

Popular Article**Agri Market Intelligence****Kirtika Prashar**

Ph.D. Scholar, Department of Agribusiness Management, Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Nauni, Solan

Corresponding Author Email: kirtikaprashar2000@gmail.com

Abstract

Agri Market Intelligence plays an important role in improving agricultural decision-making by providing timely information on prices, supply, demand, weather, consumer preferences, and market opportunities. It enables farmers, traders, agribusinesses, extension professionals, and policymakers to understand market trends and respond to changing conditions. Modern technologies such as mobile applications, digital marketplaces, artificial intelligence, big-data analytics, Internet of Things, remote sensing, and blockchain are expanding the scope of agricultural market intelligence. These tools can support price forecasting, crop planning, storage decisions, market selection, quality management, and supply-chain coordination. Access to reliable market information can strengthen farmers' bargaining capacity and reduce information asymmetry. Nevertheless, data quality, digital inequality, forecasting uncertainty, connectivity, and information reliability remain important challenges. Integrating market intelligence with extension services, farmer organizations, and digital platforms can promote profitable, transparent, efficient, and resilient agricultural markets.

Keywords: *Agri Market Intelligence; Agricultural Markets; Price Forecasting; Digital Agriculture; Market Information; Supply Chain; Farmer Empowerment.*

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Introduction

Agri Market Intelligence refers to the systematic collection, analysis, interpretation, and communication of information related to agricultural markets. It helps farmers, traders, processors, agribusinesses, policymakers, and extension professionals understand market conditions and make informed production and marketing decisions.

Agricultural markets are influenced by many factors, including supply and demand, weather

conditions, production levels, transportation costs, storage capacity, consumer preferences, government policies, imports and exports, and seasonal variations. Farmers who lack timely market information may face difficulties in selecting crops, deciding when to sell, negotiating prices, and identifying profitable markets.

Modern technologies have significantly expanded the possibilities for agricultural market intelligence. Mobile applications, digital marketplaces, satellite data, artificial intelligence, big-data analytics, blockchain, Internet of Things devices, and online price

platforms can provide real-time or near-real-time information.

The objective of Agri Market Intelligence is not simply to provide market prices. It involves transforming large amounts of market, production, weather, and consumer information into useful insights that support better decisions.

Concept of Agri Market Intelligence

Agri Market Intelligence can be understood as a decision-support system that converts agricultural market data into actionable knowledge.

It involves four major stages:

Data collection → Data analysis → Interpretation → Decision support

Information may be collected from:

- Agricultural markets.
- Farmers.
- Traders.
- Wholesale markets.
- Retail markets.
- Weather stations.
- Government databases.
- Digital marketplaces.
- Satellite systems.
- Consumer markets.

The information is then analysed to identify trends, risks, opportunities, and possible future market conditions.

Importance for Farmers

Farmers make several decisions before, during, and after production.

They need to determine:

- What to produce?
- How much to produce?
- When to sell?

- Where to sell?
- Which buyer to approach?
- Whether to store or sell immediately?
- Which inputs provide better returns?

Market intelligence can help answer these questions.

For example, if market information indicates increasing demand for a particular vegetable during a future period, farmers may adjust planting schedules accordingly, provided that production risks and local conditions are suitable.

Market Price Information

Price information is one of the most basic components of market intelligence.

Farmers can benefit from information about:

- Local market prices.
- Wholesale prices.
- Retail prices.
- Regional price differences.
- Historical prices.
- Seasonal price patterns.

Access to price information can improve farmers' bargaining position and reduce information asymmetry between producers and buyers.

Digital Market Platforms

Digital marketplaces connect farmers with buyers through online systems.

Farmers may be able to:

- List produce.
- Compare buyers.
- View prices.
- Receive orders.
- Arrange transportation.
- Make digital payments.

Digital marketplaces can potentially reduce geographical barriers and improve market transparency.

However, digital platforms are most effective when supported by reliable logistics, grading, storage, payment systems, and dispute-resolution mechanisms.

Mobile-Based Market Intelligence

Mobile phones allow farmers to access market information directly from rural areas.

Mobile services can provide:

- Daily prices.
- Market arrivals.
- Buyer information.
- Demand alerts.
- Weather information.
- Transportation information.

SMS, mobile applications, messaging platforms, and voice services can all support market communication.

Voice-based services are especially useful where literacy or internet access is limited.

Artificial Intelligence in Agri Market Intelligence

Artificial intelligence can process large volumes of market information and identify patterns that may be difficult to detect manually.

AI can analyse:

- Historical prices.
- Market arrivals.
- Weather data.
- Production estimates.
- Consumer demand.
- Transportation conditions.
- Trade information.

Machine-learning models can be used for price forecasting and demand prediction.

However, forecasts are estimates rather than guarantees. Unexpected weather events, policy changes, supply disruptions, or sudden demand changes can significantly alter market conditions.

Big Data Analytics

Agricultural markets generate large amounts of data.

These data can include:

- Price records.
- Crop production.
- Market arrivals.
- Weather.
- Imports and exports.
- Consumer demand.
- Transportation.
- Storage.

Big-data analytics can combine these sources to generate comprehensive market intelligence.

For example, a sudden decline in market arrivals combined with favourable demand may indicate a potential price increase.

Weather and Market Intelligence

Weather has a major influence on agricultural markets.

Drought, heavy rainfall, heat waves, floods, and storms can affect production and supply.

Market intelligence systems can combine weather forecasts with crop information to identify potential market risks.

For example:

Weather risk → Production impact → Supply change → Possible price effect

Such analysis can help farmers, traders, processors, and policymakers prepare for market disruptions.

Supply and Demand Analysis

Supply and demand are fundamental to agricultural price formation.

Market intelligence systems monitor:

- Production levels.
- Market arrivals.
- Consumption.
- Imports.
- Exports.
- Stock levels.

If supply increases rapidly while demand remains stable, prices may decline. Conversely, reduced supply combined with strong demand may increase prices.

Understanding these relationships helps stakeholders make better decisions.

Seasonal Market Trends

Many agricultural commodities experience seasonal price variations.

Prices may be influenced by:

- Harvest periods.
- Storage availability.
- Festival demand.
- Weather.
- Imports.
- Export conditions.

Historical market data can be analysed to identify recurring seasonal patterns.

Farmers may use this information when planning production and deciding whether storage could provide an economic advantage.

Market Forecasting

Market forecasting involves estimating future market conditions based on historical and current information.

Forecasting may involve:

- Time-series analysis.
- Econometric models.
- Machine learning.
- Artificial intelligence.
- Weather models.

Forecasts can support decisions about production, storage, procurement, and marketing.

Nevertheless, uncertainty should always be communicated clearly because agricultural markets are affected by unpredictable events.

Consumer Demand Intelligence

Market intelligence increasingly considers consumer preferences.

Consumers may show increasing demand for:

- Organic products.
- Residue-free food.
- High-quality fruits and vegetables.
- Processed foods.
- Nutritionally enriched products.
- Convenient packaged products.

Understanding these trends can help farmers and agribusinesses identify new opportunities.

Quality and Grading Information

Market value depends not only on quantity but also on quality.

Market intelligence can provide information about:

- Size.
- Colour.
- Maturity.
- Moisture.
- Cleanliness.
- Variety.
- Food safety.

- Certification.

Farmers can adjust production and post-harvest handling according to buyer requirements.

Blockchain and Market Transparency

Blockchain technology can support traceability within agricultural supply chains.

It can potentially record information about:

- Production.
- Processing.
- Transportation.
- Storage.
- Certification.
- Transactions.

Traceability can improve transparency and help consumers or buyers verify product information.

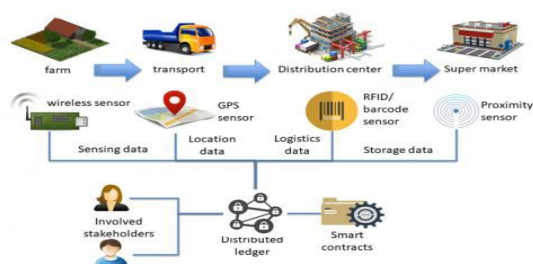
However, blockchain cannot guarantee the accuracy of information entered into the system. Reliable data collection and verification remain essential.

IoT for Market Intelligence

Internet of Things devices can generate real-time information relevant to agricultural markets.

Sensors can monitor:

- Storage temperature.
- Humidity.
- Grain moisture.
- Cold-chain conditions.
- Warehouse stocks.



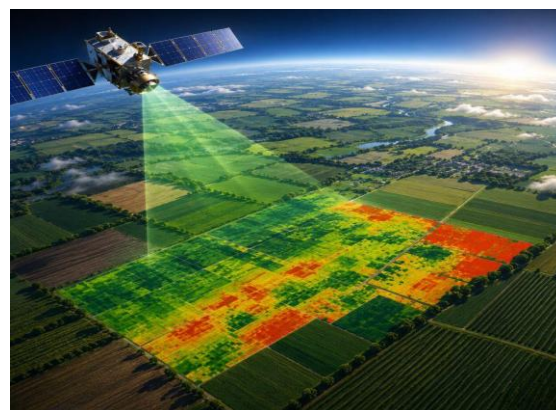
This information can reduce post-harvest losses and improve supply-chain management.

Satellite Data

Satellite imagery can support market intelligence by providing information about agricultural production at large scales.

Satellite data can help estimate:

- Crop area.
- Vegetation condition.
- Drought stress.
- Flood damage.
- Crop growth.



These data can contribute to production forecasts and early-warning systems.

Drone-Based Market Intelligence

Drones can provide detailed field-level information.

They may be used to assess:

- Crop health.
- Orchard productivity.
- Crop damage.
- Field variability.

Such information can improve farm-level production estimates and support more accurate supply planning.

Storage Decisions

Farmers often face the decision of whether to sell immediately after harvest or store produce.

Market intelligence can help evaluate:

- Current prices.
- Expected price trends.
- Storage costs.
- Quality deterioration.
- Interest or financing costs.
- Future demand.

Storage is beneficial only when the expected price increase is sufficient to cover storage-related costs and risks.

Transportation Intelligence

Transportation costs can significantly influence farm profitability.

Digital market systems can provide information about:

- Transport availability.
- Freight costs.
- Market distance.
- Delivery schedules.
- Road conditions.

Better transportation coordination can reduce unnecessary costs and post-harvest losses.

Value-Chain Intelligence

Agricultural commodities move through multiple stages:

Farmer → Aggregator → Trader → Processor → Wholesaler → Retailer → Consumer

Market intelligence can identify where value is created and where inefficiencies occur.



Farmers can use this information to explore opportunities for collective marketing, direct selling, processing, or contract arrangements.

Farmer Producer Organizations

Farmer Producer Organizations can improve access to market intelligence by aggregating farmer demand and supply.

FPOs can:

- Collect price information.
- Aggregate produce.
- Negotiate with buyers.
- Arrange transportation.
- Facilitate storage.
- Support quality grading.
- Coordinate market sales.

Collective intelligence can strengthen the bargaining position of smallholders.

Agri Market Intelligence for Extension

Agricultural extension services increasingly need to include market information alongside production advice.

An extension worker can advise farmers not only on how to produce a crop but also on:

- Market demand.
- Quality standards.
- Production costs.
- Potential buyers.
- Harvest timing.
- Post-harvest handling.

This creates **market-oriented extension**.

Digital Advisory and Market Linkages

Digital extension platforms can combine production and market intelligence.

For example:

Weather + Crop Stage + Market Price + Production Cost → Marketing Recommendation

A farmer may receive information suggesting whether to harvest immediately, continue production, or consider storage based on available data.

Such systems should present information clearly and communicate uncertainty.

Financial Intelligence

Farmers also need information about financial conditions.

Market intelligence platforms can provide information about:

- Input prices.
- Credit costs.
- Insurance.
- Loan opportunities.
- Production expenses.
- Expected returns.

This helps farmers estimate profitability before making production decisions.

Farm-Level Profitability Analysis

Market intelligence becomes more useful when combined with production-cost data.

A simple profitability framework is:

Gross Revenue = Quantity Sold × Selling Price

Net Return = Gross Revenue – Total Production and Marketing Costs

Farmers can compare expected returns from alternative crops or marketing channels.

Risk Management

Agricultural markets are inherently uncertain.

Major risks include:

- Price fluctuations.
- Weather shocks.

- Pest outbreaks.
- Policy changes.
- Import competition.
- Export restrictions.
- Transportation disruptions.

Market intelligence can support risk management by identifying emerging risks early.

Farmers may respond through:

- Crop diversification.
- Staggered planting.
- Collective marketing.
- Storage.
- Contract arrangements.
- Insurance.

Market Intelligence for Horticultural Crops

Perishable horticultural crops require particularly timely market information.

Vegetables, fruits, flowers, and other perishables can lose value rapidly because of:

- Over-supply.
- Delayed transportation.
- Poor storage.
- Quality deterioration.

Real-time price and demand information can help farmers coordinate harvesting and marketing.

Market Intelligence for Livestock

Market intelligence is also important in livestock production.

Farmers need information about:

- Milk prices.
- Meat prices.
- Feed costs.
- Fodder availability.

- Animal health.
- Breeding stock.
- Market demand.

Digital livestock platforms can integrate market and production information.

Role of Government

Government agencies play an important role in creating reliable market-information systems.

They can provide:

- Market price databases.
- Production estimates.
- Trade information.
- Quality standards.
- Policy updates.
- Market infrastructure.

Transparent and accessible public data can improve market efficiency.

Role of Private Sector

Private companies can develop digital market platforms, analytics tools, logistics systems, and advisory services.

Agribusinesses can use market intelligence to:

- Forecast procurement needs.
- Manage inventories.
- Identify suppliers.
- Optimize logistics.
- Understand consumer demand.

Collaboration between public and private sectors can improve market information systems.

Challenges

Agri Market Intelligence faces several challenges.

Data Quality

Incomplete or inaccurate data can lead to poor conclusions.

Data Availability

Reliable real-time data may not be available for all commodities and locations.

Digital Divide

Small farmers may have limited access to smartphones or internet services.

Forecasting Uncertainty

Unexpected events can make market forecasts inaccurate.

Information Overload

Large quantities of information may confuse users unless converted into simple recommendations.

Data Privacy

Farm-level production and financial data require appropriate protection.

Table: Practical

Intelligence area	Data source	Possible use
Price	Markets	Selling decisions
Weather	Weather stations	Production planning
Demand	Consumers/markets	Crop selection
Supply	Market arrivals	Price analysis
Satellite	Remote sensing	Production estimation
IoT	Sensors	Storage monitoring
AI	Multiple datasets	Forecasting
Digital platforms	Farmers/buyers	Market linkage
Quality	Grading systems	Price differentiation
Finance	Banks/platforms	Investment decisions

Future

The future of Agri Market Intelligence will increasingly depend on integrated digital ecosystems. Artificial intelligence, big-data analytics, satellite imagery, IoT sensors, blockchain, mobile platforms, and digital marketplaces can work together to provide

comprehensive market information. Future platforms may generate personalized market dashboards for individual farmers, showing expected prices, production risks, market demand, transportation options, and potential buyers.

Conclusion

Agri Market Intelligence provides farmers and agricultural stakeholders with the information required to make better production, marketing, investment, and risk-management decisions. Modern technologies are expanding the ability to collect and analyse market prices, supply and demand, weather conditions, consumer preferences, production estimates, and supply-chain information.

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