

# Meeting the Rising Food Demand

Leveraging AI and ML  
in Agriculture

# TEAM INERT

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# FOOD DEMAND:

World cereal equivalent (CE) food demand is projected to be around 10,094 million tons in 2030 and 14,886 million tons in 2050, while its production is projected to be 10,120 million tons in 2030 and 15,970 million tons in 2050 having a **marginal** surplus.

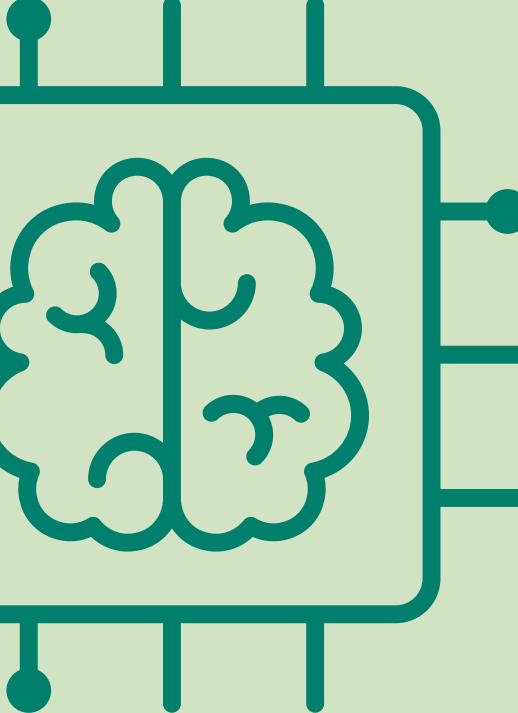
India and China are capturing large share of global food demand.

# THE GAP...

The global agricultural production of primary crops grew by 54 percent between 2000 and 2021, reaching 9.5 billion tonnes in 2021 that were used as food, feed or inputs to be transformed into products ranging from biofuels to cosmetics.

## Various factors of this Gap:

- Population Growth
- Changes in dietary habits
- Crop Yields
- Food Loss and Waste



# What's our Role ?

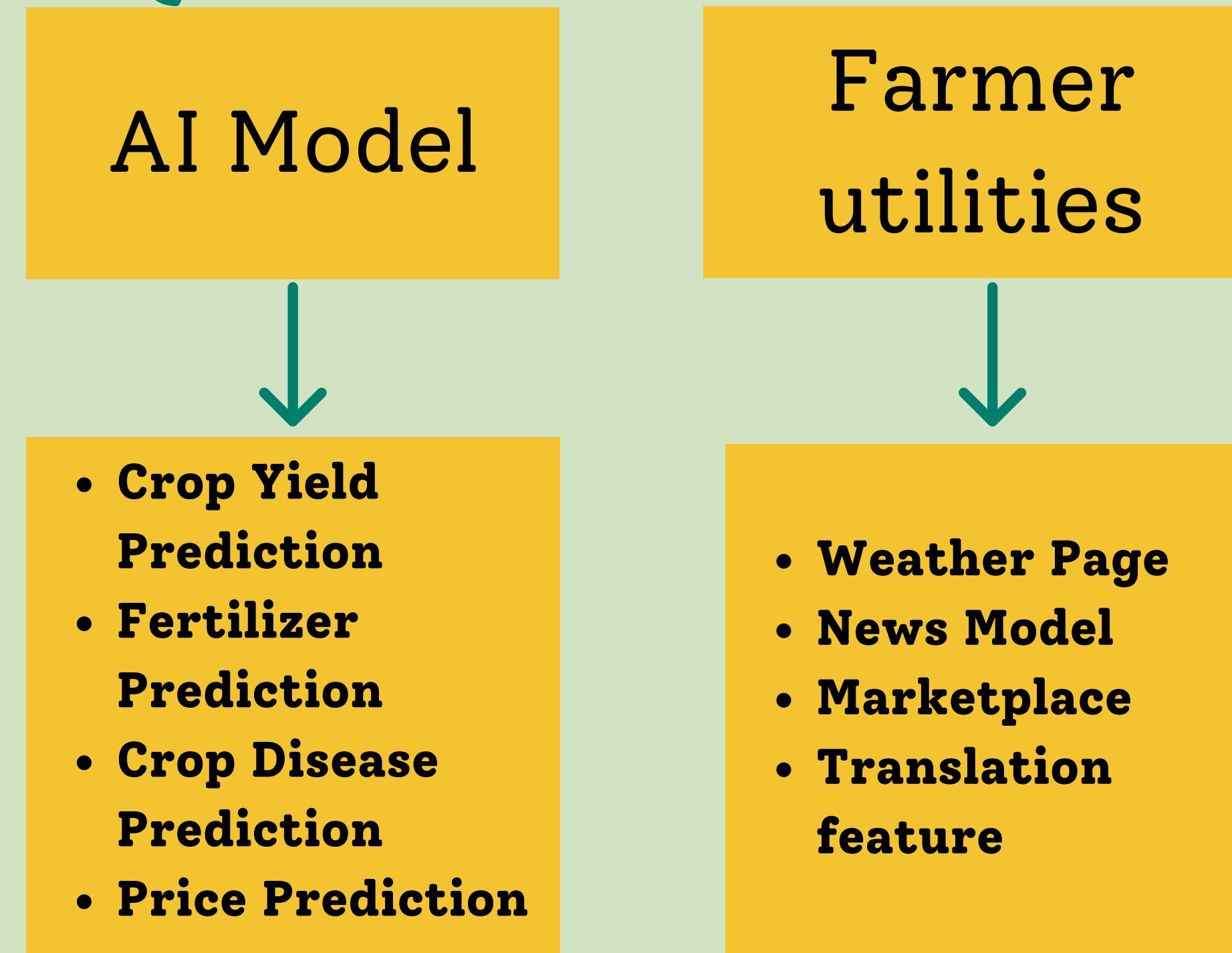
THE POTENTIAL OF ARTIFICIAL INTELLIGENCE (AI) AND MACHINE LEARNING IN AGRICULTURE IS VAST AND HOLDS SIGNIFICANT PROMISE FOR ADDRESSING VARIOUS CHALLENGES FACED BY THE AGRICULTURAL SECTOR, SUCH AS:

- Precision Agriculture
- Crop Monitoring and Management
- Yield Prediction and Forecasting
- Crop Breeding and Genetic Improvement
- Decision Support Systems



# IMPLEMENTATION DIAGRAM:

## AI ML in Agriculture



# First Look:

The image displays a composite view of a website for "AI Farming" overlaid on a background of agricultural and industrial imagery.

**Website Screenshot:**

- Header:** The top navigation bar includes links for Home, Care, Market, Translate (with a dropdown for Select Language, powered by Google Translate), News, Login (in a green button), and Signup (in a white button).
- Section 1:** A banner with the text "INERT FARMING IN 🇮🇳 INDIA" and a green underline.
- Section 2:** A large blue header with the text "Farming with Machine Learning & Artifical intelligence".
- Text:** Below the blue header, there is a paragraph: "Increase your Fram production By 80% using many AI& Deep Learning Technology".
- Call-to-action:** A green button at the bottom left with the text "Explore More" and a right-pointing arrow.
- Image:** A central circular graphic featuring a robotic hand holding a small plant seedling, all set against a background of concentric circles in green and blue.

**Background Imagery:**

- A large, semi-transparent grayscale image of a complex industrial machine or robotic arm on the left side.
- A colorful illustration of a windmill and rolling green hills under a bright sun on the right side.
- Stylized illustrations of farm fields, a tractor, and a hand holding a plant at the bottom right.

# CROP YIELD PREDICTION:

It is based on following parameters:

- Nitrogen
- Phosphorous
- State
- City
- pH of Soil
- Rainfall

State and City parameters are used by the Weather API to get the current temperature, rainfall, Humidity details for the specific location. All these parameters are fed to the Model for prediction. Here, the Random Forest algorithm gives us the maximum accuracy. Based on prediction, Output is displayed on screen.

# CROP YIELD PREDICTION:

Nitrogen(N):

Potassium(K):

Phosphorous:

State:

City:

Rainfall(mm):

PH value :

**Predict**

**Reset**

# MODELS ACCURACY:

Model Used	ACCURACY	TRAIN_ACCURACY
Gradient Boosting Classifier	0.985227	1.000000
K-Nearest Neighbours	0.980682	0.987879
Decision Tree	0.980682	1.000000
Random Forest Classifier	0.996591	1.000000
Extreme Gradient Boosting	0.985227	1.000000

# FERTILIZER PREDICTION:

Existing Fertilizer dataset is used and this is used as a training and testing datasets. User inputs

- Nitrogen
- Phosphorous
- Soil Type

Weather Details ( Temperature, Humidity, Moisture ) are fetched via API call.

Based on data given, output box is displayed on screen having details such as

- Conventional recommended fertilizer
- Organic alternatives to this fertilizer
- General Information
- Dosage for crops



# FERTILIZER

## Predict Best Fertilizer for Crops

Moisture:

Nitrogen(N):

Potassium(K):

Phosphorous:

State:

City:

Crop Type:

Soil Type:

**Predict**

**Reset**



# PRICE PREDICTION:

Each year, the Government releases a price index called WPI (Wholesale price Index). Wholesale price indexes are reported monthly in order to show the average price changes of goods.

To get the current price for the current year, we use the following formula

$$\text{Current price} = \text{WPI} * \text{Base Price}(\text{for the ongoing year})$$

Using previous year data, predictions have been made to indicate what might be the

- maximum price
- average predicted price
- minimum price

What must  
be a good  
price to sell  
my crops ???



# FARMER NEWS:

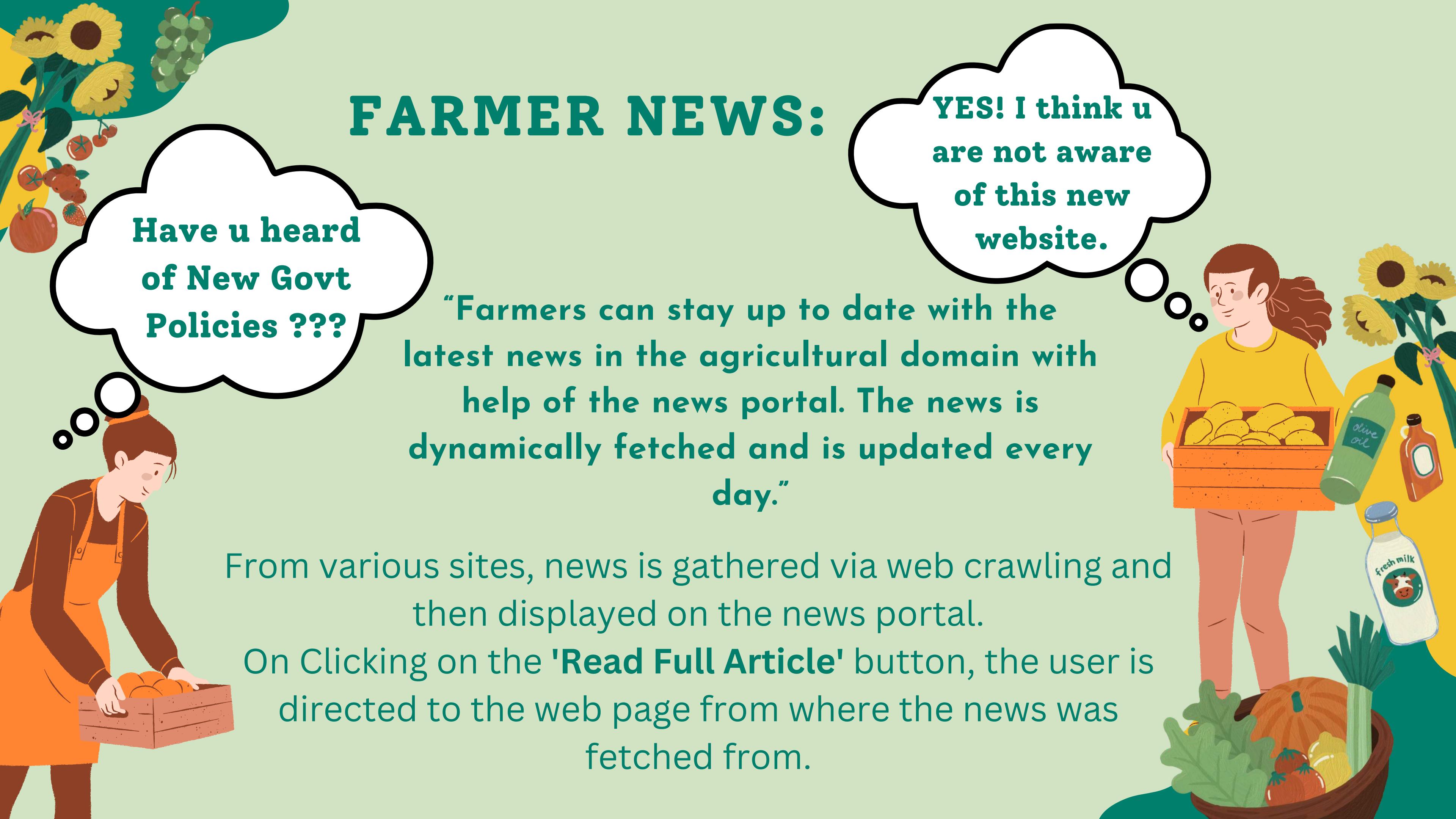
Have u heard  
of New Govt  
Policies ???

YES! I think u  
are not aware  
of this new  
website.

“Farmers can stay up to date with the latest news in the agricultural domain with help of the news portal. The news is dynamically fetched and is updated every day.”

From various sites, news is gathered via web crawling and then displayed on the news portal.

On Clicking on the '**Read Full Article**' button, the user is directed to the web page from where the news was fetched from.



# MARKETPLACE:

Farmers can directly contact the sellers and hence can save on money and can maximize profits. He/She has to enter details such as crop to be sold, asking price, quantity and contact details and these details can be forwarded to the sellers.



But firstly we have to go to the broker, to get a seller, isn't it?

2



Let's take this crop to market for sale !!!

1

3



Haven't u heard of this new site?? lets get the seller's contact directly

# Marketplaces:

**AI Farming**

Home Care Market Translate  
Select Language Powered by Google Translate

News Logout Signup

Say No More To Middle Man Dealers!!!  
Sell Your crops directly to the Companies & Consumers

[Back To Home Page](#)

STEPS  
How Can You Sell Your Crops?

- 1 Login/Signup To AI Farming Website  
Login / Signup to AI Farming to preceive the knowledge An innovate way of Farming to new World  
[Login](#)
- 2 Fill Up Form about your crop production  
Lorem ipsum dolor sit consectetur adipisicing elit. Alias amet deleniti et fugit iusto nesciunt.  
[Links](#)
- 3 Companies According to the need will ask for your crop  
Lorem ipsum dolor sit consectetur adipisicing elit. Alias amet deleniti et fugit iusto nesciunt.  
[Fill the form](#)

**Adani FoodCoopartion**

Adani Agri Logistics Limited (AALL) has signed an exclusive service agreement with the Food Corporation of India. The project has been implemented at a total cost of nearly Rs. 700 crores. Some quick example text to build on the card title and make up the bulk of the card's content.

[Visit Page](#)

# ANY QUESTIONS?

**“Please feel free to ask any questions you may have.”**

I am still Confused,  
can anyone  
help me???

OFC!! make a call  
on +91 93540\*\*\*  
for any assistance



# THANK YOU !!!

