



AGRICULTURE FOOD SECTOR AND COVID-19

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Abstract

The backbone of the Indian economy is agriculture. The northern states of Uttar Pradesh, Punjab, and Haryana made the largest contributions to the national food grain pool. Geographically, Haryana is fortunate to have a great source of irrigation provided by Himalayan Rivers. Agriculture plays a significant role in the growth of an economy, and its improvement is essential to the economy's balanced development. It can be claimed that agriculture has been essential to Haryana's development. This study's goal was to survey what the COVID-19 closure meant for Haryana's agrarian result, lifestyle, admittance to food, and dietary assortment. In 10 areas of Haryana, telephone interview studies were done by proficient enumerators. Eventually, we found that the COVID-19 lockdown in India generally impacted ranchers' capacity to showcase their animals and yield products, as well as diminished everyday livelihoods and dietary variety.

Keywords: Agriculture, Food sector, COVID-19, Haryana.

1. INTRODUCTION

On November first, 1966, Haryana state formally isolated from the remainder of India's political scene. With 4.4 million hectares of land, Haryana is quite possibly of India's littlest State and records for 1.34 percent of the country's absolute land region. Almost 80% of the State's all out land region is developed, with 84% of that area being inundated and a normal editing force of 184%. The State might be isolated into 3 agro-eco regions in view of environment and trimming designs. Panchkula, Ambala, Kurukshetra, Yamunanagar, Karnal, Kaithal, Panipat, and Sonipat

are the eight locale that make up Zone-I. Almost 32% of the State's complete region is in this Zone. The seven regions that make up Zone II are Sirsa, Fatehabad, Hisar, Jind, Rohtak, Faridabad, and Palwal. Almost 39% of the State's complete region is comprised of this Zone. Six regions make up Zone-III: Bhiwani, Mahendergarh, Rewari, Jhajjar, Gurgaon, and Mewat. Almost 29% of the State's all out region is covered by it. Zones I and II are ideal for raising dairy cows, bison, and poultry, as well as different harvests like wheat, rice, lentils, cotton, and sugarcane. These Zones have more effective irrigation systems and sound infrastructure in general. Agro-forestry and agro-horticulture methods are ideal for these zones' kandi areas, which have a major problem with soil and water erosion. A large portion of Zone III is planted with mustard, rapeseed, and pearl millet, and it is also excellent for desert horticulture. Sheep and goat farming, as well as agroforestry, are better suited to the Mewat region.

Customary zamindars carry on with in an agrarian way of life in Haryana (proprietor cultivator ranchers). Food grain creation in Haryana expanded emphatically because of the Green Unrest during the 1960s, the development of the Bhakra Dam in 1963, and the Western Yamuna Order Organization waterway system during the 1970s. 93% of the agriculture sector is comprised of yields and cows, 4% of it is business ranger service and logging, and 2% of it is fisheries. Regardless of involving under 1.4% of India's complete land region, Haryana's farming industry produces 15% of the food grains to the public authority's focal food circulation system and 7% of every single agrarian commodity, including 60% of all products of basmatirice.

Regardless of the way that food falls under the class of fundamental wares, which are in principle safeguarded from development limitations, the new Covid has impacted India's food markets (and COVID-19 illness). Both market interest shocks have been a consequence of the effect. The conclusion of lodgings, cafés, and establishments has additionally exacerbated the work and pay stuns that converted into an inside and out request pressure. Furthermore, the way that individuals shop has developed, with additional web-based exchanges and home conveyance administrations supplanting face to face buys and feasting out. Produce wholesalers and cultivators are being constrained to switch their inventory binds from food administration to retail. Limitations on work and strategies on the stockpile side influence both the volumes of things that are conveyed to the discount showcases that supply retail outlets as well as the estimating at which exchange is led.

The Public authority of India authorized the best lockdown in history in light of the Covid illness 2019 (COVID-19) pandemic: 1.3 billion individuals were expected to shield set up from 25 Walk to 8 June 2020. There is little inquiry that poor people and who's employers a living compensation, strikingly ranchers in provincial regions, were lopsidedly influenced by this lockout. Ranchers' low pay rates were a difficult issue in India even before the COVID-19 emergency, with the Indian government having an objective to twofold ranchers' pay by 2022. As per a study done in 2016-17, rural families make a normal of 8931 INR (\$118), with 35% of that approaching from agriculture, 34% from compensation, and 8% from creatures. Rancher families might be unfavorably affected in the event that any of these kinds of revenue are decreased. The degree of the COVID-19 lockdown's consequences for agrarian creation, food frailty, domesticated animals income, and everyday compensation of ranchers, nonetheless, is still totally obscure. Understanding this effect is critical for arranging the accompanying farming seasons, directing the designated circulation of crisis food proportions to the people who need them the most, and restoring a stronger, economical, and impartial agri-food system.



Figure: 1.A 10-point plan to support the agricultural industry after COVID-19.

2. LITERATURE REVIEW

The performance of the agriculture industries in the state of Haryana was examined by Rajiv Khosla et al. on an unspecified date. The relative standing of agro-based industries in relation to the other states of the union was also examined. On the basis of the pattern, effectiveness, and extent of the industries within the state as well as the comparative advantage relative to other Indian states for the years 1980–1981 to 1997–1998 a set of agro processing industries has been identified. The study identified Haryana's promising agro-processing industry. The evidence that is now available consistently and clearly shows that a number of agroprocessing activities have good development potential in the state. The overall growth rate in terms of production from 1998–1999 to 2007–2008 was 11.21%. These facts allow us to state with some confidence that Haryana is an excellent place for the growth of the agro-processing industries listed below. These include I NEC food product manufacturing (ii) bakery product manufacturing. Production of prepared animal feed (iii).

The paper by V.S. Gopalakrishnan (May 2002) describes the sectoral contribution of agriculture to GDP and the sharp deterioration of our economy. With the liberalisation process exhibiting favourable growth in the manufacturing and services sectors, the reduction was particularly notable in the 1990s. Over the past 50 years, India's grain production has increased by three times, but at the same time, its population has increased by nearly three times. In terms of land used for the production of food grains, India has hit a plateau. Any rise in the nation's production of food grains must therefore result from higher productivity. Increased food processing should result in an additional value addition.

Growth, Status, and Prospects of Agro-Processing Industries in India were examined by K.P. Kachru in June 2002. The study described the development of the Agra FPI from a historical viewpoint, and it revealed how our FPI, which was in its infancy under British control, later evolved into a thriving and contemporary agro food processing sector. The study also focuses on agricultural output patterns, particularly in light of various agro-climatic factors and customer preferences. The magnitude of post-harvest loss and its treatment with FPI have been highlighted in the study. According to the report, post-production losses in the food industry could be 75,000–100,000 crore annually. Last but not least, the study looked at export potential and trends

as well as quality assurance, standards, and GATT and sanitary/photo-sanitary procedures related to FPI.

According to an analysis by Punjabi (2007), the Indian food processing industry is undergoing a rapid shift as a result of several significant socioeconomic environment changes. These developments will result in a rise in the demand for processed foods due to rising income levels, urbanisation, and the number of working women. Both the domestic and international markets have substantial potential demand. With its large arable territory and diverse agroclimate, India has the potential to be the world's breadbasket on the supply side. The combination of supply and demand dynamics in the food processing industry has the potential to boost rural incomes and act as a growth engine for the economy. For this reason, the food processing industry is acknowledged as a sunrise industry for the Indian economy. The Indian government has prioritised this industry. The government took many measures to improve this industry, including deregulation, licences, lower import taxes, and loosened FDI regulations. The government (APMC) amended its actions and took the initiative to develop the packing industry and other facilities.

To look at pre-and post-market advancement conditions, Ali et al. (2009) took a gander at the exhibition of a few food handling sector portions in India as far as TFP and effectiveness change throughout the years 1980-1981 to 2001-2002. This study separated the TFP change in the disaggregated food handling sector into specialized and effectiveness changes utilizing the Malmquist efficiency record. The examination found that throughout this time, the food business had positive TFP changes of shifting size across subsectors. The improvement in TFP is essentially owing to changes in mechanical strategies. For the food handling industry to develop reasonably, the generally little commitment to TFP change should be thought about. The variety in productivity and TFP results all through the food handling ventures obviously shows that high worth added regions including confectionary, meat and meat items, organic products, and vegetables have encountered great development in the years after liberation. This recommends that, because of changes in utilization designs in homegrown business sectors, the food handling sector has gone through underlying changes toward high worth regions. Furthermore, these outcomes suggest that high worth classes offer greater speculation possibilities.

3. PROPOSED METHOD

Members were looked over the main 12 agronomically creating locale in Haryana in light of the complete number of sections of land of food grains (like rice, wheat, maize, and heartbeats), oil seeds, and money crops (like sugarcane and cotton) planted in 2018. (Division of Agriculture Participation and Ranchers Government assistance 2018). Grown-ups younger than 18 who resided in a farming family — characterized as one that had something like one of the accompanying: land possession, crop gathering regardless of land proprietorship, an everyday compensation or agreement based wage from rural work, and pay from raising domesticated animals or fishing — were expected to meet the qualification necessities. In this way, respondents who didn't claim land, had not gathered any land in the earlier month, didn't get a compensation (everyday wages or agreement based work), didn't get a pay from raising domesticated animals, or didn't get a pay from fishing were not viewed as pay laborers and were excluded from the examination. Reactions to each study were gathered through telephone interview and entered straightforwardly into Qualtrics (Qualtrics, Provo, Utah). For families without a collect in the earlier month and for families with a reap, it required around 15 minutes and 30 minutes, separately, to finish the overview (Strengthening Material).

Business agrarian creation questions were like those asked in like manner government studies (such the Farming Evaluation and Information Overview), and they were changed in participation with horticultural subject matter experts and in view of pilot testing concerning specific review parts. For questions that suggested the "earlier season," this was characterized as Rabi 2019 for crops reaped just one time per year and January/February 2020 (pre-COVID-19) for crops assembled at least a time or two per year (e.g., vegetables) (e.g., wheat). All harvests' transportation costs over the course of the last month were diverged from what they would have cost in January and February 2020. At the point when pertinent, neighborhood units of land possession and reaping were accounted for and, when suitable, changed over into hectares (ha) utilizing state-explicit transformations. As per the size of the homestead, there are four classifications: little/minimal ranches (0.01-2.00 ha), medium homesteads (2.01-4.00 ha), and huge ranches (>4.00 ha) (Division of Agriculture 2020). Unconditional text passages were additionally permitted, despite the fact that a few pre-determined choices were presented for

questions like the purposes behind not reaping, changes in that frame of mind to collect, crop misfortune, stockpiling, and what the lockdown has meant for their ability to be prepared for the establishing season. For investigation, these sections were inspected and gathered.

4. DATA ANALYSIS AND FINDINGS

Expressive measurements were utilized to sum up different parts of farming creation, including crop type, collect, how was managed the gather, and planting, instructive fulfillment, reap cost, transport cost, government support programs, self-revealed purposes behind not collecting, reap capacity, higher gather costs, lower yields, worry over the impending planting season, compensation, domesticated animals pay, and food bugs. We additionally incorporated the vital outcomes by state, crop type, and rank. We analyzed for varieties in these qualities by ranch size, state, crop type, and rank utilizing chi-square tests (for paired and unmitigated factors) and examination of difference (for ceaseless factors). P values < 0.05 were viewed as critical in measurements. To additionally comprehend these outcomes, we analyzed the relationship between getting monetary exchanges, wage misfortunes, and drops in animals income with the gather, deal, stockpiling, and planting of harvests.

Table no. 1 shows the production of total food grains in India and percentage share of food grains to India by Haryana.

Table: 1. Production of Food grains

Year	% Share of Haryana	ALL INDIA
2010-11	8.4	233391
2011-12	8.8	228804
2012-13	8.4	237484
2013-14	8.10	250977
2014-15	8.8	254668
2015-16	8.9	238299
2016-17	9.2	264684
2017-18	8.10	279488
2018-19	8.11	277324
2019-20	8.5	285247
2020-21	8.6	272225

The information explains that both states produce more food grains than the national average, and Punjab produces more food grains than Haryana. Small/marginal farmers were roughly three

times more likely to skip a meal than large farmers, and landless farmers were ten times more likely to do so (Table 2). The government reportedly provided increased food handouts, according to the majority. Potatoes, legumes, and vegetables were substantially less likely to be consumed by landless farmers. Fruit and dairy consumption were much lower among landless and small/marginal farmers. Large farmers consumed the most fried food and nuts.

Table: 2. Participants from agricultural households in 12 regions of Haryana during the nationwide COVID-19 lockdown experienced food insecurity and dietary diversity

Characteristics	Total	Farm size landless	Small/marginal	Medium	Large	P value
Grains	98%	89%	92%	95%	96%	93%
Potatoes	86	75%	84%	86%	89%	90%
Pulses	91%	86%	89%	92%	91%	81%
Nuts	18%	25%	28%	13%	18%	25%
Vegetables	85%	89%	91%	82%	96%	92%
Fruit	52%	15%	19%	23%	31%	49%
Meat	14%	12%	16%	07%	09%	10%
Poultry	19%	23	20%	11%	15%	23%

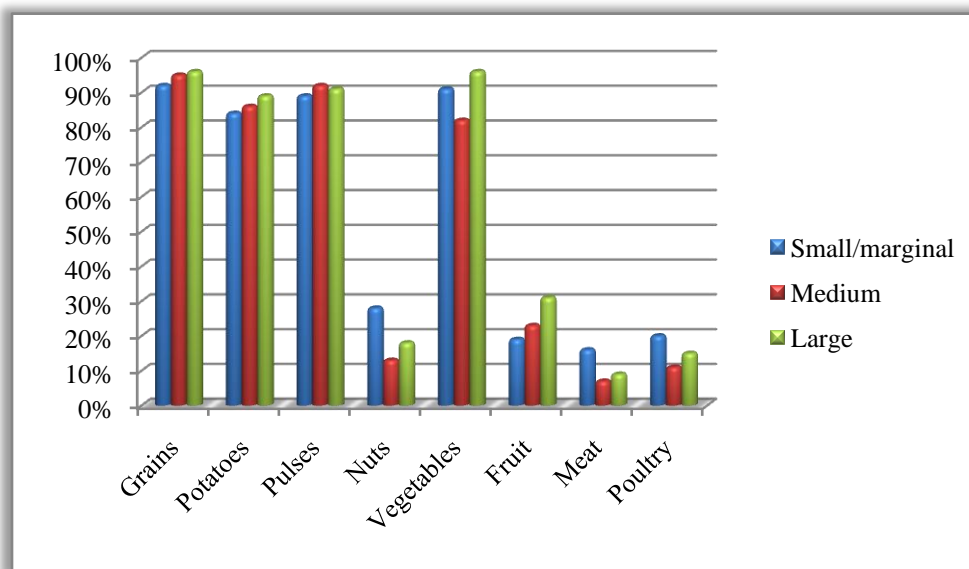


Figure: 2. Comparison of percentage of small, medium and large

At the national level, COVID-19 had a negative influence on farm productivity in over half of the sample districts. Magnitude-wise, agriculture production had not been greatly harmed,

largely because wheat and other rabi crops were almost completely harvested by the end of April 2020. However, production in related industries had sharply decreased, particularly in the poultry industry.

➤ **Risk management for prices and sales**

Food prices were little or barely affected by COVID-19 (except for vegetables). However, there is a lot of volatility in food prices, which exposes producers to price risk. To shield ranchers from cost risk, the public authority should ponder laying out a cost adjustment reserve. Moreover, crop protection in India commonly just covers yield risk; COVID-19 has allowed the public authority the opportunity to change the harvest protection program to cover ranchers' income (yield and cost) risk (Cariappa et al., 2020b). Ranchers and customers can likewise exploit futures exchanging to trade normalized ware contracts at a foreordained cost for conveyance later on. Rancher Maker Organizations (FPCs) could rebuild themselves into aggregators to meet the agreement size necessities specified by the ware trades.

➤ **Concentrating on secondary agriculture instead than fundamental agriculture**

Lockdown brought on by COVID-19 has impacted agricultural labour markets, which saw significant reversal of migration. According to a poll, during the lockdown, 45% of the migrants went home. To enable the identification of farming as an enterprise, structural weaknesses in the system need to be rectified. It is critical to help methods that increment the worth of essential farming creation systems and organizations that get their unrefined components from essential horticultural harvest squanders, side-effects, and trash. For example, cotton stalks offer more prominent and undiscovered possibility for use in the creation of delicate and hard sheets, paper, and mash. There is a dire need to accelerate research on premium auxiliary agrarian products. Models incorporate the formation of natural product based frozen yogurt, reusing bamboo or wood squander into beautiful things, making desserts from cow's milk, making bio-plastics with normal strands and cubed potatoes, removing gelatin from natural product stripping waste, and making bioethanol. Furthermore, progressions in post-gather strategies for restorative and fragrant plants that act as natural substances for the enterprises of home grown drugs, beauty care products, and food flavors might help send out potential and create occupations.

➤ **Financial support for agricultural research and development**

Between 2014-15 and 2018-19, the assessed yearly expansion (in genuine terms) for the rural and related sectors was 2.9%. Agriculture was the main business to post positive development of 3.4% in the principal quarter of 2020-21, even while the Indian economy shrank by 23.9%. Now is the right time to recognize that the agrarian sector can possibly keep up with development when different enterprises can't move forward, notwithstanding the way that ranchers as of now face critical creation and showcasing gambles in typical times. Definitely, getting the confidential sector works on the system's capacity to run effectively and draw in venture. Need ought to be given to private and public interests in agrarian Research and development, protection, funding, motorization, cold capacity, strategies, robotization, and computerized obtainment and dispersion (e-promoting).

➤ **Agricultural finance reforms**

To restore the business, admittance to minimal expense funding should be made conceivable, particularly for little and negligible landowners. To safeguard the livelihoods and government assistance of poor people, measures such rebuilding agrarian credits and reimbursement plans, deferring the grouping of long haul advances as nonperforming assets (NPA), paying interest on credits taken out during the ban time frame, and so forth, ought to be taken.

5. CONCLUSION

Agriculture assumes a critical part in the development of an economy, and its improvement is crucial for the economy's decent turn of events. It very well may be asserted that agriculture has been crucial for Haryana's turn of events. Innovation and science have helped the state in arriving at new levels. Haryana has arisen as a strong mainstay of rural improvement following the green insurgency. The public authority has proposed a couple of drives to help provincial food creation with an end goal to stop the deteriorating of food frailty. Instances of such exercises incorporate advertising cooperatives, which were being advanced before the closure by various common society associations and government drives. In any case, it ought to likewise be noticed that a large portion of the food devoured in India before to the emergency was purchased. Thus, government endeavors to close the holes recognized here ought to be carried out to forestall

further monetary and wholesome differences. Our standard discoveries affirm that landless and little/minor ranchers are the most powerless against lockdown-related disturbances to agriculture and food uncertainty. Most of the interferences found in this study can be expected to forestall such issues during lockdowns and pandemics later on. In the event that versatility is limited and supply chains are seriously disturbed, government crisis food freebees, for example, PDS, work ensure projects like NREGS, and the arrangement of horticultural data sources can be generally significant (making the money pointless at that time of emergency).

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