

Precision Agriculture Checklist: Data Analysis & Yield Optimization Plan

Data Acquisition & Sensor Calibration

Verify proper functionality and calibration of all data-gathering sensors (soil moisture, weather stations, yield monitors).

Soil Moisture Sensor Reading (Avg.)	
Enter a number	
Weather Station Temperature (°C)	
Enter a number	
Yield Monitor Calibration Factor	
Enter a number	
Last Sensor Calibration Date	
Enter date	
Sensor Power Source (Battery/Solar)	
Battery	
Solar	

GPS Accuracy (m)
Sensor Calibration Certificates (if applicable) L Upload File
Data Upload & Storage Confirm seamless data transfer from field devices to cloud platform and ensure secure data storage.
Last Data Upload Date Enter date
Last Data Upload Time
File Size (MB) Enter a number
Data Source Sensor Network Drone Imagery Weather Station Manual Input

Storage Location	
Cloud Storage (AWS)	
Local Server	
Hybrid System	
Raw Data File (optional)	
♣ Upload File	
Number of Records Uploaded	
Enter a number	
Data Cleaning & Processing alidate data integrity by identifying and addressing outliers, missing values, and aconsistencies.	
Identify and record number of missing data points per field.	
Enter a number	
Record number of outlier values detected in soil moisture data.	
Record number of outlier values detected in son moisture data.	
Enter a number	

Select method used for outlier handling (e.g., removal, replacement, capp	ping).
Removal	
Replacement (Mean)	
Replacement (Median)	
Capping	
Describe any data imputation techniques applied and justify their use.	
Write something	
Select units for all data fields to ensure consistency.	
☐ Hectares ☐ Acres	
Centimeters	
Inches	
inches	
Date of Data Cleaning Completion	
Enter date	
Spatial Data Analysis (Yield Maps & Zoning)	
nalyze yield data to identify high and low-performing zones for targeted interven	ntions.
Yield Map File (e.g., shapefile, raster)	
♣ Upload File	

Vield Units (Select one) Bushels/Acre Kilograms/Hectare Metric Tons/Hectare Threshold for Low-Yield Zone (e.g., % below average) Enter a number Threshold for High-Yield Zone (e.g., % above average) Enter a number Notes on observed spatial patterns in yield data Write something Zoning Method Used (Select one) Manual delineation Cluster analysis Contour lines	Yield Map Resolution (pixels/hectare)	
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■ Manual delineation■ Cluster analysis	Zoning Method Used (Select one)	
Cluster analysis		
Contour lines		

Variable Rate Application Planning

data insights.	
Target Yield (bushels/acre)	
Enter a number	
Fertilizer Type (Nitrogen)	
Urea	
Ammonium Nitrate Anhydrous Ammonia	
Application Rate (lbs/acre) - Zone 1	
Enter a number	
Application Rate (lbs/acre) - Zone 2	
Enter a number	
Application Rate (lbs/acre) - Zone 3	
Enter a number	
Application Timing (Select all that apply)	
Pre-Plant	
Sidedress	
Topdress	

Develop variable rate application maps for fertilizer, pesticides, and irrigation based on

sure accurate application rates through regular equipment calibration and nozzle ecks. Nozzle Flow Rate (L/min) Enter a number Application Rate (L/ha) Enter a number	Planned Application Da	te	
Upload VR Application Map (Shapefile/GeoTIFF) Quipment Calibration for Variable Rate echnology sure accurate application rates through regular equipment calibration and nozzle ecks. Nozzle Flow Rate (L/min) Enter a number Application Rate (L/ha) Enter a number	Enter date		
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Enter a number	
Calibration Method Used	
Catch Can Method	
Electronic Calibration	
Manufacturer's Recommendation	
Calibration Date	
Enter date	
Calibration Time	
Calibration Log/Photos	
♣ Upload File	
recision Irrigation Scheduling	

Optimize irrigation timing and water application based on soil moisture data and crop water requirements.

Current Soil Moisture (inches)	
Enter a number	

Target Soil Moisture (inches)	
Enter a number	
Irrigation Run Time (minutes)	
Enter a number	
Application Rate (inches/hour)	
Enter a number	
Date of Last Irrigation	
Enter date	
Scheduled Irrigation Start Time	
Irrigation Zone	
Zone 1	
Zone 2 Zone 3	
Zone 4	
Irrigation Method	
☐ Drip	
Sprinkler	
Flood	

Nutrient Management Recommendations

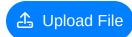
Generate customized fertilizer recommendations based on soil tests and yield data to maximize nutrient use efficiency.

Target Yield (Bushels/Acre)	
Enter a number)
Soil Test Date	
Nitrogen Recommendation (lbs/acre)	
Enter a number)
Phosphorus Recommendation (lbs/acre) Enter a number)
Potassium Recommendation (lbs/acre) Enter a number	
Micronutrient Deficiencies Detected? Iron Zinc Manganese Copper None	

Notes/Justification for Recommendations
Write something
Pest & Disease Scouting & Monitoring
Implement pest and disease monitoring protocols and utilize data for targeted scouting and preventative measures.
Scouting Date
Enter date
Observed Pests Aphids Spider Mites Corn Earworm Armyworm None Observed
Observed Diseases Leaf Spot Blight Rust Powdery Mildew None Observed

Average Pest Count per Plant (if applicable)		
Enter a number		
Detailed Scouting Notes		
Write something		
Severity Level		
Low		
☐ Moderate☐ High		
Critical		
Scouting Location (GPS Co	oordinates)	
	Set My Current Location	

Photo Evidence (Optional)



Performance Evaluation & Reporting

Track the effectiveness of precision agriculture strategies through yield monitoring and data analysis for continuous improvement.

Overall Yield Improvement (%)	
Enter a number	
Fertilizer Use Efficiency (%)	
Enter a number	
Water Use Efficiency (%)	
Enter a number	
Pesticide Application Rate Reduction (%)	
Enter a number	
Summary of Key Performance Findings	

Enter date	
Overall Strategy Success (Subjective)	
Highly Successful	
Moderately Successful	
Minimally Successful	
Unsuccessful	
Yield Map Comparison (Previous vs. Current)	
4 Upload File	