CHALLENGING A SCIENCE-CAPITAL NEXUS: PEOPLE'S FOOD SOVEREIGNTY NETWORK IN CHINA

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PRESENTATION OUTLINE

- I. Transformation of China’s Agriculture
- II. The Situation of GMO in China
- III. People’s Anti-GMO Movement
- IV. Ecological Agriculture and Cooperative Economy
- V. People’s Food Sovereignty Network
- VI. Conclusion

I. TRANSFORMATION OF CHINA'S AGRICULTURE

Phase I: De-collectivization and marketization (1978-early 1990s)

Phase II: Growth of Agribusinesses (1990s-present)

PHASE I: DE-COLLECTIVIZATION AND MARKETIZATION (1978-EARLY 1990S)

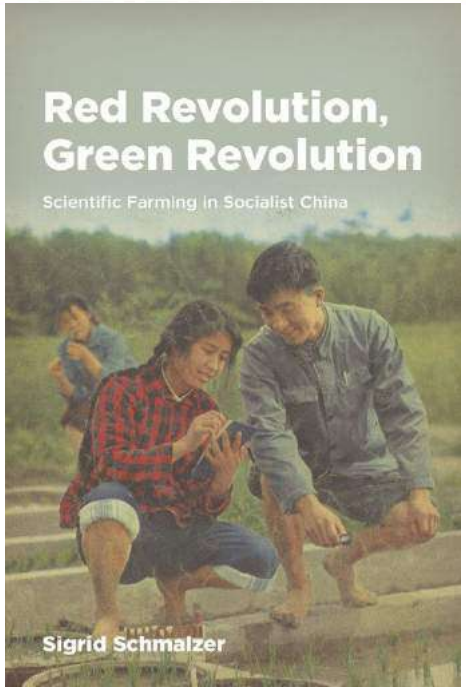
1. Maoist era

Agricultural collectivization and People's commune: Integration of farming and animal husbandry

State monopoly of grain purchase and marketing (统购统销)—Grain as both a public good and semi-commodity

Public goods provision: agricultural extension agency, agricultural machinery station, water resources station, veterinary sta

"Green Revolution" as a mass (Schmalzer 2016)



2. DE-COLLECTIVIZATION

- Fragmentation of farmland

De-collectvization did not lead to the “shock policy” of total privitization. Two tier land rights system: land ownership in the village and use rights distributed to farming households.

Total farmland area 1.8 billion mu (120 million ha). Per capita land 1.5 mu (0.1 ha), only 27% of the world average of 5.5 mu.

- State’s withdrawal from investment in rural infrastructure
- State reduced investment to agro-support agencies: such as seed station, veterinary station, and technology extension centers.

AGRICULTURAL MARKETIZATION

- “Poverty is no socialism. To get rich is glorious.”
  Grain has become a commodity that pursues profit maximization.
- “High yield” touted as “scientific farming”
  However, farmers were subject to both the economic risks of price drops and ecological risks of chemical overuse or shrimp diseases.
- Low return from agriculture as a “push” factor for migrant work

  Widening urban-rural income gap, triggering the start of rural exodus

  1978-1991, the gross output of Chinese rural industry grew at an average rate of over 23.0 % a year (Zhan and Huang 2013).

PHASE II: GROWTH OF AGRIBUSINESSES (1990S-PRESENT)

- Promotion of “dragon-head” agribusinesses（龙头企业) for vertical integration of agriculture.

Dragon-heads first appeared in central policy in 1986, but got support from eight government institutions in 2003.

They actively promoted “Green Revolution” packages of hybrid seeds, chemical fertilizer, pesticides, and herbicides, driving up farmers’ costs of inputs.

INDUSTRIALIZATION AND CHEMICALIZATION OF AGRICULTURE

- Seeds
  Monsanto-GM cotton
  DuPont-Pioneer-hybrid corn Xianyu 335
- Chemical fertilizer productivity jumped from 12.32 million tons to 31.86 million tons from 1980-2000, making China the top chemical fertilizer producer in the world (Zhang 2003).
- Pesticide use grew significantly (unit: tons).
  1990 733,000
  1995 1.09 million
  2000 1.28 million
  2015 1.78 million
- China as the largest producer of glyphosate herbicide, exporting 477,000 tons in 2016.
- Case of a wheat/corn farm household in Henan Province (6.5 mu =0.4 ha)
  Annual income from agricultural production:
  9,380 yuan (crop sales) + 2,598 yuan (state subsidy) – 4,824 yuan (input costs)
  = 7,154 yuan (gross income) (US$1,139)

  Migrant work average income: 3,000 yuan x 12 =36,000 yuan (US$5,731)

THIS TALK

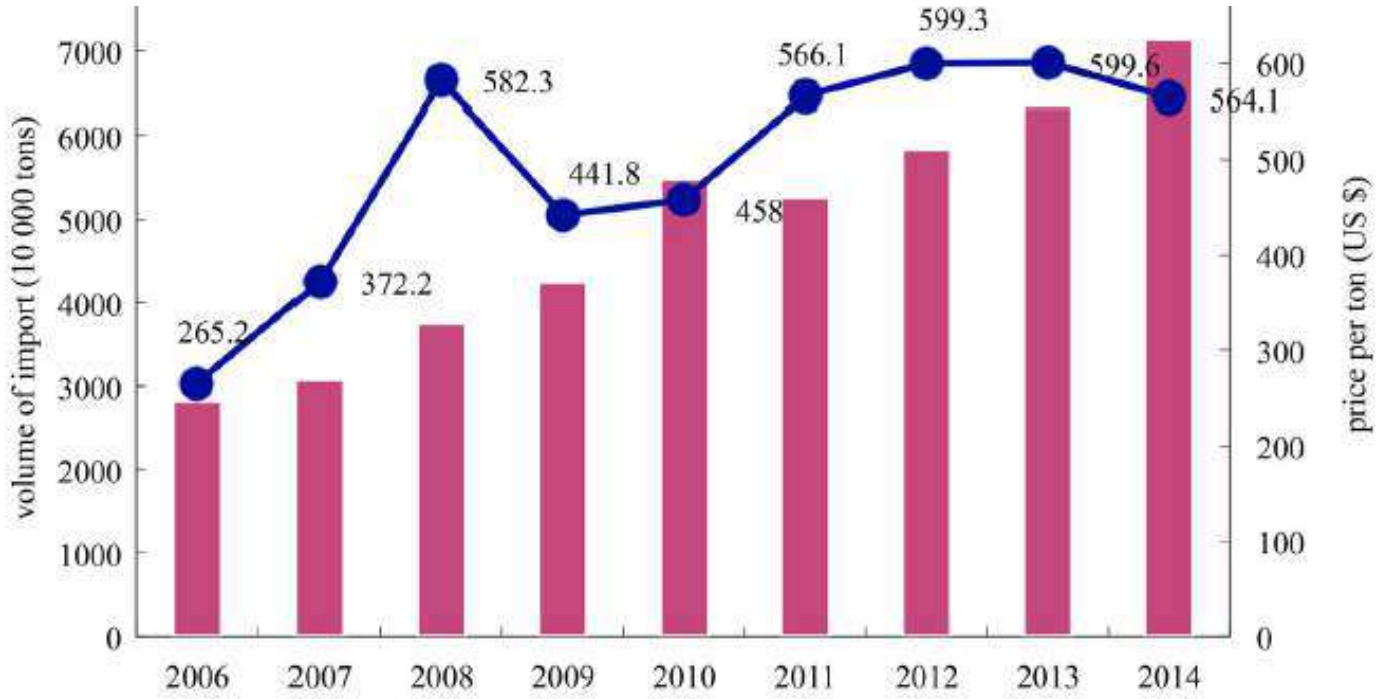
- 1. Anti-GMO movement
- 2. Ecological agriculture and cooperative economy

II. THE SITUATION OF GMO IN CHINA

1) SURGING IMPORTS OF GM SOY

- 2000 China became the largest soy importer to import over 1 million tons.
- 2001 China's entry into WTO, soy import tariff dropped to only 3%.
- International agribusinesses began to take control of China's soy market. ABCD (ADM, Bunge, Cargill and Louis Dreyfus) now control over 75% of the processed food oil supply.
  In 2015, China imported 82 million tons of soy taking up about 2/3 of the global trade volume.
- Food safety concern
  The Chinese government did not set the maximum residual level (MDL) for glyphosate.

Soy Imports and Price Change (2006-2014)



- Now GM soy imports account for 80% of the market share in China. The lower price of imports caused domestic non-GM variety cultivation to shrink.
- Heilongjiang Province, soy cultivation area:
  2010 65 million mu
  2012 40 million mu

- There was no reported case radical farmer resistance, such as Korean farmer Lee Kyung-hae's struggle against the WTO. Soy farmers in Heilongjiang switched to corn farming or became migrant labor.
- Starting May 2017, Heilongjiang Province was declared as a GM free region to revive local variety of non-GM production.

2.) GMO CULTIVATION

- China has issued safety certificates for GM cotton, rice, corn, and papaya, but has only approved the commercial planting of two GM crops which are a Bt cotton (in 1996) and a virus resistant papaya (in 2006).

- However, illegal cultivation of GM rice and corn has been frequently reported since 2005.

III. PEOPLE'S ANTI-GMO MOVEMENT

1. OPPOSING THE COMMERCIAL PLANTING OF GM GRAIN

- 2009 The Ministry of Agriculture (MOA) granted safety certificates for two varieties of GM rice (Bt Huahui No.1 & Bt Shanyou 63) and one GM corn (BVLA430101), provoking strong public reaction. 2009-2014, 2014-2019.
- March 2010, 120 concerned scholars signed a petition letter to the Party's Congress, requesting the revocation of the safety licenses.

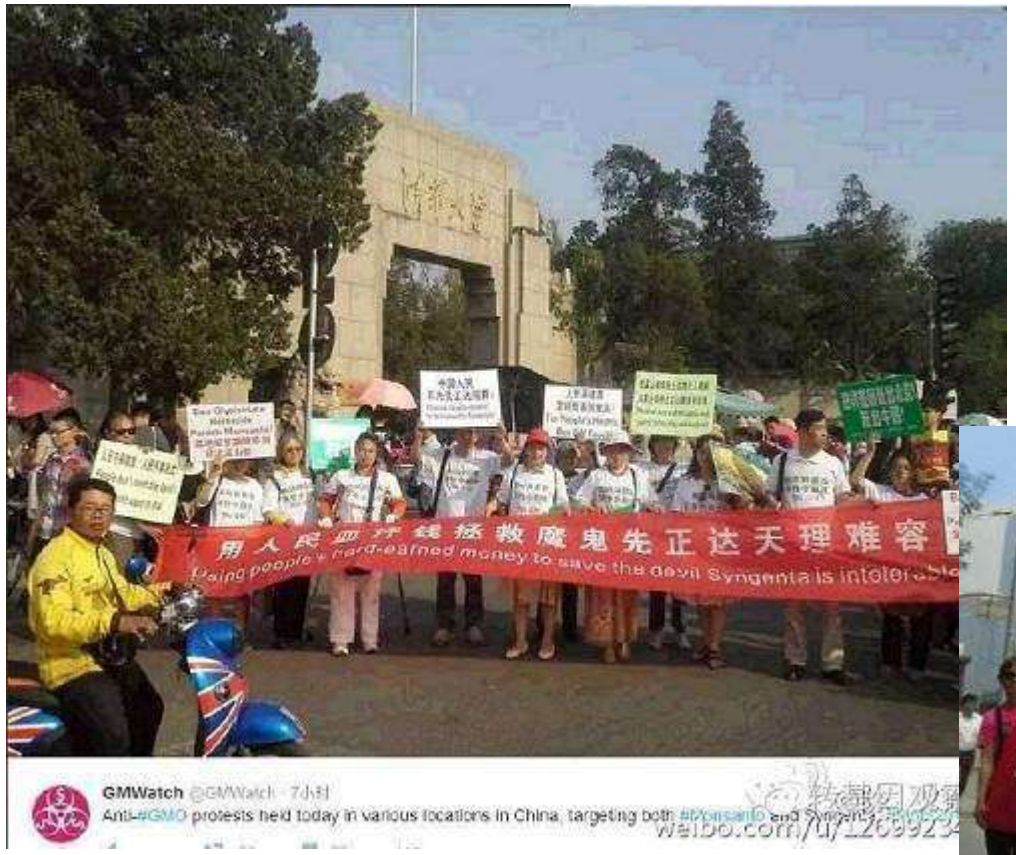
  Whether GM grain should be promoted is an issue that the public should have a say, rather than just a "close-door" decision-making process that a minority of scientists and officials controled.


中华人民共和国
农业转基因生物安全证书（生产应用）
农基安证字（2014）第030号
单位名称：华中农业大学
项目名称：转cry1Ab/cry1Ac基因抗虫水稻Bt汕优63在湖北省生产应用的安全证书
转基因生物：Bt汕优63
外源基因：cry1Ab/cry1Ac
安全等级：II
有效区域、规模：湖北省
安全措施及要求：见附件
有 效 期：2014年12月11日至2019年12月11日

SCIENTISTS' COLLUSION WITH THE BIO-TECH INDUSTRY

- Zhang Qifa,
  "Father of China's GM rice", calling for the establishment of China's Monsanto
  Ph.D. in plant genetics, UC Davis (1985)
  Dean of the College of Biotech Science, Huazhong Agricultural University
  Academician of the Chinese Academy of Sciences
- Media's exposure
  Science Advisory Committee of the Rockefeller Foundation's International Program on *Rice* Biotechnology
  Zhang's lab was largely s

2. GRASSROOTS' PROTEST AGAINST GMO



DOCUMENTARY ON GMO IN THE U.S.

- “Xiaocui Investigating GMO” (over 100 million views)

  Former CCTV anchor and talk show host Cui Yongyuan made a documentary in 2013 about GM’s controversy in the U.S., by interviewing over 50 scientists, farmers, activists, and consumers in L.A., San Diego, Chicago, Springfield, Seattle, and Davis.

- https://www.youtube.com/watch?v=I3bzTRSK18c (4:05-6:34)
  Interview with Nancy Swanson, PHD, former staff scientists for the U.S. navy

- Conclusion: “Americans have consumed GM food for 17 years without informed knowledge rather than with a confidence on its safety.”

3. MEDIA EXPOSURE OF ILLEGAL GM CROP CULTIVA

1) GM rice

- 2005 Greenpeace reported at least 20,000-25,000 mu illegal GM rice cultivation in Hubei Province, with at least 950-11,200 tons of GM rice entering into the market. The pest-resistance variety of “Bt Shanyou 63” originated from the lab of Zhang Qifa, researcher from Huazhong Agricultural University. Soon, the Ministry of Agriculture destroyed the marketed rice and seeds.
- 2010 Greenpeace revealed “Bt Shanyou 63” sold in Walmart.
- 2014 Greenpeace found that 4 out of 15 rice samples sold in markets in Wuhan to contain “Bt Shanyou 63” ingredient.

2) GM corn

- 2015 Greenpeace reported illegal GM corn cultivation in Liaoning Province.
- The GM varieties were: Mon810、 NK603、 Bt11 and TC15O7, patented by Monsanto, Syngenta, DuPont-Pioneer, and Dows respectively. So far, these varieties were allowed to be imported for use only as raw materials for the processing industry.

4. LITIGATIONS AGAINST MOA’S LAX OVERSIGHT FOR GMO

- 1. In 2014, three Beijing citizens sued MOA, demanding the agency to make public animal test report submitted by Monsanto for securing the safety certificate for its Roundup to enter the Chinese market in 1988.
- 2. In 2016, citizens from Beijing and Xian sued MOA, requesting it to make public a document that demanded the Ministry of Education to ”correct its mistake” of banning school canteens of using GM oil.


拒公开“鼓励学校用转基因油公函”

市民状告农业部案开庭审理

因为之前拒绝公开一份涉及学校食堂使用转基因食用油问题的公函，农业部被北京市民沈某和西安市民孟某联合起诉。8月16日，记者从原告处获悉，该案已于17日在北京市第三中级人民法院开庭。

原告孟某表示，此次诉讼主要是针对农业部以涉密为由，拒绝公开其在2011年9月28日发给教育部办公厅的一份公函。孟某表示，在这份公函中，农业部要求教育部“纠正”各地教育部门下文禁止学校食堂给孩子吃转基因食用油的“错误”。

两位原告要求法院判令依法撤销农业部2016年1月11日、15日分别给两位原告提供的《农业部信息公开申请答复书》。此外，原告还要求判令农业部对上述公函进行信息公开。

孟某称，这份公函的存在是在2012年3月12日被发现的，当时包括杨某在内的三名北京家长到教育部要求其支持学校“营养午餐”改用非转基因食用油，教育部给三人出示了农业部的公函。

2012年7月，杨某等三人向农业部申请公开农业部办公厅2011年9月28日发给教育部办公厅的上述“公函”。杨某称，“农业部的回复是这份公函是‘秘密’文件，不方便公开。”

而在2015年底、2016年初，孟某、沈某又分别向农业部提交了政府信息公开申请，要求农业部公开给教育部的上述公函。记者从孟某处获得了农业部此次的回函文件。回函中，农业部称，“经审查发现其申请公开的信息确为国家秘密，不方便公开。”

5. OPPOSING USING HUMAN BEINGS AS THE “GUINEA PIG” FOR GM TEST

- 2008 “golden rice” test was conducted on 72 children in Human Province without informed consent. Green Peace exposed this scandal in 2012.
- 2013 GM corn taste trial, led by Dai Jingrui, corn genetics and breeding science and member of Chinese Aca
  base of China Agricultural Univ

RETRACTED ARTICLE

See: Retraction Notice

Am J Clin Nutr. 2012 Sep;96(3):658-64. doi: 10.3945/ajcn.111.030775. Epub 2012 Aug 1.

β-Carotene in Golden Rice is as good as β-carotene in oil at providing vitamin A to children.

Tang G[1], Hu Y, Yin SA, Wang Y, Dallal GE, Grusak MA, Russell RM.

Author information

Retraction in

Retraction of Tang G, Hu Y, Yin S-a, Wang Y, Dallal GE, Grusak MA, and Russell RM. β-Carotene in Golden Rice is as good as β-carotene in oil at providing vitamin A to children. Am J Clin Nutr 2012;96:658–64. [Am J Clin Nutr. 2016]

Abstract

BACKGROUND: Golden Rice (GR) has been genetically engineered to be rich in β-carotene for use as a source of vitamin A.

OBJECTIVE: The objective was to compare the vitamin A value of β-carotene in GR and in spinach with that of pure β-carotene in oil when consumed by children.

DESIGN: Children (n = 68; age 6–8 y) were randomly assigned to consume GR or spinach (both grown in a nutrient solution containing 23 atom% ^2H_2O) or [$^2H_8$]β-carotene in an oil capsule. The GR and spinach β-carotene were enriched with deuterium (^2H) with the highest abundance molecular mass (M) at M(β-C)+$^2H_8$. [$^{13}C_{20}$]Retinyl acetate in an oil capsule was administered as a reference dose. Serum samples collected from subjects were analyzed by using gas chromatography electron-capture negative chemical ionization mass spectrometry for the enrichments of labeled retinol: M(retinol)+4 (from [$^2H_8$]β-carotene in oil), M(retinol)+5 (from GR or spinach [$^2H_8$]β-carotene), and M(retinol)+10 (from [$^{13}C_{20}$]retinyl acetate).

RESULTS: Using the response to the dose of [$^{13}C_{20}$]retinyl acetate (0.5 mg) as a reference, our results (with the use of AUC of molar enrichment at days 1, 3, 7, 14, and 21 after the labeled doses) showed that the conversions of pure β-carotene (0.5 mg), GR β-carotene (0.6 mg), and spinach β-carotene (1.4 mg) to retinol were 2.0, 2.3, and 7.5 to 1 by weight, respectively.

CONCLUSIONS: The β-carotene in GR is as effective as pure β-carotene in oil and better than that in spinach at providing vitamin A to children. A bowl of ~100 to 150 g cooked GR (50 g dry weight) can provide ~60% of the Chinese Recommended Nutrient Intake of vitamin A for 6–8-y-old children.

IV. ECOLOGICAL AGRICULTURE AND COOPERATIVE ECONOMY

Puhan Community in Shanxi Province

Covers 43 villages to include 28 coops with 3,865 household members in an area of 80,000 mu (5,333 ha)

- 1998, Zheng Bing began to organize trainings on agricultural technology.
- 2004 Established a farmers' association
- 2007 Registered a farmers' cooperative
- 2010 Began to promote ecological agriculture

COMMUNITY AND LIFE FIRST, ECONOMIC ADVANCEMENT SECOND

- Production cooperation: five unification, diversified production, against widening inequality
- Life cooperation: consumer organization, opposing waste, advocating ecological living
- Finance cooperation: refuse commercial loans, help poor famers
- Community welfare: mutual help for solidary building

AGRICULTURAL PRODUCTION & COMMUNITY BUILDING

- Produces
  1/3 exchanged and consumed internally
  1/3 sold to urban consumers
  1/3 sold to the market through agents
- Five unification and one independence
  Unification: agricultural technology training, input purchase, pesticide use, sales, and mechanic tilling
  Independence: members do farming independently
- Diversified production
  grain (wheat and corn), cotton, rapeseed, fruit trees, vegetable, and animal husbandry

composting

youth farm

SUMMER CAMP

HONGNIANG ARTIFACT COOP

Opera classes

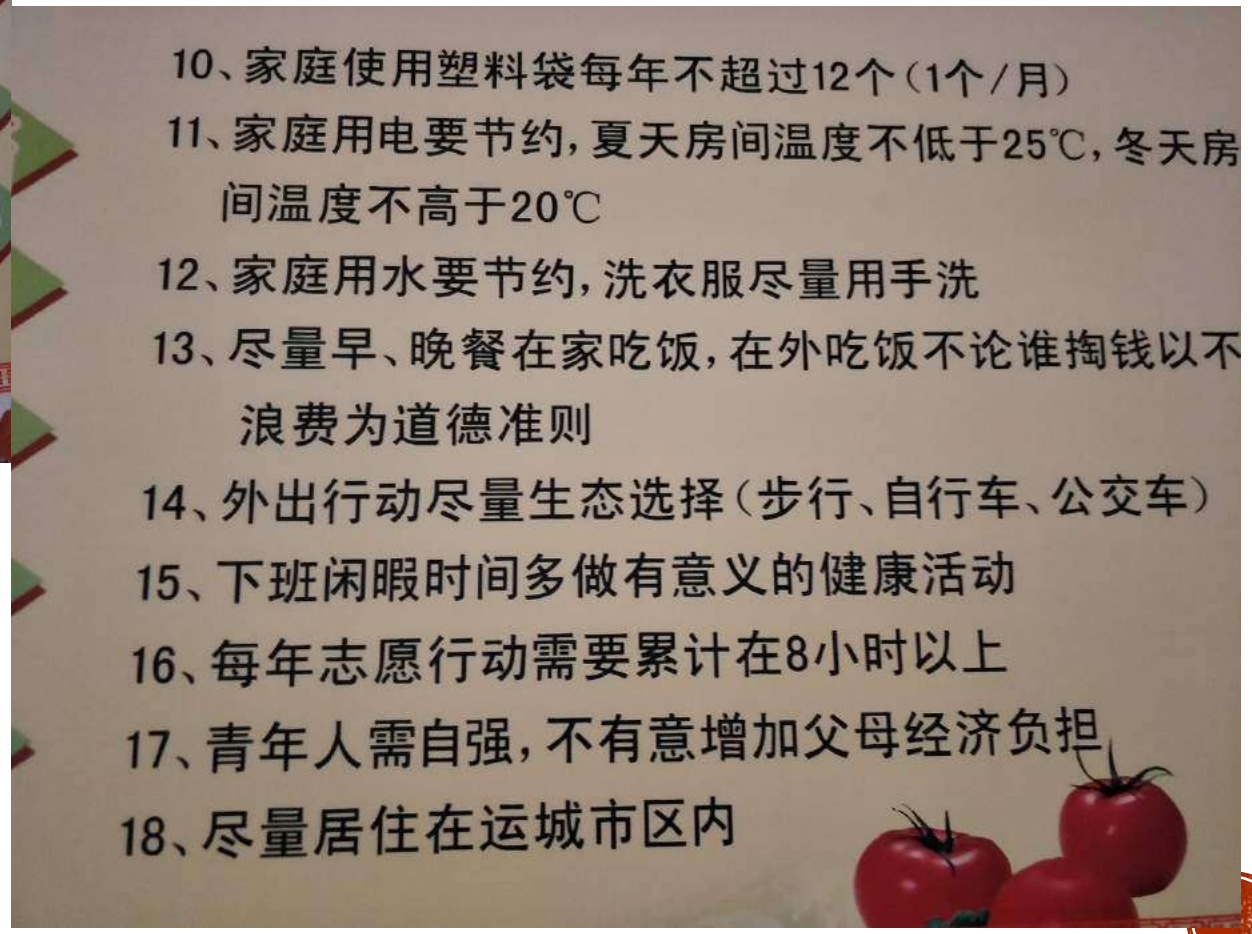
Mutual support elderly care

Photography classes

CONSUMER COOPERATION

- 27 coordinators supervising 8,127 member households
  1 coordinator for 300 households
  1 member representative for 10 households


米面油茶书茶咖啡



2. Respect the elderly and make sure that they live healthily and happily;
4. Do not spank or scold children;
10. Annual use of plastic bags: less than 12;
12. Save water. Try best to hand wash clothes.
13. Annual volunteer hours over 8.

V. PEOPLE'S FOOD SOVEREIGNTY NETWORK

- August 2013
  Established by academics, NGO activists, media and rural practitioners.

  Advocate principles of eco-socialism.

- Strive for

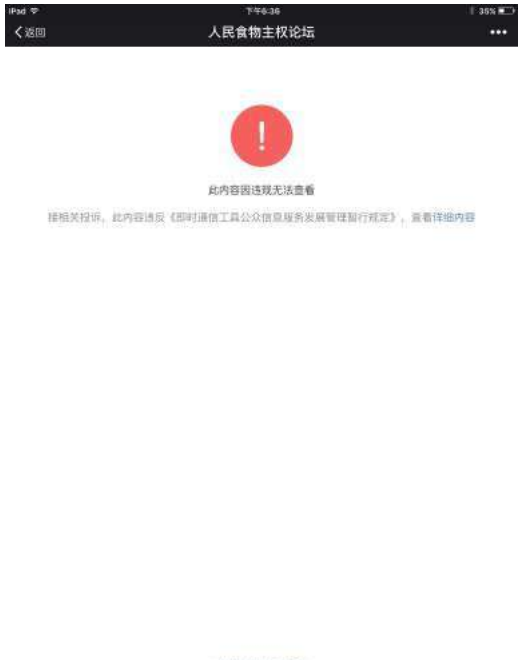
1) State's sovereignty in food provision and planning

2) Producers' sovereignty in ecological farming

3) Consumers' sovereignty in obtaining healthy and affordable food.

1.WECHAT NEWS PLATFORM AND WEBSITE

www.shiwuzq.com



2. WORKSHOP ORGANIZATION

2014 Workshop
"Food Sovereignty and the Protection of China's Domestic Soy Industry

2017 Workshop
"Ecological Agriculture and Cooperative Practice"

2017人民食物主权年会
"生态农业与合作实践"

3. SUMMER RESEARCH

- 2013 Dairy industry
- 2014 Corn seed market
- 2015 Land rights
- 2016-17 Agricultural cooperatives

VI. CONCLUSION

Difficulties

- Rural exodus has left villages hollowed and atomized. Mostly women and the elderly stay behind, making it difficult to promote the labor-intensive ecological agriculture.
- So far farmers are not very active in the anti-GMO movement, while consumer groups and intellectuals take the lead. Few scientists are interested in educating farmers on the risks of GMO.

Prospects

- It is time to conceptualize a movement of mass science.
- People’s Food Sovereignty Network strives to connect radical scientists, farmer activists, intellectuals, and concerned consumers together,