

DIGITAL INITIATIVES OF HARYANA GOVERNMENT AND FARMER'S WELFARE

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ABSTRACT:

The agricultural landscape in Haryana, India, has undergone a transformative shift with the advent of digital technologies, specifically E-Portals encompassing social media and mobile applications. Digitalization presents the opportunity to assist in tackling the agricultural sector's challenges and improve productivity and sustainability. Digital initiatives (E-commerce and E-Portals) in agriculture have a significant positive impact on agricultural production efficiency. It encourages rational allocation of agricultural factors and promotes sustainable development. Based on Available data from national surveys and existing literature on the implementation and effects of digital portals, Mobile applications, and social media in agriculture utilization of digital technologies. The study adopted a mixed-methods approach, data taken from different sources like combining surveys, national surveys, existing literature, and data analytics to evaluate the adoption and utilization patterns of E-Portals, mobile applications and social media among farmers. The study aims to analyze the impact of E-Portals on farmers lives in Haryana. The research paper will focus on the E-Portals, Mobile apps and social media initiatives run by Government of Haryana. This research paper explores the multi-sided impact of these technological involvements on farmers in the region. Through a comprehensive study, we investigate how E-Portals have influenced various facets of farming practices, socio-economic conditions, and overall welfares of farmers in Haryana. Findings of this study reveal the extent to which farmers have integrated digital platforms into their daily routines for tasks such as market information access, crop management, financial transactions, and community engagement. Furthermore, the research explores the implications of E-Portals on improving market linkages, enhancing agricultural productivity, and contributing to sustainable farming practices. In addition to the positive outcomes, challenges and barriers faced by farmers in adopting and adapting to E-Portals are also analyzed. Issues such as digital literacy, connectivity constraints, and the socio-economic divide are examined to provide a holistic understanding of the technology's impact on different segments of the farming community. The research contributes valuable

insights for policymakers, technology developers, and stakeholders aiming to enhance the effectiveness of E-Portals in agriculture. By understanding the dynamics of technology adoption among farmers in Haryana, this study aims to inform strategies that can bridge existing gaps, promote inclusivity, and ensure sustainable development in the agricultural sector. The study finds that regional digitalization can significantly raise agricultural total factor productivity, particularly in economically underdeveloped areas.

Keywords: stakeholders, Agriculture, Digitalization, traditionally, digital technology, practices

INTRODUCTION

Indian economy divided into three-sector (a) Primary sector (b) Secondary sector (c) Tertiary sector. Agriculture include in primary sector. Agriculture holds a significance place in the Indian economy with over 70% of rural households relying on it for their livelihoods. Agriculture contributes around 17% of the total GDP of India. Haryana total geographical area of 4.42 million ha.in the residents of the state. Agriculture is the principle occupation of the residents of the state. Agriculture contributes 26.4% to the state's domestic production. supporting and promoting agriculture can lead to improved agriculture practices, increase production, farmer's income for their welfare. from 1966 when Haryana was formed as a separate state in India, there were several agriculture initiatives and policies taken by the Haryana government to promote farmer's welfare.

Digitalization of agriculture is needed for faster growth of agriculture sector. Government of India (GOI) launched a campaign named as "Digital India" to provide all the benefits of the government schemes & portals, social media electronically to the Indian citizens. To achieve this target India government starts to give more attention on the online infrastructure on 1st July 2016, the prime minister launched the digital India programed officially [1].

Agriculture is still primary source of the livelihood, employment, state gross domestic product (SGDP) in Haryana. The department of an agriculture and farmer's welfare is embarking upon the use of digital technology to boost agriculture in the state [2]. Ministry of agriculture & farmer's welfare aims to improve awareness and knowledge efficiency of farmers. Digitalization has been developed not only to reach out to farmers in an easy and better way but also for planning and monitory of schemes so that policy

decision can be taken as a faster pace and farmers can be beneficial quickly.

The against web portal, funded by the ministry of agriculture, aims to disseminate information and provide services to farmers through ICT, covering various agriculture activities and sector such as agriculture, horticulture, animal husbandry. Thereby improving their source of revenue and decision making ability regarding appropriate future crops and marketing channels [3].

Meri Fasal Mera Boyar online portal is an initiative taken by Haryana government to enhance their income by providing them a fair price of their crops. If farmers want to sell their crop at minimum support prices they need to registered themselves on the portal. Through this portal, the government will get the accurate data of area and name of the crops cultivated in various part of the state [4].

To achieve the targeted food production of 450 to 500 million tones' (Mt) in 2050, adopting the recommendations of integrated strategy involving cropping systems and component management practices in soil health card is essential to achieve required food production besides sustaining the soil health card [5].

Ministry of Agriculture and farmer welfare introduced the soil health card portal in

cycle1(2015 to 2017) 2,53,49,540 and cycle || (2017 to 2019) 2,77,86,235 model village (2019 to 2020) 21,43,345, (2023-24) 8,29,622 sample collected [6].

In digitalization mobile is transforming access to information among farmingmasses. The emergence of the digital revolution and internet penetration in rural areas has enthralled farmers to access new apps that would keep pace with modern technology. However, due to the inefficacy of field level extension workers to provide information and service to a large segment of farmers in offline mode; the mobile app therein plays a vital role and offers a user-friendly solution to effective management and communication with the farmers [7].

The social media allows farmers to share their experiences, which traditionally would have been over a farm-gate, via YouTube, Facebook, WhatsApp and others. There are Twitter feeds that farmers can go to, ask questions, or share experiences. Evidences obtained revealed that there are many social media platforms being used in agricultural extension service delivery worldwide with Facebook having highest popularity (64.7%) [8].

This study based on secondary sources following these steps (a). author included more than 10 literature review

(b). Explore the scope of digitalization in agriculture sector through web portals like e-kharid, merifasalmerabyora, soil health card and mobile apps or social media. (c). digitalization has a significant impact in how agriculture farmers get their information and how increase production, income. This initiative taken by Haryana government to increase farmer's welfare.

Literature Review: A literature survey was conducted using different keywords related to agricultural digitalization from different database google scholar, Scopus, Elsevier etc. using AI based tools near about 250 filter out and study by the author. And top more than 10 paper included in this study. The given table reflects Title of the study, research methodology, conclusion performed in the study

Table 1

1.E-kharid	E-Kharid Portal: An Initiative of Haryana Government for Agricultural Digitalization [1]. Digitalization of Agriculture in India: Pathway to Prosperity [9].	The study is descriptive in nature and based on secondary data obtained from various government, reports, newspapers, officials' website. Descriptive statistics such as table and graphs are used to analyze the results.	This Haryana government initiative to digitize the procurement system and bring transparency at all levels in the food gain procurement process. The portal aim to empower farmers by providing real time information and timely payment for their crops. It will increase income, productivity, quality, and sustainable eco – system.	Currently digitalization in agriculture sector is still under process. The study does not provide a comprehensive analysis of the overall impact and effectiveness of these initiatives in agricultural digitalization.
2.Meri Fasal Mere Byora (MFMB)	An Analysis of MeriFasalMeraByora in Haryana [4]. Problems Faced by Farmers Using Digital Tools in Agriculture in Central Zone of India [10].	The study determine the total number of farmers registered, total area registered and the percentage of registered area on portal (MFMB) in relation to the total cumulative area for the Rabi season in 2020-21. The present study employed an ex-post facto research design, Data collected form MP randomly selected 120 respondents (android based mobile users) in 2019-20. The primary and secondary data were gathered using a pre-tested well-structured schedule.	The paper suggests various measures to improve the portal such as establishing a special office setup, defining proper opening and closing time, organizing village level program me to raise awareness, taking action against fraud and appointing a grievance handing committee for farmers.	The portal lacks legal provision and there is a need to make it legal to protect the interests of the farmers.
3.Soil Health Card (SHC)	Impact and Refinement of Soil Health Card-based Nutrient Management in Major Cropping Systems in India Abstract Impact and Refinement of Soil Health Card-based Nutrient Management in Major Cropping Systems in India. Farmers' Awareness and Performance about Agriculture Development Schemes in Haryana [11].	In this study data collected from (SHC) portal, from cycle-1 (2015-17), cycle-2 (2017-19), and model villages (2019-20), and analyzed to assess the current status of soils in various cropping systems across India. In this, study data collected form hisar and Fatehabad district of Haryana in 2018-19 randomly. Interview schedule method used to assess the awareness of farmers schemes implemented in the state and to assess the performance of agricultural development schemes for economic.	The paper also highlighted the importance of adopting an integrated strategy involving cropping systems and component management practices to achieve the targeted food production and sustain soil health. The critical analysis of soil health card (SHC) indicates that a majority of farmer in India are facing challenges in restoring soil health for sustained crop production with low levels of organic carbon was available nitrogen being common issues.	Majority of farmers in India face the challenge of restoring soil health due to low levels of organic carbon and available nitrogen in their soils.

Social Media	<p>Role of social media in Extension-A Review [14].</p> <p><i>Social media: Shaping the future of agricultural extension and advisory services 2016 Acknowledgement. www.g-fras.org [15].</i></p> <p>USE OF SOCIAL MEDIA IN AGRICULTURAL EXTENSION: SOME EVIDENCES FROM INDIA [16].</p>	<p>This study based on the evidence on the popularity of different social media platforms and the purposes for which they are used in agriculture.</p> <p>Data collected through structured questionnaire using Google Forms, with the help of social media platforms, emails, and web portals of various agriculture communities. 229 respondents from 62 countries participated in the survey, with 78.5% of them belonging to developing countries. Descriptive statistics were used to analyze the data, and Microsoft Excel software was utilized for this purpose.</p> <p>The author mention the use of Facebook groups, YouTube, and other social media tools for sharing agricultural information.</p>	<p>Analyze the use of social media platforms in agricultural extension service delivery. Overall, social media has the potential to improve agricultural extension services by facilitating communication, knowledge sharing, and problem solving among farmers and extension officers.</p> <p>Social media, particularly platforms such as blogs, YouTube, Facebook, and Twitter, have the potential to revolutionize communication in agricultural extension and advisory services. They provide incentives for actors to communicate online, forming networks and initiating development.</p> <p>Facebook, WhatsApp, and YouTube are being used for information sharing in agriculture. Lack of organization efforts from public extension system.</p>	<p>However, there are challenges in using social media for agricultural extension, such as illiteracy, lack of awareness, and limited participation. Challenges such as limited availability of ICTs and internet facilities in rural areas, illiteracy, lack of awareness, and readiness to accept social media by some farmers and extension professionals hinder the use of social media for extension.</p> <p>Lack of infrastructure, such as erratic power supplies and limited internet connectivity in rural areas, restricts reach and benefit. Costly data charges and limited access to internet-enabled devices pose limitations. Constraints such as time allocation for social media and personal privacy concerns over information shared on social media have been reported.</p>
Mobile Apps	<p>Farmers' Use of the Mobile Phone for Accessing Agricultural Information in Haryana: An Analytical Study [12].</p> <p>Utilization Pattern of Mobile Apps Among Farmers for Agricultural Production [13].</p>	<p>The study was conducted in the regions of Haryana, especially in the six districts of data were collected using a multistage sampling procedure, where tehsils, villages, farmers selected randomly, collection of data through structured questionnaire and personal interview.</p> <p>Purposive sampling was used two districts form North-East zone and two form South-West zone of Haryana, randomly two blocks from each district and two village form each blocks, total data collected from of 16 villages, questionnaire method used through personal interviews to collect data from 240 respondents. The data were analyzed using SPSS.</p>	<p>The study concludes that farmers in the selected districts of Haryana have a moderate level of utilization pattern of agricultural mobile apps for agricultural practices. However, this may be improved through conducting outreach programs and trainings among the farmers.</p> <p>Limited access to information and input resources is identified as the primary cause of poor agricultural growth, and the study suggests that an information-based, decision-making agricultural system is necessary to improve agricultural output. The greater utilization of agricultural mobile apps is directly linked to the growth of the agriculture sector.</p>	<p>The source do not provide on any potential limitations or shortcomings of the study collection method technique used in the paper. The study focused on the utilization pattern of mobile apps among farmers for agricultural production, but it does not provide information on the effectiveness or impact of these apps on agricultural productivity.</p>

Objectives of the Study: This study explores the scope of digitalization in agriculture, how technology enhances efficiency, productivity of farmers in agricultural sector. The digitalization of agriculture aims to create a more sustainable, efficient, and resilient food production system by leveraging the power of technology and data. In this paper, authors try to find out the impact of digital initiative taken by government of Haryana on farmers' economy and explore the scope of digitalization in agriculture sector.

Research Methodology:

In this study, data collected from secondary sources like research papers, articles published in different journals, government web portals, websites, social media handles. The related data and information are used which is available publicly. SPSS and Excel statistical tools used to interpret represent and analyses the data.

Agricultural Digitalization:

The "Digital India" project started to give residents online access to services linked to their livelihood and government services, among other things. *Use of digital technologies will scale up and operationalized at a wider scale so that the farmers can get the benefits of these technologies. out of the total project cost of Rs.15.80 crore, the union ministry of agricultural and farmers has initially sanctioned a sum of Rs. 8.29 crore under national e-governance plan for agriculture (NeGP-A) for promoting the use of digital technologies in agriculture in the state.* (Directorate of Information, Public

Relations & Languages, Government of Haryana (pharyana.gov.in)

Digitalization has been developed not only to reach out to farmers in an easy and better way but also for planning and monitoring of schemes so that policy decision can be taken as a faster pace and farmers can be benefited quickly.

- a) Those who have access to digital infrastructure can get the information through website/portals. (MeriFasalMeraByora, e-khrid, soil health card, agri Haryana)
- b) Those who have smart phones can access the same information through mobile apps (khetibadi, Emausamhau krishimausamsevaapp, pusakrishi, kisansuvidha, Ifffcokisan)
- c) Those who have basic phones can get this information through SMS advisors sent by experts.
- d) Those who use social media platforms Facebook, WhatsApp, twitter, youtube.

Share of GVA percentage and growth rate of agriculture and allied sector in Haryana and Indian economy.

Table 2 Agriculture and allied sector

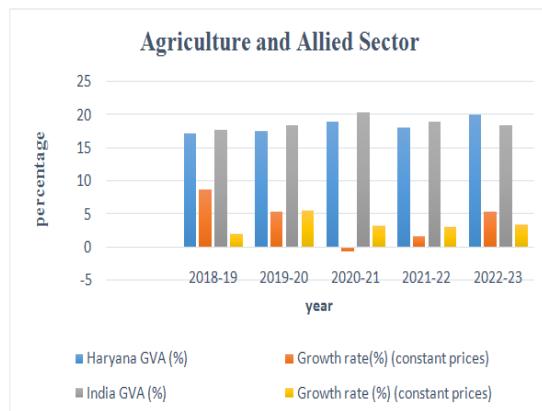
year	Haryana GSVA (%) (current prices)	Growth rate (%) (constant prices)	India GVA (%) (current prices)	Growth rate (%) (constant prices)
2018-19	17.1	8.8	17.64	2.1
2019-20	17.6	5.3	18.33	5.5
2020	19.0	-0.7	20.32	3.3

0-21				
202 1-22	18.0	1.6	18.97	3.0
202 2-23	20.0	5.3	18.42	3.5

Source-economy survey report.

GSVA (gross state value added), GVA (gross value added).

The GVA (gross value added) and growth rate of India and state of Haryana at constant prices (2011-12) and current price is given in this table. In 2022-23 growth of GVA has been estimated as 20.0% in Haryana and 18.42% in India.



Web Portals:

1.E-Kharid: - An online trading portal, e-kharid is an initiative taken by the government of Haryana for online trading of agriculture produce and other commodities. This is set up by the Haryana state agricultural marketing (HSAM) board and the food supply department. this is a revolutionary platform for farmers which aims at providing them more exposure to the market.

STATUS OF AUCTION, NO. OF FARMERS AND TOTAL QUANTITY PURCHASED

BY GOVT.IN HARYANA 2023 AS ON 7-11-23.

Table 3

	total		Auction completed		Quantity(tonne)	
Crops	Auction	Weight (tonne)	Completed farmers	Pending farmers	Completed quantity	Pending quantity
1. Paddy	1008402	5,595,310.30	1002490	5912	5,563,531	31,778.75
2. Bajra	156138	390,212.17	154008	2130	385,914.78	4,297.38
3. Moong	574	740.29	39	535	46.65	693.64

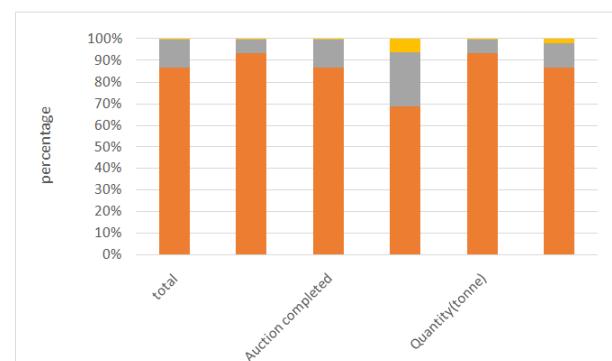
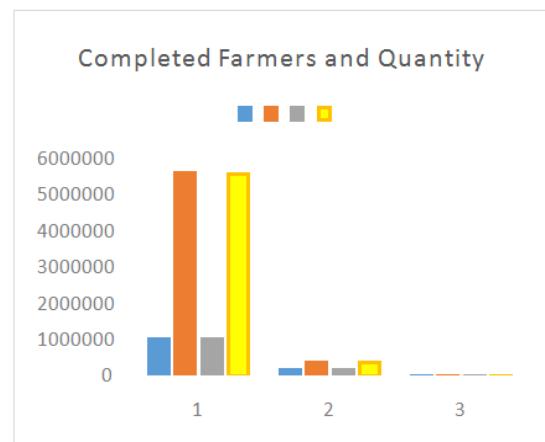


Table 4 show that major crops total auction and quantity. These crops are found in the portal for which the farmers are registered themselves. Here, largest number of farmers registered for paddy crop for selling on the MSP. The table reveals that paddy is the crop for that largest quantity of paddy is sold on MSP and smallest of moong in Haryana.



2. MeriFasalMeriByora: --
Merifasalmerabyora is an online portal launched by Haryana government on 4 july,2019 digitize the crops records. It provides the crop cultivators of the state to register their personal details of land, crops. this portal provides farmers with a platform to register details about their crops and land online.

This initiative aims to provide agriculture data, help the better understand the cropping pattern in the state, and assist farmers in receiving various government benefits and subsidies. This portal has also facilities the government to provide various facilities, direct benefits to the farmers.

CROP WISE REGISTERED FARMERS AND AREA (2020-21)

Table 4

Crop Name	Farmers Registered	Area Registered (acre)	Total farmers registered	Total area registered
1.Wheat	7,32,858	46,89,312.46	9,13,096	60,42,768.28
2.Mustard	3,21,145	11,83,565.06	9,13,096	60,42,768.28
3.Gram	25,396	95,210.2	9,13,096	60,42,768.28
4.Sunflower	7,831	28,856.71	9,13,096	60,42,768.28

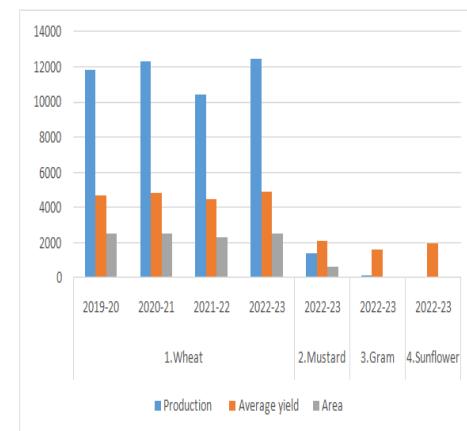
Year	Production ('000 Tonne)	Average Yield (Kg /Hect.)	Area ('000 Hect.)
2019-20	11877	4687	2534
2020-21	12393	4834	2564
2021-22	10447	4533	2305
2022-23	12495	4900	2550
2022-23	1365	2100	650
2022-23	96	1600	60
2022-23	30	2000	15

Table No. 4 indicates the total farmers registered, total area registered, total cumulative area in themerifasalbyora for the year 2020-21. Here we have taken major crops for which the farmer has registered themselves.

Table No. 4 indicates the total farmers registered, total area registered, total cumulative area

Source-economic survey of Haryana 2022-23

The targets of area, production, and average yield of major crops for the year of 2022-23 of the state of Haryana are given. Wheat has highest production, and lowest has sunflower. Average yield highest of wheat and lowest of gram. And area of wheat is highest and lowest is sunflower in the year of 2022-23.



3. Soil Health Card:soil health card helps in evaluating the nutrient content and fertility of soil. It provides information based on various nutrients. This data is crucial for delivery the appropriate fertilizer recommendation. Soil management is needed for soil fertility and crop productivity by analyzing soil health cards, farmers can understand the specific nutrient deficiency or imbalance in their soil.

Year	No. of sample collected	No. of sample tested	No. of SHC printed
Cycle 2015) I to 2017)	788670	788670	788670
Cycle 2017) II to 2019)	1343425	1343425	4143900
Model village (2019 to 20)	25605	25605	25605
2020-21	18972	18972	18972
2023-24	24174	0	0

Table 6

Out of total soil health cards issued at state level, the analysis of different parameters. This table show the progress in the implementation of the SHC portal. The Cycle 1(2015 to 2017) sample collected 788670 and tested 788670.

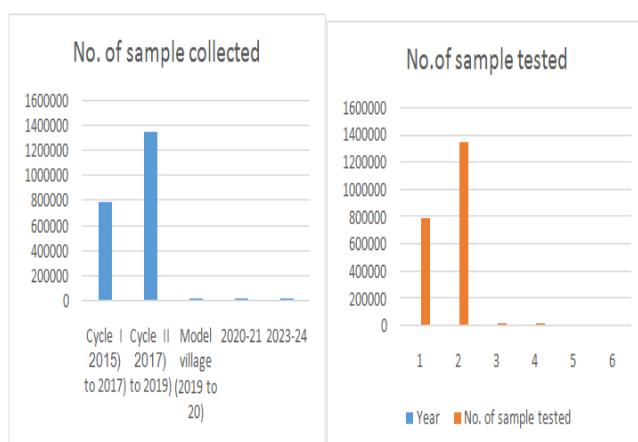
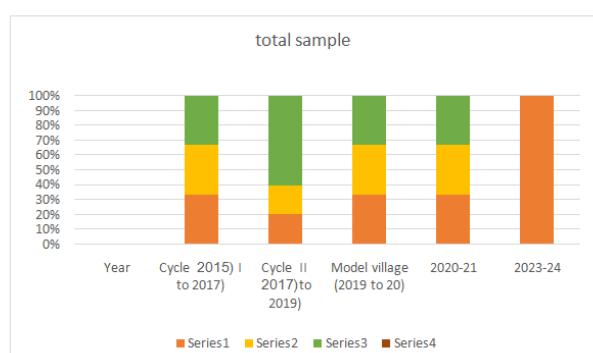


Table and diagram shown no of sample collected and completed through SHC digital portal.

Conclusion:

The study presents valuable insights into the influence of digitalization on the well-being of farmers. Through an analysis of secondary sources, the study emphasizes that digital initiatives, such as E-Portals and social media, have indeed contributed to the enhancement of farmers' welfare.

Specifically, the study examined the following digital tools:

Web Portals: E-Kharid: An online platform that facilitates the transparent procurement of agricultural produce. MeriFasalMeriByora: A portal for farmers to register and provide crop details. Soil Health Card: Offers soil-related information to optimize fertilization and enhance crop yield.

Mobile Apps:

EmausamhauKrishiMausamSeva: Provides tailored weather forecasts for agricultural purposes. GyPcalSodic Soil Reclamation: Assists in the management of soil salinity.

Social Media: YouTube, Twitter, and Facebook: Platforms where farmers can exchange knowledge, seek solutions, and engage with fellow farmers.

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