

Digital Tools for Livestock Advisory Services: Transforming Livestock Extension in the Digital Era

Neha Pandey¹, Suresh Kumar Bishnoi¹, Sreenanda S Anand¹, Kishan K¹

1. Introduction:

Livestock farming is essential to build rural livelihoods and ensure nutritional security. Livestock farming is one of the significant contributors to the livelihoods of small and marginal farmers. Despite the importance of livestock farming, small and marginal farmers face many challenges, including limited access to veterinary care, delayed advisory support, lack of timely information on animal diseases, and limited extension support. Traditional approaches to livestock extension, including farm visits, training programs, and demonstrations, have been successful but limited by the availability of manpower and geographical constraints.

However, with the advent of the widespread use of Information and Communication Technologies (ICTs), the use of ICTs is becoming increasingly important as a powerful tool for the delivery of timely, location-specific, and need-based animal advisory support. ICTs are revolutionizing the delivery of animal extension services.

Need for Digital Livestock Advisory Services

Livestock farmers need continuous guidance on feeding management, breeding practices, disease prevention, housing, and marketing. However, extension personnel and veterinary professionals cannot reach the farmers in time. The digital platform helps bridge the gap in such situations by facilitating real-time communication.

The importance of digital livestock advisory services:

The importance of digital livestock advisory services lies in the fact that they:

1. Offer instant access to expert knowledge
2. Enable early warning of diseases and reminders of vaccinations
3. Reduce the need for physical extension visits
4. Enable informed decision-making
5. Enhance productivity and profitability of farms

In the era of smartphones and high internet penetration in rural India, digital platforms have become an essential part of livestock extension.

Neha Pandey¹, Suresh Kumar Bishnoi¹, Sreenanda S Anand¹, Kishan K¹

¹PhD Research Scholar, Division of Dairy Extension, ICAR-National Dairy Research Institute, Karnal – 132001, Haryana

2. Major Digital Tools Used in Livestock Advisory Services

A. Mobile Applications for Livestock Management

Mobile applications allow farmers to access information regarding animal health, breeding, feeding, and management.

Examples:

- e-Gopala App** developed by the National Dairy Development Board provides advisory services regarding animal breeding, feeding, and animal health management. In addition, the application sends alerts regarding vaccinations and allows the purchase and sale of dairy animals.
- Pashushala App** is a digital platform that offers advisory services, trading of livestock, and management tools for livestock farmers.

animal husbandry farming, along with weather-based advisories and management tools.

- INAPH** developed under the National Dairy Development Board enables the monitoring of animal productivity, breeding, and artificial insemination.

These apps help farmers access reliable information anytime without depending solely on extension services.

B. Tele-Veterinary Consultation Services

Tele-veterinary services allow farmers to consult veterinarians online using their smartphones. They can upload photos or videos of their animals and receive instant diagnosis and treatment suggestions.

Example:

- Dr. Pashu** offers online consultation services to livestock farmers with the help of veterinary experts. It also offers

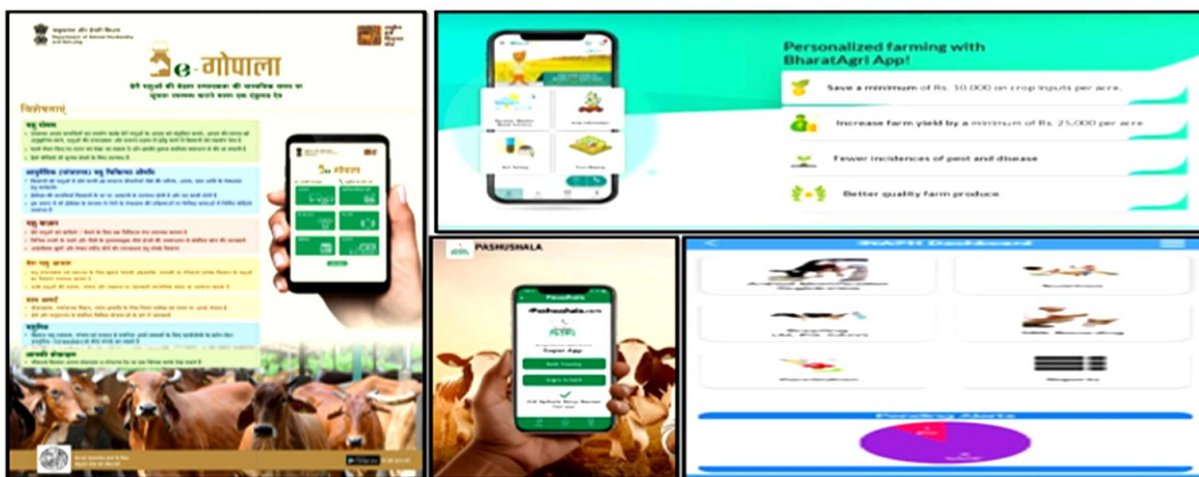


Figure 1: Applications for Livestock Management

- BharatAgri App** offers integrated advisory services on crop as well as

multilingual advisory services along with AI-based disease support.

- Pashu Poshan App** provides advisory services related to the nutritional needs of the livestock, feeding, and monitoring of the health of the animals. Telemedicine saves money, time, and ensures timely treatment for the farmers
- MyPet-OPD:** A **24/7 veterinary telemedicine platform** connecting livestock owners with veterinary doctors. Farmers can receive **audio/video consultations, prescriptions, and healthcare advice** remotely.

- Phone A Vet:** Allows users to **chat, call, or video consult veterinarians** and share photos/videos of animals for diagnosis. Provides expert advice and prescriptions without visiting a clinic.

C. Digital Livestock Management Platforms

Digital management systems assist farmers with the management of records pertaining to animal productivity, breeding, and health monitoring.

Examples:

- Bharat Pashudhan:** facilitates the digital registration of animals and helps

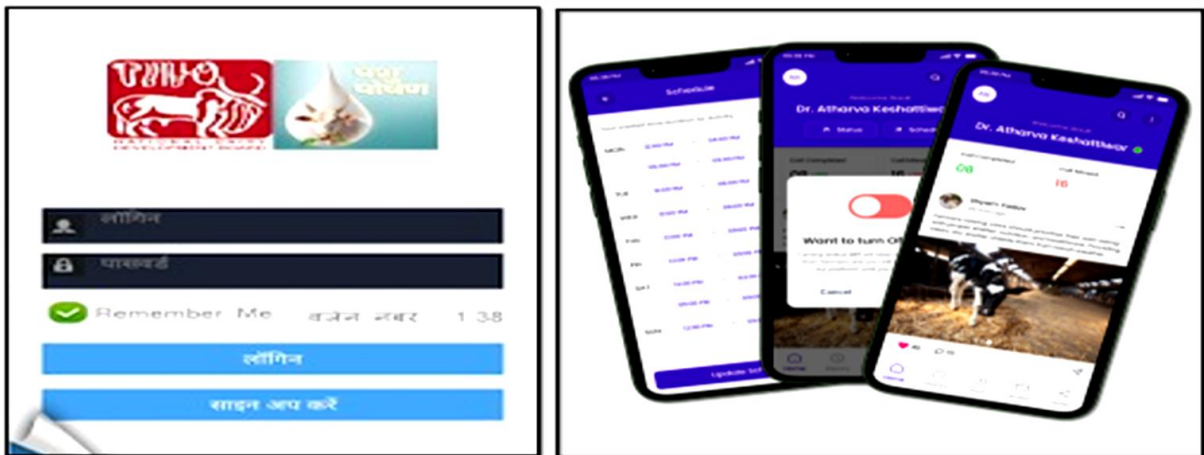


Figure 2: Tele-Veterinary Consultation Services Applications

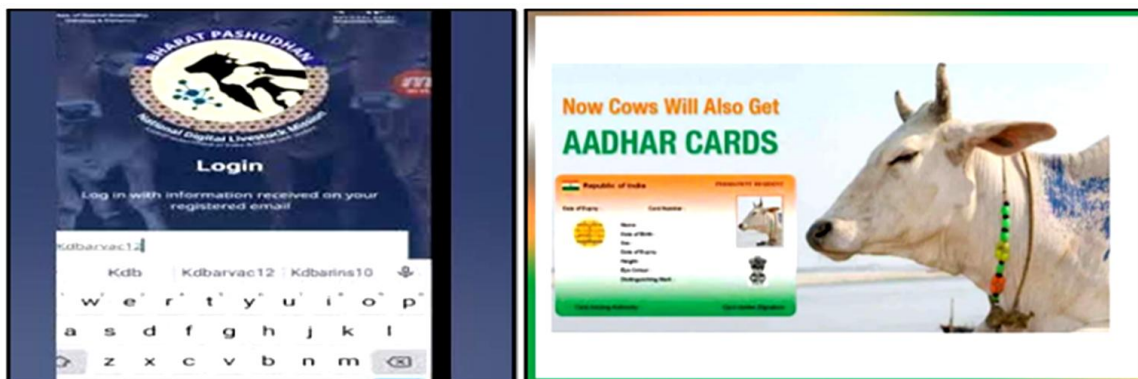


Figure 3: Digital Livestock Management Platforms

farmers access government schemes related to livestock.

- 2. Pashu Aadhaar** Platform allows for the digital identification and tracking of livestock using unique identification numbers.

These systems encourage scientific management of livestock by enabling decision-making with the help of data.

D. Disease Forecasting and Surveillance Systems

Digital technology is increasingly being used for surveillance and early warning systems for animal diseases.

Example:

- 1. IVRI Disease Control App:** Provides information on symptoms, diagnosis, prevention, and control of livestock, poultry, and pet diseases along with outbreak management guidelines.
- 2. Bovonic App:** Used for early detection and tracking of mastitis in dairy cows through alert recording and herd health monitoring.

- 3. Livestock Disease Forewarning (LDF) Mobile App:** Developed by ICAR–NIVEDI, Bengaluru. Provides early warning of livestock disease outbreaks using climatic and epidemiological data.

- 4. Taurus Livestock Disease Identification App:** Uses machine learning and image analysis to identify cattle diseases from photos or videos. Provides treatment suggestions and disease prevention advice.

E. Social Media and Online Knowledge Platforms

Social media platforms such as WhatsApp groups, YouTube channels, and Facebook communities are emerging as effective extension tools. Trainers in extension services are posting training videos, sharing best practices, and successes, facilitating peer-to-peer learning for farmers.

3. Benefits of Digital Livestock Advisory Tools

1. Dissemination of information related to



Figure 4: Disease Forecasting Apps

livestock management in a timely manner

2. Access to expertise in animal health
3. Prevention and monitoring of diseases in livestock
4. Reduced costs in extension delivery
5. Improved knowledge and skills of farmers
6. Increased productivity and income generation

Digital platforms have also provided an impetus for inclusive extension, where women farmers and youth, who are active users of mobile technology, can benefit.

4. Challenges in Adoption

Despite the tremendous potential, there are various challenges that need to be overcome for the wider adoption of digital livestock advisory services:

1. Low digital literacy skills among some farmers
2. Internet connectivity in some remote areas
3. Content availability in local languages
4. Awareness about digital platforms
5. Trust factor for digital advisory compared to physical advisory

The above challenges need to be overcome for the effective delivery of digital extension.

5. Way Forward

For the maximum benefits of digital livestock advisory systems, there is a need for concerted efforts of government agencies, research institutions, extension agencies, and other private sector organizations. Some of the strategies include:

1. Strengthening the digital infrastructure in the rural areas
2. Developing digital literacy among livestock farmers
3. Developing region-specific and multilingual content for the advisories
4. Developing artificial intelligence and data analysis in the advisories
5. Developing public-private partnerships in digital extension approaches
6. Linking digital advisories with KVKs and veterinary institutions

The hybrid approach of using both digital and conventional extension approaches could be useful in ensuring the wider adoption of the digital extension approaches.

6. Conclusion

Digital technologies are revolutionizing livestock extension systems by making them more responsive, accessible, and farmer-centric. Mobile applications, tele-veterinary systems, disease forecasting systems, and social media networks are bridging the information divide between experts and farmers. These technologies enable livestock producers to access valuable information, and

their use improves the productivity of livestock.

As India forays into the digital revolution of agriculture, the use of technology for livestock extension systems would be significant for the sustainable development of the livestock sector and the well-being of the people. With the right government policies, infrastructure, and farmer awareness, the future of the livestock sector could be revolutionized by digital livestock extension systems.

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