work Development and Future Work

- Promote research and put forward more measures and suggestions, improve laws and regulations, strengthen supervision and management of each section, strengthen the management of food waste recycling
- Reduce Food waste in human body (resulting diseases like fat, metabolic disease etc.)

Thank you for your attention!