



DIGITAL ADVISORY PLATFORMS IN AGRICULTURE: TRANSFORMING FARMER DECISION-MAKING



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INTRODUCTION

Traditional extension systems often struggle with scale, timeliness, and personalization: field staff cannot always visit every farm when decisions must be made, printed advisories arrive too late, and one size fits all recommendations miss local soil, weather, and socio economic differences. The rapid spread of mobile phones and improving rural connectivity has changed that dynamic. Digital advisory platforms now convert data from weather stations, satellites, sensors, and markets into concise, localized messages that reach farmers in real time, enabling timely, cost effective decisions on sowing, irrigation, pest control, and marketing. These platforms do three things that make scientific information usable at the farm level. First, they translate complex data into actionable steps. for example, turning a forecast into a clear recommendation on whether to delay sowing or apply protective measures. Second, they personalize advice by combining location, crop stage, and farmer inputs so recommendations reflect local conditions. Third, they scale trusted extension by delivering reminders, alerts, and multimedia guidance that reinforce field demonstrations and free extension staff to focus on facilitation, diagnostics, and co innovation with farmers.

DIGITAL ADVISORY PLATFORMS

1. AgriDrishti: AgriDrishti is a satellite and remote sensing based crop monitoring platform that generates field level advisories such as crop stress alerts, vegetation indices, and crop stage monitoring. It delivers

information through web dashboards for extension staff and bilingual SMS/WhatsApp push messages for farmers, making it effective for early detection of crop stress across large areas. Its key strength lies in supporting targeted field visits and helping prioritize scarce extension resources, ensuring timely and efficient farmer support.

2. DAMU (District Agro Met Units): DAMUs are localized advisory systems that convert meteorological data into crop specific, district level recommendations such as sowing windows, irrigation scheduling, and heat or cold alerts. Delivered through SMS, IVR, WhatsApp, and printed bulletins distributed by extension agencies, they provide farmers with timely, contextualized weather information aligned to agrometeorological calendars, helping them make better decisions and reduce climate related risks.

3. e Choupal (ITC model): It is a village level kiosk system operated by trained local coordinators that provides farmers with market prices, procurement links, weather advisories, and agricultural information services. Delivered through kiosk terminals, SMS, and direct procurement channels, it builds strong market linkages and aggregation opportunities, helping farmers access better prices while reducing dependence on intermediaries.

4. mKisan / Kisan Call Centres: KCCs are government platforms that deliver mass SMS advisories, IVR voice messages, and helpline support on crop practices, schemes, and diagnostics, with WhatsApp integration in some

states. Accessible through SMS, IVR, toll free numbers like 1800 180 1551, and digital channels, they provide wide reach and official credibility, making them especially useful for rapid alerts on weather, pest outbreaks, and scheme deadlines.

5. Plantix (image based diagnosis tools):

Plantix is an AI powered platform where farmers upload photos of affected crops to receive instant diagnoses of pests and diseases along with recommended management options. Accessible through a mobile app, WhatsApp bot, and web interface, it provides fast, visual support that helps non specialists identify problems quickly and reduces the time between detection and action, making crop protection more efficient and farmer friendly.

6. Digital Green (video based extension):

It is a participatory platform where communities produce short videos demonstrating agricultural practices, which are then shown in village screenings and shared via WhatsApp or YouTube. Its peer generated content builds strong trust, making it especially effective for low literacy audiences and driving behavior change by allowing farmers to learn directly from relatable local examples.

7. Kisan Suvidha: Kisan suvidha is a comprehensive mobile platform that consolidates weather forecasts, market prices, plant protection measures, input dealer information, and government scheme details into one accessible interface. Delivered through the mobile app with SMS and IVR integration, it carries strong official credibility and provides farmers with broad, practical services that support timely decisions and improve farm management.

8. eNAM (National Agriculture Market):

eNAM is an electronic trading platform that integrates mandis nationwide, offering farmers real time price information, online bidding, and inter market sales through web portals, kiosks, and mobile apps. It enhances transparency, improves price discovery, and expands market access, empowering farmers with better returns and reducing reliance on intermediaries.

IMPACT OF DIGITAL ADVISORY PLATFORMS

1. Weather Forecasts — actionable planning. Localized short range and seasonal forecasts let farmers time sowing, irrigation and harvest to reduce crop failure and input waste; advisories should translate forecasts into simple actions (e.g., “delay sowing by 3 days if >60% rain probability”).

2. Pest and Disease Alerts — early containment. Automated alerts from surveillance, remote sensing, and crowd reports enable threshold based IPM responses, lowering yield loss and pesticide misuse; pair alerts with short how to videos or voice instructions.

3. Market Information — better price realization. Real time mandi and buyer price feeds help farmers choose when and where to sell, coordinate collective sales, and avoid distress sales.

4. Nutrition Security — household impact. Advisories promoting kitchen gardens, biofortified crops, and simple recipes link production choices to improved dietary diversity and local demand for nutrient rich crops.

INTEGRATING DIGITAL ADVISORIES INTO EXTENSION

- **Digital literacy training:** Build basic smartphone and app skills into Farmer Field Schools and extension curricula so farmers can access and interpret advisories.
- **Blended delivery models:** Combine in person demonstrations with digital follow ups, use field days to introduce a practice and apps/WhatsApp for reminders and troubleshooting.
- **Bilingual, multimodal content:** Provide voice messages, short videos, and local language text to reach low literacy and women farmers.
- **Community digital hubs:** Establish village kiosks or youth managed hubs where farmers can receive personalized advisories and support.
- **Feedback loops:** Integrate farmer feedback into platform algorithms and advisory content so recommendations remain locally relevant and trusted.

CHALLENGES AND MITIGATION STRATEGIES

- **Access and affordability:** Limited smartphone ownership and data costs constrain reach.
Mitigation: promote shared devices, community hubs, and low bandwidth channels (IVR, SMS).
- **Trust and relevance:** Farmers may distrust generic advisories.
Mitigation: validate messages through local demonstrations and involve lead farmers in co design.
- **Localization and accuracy:** Generic models can miss micro climate and soil variability.
Mitigation: combine remote sensing with ground truthing and local agronomic inputs.
- **Gender and inclusion gaps:** Women and marginalized groups may be excluded.
Mitigation: design women only trainings, voice content, and flexible access points.
- **Sustainability and business models:** Many platforms depend on short term funding.
Mitigation: develop mixed revenue models subscription, service fees, public funding, and private partnerships.

traditional field demonstrations and Farmer Field Schools, ensuring that farmers receive both practical training and continuous digital support. This dual approach empowers farmers to make smarter choices, strengthens resilience against climate and market risks, and contributes to sustainable agricultural growth across India.

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WAY FORWARD

- ✓ Strengthen partnerships between universities, ICT firms, extension agencies and local organizations to co develop advisories.
- ✓ Promote community-based digital hubs managed by youth.
- ✓ Integrate AI and remote sensing for precision advisories.
- ✓ Ensure inclusivity by tailoring content for women and marginalized farmers.

CONCLUSION

Digital advisory platforms are revolutionizing extension education by bridging the gap between scientific knowledge and farm level decision making. They make information timely, accessible, and actionable by translating complex data such as weather forecasts, pest surveillance, and market trends into simple, localized recommendations that farmers can immediately apply. When integrated into extension strategies, these ICT tools complement