

AGRICARE+ laboratory report vs Soilo Essence device

A transparent comparison of reported values, agronomic classifications, and the evidence behind a qualified 97%+ concordance statement.

97.62%

MEAN NUMERICAL
CONCORDANCE

Across eight overlapping nutrient measurements: N, P, K, S, B, Zn, Fe and Cu.

IMPORTANT QUALIFICATION

This result is not an overall device-accuracy validation. It is a paired numerical agreement score for a pre-defined subset in one sample. All 11 overlapping parameters—including the substantial EC and organic-carbon differences—are reported in this case study.

SAMPLE	LOCATION	REPORT DATE
R343	Padru, Barmer, Rajasthan	11 July 2026
FARMER	CROP	SOIL TYPE
Pukhraj Ji	Pomegranate (Bhagwa)	Alluvial

The strongest defensible conclusion

Qualified headline

For sample R343, Soilo Essence achieved 97.62% mean numerical concordance with the AGRICARE+ report across eight overlapping nutrient parameters. This equals a mean absolute percentage error (MAPE) of 2.38% for that nutrient subset.

0 / 11

IDENTICAL RAW VALUES

No reported numbers are exactly equal

9 / 11

WITHIN $\pm 5\%$

Eight nutrients plus pH

9 / 11

WITHIN $\pm 10\%$

EC and OC remain outside

11 / 11

STATUS ALIGNED*

Using detailed parameter-row labels

Numerical concordance by parameter

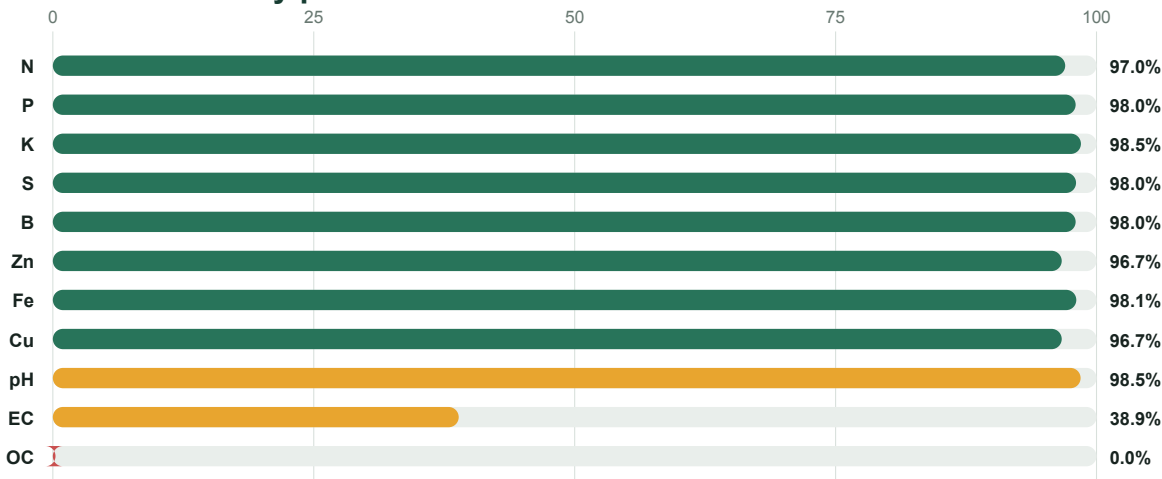


Chart definition: 100 – absolute percentage error, with a floor at 0% for display. Green denotes the eight-nutrient headline subset; gold/red show contextual parameters. This is a concordance visualization—not a validated accuracy statistic. Organic carbon's relative error exceeds 100%, so its bar is shown at 0%.

What the chart makes clear

The nutrient readings cluster tightly at 96.67–98.51% concordance, and pH is also close at 98.48%. EC and organic carbon are the two major quantitative exceptions and prevent an honest unqualified “97% overall accuracy” claim.

*The Soilo EC summary tile says “Good,” while its detailed EC row says “Slightly Saline.” Status matching here uses the detailed parameter-row label, which matches AGRICARE+; the inconsistency is disclosed on page 4.

Eleven overlapping parameters, one transparent calculation

REFERENCE	FORMULA	HEADLINE SCOPE
AGRICARE+ reported value treated as the comparator—not assumed error-free.	$APE = Soilo - Lab \div Lab \times 100$ Concordance = 100 – mean APE	N, P, K, S, B, Zn, Fe, Cu only. pH, EC and OC remain in the full audit.

Complete parameter comparison

PARAMETER	AGRICARE+	SOILO	ABS. Δ	APE	CONCORD.	REPORTED CLASSIFICATION
pH	7.87	7.75	0.12	1.52%	98.48%	Slightly alkaline ↔ Slightly alkaline
EC	0.144	0.056	0.088	61.11%	38.89%	Slightly saline ↔ Slightly saline*
OC	0.0549%	0.45%	0.3951	719.67%	0% floor	Low ↔ Low
N	30 kg/ha	30.9 kg/ha	0.9	3.00%	97.00%	Low ↔ Low
P	20 kg/ha	19.6 kg/ha	0.4	2.00%	98.00%	Medium ↔ Medium
K	201 kg/ha	204 kg/ha	3	1.49%	98.51%	Medium ↔ Medium
S	5.1 mg/kg	5.2 mg/kg	0.1	1.96%	98.04%	Deficient ↔ Deficient
B	1.5 mg/kg	1.47 mg/kg	0.03	2.00%	98.00%	Sufficient ↔ Sufficient
Zn	0.3 mg/kg	0.31 mg/kg	0.01	3.33%	96.67%	Deficient ↔ Deficient
Fe	3.1 mg/kg	3.16 mg/kg	0.06	1.94%	98.06%	Deficient ↔ Deficient
Cu	0.3 mg/kg	0.31 mg/kg	0.01	3.33%	96.67%	Deficient ↔ Deficient

Units are shown where provided. EC notation differs slightly between documents and is treated as comparable for this arithmetic comparison; a formal validation should confirm method and unit equivalence. “Concordance” in the table is 100 – APE with a 0% display floor—not measurement accuracy.

Exact equality is not the same as close agreement

None of the 11 reported numerical values is identical at the precision printed by both reports. The 97.62% result therefore describes average closeness across eight nutrients, while the 11/11 result describes classification agreement. Neither should be presented as exact numerical agreement.

Where the reports agree—and where they do not

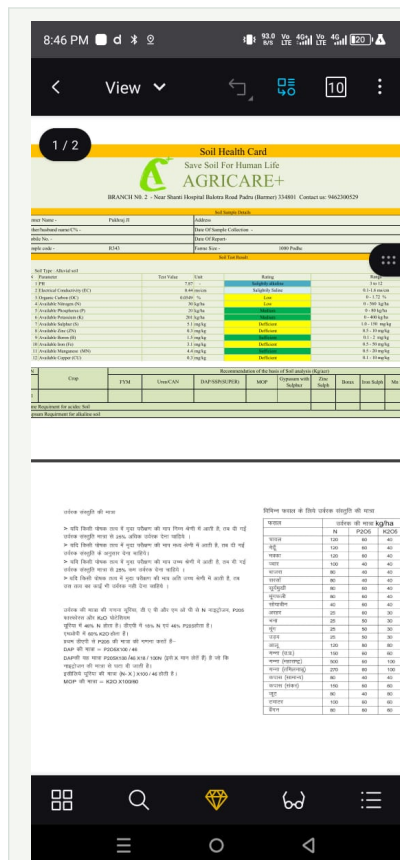
- 01** Strong nutrient agreement
 All eight overlapping nutrients fall within $\pm 3.33\%$ of the AGRICARE+ value. Potassium is closest at 1.49% relative difference; zinc and copper are furthest within the subset at 3.33%.
- 02** Complete classification alignment
 Using the detailed parameter-row labels, both reports classify pH as slightly alkaline; OC and N as low; P and K as medium; S, Zn, Fe and Cu as deficient; and B as sufficient.
- 03** pH is close and category-consistent
 Both reports identify slight alkalinity. Values differ by 0.12 pH units (1.52% relative difference). Since pH is logarithmic, percentage error is only a convenient descriptive measure and should not be interpreted physically.
- 04** EC is a material exception
 EC differs by 0.088 in the reported unit, or 61.11% relative to the AGRICARE+ value. Soilo's own page 1 is internally inconsistent: its summary tile says "Good," while its detailed row says "Slightly Saline."
- 05** Organic carbon is the largest exception
 Soilo reports 0.45% versus 0.0549% in AGRICARE+, a 0.3951 percentage-point difference and 719.67% relative error. Both still label OC "Low," showing why status agreement cannot substitute for numerical agreement.

Recommended public wording

"In this single paired sample, Soilo Essence showed 97.62% mean numerical concordance across eight overlapping nutrient readings and matched AGRICARE+'s detailed agronomic classifications across all 11 overlapping parameters. EC and organic carbon showed substantial numerical divergence, so the study does not establish 97% overall device accuracy."

Laboratory soil health card snapshot

The source supplied was a WhatsApp viewer screenshot containing the AGRICARE+ Soil Health Card. The full screenshot is shown at left; a crop of the report area is shown at right. A separate enlargement of the results table appears below.



Full supplied screenshot

1 / 2

Soil Health Card

Save Soil For Human Life

AGRICARE+

BRANCH NO. 2 - Near Shanti Hospital Balotra Road Padru (Barmer) 334801 Contact us: 9462300529

Soil Sample Details

Owner Name -	Pukhraj Ji	Address	
Owner/Inhabitant name/City -		Date Of Sample Collection -	
Mobile No. -		Date Of Report -	
Sample code -	R343	Farm Size -	1000 Poudhe

Soil Test Result

Soil Type : Alluvial soil

Parameter	Test Value	Unit	Rating	Range
1. pH	7.87	-	Slightly alkaline	6 to 12
2. Electrical Conductivity (EC)	0.44	me/cm	Slightly Saline	1 to 1.6 me/cm
3. Organic Carbon (OC)	0.0549	%	Low	0 - 1.32 %
4. Available Nitrogen (N)	30	kg/ha	Low	0 - 500 kg/ha
5. Available Phosphorus (P)	20	kg/ha	Medium	0 - 80 kg/ha
6. Available Potassium (K)	201	kg/ha	Medium	0 - 400 kg/ha
7. Available Sulphur (S)	5.1	mg/kg	Deficient	1.0 - 150 mg/kg
8. Available Zinc (Zn)	0.3	mg/kg	Deficient	0.5 - 10 mg/kg
9. Available Boron (B)	1.5	mg/kg	Sufficient	0.1 - 2 mg/kg
10. Available Iron (Fe)	3.1	mg/kg	Deficient	0.5 - 50 mg/kg
11. Available Manganese (Mn)	4.4	mg/kg	Sufficient	0.5 - 20 mg/kg
12. Available Copper (Cu)	0.3	mg/kg	Deficient	0.1 - 10 mg/kg

Recommendation of the basis of Soil analysis (Kg/acre)

Crop	PYM	Urea/CAN	DAP/SSP/SUPER	MOP	Gypsum with Sulphur	Zinc Sulph	BORAX	Iron Sulph	M
1									

mg Requirement for acidic Soil

www.agricareplus.com

Report-area crop for context

Enlarged results-table crop

Soil Sample Details			
Owner Name -	Pukhraj Ji	Address	
Owner/Inhabitant name/City -		Date Of Sample Collection -	
Mobile No. -		Date Of Report -	
Sample code -	R343	Farm Size -	1000 Poudhe
Soil Test Result			
Soil Type : Alluvial soil			
Parameter	Test Value	Unit	Rating
1. pH	7.87	-	Slightly alkaline
2. Electrical Conductivity (EC)	0.44	me/cm	Slightly Saline
3. Organic Carbon (OC)	0.0549	%	Low
4. Available Nitrogen (N)	30	kg/ha	Low
5. Available Phosphorus (P)	20	kg/ha	Medium
6. Available Potassium (K)	201	kg/ha	Medium
7. Available Sulphur (S)	5.1	mg/kg	Deficient
8. Available Zinc (Zn)	0.3	mg/kg	Deficient
9. Available Boron (B)	1.5	mg/kg	Sufficient
10. Available Iron (Fe)	3.1	mg/kg	Deficient
11. Available Manganese (Mn)	4.4	mg/kg	Sufficient
12. Available Copper (Cu)	0.3	mg/kg	Deficient
Recommendation of the basis of Soil analysis (Kg/acre)			
Crop	PYM	Urea/CAN	DAP/SSP/SUPER
1			

Evidence handling: crops were resized and lightly sharpened for legibility; no reported content was added or removed within the crop. The original screenshot remains visible above. Values used in calculations are transcribed on page 3.

SOURCE EVIDENCE • SOILO ESSENCE

Device report snapshots

Pages 1 and 2 of the supplied four-page Soilo report contain every device value used in this comparison. The snapshots are reproduced below at matched scale.

SOILO

Farming Intelligence | Soil Analysis Report

Report #R343B76M

11 July 2026 | 8:29 AM

FARM / LOCATION

Padru, Balotra Road, Barmer, Rajasthan

FARM SIZE

1,000 Plants

FARMER NAME

Pukhraj Ji

CROP

Pomegranate (Bhagwa)

SOIL TYPE

Alluvial

SAMPLE CODE

R343 | Soilo-BLE-Node

49/100

NEEDS ATTENTION

OVERALL SOIL HEALTH SCORE

16 parameters measured | 4 Deficient | 3 Low

ENVIRONMENTAL SNAPSHOT

Temperature

34.9°C

Normal

Moisture

21.9%

Low

Soil pH

7.75

Slightly Alkaline

Salinity (EC)

0.056 m.mho/cm

Good

CORE SOIL PARAMETERS (9 of 16)

#	PARAMETER	MEASURED VALUE	OPTIMAL RANGE	STATUS
1	Soil pH	7.75	3.0 - 12.0	SLIGHTLY ALKALINE
2	Temperature	34.9 °C	15 - 40 °C	NORMAL
3	Moisture	21.9 %	30 - 60 %	LOW
4	Electrical Conductivity (EC)	0.056 m.mho/cm	0.1 - 1.6 m.mho/cm	SLIGHTLY SALINE
5	Salinity (TDS)	96 ppm	< 1000 ppm	GOOD
6	Organic Carbon (OC)	0.45 %	0 - 1.72 %	LOW
7	Available Nitrogen (N)	30.9 kg/ha	0 - 560 kg/ha	LOW
8	Available Phosphorus (P)	19.6 kg/ha	0 - 80 kg/ha	MEDIUM
9	Available Potassium (K)	204 kg/ha	0 - 400 kg/ha	MEDIUM

Soilo Essence measures all 16 parameters in a single insertion. Parameters 10 to 16 are reported on the following page.

SECONDARY AND MICRONUTRIENT PARAMETERS (7 of 16)

#	PARAMETER	MEASURED VALUE	OPTIMAL RANGE	STATUS
10	Available Sulphur (S)	5.2 mg/kg	10.0 - 15.9 mg/kg	DEFICIENT
11	Available Boron (B)	1.47 mg/kg	0.1 - 2.0 mg/kg	SUFFICIENT
12	Available Zinc (Zn)	0.31 mg/kg	0.5 - 10.0 mg/kg	DEFICIENT
13	Available Iron (Fe)	3.18 mg/kg	4.5 - 50.0 mg/kg	DEFICIENT
14	Available Magnesium (Mg)	118 mg/kg	50 - 200 mg/kg	SUFFICIENT
15	Available Copper (Cu)	0.31 mg/kg	0.4 - 10.0 mg/kg	DEFICIENT
16	Available Molybdenum (Mo)	0.09 mg/kg	0.05 - 0.5 mg/kg	SUFFICIENT

PARAMETER SUMMARY

CLASSIFICATION	COUNT	PARAMETERS
SUFFICIENT / NORMAL	9	pH, Temperature, EC, Salinity, Phosphorus, Potassium, Boron, Magnesium, Molybdenum
LOW	3	Moisture, Organic Carbon, Nitrogen
DEFICIENT	4	Sulphur, Zinc, Iron, Copper

AI EXECUTIVE SUMMARY

Soilo AI has analysed all 16 measured parameters from sample R343 at Padru, Barmer for Pomegranate (Bhagwa) on alluvial soil.

Sulphur, zinc, iron and copper measured in the deficient range. Moisture, organic carbon and available nitrogen measured low. Phosphorus, potassium, boron, magnesium and molybdenum are adequate.

The soil pH of 7.75 is slightly alkaline and is the common factor linking three of the four deficiencies: zinc, iron and copper all lose plant availability as pH rises above 7.5, even where total soil content is reasonable. Correcting these therefore requires addressing the alkalinity, not only applying the nutrients.

Organic carbon at 0.45% and moisture at 21.9% together represent the core structural problem for this site. Both are characteristic of Barmer's and sandy alluvial soils, and both are improved by the same intervention: sustained organic matter addition, which raises nutrient retention and water-holding capacity simultaneously. Please review the PRIORITY ACTIONS on the following page.

Page 1 • pH, EC, OC, N, P and K

Page 2 • S, B, Zn, Fe and Cu

Sample-identity cross-check

FIELD	AGRICARE+ SNAPSHOT	SOILO REPORT
Sample code	R343	R343 Soilo-BLE-Node
Farmer	Pukhraj Ji	Pukhraj Ji
Farm size	1,000 plants	1,000 plants
Soil type	Alluvial soil	Alluvial
Timestamp	Not legible/present in supplied crop	11 Jul 2026, 8:29 AM

Matching identity fields support—but do not independently prove—that both documents describe the same soil sample. Chain-of-custody and sampling-time records were not supplied.

PAIRED-SAMPLE CASE STUDY • R343 • 11 JULY 2026

PAGE 6

What this case study establishes

Bottom line

The supplied reports support a 97.62% nutrient-subset concordance statement for sample R343 and full agreement in the detailed agronomic status labels. They do not support an unqualified claim of 97% overall device accuracy.

Key limitations

01	Single sample One paired observation cannot estimate general performance across farms, soil types, seasons, operators or concentration ranges.
02	No replicate measurements Repeatability and within-sample variation cannot be assessed without replicate device insertions and laboratory tests.
03	Unknown laboratory method Analytical method, extraction protocol, detection limits, uncertainty and accreditation details were not supplied.
04	Sampling equivalence unverified Timing, depth, homogenisation, moisture condition and chain of custody are not documented in the provided evidence.
05	Metric is subset-sensitive The 97.62% headline excludes pH, EC and organic carbon because it is explicitly a nutrient-only metric; changing the scope changes the result.
06	Classification can hide magnitude Both reports may assign the same broad category even when numerical values differ materially, as organic carbon demonstrates.

Path to a validation-grade claim

- Pre-register acceptance limits and primary metrics separately for each analyte.
- Test a diverse, adequately sized, blinded sample set with matched sampling and laboratory methods.
- Include duplicates, certified controls, calibration checks, and a documented chain of custody.
- Report bias, precision, agreement intervals and pass rates—not only a single averaged percentage.

Final conclusion

This case is compelling evidence of close nutrient agreement for one sample: every overlapping nutrient is within $\pm 3.33\%$ of AGRICARE+, and all detailed status labels align. The scientifically responsible headline is therefore 97.62% mean nutrient concordance in sample R343, accompanied by explicit disclosure of the EC and organic-carbon differences and the single-sample limitation.

Prepared from the two user-supplied source reports on 19 August 2026. Calculations use the values printed in those reports; no external performance claims or assumptions were introduced.