# FARM FORECAST

Content Packet

# Key Terms

- Weather: The day-to-day state of the atmosphere, including temperature, humidity, precipitation, wind, and visibility.
- Climate: The average weather conditions of a region over long periods of time.
- Atmosphere: The layer of gases surrounding Earth that supports life and drives weather patterns.
- Air Pressure (Atmospheric Pressure): The force exerted by air molecules pressing on Earth's surface, measured by a barometer.
- Temperature: The measure of how hot or cold something is; measured by a thermometer.
- Humidity: The amount of water vapor in the air; measured by a hygrometer.
- Precipitation: Any form of water (rain, snow, sleet, hail) that falls from the atmosphere to Earth's surface; measured by a rain gauge.
- Wind Speed: The rate at which air moves horizontally past a point; measured by an anemometer.
- Calibration: Adjusting an instrument to ensure its readings match a known standard.
- Meteorology: The scientific study of the atmosphere and weather processes.
- Weather Data: Quantitative measurements (e.g., rainfall, temperature) collected to monitor and predict atmospheric conditions.
- Prediction/Forecast: Using weather data and models to estimate future atmospheric conditions.
- Irrigation Scheduling: When and how much water is applied to crops based on weather and soil conditions.
- Drought: An extended period of deficient rainfall leading to water shortages.
- Flooding: Overflow of water that submerges normally dry land; often caused by excessive rainfall.
- Microclimate: The localized climate conditions of a small area, such as a field or valley.

# Background Information

Weather plays a significant role in farming. It affects how much moisture is in the soil, how warm or cool it is, and how crops grow throughout the season. Farmers depend on accurate, local weather information to decide when to plant seeds, water crops, add fertilizer, or harvest. Simple tools like rain gauges, thermometers, barometers, hygrometers, and anemometers help measure important parts of the weather. When made and adjusted correctly, these homemade tools can give results that are close to those of professional instruments. By studying weather data over time, farmers can notice patterns and prepare for conditions that might harm crops, such as frost, drought, or extreme heat. Weather factors like air pressure, temperature, humidity, and wind constantly interact to create local weather. Understanding how these factors work together helps farmers make wise choices that save water, grow healthy crops, and protect their land. Around the world, farmers are facing more extreme weather events. By keeping track of local weather, they can adjust their farming practices to stay productive and protect the environment.

# Additional Resources

## Education & Research Sources
- NASA Earth Science – What is Weather?
- NOAA Weather Education – Weather Instruments
- Khan Academy – Weather and Climate
- FAO (2019). Handbook on Climate Information for Farming Communities: What Farmers Need and What is Available.
- American Farm Bureau Federation (2025). Major Disasters and Severe Weather Caused Over $21 Billion in Crop Losses in 2023.

## Government & Public Resources
- National Oceanic and Atmospheric Administration (NOAA)
- U.S. Department of Agriculture (USDA) – World Agricultural Outlook Board / Weather & Crop Bulletin

## Mobile Apps & Data Platforms
- AccuWeather
- Weather Underground
- OpenWeatherMap