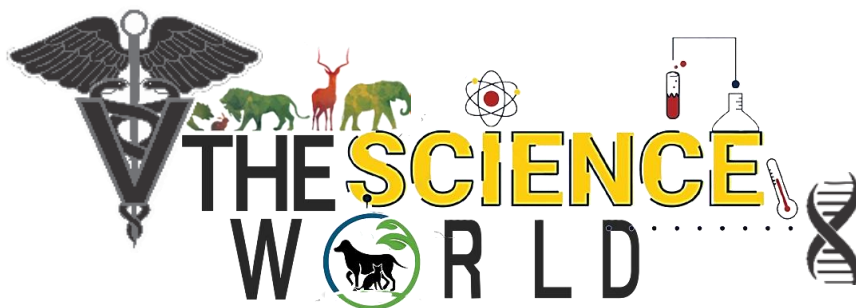




A Monthly e Magazine
ISSN:2583-2212

Popular Article

Sept, 2026 Vol.6(9), 2824-2829

From Farm To Phone: Strengthening Veterinary Extension Through Digital Technologies

Beeralala Naga Venkata Sowmya^{1*}, Choppara Gana Daya², Deepjyoti Roy³, Nitin Kumar Mishra⁴, Vaddeswarapu Keerthi⁵

^{1,3,4}Assistant Professor, Dept. of Veterinary & AH Extension Education, IVSAH, SOA DU, Bhubaneswar, ²PG Scholar, Dept. of Animal Genetics and Breeding, NTRCVSC, Gannavaram

⁵Assistant Professor, Dept. of Livestock Production Management, IVSAH, SOA DU, Bhubaneswar

*Corresponding Author E-mail: sowmyavety@gmail.com
doi.org/10.5281/ScienceWorld.23136321

Abstract

Timely and reliable information is important for maintaining livestock health and productivity. Conventionally veterinary extension reached farmers through farm visits, demonstrations, training programmes and veterinary services, but geographical distance, limited manpower and the need for rapid communication can restrict its reach. Digital technologies such as WhatsApp, mobile applications, telephone-based advisories, digital videos and telemedicine can help overcome some of these difficulties. Research from India has shown the potential of WhatsApp for livestock advisory services, while evidence from agricultural extension indicates that mobile-supported communication can improve farmers' knowledge and use of recommended practices. However, digital extension also faces challenges including digital literacy, connectivity, language barriers, unequal access and misinformation. So, digital technology should not replace veterinary extension personnel or veterinarians. Instead, it should be used along with the existing system by facilitating faster, two-way communication between knowledge institutions, extension professionals, veterinary service providers and farmers. A combination of scientific knowledge, human expertise and appropriate digital tools can make veterinary extension more accessible.

Keywords: Digital veterinary extension, livestock farmers, WhatsApp, mobile applications, telemedicine, veterinary advisory services.

Introduction

A livestock health problem can arise at any time. A sudden change in appetite, abnormal milk, diarrhoea, lameness or an unusual disease sign may require information and action at the



right time, but veterinary assistance may not always be immediately available. A farmer may be several kilometres from a veterinary institution, while field veterinarians and extension personnel may be responsible for large geographical areas.

Veterinary extension has traditionally addressed such challenges through farm visits, farmer meetings, demonstrations, training programmes, veterinary camps and personal interaction. These approaches remain essential because many animal-health problems require professional examination and intervention. At the same time, the increasing availability of mobile phones provides an opportunity to complement conventional extension. The question is therefore not whether digital technology will replace veterinary extension, but how digital technology can strengthen the existing extension system and help extension professionals reach farmers more effectively.

Veterinary Extension at the center

Veterinary extension serves as a bridge between scientific knowledge and livestock farming practice. Research institutions and universities generate and validate knowledge; veterinary extension professionals translate this knowledge into practical and understandable messages; field veterinarians provide professional animal-health services; and farmers contribute their experience, observations and local knowledge.

The conventional pathway can be represented as “*Research and knowledge institutions → Veterinary extension personnel → Veterinary services → Farmers*”

Digital technologies can strengthen this pathway by creating faster two-way communication “*Research ↔ Extension personnel ↔ Veterinarians ↔ Farmers*”

Thus, digital veterinary extension should not be viewed as a replacement for extension personnel. Instead, it can act as an extension multiplier, enabling professionals to communicate with more farmers, provide follow-up and collect field-level feedback.

WhatsApp: A Practical Extension Tool

WhatsApp is particularly useful because it allows communication through text, photographs, audio, video and group discussions.

Evidence from India supports its potential in livestock extension. In Andhra Pradesh, a study involving 95 livestock farmers and 10 veterinary officers evaluated a WhatsApp group named *Pasu Vignana Vedika*. During the 90-day intervention, 89.47% of participants reported timely availability of information, while all participants reported that the information was easy to read. Animal-health queries formed the largest category of questions, and farmers also shared photographs of affected animals. A separate study in Himachal Pradesh examined



WhatsApp as a livestock advisory platform and reported its potential to reduce geographical and time-related barriers in delivering livestock information.

Such platforms can be used for vaccination and disease-prevention reminders, seasonal livestock advisories, feeding and breeding information, short educational videos, local-language audio messages, farmer queries and feedback, follow-up after veterinary visits.

However, digital groups require professional moderation. Unverified treatment advice, inappropriate drug use and misinformation should not be allowed to circulate unchecked.

The Extension Professional as the Digital Bridge

Technology can distribute information, but it cannot automatically make information useful to farmers. This is where veterinary extension professionals have an important role. A technical recommendation from a research institution may contain scientific terminology that is unsuitable for direct farmer communication. The extension professional can interpret the information, adapt it to local livestock systems, translate it into the local language, communicate it through an appropriate digital platform, obtain feedback from farmers and follow up.

For example, an extension professional can circulate a disease-prevention advisory through a moderated WhatsApp group, answer routine questions, identify unusual reports and refer cases requiring clinical assessment to the field veterinarian. Digital technology therefore strengthens the extension chain rather than bypassing it.

From One-Way Messages to Two-Way Extension

Traditional extension often involves communication from experts to farmers. Digital platforms can make this interaction more continuous. A farmer can report a problem through a message, photograph or video. The extension professional can seek additional information and, when necessary, connect the farmer with a veterinarian.

In practice, the extension worker can Observe, Report, Clarify, Advise, Act and Follow up. This also creates an opportunity to understand farmers' actual problems and barriers to adoption. Feedback obtained through digital platforms can help extension professionals modify future advisories and identify issues requiring further technical investigation. Therefore, farmers become participants in the extension process, rather than simply recipients of information.

Mobile Applications and Telemedicine

Mobile applications can provide structured information on livestock management, vaccination, breeding, feeding and disease prevention. Their effectiveness, however, depends on simplicity, scientific reliability, local relevance and farmer usability. Digital veterinary



extension should also be distinguished from telemedicine. Extension focuses on education, communication and behaviour change, whereas telemedicine involves professional veterinary consultation through electronic communication. NITI Aayog's "Telemedicine for Livestock Health & Safety: Framework and Guidelines", published in 2023, recognizes telemedicine as a means of improving access to veterinary services while emphasizing that it should complement physical veterinary infrastructure. The framework also retains professional veterinary judgment in determining whether remote consultation is adequate or physical examination is required. Thus, digital communication can extend the reach of veterinary services, but it does not remove the need for qualified veterinary professionals.

Local Language: Making Digital Extension Understandable

Digital access does not necessarily mean effective communication. Veterinary advisories should therefore be presented in forms that farmers can easily understand like local-language text, voice messages, short videos, photographs and illustrations, simple terminology, practical demonstrations. A short local-language video demonstrating a management practice may be more useful than a lengthy technical document. The extension professional plays a key role in converting scientific knowledge into locally understandable and actionable information.

Farmer-adoption evidence

Digital extension should not be considered successful just because information reaches a large number of farmers. What matters is whether farmers understand the information and actually use it. A study from agricultural extension in Andhra Pradesh gives a useful example. The study covered 332 communities and looked at the use of mobile-based communication along with video-based extension. Farmers who received the mobile-supported extension showed better recall, knowledge and adoption of the recommended practices. However, the study did not find a positive effect on production or yield. This shows that sending information through digital tools does not automatically lead to better production. Veterinary extension programmes should therefore look beyond the number of messages sent or farmers reached. They should also see whether farmers understand and adopt the advice and, where possible, whether this leads to better animal-health and farm-level results.

Artificial Intelligence: An Emerging Opportunity

Artificial intelligence is also becoming useful in agriculture and veterinary services. It can help in information retrieval, local-language translation, summarization, decision support, surveillance and analysis of large datasets. So, these tools become useful extension-support systems. However, AI-generated information can be incorrect or inappropriate for a particular animal, disease or clinical situation. So, it should not be used as a replacement for veterinary



diagnosis or for veterinarian. A better approach is to use AI as a support tool along with the farmer, veterinary extension professional and veterinarian. The extension professional can help farmers use digital information appropriately, while the veterinarian remains responsible for professional clinical decisions.

The Digital Divide

Not every livestock farmer has the same access to smart phones, internet connectivity or digital skills. Differences in age, education, gender, language and familiarity with technology can influence digital participation. Therefore, digital veterinary extension should not replace farm visits, farmer meetings, veterinary camps, demonstrations, telephone communication, and mobile veterinary services. The practical solution is blended extension including Face-to-face and Telephone interaction, WhatsApp, Video, Local-language communication and Digital applications. Different farmers may require different combinations of these channels.

A Farmer-Centred Digital Veterinary Extension Model

A simple model can connect five components:

- 1. Knowledge generation:** Universities, research institutions and government agencies generate and validate scientific information.
- 2. Knowledge translation:** Veterinary extension professionals convert technical information into farmer-friendly messages.
- 3. Digital dissemination:** WhatsApp, mobile applications, videos, telephone and other platforms deliver the information.
- 4. Veterinary support:** Qualified veterinary professionals handle cases requiring examination, diagnosis or treatment.
- 5. Farmer feedback:** Farmers report their experiences, questions and emerging problems to extension personnel.

This makes digital technology a part of the extension system rather than a substitute for it.

Conclusion

Digital technologies can give veterinary extension new ways to stay connected with farmers. WhatsApp, mobile applications, videos, telephone communication and telemedicine can help share information quickly and maintain contact between farmers and extension personnel. AI tools may also be useful for finding information, translation and other extension activities.

But technology alone cannot make veterinary extension successful. Scientific information still needs to be checked, understood and converted into simple messages that



farmers can use. This is where veterinary extension professionals have an important role. They can connect scientific knowledge with farmers, use digital tools for communication and feedback, and involve veterinarians when a problem requires professional examination, diagnosis or treatment.

Therefore, the future of veterinary extension should not be about replacing people with technology. It should be about using technology to make the existing extension system more connected and responsive. Research institutions, veterinary extension professionals, digital tools, farmers and veterinarians should work together, with feedback from farmers helping to improve future advisories. The aim should be simple - “the right information should reach the right farmer at the right time and should help the farmer take appropriate action”.

References

- Shobha P, Sharma GRK, Triveni G. Effectiveness of WhatsApp in delivering livestock advisory services in Andhra Pradesh. *Asian Journal of Agricultural Extension, Economics & Sociology*. 2023;41(6):52–56. doi:10.9734/AJAEES/2023/v41i61920.
- Thakur D, Chander M. Use of social media for livestock advisory services: The case of WhatsApp in Himachal Pradesh, India. *Indian Journal of Animal Sciences*. 2017;87(8). doi:10.56093/ijans.v87i8.73531.
- NITI Aayog, Government of India. *Telemedicine for Livestock Health & Safety: Framework and Guidelines*. New Delhi: NITI Aayog; 2023.
- Singh R, Slotznick W, Stein D. Digital tools for rural agriculture extension: Impacts of mobile-based advisories on agricultural practices in Southern India. *Journal of the Agricultural and Applied Economics Association*. 2023;2(1):4–19. doi:10.1002/jaa2.42.
- Jena A, Chander M, Sinha SK, Joshi P, Singh D, Thakur D. An appraisal of extension service delivery through Mobile Veterinary Units (MVUs) in Odisha. *Indian Journal of Extension Education*. 2019;55(4):7–11.
- Basunathe VK. Digital tools for livestock management: A comprehensive review of mobile applications in the Indian livestock sector. *Agricultural Extension Journal*. 2026;10(2).
- Thirumal A, Sekhar Babu G, Deepika RB, Harish BP. Digital extension in agriculture: A review of WhatsApp groups for information dissemination in India. *Asian Journal of Agricultural Extension, Economics & Sociology*. 2026;44(4):125–135.

