Farming at Fingertips: Do Mobile Apps Really Help in Crop and Fodder Management?

Samir Barman, Gaurendra Gupta*, Bishwa Bhaskar Choudhary, Sadhna Pandey, Purushottam Sharma, Pushpendra Koli and Ashok Rai

ICAR - Indian Grassland and Fodder Research Institute, Jhansi, U.P. – 284003

Corresponding Author
Gaurendra Gupta
Email: guptagaurendra@gmail.com

OPEN ACCESS

Keywords

Digital Agriculture, Fodder Management, Livestock Production, Mobile Advisory

How to cite this article:

Barman, S., Gupta, G., Choudhary, B. B., Pandey, S., Sharma, P., Koli, P. and Rai, A. 2025. Farming at Fingertips: Do Mobile Apps Really Help in Crop and Fodder Management? *Vigyan Varta* 6 (11): 17-20.

ABSTRACT

The rapid penetration of smartphones and affordable internet in rural India has created new opportunities for disseminating agricultural knowledge directly to farming communities. Mobile applications have increasingly been recognized as practical tools for bridging the technical gap in fodder production, which underpins livestock productivity. This article examines the contribution of mobile apps to crop and fodder management, with emphasis on their roles in varietal choice, sowing practices, pest and disease monitoring, ration balancing, and access to market information. At the same time, persistent challenges must be addressed. Strengthening localization, enhancing offline and voice-based features, integrating artificial intelligence, and fostering stronger research and extension linkages will be key to maximizing their effectiveness. Overall, mobile applications represent a promising, scientifically validated pathway for reducing fodder deficits, enhancing livestock productivity, and contributing to sustainable, climate-resilient agriculture in India.

INTRODUCTION

Agriculture in India is undergoing a silent yet powerful digital transformation. With over 600 million smartphone users and affordable internet access, mobile technology, which was once seen as a luxury, has now become an

everyday tool in rural households. Farmers, who earlier depended largely on neighbours, input dealers, or occasional visits from extension workers, are now turning to mobile screens for advice, weather forecasts, and real-time market updates. This digital shift is reshaping how decisions are made in the field.

While much attention has been given to food crops, fodder remains a silent backbone of livestock productivity. Green fodder directly impacts milk yield, animal health, and ultimately rural income. Yet, India continues to face significant fodder deficits: around 11% shortage of green fodder and 23% shortage of dry fodder (Roy *et. al*., 2019). Crop residues, which supply nearly half of livestock feed, are often low in nutritive value. In this scenario, scientific information on improved fodder varieties, sowing windows, and balanced feeding practices becomes critical.

Mobile-based agricultural applications have emerged as practical tools to support farmers in adopting modern and scientific farming practices. These apps provide reliable information on crop production, pest and disease management, soil health, weather forecasts, and market prices. They also disseminate government schemes, technical advisories, and training materials in local languages, bridging the gap between farmers, researchers, and extension systems. So, it can be thought as digital advisors, providing region-specific guidance on fodder crop selection, cultivation practices, disease management, and ration balancing. They bring research-based recommendations directly into farmers' hands, making knowledge more accessible and actionable than ever before. Through interactive features, farmers can consult experts, share problems, and receive timely solutions without additional cost (Kaur et al., 2020).

The information flows can be seen as Research Institutes → Mobile Apps → Farmers → Improved Fodder and Milk Yield. This can visually highlight the role of mobile apps as a bridge between science and practice.

This write-up explores the role of mobile apps in crop and fodder management, highlighting their potential to close information gaps, success stories from the field, existing challenges, and the roadmap to make these digital tools more inclusive and impactful for Indian agriculture. the role of mobile apps in crop and fodder management, highlighting their potential to close information gaps, success stories from the field, existing challenges, and the roadmap to make these digital tools more inclusive and impactful for Indian agriculture. Most of these apps are freely available on platforms such as the Google Play Store, making them easily accessible even in remote areas.

Why Farmers Need Mobile Apps?

Indian farmers today face a triple challenge like climate change, fluctuating markets, and rising input costs. Unpredictable rainfall patterns and frequent droughts increase uncertainty, while fodder prices are steadily rising due to shrinking grazing lands and competition with food crops. The fodder deficits directly impact milk productivity and animal health, translating into reduced rural incomes (Choudhary *et. al*., 2022). Traditionally, farmers relied on neighbours, local dealers, or occasional visits from extension workers for advice. While such knowledge remains valuable, modern farming, especially for fodder crops, demands timely, region-specific, and scientific recommendations. This is where mobile apps are beginning to transform decision-making. Mobile apps fill the critical information gap, offering:

- Real-time weather forecasts and pest alerts.
- Guidance on improved fodder varieties suitable for specific agro-climatic zones.

- Recommendations on sowing windows, seed rate, irrigation, and fertilizer use.
- Balanced ration calculators to improve livestock nutrition and milk yield.

Available Apps

A wide range of mobile applications is available for Indian farmers, supported by both government agencies and private initiatives. These apps differ in focus, functionality, and reach. With increasing smartphone penetration, these apps are gradually reaching even smallholder farmers, many of whom earlier depended only on word-of-mouth or local dealers for advice (Cerjak *et. al*., 2025). Some of the important mobile apps, in this regard, are summarized in Table 1.

Table 1. Categories and examples of agricultural mobile apps relevant to crop and fodder management in India.

Category	Example Apps	Key Features
Crop Advisory	Krishi Network, AgriApp, IFFCO Kisan	Crop production practices, pest management, and fertilizer use
Weather & Alerts	IMD Weather, Skymet	Short-term forecasts, extreme weather, and pest/disease alerts
Market Prices	eNAM, Agmarknet	Daily mandi rates, market integration
Fodder Management	IGFRI Fodder App (Chara App), NDDB Pashu Poshan	Improved fodder crop practices, ration balancing for livestock
Government Services	Kisan Suvidha, mKisan	Schemes, subsidies, advisories, helplines

How Apps Help in Fodder and Crop Management

The benefits of mobile applications in agriculture and fodder management are multifaceted, scientifically validated, and directly measurable. They act as platforms where research outputs are translated into actionable practices for farmers. The possible utility of mobile apps can be manifold as follows:

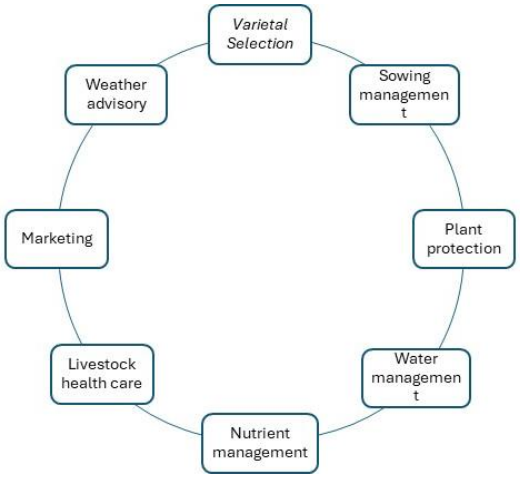

Fig. 1. Utilities of Mobile Apps

Challenges and Limitations

Despite their promise, adoption of mobile apps in agriculture faces several scientifically recognized barriers that limit widespread impact:

- *Digital Divide*: Smartphone penetration in rural India remains around 67%, leaving nearly one-third of rural households without access.
- *Language Gaps*: Many apps are limited to English or Hindi, excluding regional dialects. This restricts effective communication for farmers in linguistically diverse states.
- *Connectivity Issues*: Weak network coverage and inconsistent internet speed in remote villages continue to hamper access to real-time crucial advisories.
- *Quality and Relevance of Information*: Some mobile advisories are generic and not aligned with local agro-ecological conditions, leading to mistrust or low adoption rates.

- *Trust Deficit*: Farmers often rely more on traditional sources such as neighbours, local dealers, or community leaders. Without demonstrations and on-ground extension support, adoption of digital advisories remains suboptimal.

- *Socio-Economic Barriers*: Gender gap in digital literacy, affordability of smartphones, and lack of training are also critical issues reported in FAO and NDDB.

Unless these multidimensional challenges are addressed with a farmer-centric, inclusive strategy, the full potential of mobile apps in strengthening crop and fodder management will remain underutilized.

Future pathway

For mobile apps to become indispensable to farmers, the following pathways are crucial:

- *Regional Customization*: Content in local languages and tailored to local crops and soils.

- *Voice-Based Features*: Beneficial for semi-literate and elderly farmers.

- *AI Integration*: Personalized recommendations using weather, soil, and market data analytics.

- *Stronger Research Linkages*: Collaboration with ICAR institutes, State Agricultural Universities, and Krishi Vigyan Kendras.

- *Offline Accessibility*: Features that work without constant internet connectivity.

CONCLUSION

Mobile applications are emerging as transformative tools in Indian agriculture by bridging the longstanding gap between scientific research and field-level practices. In the domain of fodder production, these apps have provided measurable benefits, enabling better decision-making in production management. Nevertheless, their widespread adoption remains constrained by the digital divide, language diversity, uneven connectivity, and socio-economic barriers. To realize their full potential, apps must be localized, validated scientifically, and integrated with extension systems. The inclusion of artificial intelligence, offline functionality, and farmer-centric design will further enhance their utility. In conclusion, when supported by robust institutional linkages and inclusive digital strategies, mobile applications can significantly reduce fodder deficits, improve livestock productivity, and contribute to sustainable agricultural growth.

REFERENCE

Choudhary, B.B., Sharma, P., Singh, P., Kumar, S., Gupta, G., Kantwa, S.R., Upadhyay, D., Wasnik, V.K., Prasad, M., and Sharma, R.K. 2022. Green fodder cultivation improves technical efficiency of dairy farmers in semi-arid tropics of central India: a micro-analysis. *Journal of Dairy Research*, 89(4): 367-374.

Cerjak, M., Medici, M., Faletar, I., Sundeep, J. V., and Canavari, M. 2025. Adoption of mobile-based agricultural extension services: Evidence from South India. *Journal of Rural Studies*, 120, 103851.

Kaur, M., Sharma, O. P., and Mohan, G. 2020. Mobile Apps: Role in Indian Agriculture. *Biotica Research Today,* 2(8): 797-799.

Roy, A.K., Agrawal, R.K., Bhardwaj, N.R., Mishra, A.K., and Mahanta. S.K. 2019. Revisiting national forage demand and availability scenario. *In* Roy, A.K., Agrawal, R.K., Bhardwaj, N.R. (eds), *Indian Fodder Scenario: Redefining State-wise Status*. Jhansi, India: ICAR- AICRP on Forage Crops and Utilization, pp. 1–21.