Precision Agriculture Analysis Report

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Farm Location
31.1089385, 30.9426981

Crop Type
Soybean

Farm Health Summary

0.8537 VEGETATION HEALTH	0.4012 MOISTURE CONTENT	0.3442 CHLOROPHYLL CONTENT	Low-Moderate BIOTIC STRESS LOW RISK	Low-Moderate ABIOTIC STRESS LOW RISK	High MICRONUTRIENT STRESS HIGH RISK	
High NITROGEN HIGH RISK	Low-Moderate SOIL PH LOW RISK					

Stress Distribution

TYPE	LOW	MODERATE	HIGH
NDVI	100% (194 points)	0% (0 points)	0% (0 points)
NDMI	71% (137 points)	29% (57 points)	0% (0 points)
MCARI	26% (51 points)	73% (142 points)	1% (1 points)
Biotic	100% (200 points)	0% (0 points)	0% (0 points)
Abiotic	63% (126 points)	37% (74 points)	0% (0 points)
Micronutrient	1% (1 points)	44% (87 points)	56% (112 points)
Nitrogen	0% (0 points)	98% (190 points)	2% (4 points)
Soil pH	100% (194 points)	0% (0 points)	0% (0 points)

Vegetation Stress (NDVI): 0.8537

NDVI reference: 0.2-0.8 (healthy range)

Recommendation

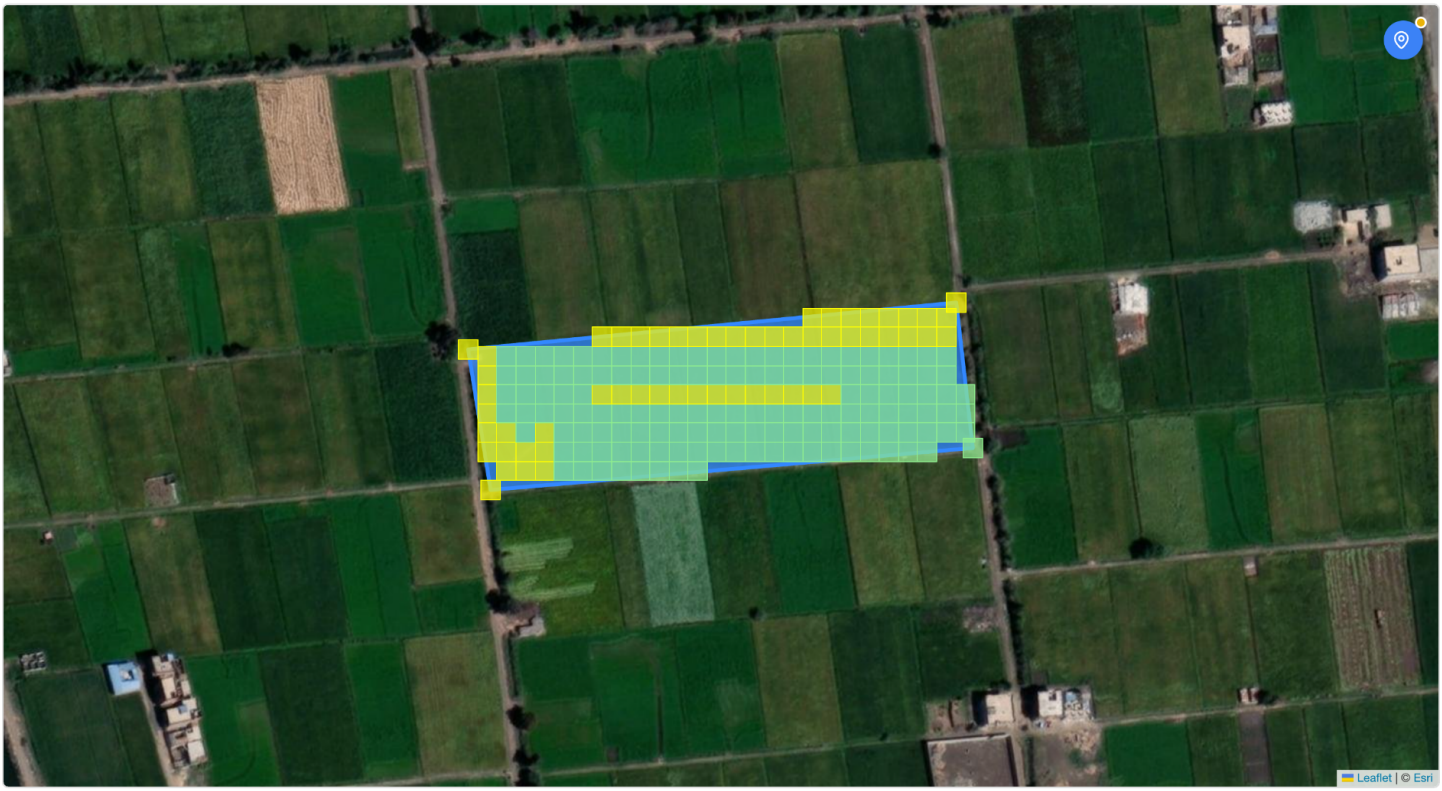
NDVI Recommendations

MEDIUM PRIORITY

🌱 **Vegetation Recommendation (Soybean)**: Mean NDVI is 0.8537. Vegetation is healthy (NDVI ≥ 0.6). Continue current management.

Moisture Stress (NDMI): 0.4012

NDMI reference: 0.1-0.5 (healthy range)



Recommendation

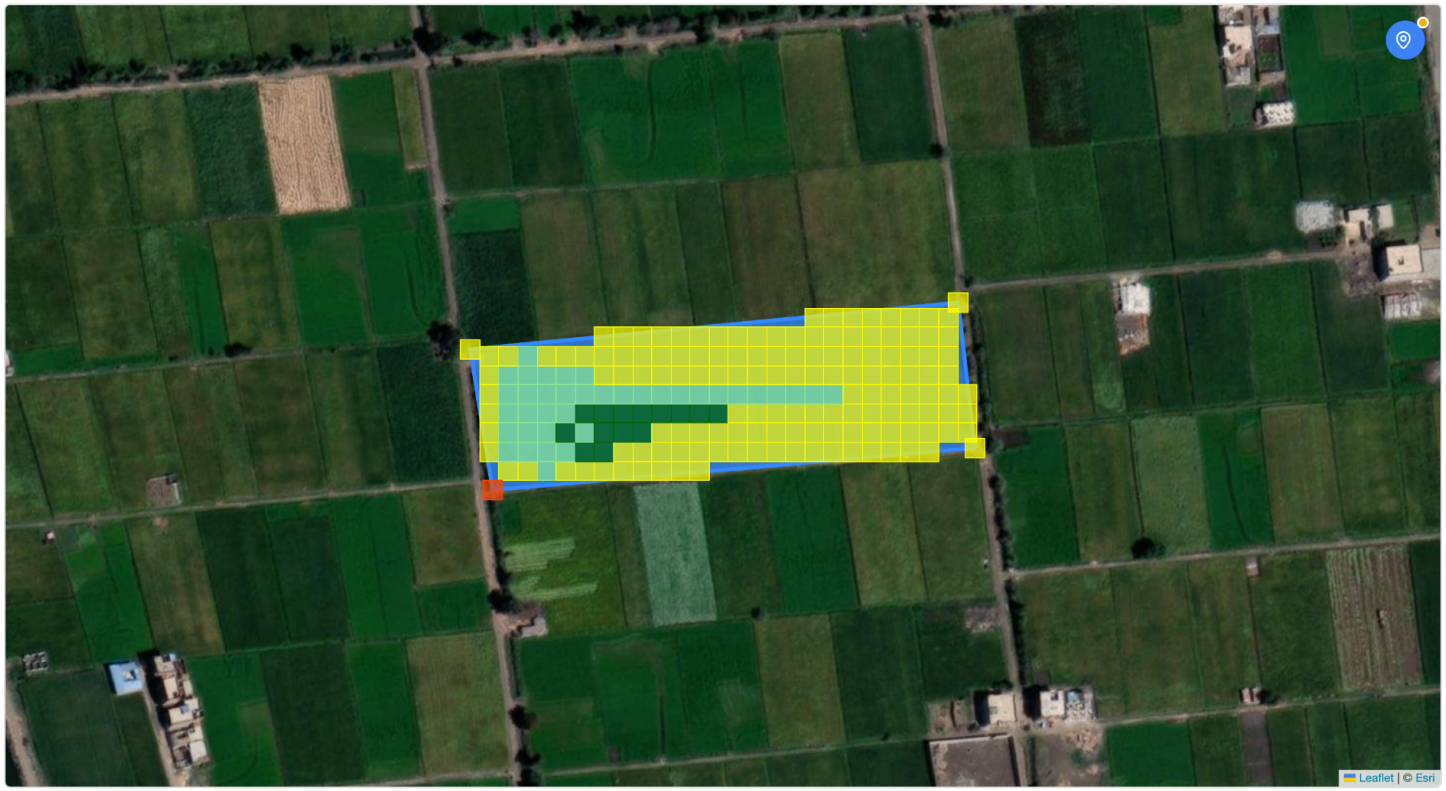
NDMI Recommendations

MEDIUM PRIORITY

Moisture Recommendation (Soybean): Mean NDMI is 0.4012. Moisture Stress Advisory (Soybean): Low NDMI indicates moisture stress. Visual indicators: Leaf rolling during midday, wilting, grayish-green leaf color, reduced turgor pressure, stunted growth, flower and pod abortion. Economic threshold: NDMI < 0.1 indicates severe moisture stress. Critical stages: Flowering (R1-R2) and pod filling (R3-R6) are most sensitive. Action: Increase drip irrigation immediately to maintain soil moisture at 60–70% field capacity, especially during flowering and pod filling stages. Apply 25–30 mm/week during critical stages. Use drip irrigation for efficient water delivery. Monitor soil moisture using tensiometers (target: -30 to -50 kPa) or soil probes. Consider mulching to reduce evaporation. Schedule irrigation based on crop stage: more frequent during R1-R6 stages. Re-assess NDMI 5–7 days after irrigation adjustment. Address any underlying issues (compaction, poor root development) affecting water uptake.

Chlorophyll Stress (MCARI): 0.3442

MCARI reference: 0.1-0.4 (healthy range)



Recommendation

MCARI Recommendations

MEDIUM PRIORITY

Chlorophyll Recommendation (Soybean): Mean MCARI is 0.3442. Chlorophyll Health Advisory (Soybean): Low MCARI indicates poor chlorophyll content and potential nutrient deficiency. Visual indicators: Yellowing or pale green leaves, interveinal chlorosis, reduced leaf greenness, stunted growth, poor pod development. Economic threshold: MCARI < 0.1 indicates severe chlorophyll deficiency. Common causes: Zinc, iron, or nitrogen deficiency; disease pressure. Action: Apply foliar zinc sulfate (0.5%) or iron chelate (0.2%) to address low chlorophyll levels in soybean. Apply during early morning or late evening for best absorption. For zinc deficiency: Apply zinc sulfate 0.5% (2–3 applications at 10-day intervals). For iron deficiency: Apply iron chelate 0.2% (2–3 applications). Also check nitrogen status and apply if deficient. Monitor response 7–10 days after treatment. Consider soil application for long-term correction. Address underlying issues (pH, compaction) affecting nutrient availability.

Biotic Stress (BIO)

Refer to the stress metric for more details.

Recommendation

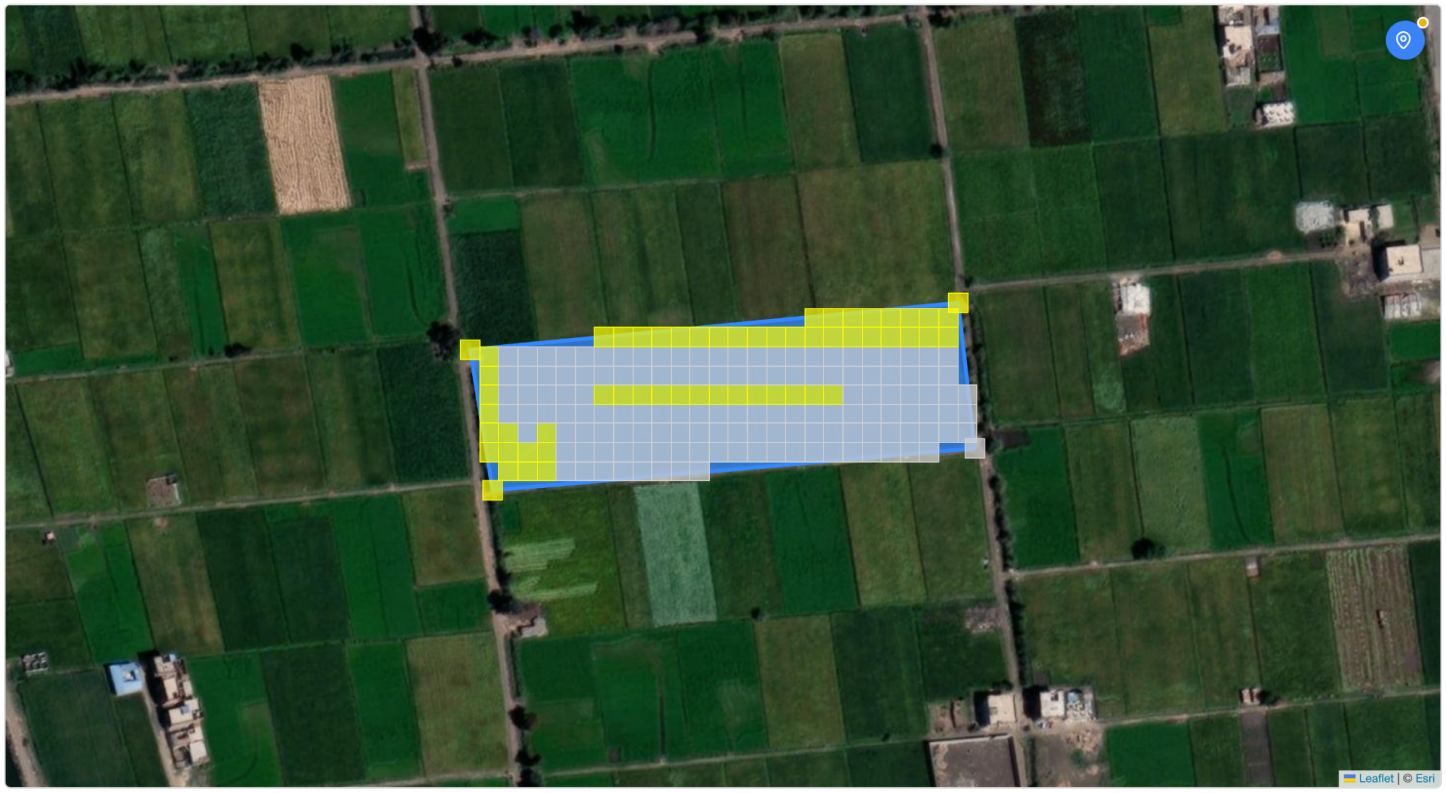
biotic stress Recommendations

MEDIUM PRIORITY

Pests Recommendation (Soybean): No grid cells show high pest stress.Pest & Disease Advisory (Soybean): Current satellite analysis shows no high pest-stress zones within the field. Continue weekly field scouting, especially during vegetative to pod-filling stages, for early signs of stem fly, girdle beetle, aphids, and whitefly. Focus on leaf damage, stem girdling, pod feeding, and disease symptoms. Monitor for diseases like rust (circular brown pustules on leaves) and pod blight (water-soaked lesions on pods). With rising humidity and irrigation activity, monitor lower leaves and pods for disease symptoms. Intervention is advised only if pest incidence exceeds economic thresholds or disease symptoms begin spreading rapidly.

Abiotic Stress (ABIO)

Refer to the stress metric for more details.



Recommendation

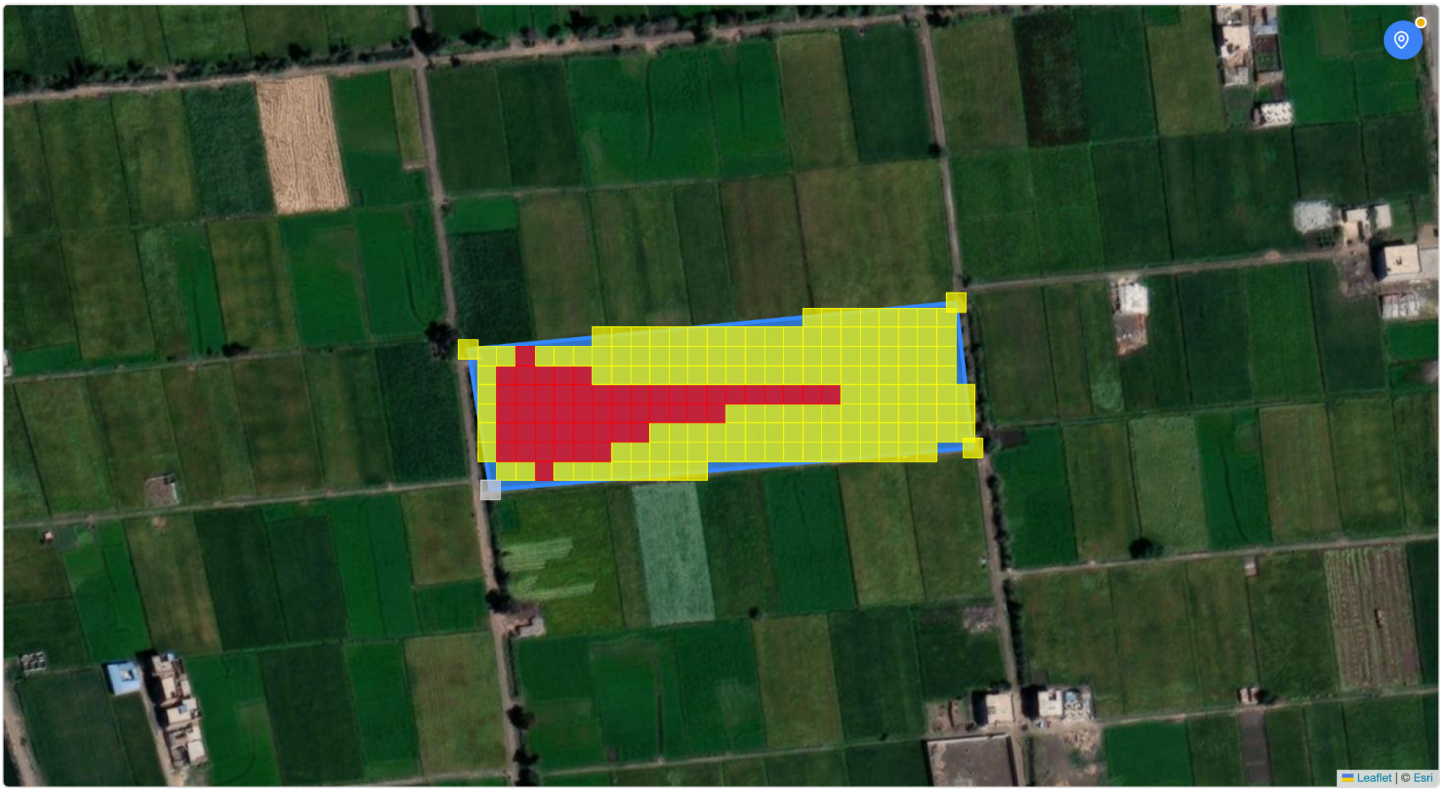
abiotic stress Recommendations

MEDIUM PRIORITY

Environmental Recommendation (Soybean): No grid cells show high environmental stress.Environmental Stress Advisory (Soybean): Current conditions are favorable. Maintain drip irrigation for soybean, ensuring 20–25 mm/week during vegetative and pod-filling stages. Monitor soil moisture at 60–70% field capacity. Optimal soil pH: 6.0–7.5. Continue regular monitoring of soil conditions, drainage, and weather patterns. No immediate intervention needed.

Micronutrient Stress (MIC)

Refer to the stress metric for more details.



Recommendation

micronutrient stress Recommendations

MEDIUM PRIORITY

Micronutrient Recommendation (Soybean): 51 out of 194 grid cells have high micronutrient stress.These areas are highlighted in red on the map.Micronutrient Advisory (Soybean): Severe micronutrient deficiency confirmed. Immediate correction required. Visual indicators: Zinc - severe interveinal chlorosis, severely stunted plants, poor pod development, reduced seed size; Boron - severe pod malformation, hollow stems, brittle and cracked leaves, complete flower abortion; Iron - severe yellowing between veins, leaf necrosis, stunted growth. Economic thresholds exceeded: Zinc (tissue test: <10 ppm), Boron (tissue test: <5 ppm), Iron (tissue test: <30 ppm). Action: Conduct soil/tissue tests to confirm deficiencies in zinc, boron, or iron. Apply targeted foliar sprays: Zinc sulfate 0.5% (2–3 applications at 10-day intervals), Borax 0.2% (2 applications), Iron chelate 0.2% (2–3 applications). For severe cases, apply soil amendments: Zinc sulfate 10–15 kg/ha, Borax 5–10 kg/ha, Iron chelate 5–10 kg/ha. Monitor response 7–14 days after treatment. Consider long-term soil amendments based on test results.

Nitrogen Analysis (N)

Nitrogen is a critical macronutrient for plant growth. This map shows the estimated nitrogen content distribution.

Recommendation

💡 NITROGEN Recommendations

MEDIUM PRIORITY

⚡ **Nitrogen Analysis**: Mean Index: 59.6. Nitrogen Advisory (Soybean): Moderate Nitrogen (Index 40-70). Adequate range for early 💡 growth. Action: Ensure soil moisture is optimal to support biological nitrogen fixation.

Soil pH Analysis

Soil pH affects nutrient availability. This map shows the estimated pH distribution.

Recommendation

PH Recommendations

MEDIUM PRIORITY

Soil pH Analysis: Mean pH: 5.9. Soil pH Advisory (Soybean): Acidic Soil (pH < 6.0). Aluminum toxicity can inhibit root growth and nodulation. Action: Liming is essential to raise pH to 6.0-6.8.