
Local Food Systems and COVID-19: A Look into China's Responses

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1 Background

As of now, the first half of 2020 has been difficult for the entire world due to the pandemic of COVID-19. As of 7 April 2020, 211 countries, areas or territories have been infected, with more than 72,616 deaths caused by coronavirus globally [1]. China, the first country experiencing the outbreak of COVID-19, has taken an unprecedented scale of measures to contain the spread of the virus: citywide lockdown; traffic control; and closed management of villages and communities. Due to the pandemic and the corresponding restrictions, impacts on local food systems have been observed, with a variety of actions taken immediately across the country to mitigate the vulnerability and ensure adequate food supply and distribution in cities and support livelihoods of rural and peri-urban producers. Overall, food prices remain stable and food supply (staples, fruits, vegetables, meats) is meeting the need so far, despite sporadic reports of price hikes and shortages in isolated locations [2]. By early April 2020, with no new domestic COVID-19 cases reported for days, many cities in China have reduced the level of control, resuming work and travel, suggesting the country's gradual recovery to normal operation. As a retrospective analysis of the pandemic period in China, we identified the impacts the COVID-19 outbreak has brought to China's local food systems with a focus on fresh and non-processed food, followed by a collection of effective responses carried out by the public and private sectors and civil society from national to local level. It is hoped that these practices could stimulate tailored solutions in countries that are currently experiencing serious outbreak, and for China itself, to consider the way forward in building more resilient and sustainable local food systems with stronger linkages between urban centers and the surrounding rural territories.

2 Impact on local food systems

Two dimensions of the food supply chain that are greatly affected are production and distribution. As a result of the lockdown measures and controls on population mobility, **transport of agricultural inputs was limited** and **labour was in shortage**, which potentially could cause disruptions from the production side. Further, almost every step of the **distribution channels of agricultural products was disrupted**, from local buying to wholesaling, and from cross-region logistics to city consumption. This was accompanied by the reduced market demand of agricultural products due to the shutdown of restaurants, caterers and public canteens, which eventually resulted in large amounts of unsellable seasonal vegetables and fruits backlogged or even unpicked in farms. If these issues

remained unsolved, the farmers would fail to make a profit from this harvest, which would in turn cause difficulty in investment for the following spring planting and consequently reduce production of next season.

3 Policies and measures

Following the appearance of COVID-19 in China, **the State Council set up the Joint Prevention and Control Mechanism** on 21 January 2020 [3]. The Mechanism comprises thirty-two departments and sets working groups including epidemic prevention and control, medical treatment, scientific research, publicity, foreign affairs, logistics support, and front-work group that are led by relevant ministries and commissions. Among the forty policy documents released by the Mechanism so far, the policy focusing on food and agriculture expressed strong support in ensuring stable production and supply of agricultural products during the pandemic. **The “food basket” Mayor Responsibility Mechanism**¹ (initiated in 1980s) was highlighted in the policy, urging effective implementation at local level to guarantee food supply [4]. Therefore, the Ministry of Agriculture and Rural Affairs (MARA) established a sub-group specifically working on the “food basket” under the leadership of the logistics support working group of the Mechanism. The work of this sub-group includes overall production scheduling, facilitating technical services in production, matching production with markets, and solving problems in the food supply chain through multi-channel and multi-level coordination.

In parallel with the overarching guidance of the Joint Prevention and Control Mechanism, adapted concrete measures are taken based on local context.

3.1 Measures to ensure production

Since it is the spring farming season in China, an all-out effort to organize timely activities to secure a bumper summer grain harvest is taking place, while rigorously implementing the **differentiated epidemic control measures** in accordance with local **risk levels**². In **low-risk** regions, production is required to completely resume while measures to prevent imported

¹ In 1988, the Ministry of Agriculture initiated the "food basket programme" in a bid to improve production and marketing of vegetables and foodstuffs. City mayors were to assume responsibility for the implementation of this programme to ease pressures on the supply of vegetables and foodstuffs. For more information: http://guoqing.china.com.cn/zhuanti/2014-07/04/content_33655816.htm

² The risk level of an administrative region (e.g. town, district) is dynamically evaluated by provincial governments based on assessment on a series of indicators, e.g. total COVID-19 cases and proportion of confirmed cases out of local population. For more information: <http://finance.people.com.cn/n1/2020/0306/c1004-31620366.html>

cases are conducted. In **medium-risk** regions, production is resumed step by step with necessary epidemic control measures in place. In **high-risk** regions, resuming production is carefully organized by requiring farmers to go to their fields separately at different times while main efforts are focused on epidemic control [5]. These differentiated epidemic control measures can be further adapted locally. For example, in Xiangyang City in the Hubei province, green, yellow and red zones are identified, representing risk levels ranging from low to high. Farming activities are allowed in the green zone provided temperature measuring, proper sanitation and self-protection are carried out; in the yellow zone, farming is monitored by a team leader and farmers are required to separately work in the field; in the red zone, farming activities are prohibited.

In regards to the **labour shortage issue** seen in some parts of South China where it was winter harvest season during the crisis, local governments suggested farmers to make full use of returning migrant workers from cities and develop **mutual aid system within villages** to complete harvesting, with precaution measures taken. Technical adjustment was also suggested. For example, in the case of harvesting late-ripening citrus products in Guangxi Zhuang Autonomous Region, the Department of Agriculture and Rural Affairs has recommended to harvest in batches and at different stages in order to extend supply period.

To **ensure supplies of agricultural inputs** needed for production, governments have urged inputs suppliers to restart working and increase workload under required precaution measures. In the case of input shortage, government will organize supplies from input companies in other provinces. For example, Hubei province faced a large supply gap in agricultural inputs due to the lockdown restrictions. MARA responded together with the Ministry of Industry and Information Technology and National Supply and Marketing Corporation, to deliver 700 000 tonnes of fertilizers and 2 520 tonnes of pesticides from outside Hubei. In Beijing, the Municipal Agricultural and Rural Bureau has assisted fourteen local vegetable production areas to connect with thirty-four fertilizer companies in order to address the fertilizer shortage. To ensure timely input supplies, MARA has improved administrative procedures in certificate issuance and procurement approval, which takes shorter time than before [6]. To assist farmers while minimizing physical contacts, some local governments organized online input orders from farmers, which then are purchased in bulk from input enterprises. Once the inputs arrive, 'point-to-point' delivery is arranged to farmers' homes. In Shanxi province, government of Yangling collects orders from more than 50 villages and has helped with more than 400 tonnes of fertilizer purchase and delivery.

Technical services to guide and support farmers' production are carried out both in the field and **online**. During the crisis, extension experts started to provide training through live streaming classes regularly, which has been very welcomed by farmers. Social media such as WeChat and telephones are also used to provide immediate technical guidance.

Financial support is also provided to farmers to ensure they have sufficient fund for production. The Ministry of Finance has announced to reduce credit guarantee fees in 2020 for agricultural entities that are affected by the crisis. The nation has also allocated 1.4 billion yuan (USD 200 million) of agricultural production disaster relief funds to support pest control for major crops such as rice and wheat, with preferred allocation to Hubei province.

3.2 Measures to match supply with demand

Disruption of the food distribution systems has caused considerable problems in sales of agricultural products, although demand is not met in the city during the COVID-19 period. To mitigate the adverse effects of the situation, measures have been taken to match production with sales to help both farmers and consumers. Specifically, the production is mainly connected to three types of buyers: (1) wholesale markets and distributors; (2) supermarkets and shops; (3) communities and neighborhood committees.

A range of approaches have been applied to achieve the **production and sales matching**. MARA has organized a video conference with participants from both production and sales bodies to achieve direct matching and transactions. The conference has enabled sales of 50 350 tonnes of agricultural products valuing at 335.8 million yuan (USD 47.3 million). A public service alliance on production and sales matching was established, which was initiated by the China Quality Agricultural Products Development and Service Association with joined forces from enterprises such as Pinduoduo, and guided by the Department of Market and Information Technology of the Ministry of Agriculture and Rural Affairs. The alliance committed to carry out no less than 10 billion yuan (USD 1.4 billion) of special purchase of agricultural products from poor areas in 2020. Additionally, **Information and Communication Technologies** (ICTS) have been widely used to sell products. Under the instruction of the national government, the China Agricultural Product Market Association collaborated with a range of official media platforms and e-commerce business platforms and established an **online public service platform** to assist matching agricultural production with sales during the epidemic prevention period [7]. In parallel with the web platform, mobile chat groups, WeChat official accounts and 24-h hotlines were also used to facilitate information consolidation. Up until 17 March 2020, more than 4 000 pieces of supply or demand information had been posted on the platform which assisted 'point-to-point' connection of producers and buyers. Another important platform is the **Online Sales Platform** for Agricultural Products in **Poor Areas** initiated by the Ministry of Finance and State Council Poverty Alleviation Office to assist sales of production in 832 State poverty counties³ [8]. A special zone was created on the platform

³ State poverty county is a standard set by the State to support poor areas. It is identified based on the annual net income of local people. There are 133 State poverty counties totally as of 5 March 2020.

during the epidemic prevention period to further assist sales of the agricultural products and mitigate poor households' losses.

Locally, governments of provinces and municipalities also established online service platforms to better assist local transactions. For example, Beijing's Agricultural Products Supply and Demand Platform included not only product supply information but also farmers' demand in agricultural inputs and other equipment, which is of great help for both production and sales for farmers. The platform focuses on four categories of products according to the city's situation, namely vegetables, meat and eggs, edible fungi and strawberries. In less than ten days since the establishment, more than 600 pieces of supply information had been posted and 45% of them proceeded to transactions.

The Chinese government is also encouraging **e-commerce enterprises** to actively engage in the sales of agricultural products, considering the concrete experience and resources they have in online sales and digitalized supply chain management. Indeed, many e-commerce enterprises have initiated farmer aid projects which allocated millions in budget and mobilized various resources in procurement, logistics, operation and marketing to maximize benefits to both farmers and consumers. Specifically, to help more farmers with online sales, the platforms have reduced the eligibility requirements to register stores, simplified the registration procedure, and provided individual training to assist farmers with online store operation. To promote sales, the platforms have set special sale portals for these stores with well-designed graphics and slogans like 'caring for farmers', and offered vouchers and discounts for transactions on these products. The platforms also provided resources of **livestreaming and short videos** (e.g. TikTok) to further promote sales. Generally, in the livestreaming or short videos, Internet celebrities introduce the good characteristics of agricultural products on sale to the audience, which usually achieves high amount of sales due to the interactive nature and the celebrities' fame. A livestreaming event on Wuhan's tea gained 0.9 million of click-through rates, achieving 0.89 million yuan (USD 0.13 million) of sales during the live streaming with 1 million yuan (USD 0.14 million) of sales afterwards. Some farmers also do the livestreaming and short videos themselves. They not only successfully sell their products but also attract a lot of fans – with great potential to become an online celebrity! So far, Taobao's platform has seen more than 50 000 livestreaming hosts selling agricultural products, which comprise of celebrities, businesses, farmers and governmental officials.

As a result, to name a few, Alibaba has established a 1 billion yuan (USD 141 million) fund to support farmers and sold 118 000 tonnes of overstocked agricultural products in less than 40 days. JD.com has released 25 policies to support farmers and sold 500 tonnes of produce in five days. Pinduoduo has supported farmers from 400 cities or towns which include more than 230 State poverty counties.



Delivery man (driver) on the street. Photo credit: Hang Dong

3.3 Measures to ensure logistics

To ensure smooth transportation of agricultural products and inputs, vehicles delivering these supplies are allowed to transport through the ‘**green channel**’⁴ when passing COVID19 checkpoint or toll station by simply holding a pass issued by provincial governments [9]. The pass allows the transit without being requested to park, pay fees or be inspected which takes time. The staff at the checkpoint also helps with the disinfection of vehicles to ensure a fast and safe transportation. After arriving at the destination, the driver’s temperature is measured, visit information is logged and vehicles are disinfected, shortly after this protocol - entrance is allowed.

In January 2020, the State Administration of Taxation has announced that any income from transportation of key guarantee materials during the crisis, which include agricultural products

⁴ Green channel is a fast channel with less regulations at highway toll stations set for specific vehicles, among which vehicles delivering fresh agricultural products are included. For more information: http://www.gov.cn/xinwen/2019-08/07/content_5419496.htm

and inputs, is exempt from value added tax (VAT) [10]. National financial support is also provided to improve on-site cold storage and preservation facilities for family farms and farmer cooperatives, to facilitate robust logistics service and strengthen resilience of the food supply chain.

Notably, innovative measures in logistics were observed which have been taken by the e-commerce enterprises to achieve efficient and safe delivery of 'the last mile' to consumers. For example, many enterprises started to provide **contactless delivery** during the crisis by installing shelves in communities, setting up service points in the neighbourhood, delivering to designated places, and using robot delivery, etc. To ease the shortage of labour in delivery, the '**shared labour**' model was created, meaning 'idle' employees of other sectors such as the catering industry and the retailing industry temporarily joined the e-commerce companies and worked on delivery services. Similarly, '**shared stores**' and '**shared pick-up points**' have been practiced in some cities. For example, in Hangzhou city, when people fuel their cars at Sinopec's petrol station, they are able to buy fresh vegetables and meat from Freshippo by simply ordering through mobile app while sitting in the car, then the ordered package will be immediately placed in the trunk of the car. Another model called '**community group buying**' was also invented to simplify the delivery, save labour and minimize people's contacts. Basically, the residents of each community could place orders through a group chat, which will be consolidated every day and sent to stores. The next day the food will be delivered to communities together.



Community pick-up point for contactless delivery. Photo credit: Liwei Liu

3.4 Measures to monitor the market

During the crisis, all levels of governments are also responsible to closely monitor the market of agricultural products to maintain supply and demand balances. Reports of food price and

market supply conditions are conducted on a **daily** basis, to which timely scheduling of supplies is carried out. MARA has developed a **big-data information platform** called National Agricultural and Rural Response to Coronavirus Epidemic Data Service Platform [11]. It covers a wealth of data including all aspects of market information, spring production information, national and regional coronavirus situation, prevention measures, public opinions and even mobile apps for online grocery shopping, which is of great help for policy makers to make timely decisions.

The live poultry industry was the most severely affected industry during the crisis, given its high vulnerability to lockdown constraints which is attributed to the very long industry chain. The ban of any movement of live poultry has worsened the situation. Hence, both national and local measures have been taken to **support the affected poultry farmers and businesses**. MARA is planning to include key poultry enterprises that contribute large amount of supply and urgently need state financial support into consideration of national special loans and discounted interest support. The Government of Jilin province is actively negotiating with credit departments to request loan support for breeder farms. In the Zhejiang province, the Department of Agriculture and Rural Affairs is temporarily subsidizing enterprises and farmers' cooperatives that acquire more than 100 000 live birds at 1-2 yuan per bird. Similarly, to financially support farmers and agri-businesses affected by the crisis, Guangdong province is subsidizing enterprises and farmers' cooperatives that acquire more than 100 000 live birds, 10 tonnes of aquatic products or 100 tonnes of vegetables and/or fruits.



Notice of precaution measures displayed in supermarket. Photo credit: Cheshuai Chen

4 Lessons learnt

Several lessons could be drawn from the COVID-19 responses in China:

(1) **Multi-stakeholder collaboration and coordination** at different levels is crucial for immediate and effective outcome. Under such an unprecedented global crisis circumstance, it is pivotal that policy makers could take full advantage of synergies between all stakeholders/actors involved in the food system who have specific expertise, to ensure food supply and minimize adverse effects. Additionally, an efficient mechanism to consolidate and share information and coordinate tasks between actors as well as between internal departments of each actor is essential.

(2) **Diversification of distribution channels** helps to improve food system resilience. In the case of China, the online channel is a very good complement or even alternative under such crisis that ensures distribution from production to consumption through more efficient and digitalized systems. In fact, the COVID-19 pandemic has facilitated future transformation of the e-commerce platforms in the agriculture sector. Having observed the e-commerce's great support in agriculture and farmers' livelihood during the crisis, the national government is

planning on programmes to support cold chain logistics and facilitate online selling of agricultural products. Farmers and wholesalers who have not used e-commerce platforms before is getting familiar with these innovative tools and realized the effectiveness of the online channels. Consumers have further developed habits in online ordering of fresh food which is delivered to home in no time. For the platforms themselves, the management of food supply chain has been further optimized through the farmer aid initiatives during the crisis, which encouraged more long-term strategies for these e-commerce businesses to closely collaborate with the agricultural production end and support farmers.

(3) Fostering **local food production** and strengthening **linkages** and effective synergies between **urban** centers and **rural territories** contribute to resilience of local food systems. Especially in the case of crisis when exchange channels are physically disrupted, local production and efficient urban-rural coordination could greatly assist rural producers with access to urban markets and assist city consumers with access to fresh food. This allows more effective cooperation among food chain actors across urban and rural areas, which is a key component to facilitate more resilient food systems and establish better food environment.

(4) **Innovation** is key to deal with new situations and challenges. The Internet of Things greatly contributes to solutions during the crisis in China, from information sharing platforms to online sales channels. New models like 'shared labour' and 'shared stores' mitigate problems in labour shortage while also stimulates broader idea in establishing shared employee system in the society, which could immediately collect idle labour and hire them to wherever needed in case of special period like the COVID-19 pandemic. There is a saying in China that, a crisis is not only risk, but opportunity. Same like in other areas, innovation should also be the key to new opportunities for a better urban food system.

5 References

- [1] WHO. (2020). Coronavirus disease (COVID-19) Pandemic. Retrieved April 7, 2020, from <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
- [2] Chen, K., Zhang, Y., Zhan, Y., Fan, S., & Si, W. (2020). How China can address threats to food and nutrition security from the coronavirus outbreak. Retrieved April 7, 2020, from IFPRI Blog: Issue Post website: <https://www.ifpri.org/blog/how-china-can-address-threats-food-and-nutrition-security-coronavirus-outbreak>
- [3] 国家卫生健康委会同相关部门联防联控 全力应对新型冠状病毒感染的肺炎疫情. (2020). Retrieved April 7, 2020, from 新华社 website: http://www.gov.cn/xinwen/2020-01/22/content_5471437.htm
- [4] 国务院应对新型冠状病毒感染肺炎疫情联防联控机制关于压实“菜篮子”市长负责制 做好农产品稳产保供工作的通知. (2020). Retrieved April 7, 2020, from 农业农村部网站 website: http://www.gov.cn/xinwen/2020-02/13/content_5477980.htm
- [5] 中央应对新型冠状病毒感染肺炎疫情工作领导小组. (2020). (受权发布)中央应对新型冠状病毒感染肺炎疫情工作领导小组关于印发当前春耕生产工作指南的通知. Retrieved April 7, 2020, from 新华网 website: http://www.xinhuanet.com/politics/2020-03/03/c_1125657876.htm
- [6] 农业农村部优化农业行政审批服务 9 项便民措施保障疫情期间农资供应和农业生产. (2020). Retrieved April 7, 2020, from 农业农村部网站 website: http://www.gov.cn/xinwen/2020-02/18/content_5480537.htm
- [7] 中国农产品市场协会. (2020). 抗疫助农产销对接公益互助平台. Retrieved April 7, 2020, from <http://www.ceninfo.net/index/dataInfo.htm?t=1>
- [8] 扶贫地区农副产品网络销售平台. (2020). Retrieved April 7, 2020, from <https://www.fupin832.com/>
- [9] 农业农村部办公厅 交通运输部办公厅 公安部办公厅 关于确保“菜篮子”产品和农业生产资料正常流通秩序的紧急通知. (2020). Retrieved April 7, 2020, from http://www.gov.cn/zhengce/zhengceku/2020-01/30/content_5473192.htm
- [10] 国家税务总局. (2020). 支持疫情防控和经济社会发展税费优惠政策指引. Retrieved April 7, 2020, from <http://www.chinatax.gov.cn/chinatax/n810341/n810755/c5145868/content.html>
- [11] 全国农业农村应对新冠肺炎疫情数据服务平台. (2020). Retrieved April 7, 2020, from <http://snsj.agri.cn/cockpit-index>