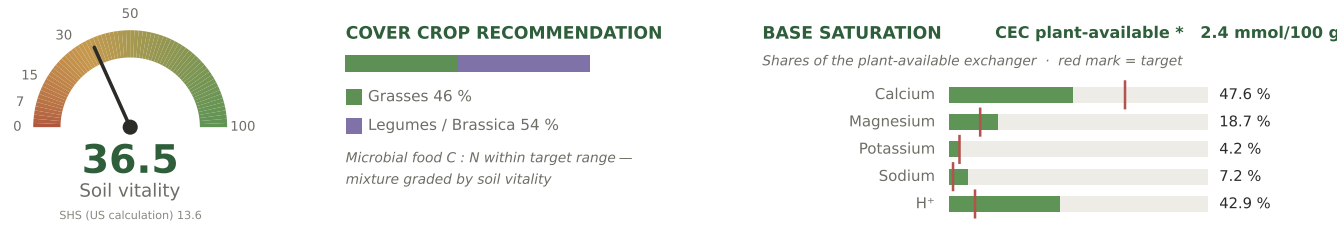


Haney Soil Vitality

Order number	Example	Sampling date	03.09.2026
Sample no.	1	Sampling depth	20 cm
Description	Example plot A	Soil type	humic sand
Land use	Park area	Crop	Heather



NUTRIENT CONTENTS

Marker position: red = unfavourable; green = optimal

Basic data

pH (H ₂ O)	5.07	
pH (CaCl)	4.42	
Organic matter	6.71 %	
org. C : total N	19.9 : 1	

Soil biology

microb. respiration (CO ₂)	38.0 mg/kg		1
microbially active C	10.8 %		1
Microbial food C	352 mg/kg	39,000	0.9
Microbial food N	80.4 kg/ha	2,000	1.4

Nitrogen & phosphorus

Nitrate-N*	53.3 kg/ha	2,000	0.9
Ammonium-N*	17.2 kg/ha	2,000	0.3
reserve org. P	28.7 kg/ha	300	3.2
Phosphorus (PO ₄)	72.3 kg/ha	300	8.2

Base cations

Calcium	682 kg/ha	1,330	17.4
Magnesium	160 kg/ha	450	12.1
Potassium	117 kg/ha	700	5.7

Sulphur

Sulphur	33.6 kg/ha	300	3.8
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Trace elements

Boron	b. d. l.	4.2	0.0
Iron	841 kg/ha	5,318	5.4
Manganese	15.1 kg/ha	106	4.9
Copper	b. d. l.	6.4	0.0
Zinc	10.5 kg/ha	19.3	18.5
Molybdenum	0,109 kg/ha	0.13	28.5
Cobalt	0,071 kg/ha	1.1	2.2

Prioritisation of the need for action

1 highest **2** high **3** medium **4** monitor

Total digestion: columns "Total" = total content in the soil, "avail. %" = plant-available share (H3A) of the total content; green = within target range, red = outside.

Targets (avail. % of total content): Ca > 8 · Mg > 5 · K > 3 · Na > 3 · P and org. P > 5 · S > 15 · B > 8 · Cu > 3 · Mn 1 -3 · Fe 1-3 · Al < 0.5

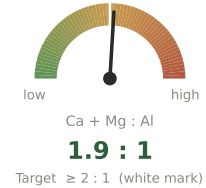
Microbial food C 2-4 (of total C) · microbial food N 3-5 · nitrate-N < 0.3 · ammonium-N < 0.5 (of total N) · zinc/molybdenum/cobalt/selenium without target.

Further total digestion values: sodium 140 mg/kg · avail. 28.8 % (target > 3) · aluminium 5,480 mg/kg · avail. 2.7 % (target < 0.5) · selenium total 1.74 mg/kg

RATIOS

Microbial food N	Microbial food C
inorg. N	Microbial food N
microb. active C	Potassium
Magnesium	Calcium
Calcium	Potassium
Potassium	Magnesium
Sodium	Potassium
Sulphur	Nitrogen
Sulphur	Phosphorus
Zinc	Phosphorus
Boron	Calcium
Copper	Calcium
Manganese	Iron

POTENTIAL ACIDITY



Methods & notes

Soil vitality = (CO₂-C / 10) · (microbial food C / 100) · ((WEN - NH₄-N - NO₃-N) / 10)

SHS — Soil Health Score (US calculation according to Regen Ag Lab) = CO₂-C / 10 + microbial food C / 50 + microbial food N / 10

Microbial respiration (CO₂-C): 24-hour incubation after drying and rewetting of the soil sample.

H₂O extraction: microbial food C and microbial food N (water-extractable organic carbon and nitrogen).

H3A extraction: plant-available nutrients — nitrate-N, ammonium-N, phosphorus, calcium, magnesium, potassium, sulphur, trace elements.

* CEC plant-available = sum of calcium, magnesium, potassium, sodium and H⁺ from the H3A extraction. It represents only the immediately available part of the exchanger and is therefore clearly lower than the familiar CEC pot, CEC act or TEC.

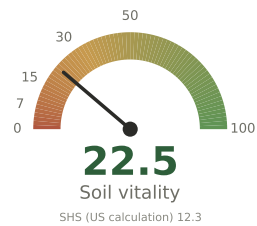
Potential acidity: derived from the ratio (Ca + Mg) : Al of the H3A extraction — a narrower ratio means a higher share of exchangeable aluminium relative to the base cations and thus a higher potential soil acidity.

* Nitrate-N and ammonium-N are measured on the dried soil sample. b. d. l. = below detection limit (hardly measurable).

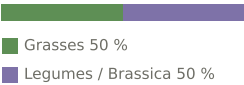
Haney Soil Vitality



Order number	Example	Sampling date	03.09.2026
Sample no.	2	Sampling depth	20 cm
Description	Example plot B	Soil type	humic sand
Land use	Park area	Crop	Flower meadow



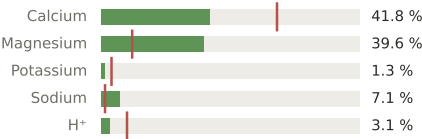
COVER CROP RECOMMENDATION



Microbial food C : N within target range —
mixture graded by soil vitality

BASE SATURATION

Shares of the plant-available exchanger · red mark = target



NUTRIENT CONTENTS

Marker position: red = unfavourable; green = optimal

Basic data

pH (H ₂ O)	6.91	
pH (CaCl)	6.31	
Organic matter	4.72 %	
org. C : total N	13.3 : 1	

Soil biology

microb. respiration (CO ₂)	43.0 mg/kg		1
microbially active C	13.4 %		1
Microbial food C	320 mg/kg		27,500 1.2
Microbial food N	48.0 kg/ha		2,100 0.8

Nitrogen & phosphorus

Nitrate-N*	4.44 kg/ha		2,100 0.1
Ammonium-N*	13.4 kg/ha		2,100 0.2
reserve org. P	33.9 kg/ha		400 2.9
Phosphorus (PO ₄)	15.6 kg/ha		400 1.3

Base cations

Calcium	982 kg/ha		1,830 18.3
Magnesium	557 kg/ha		730 26.0
Potassium	61.4 kg/ha		700 3.0

Sulphur

Sulphur	29.2 kg/ha		2 300 3.3
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Trace elements

Boron	b. d. l.		2 4.3 0.0
Iron	428 kg/ha		8,716 1.7
Manganese	1.06 kg/ha		3 81.5 0.4
Copper	b. d. l.		2 6.3 0.0
Zinc	1.94 kg/ha		4 21.3 3.1
Molybdenum	0,091 kg/ha		0.12 25.8
Cobalt	b. d. l.		0.91 0.0

Prioritisation of the need for action

1 highest 2 high 3 medium 4 monitor

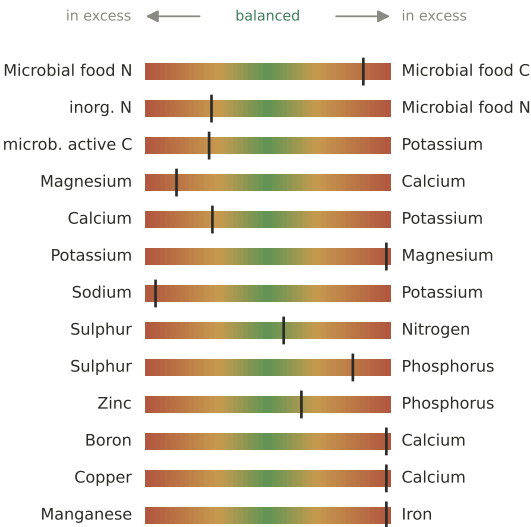
Total digestion: columns "Total" = total content in the soil, "avail. %" = plant-available share (H3A) of the total content; green = within target range, red = outside.

Targets (avail. % of total content): Ca > 8 · Mg > 5 · K > 3 · Na > 3 · P and org. P > 5 · S > 15 · B > 8 · Cu > 3 · Mn 1 -3 · Fe 1-3 · Al < 0.5

Microbial food C 2-4 (of total C) · microbial food N 3-5 · nitrate-N < 0.3 · ammonium-N < 0.5 (of total N) · zinc/molybdenum/cobalt/selenium without target.

Further total digestion values: sodium 180 mg/kg · avail. 36.3 % (target > 3) · aluminium 5,795 mg/kg · avail. 1.9 % (target < 0.5) · selenium total 1.41 mg/kg

RATIOS



POTENTIAL ACIDITY



Methods & notes

Soil vitality = (CO₂-C / 10) · (microbial food C / 100) · ((WEN - NH₄-N - NO₃-N) / 10)

SHS — Soil Health Score (US calculation according to Regen Ag Lab) = CO₂-C / 10 + microbial food C / 50 + microbial food N / 10

Microbial respiration (CO₂-C): 24-hour incubation after drying and rewetting of the soil sample.

H₂O extraction: microbial food C and microbial food N (water-extractable organic carbon and nitrogen).

H3A extraction: plant-available nutrients — nitrate-N, ammonium-N, phosphorus, calcium, magnesium, potassium, sulphur, trace elements.

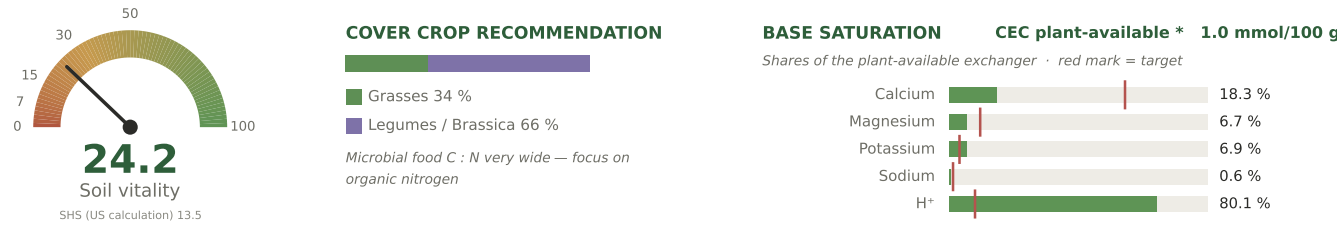
* CEC plant-available = sum of calcium, magnesium, potassium, sodium and H⁺ from the H3A extraction. It represents only the immediately available part of the exchanger and is therefore clearly lower than the familiar CEC pot, CEC act or TEC.

Potential acidity: derived from the ratio (Ca + Mg) : Al of the H3A extraction — a narrower ratio means a higher share of exchangeable aluminium relative to the base cations and thus a higher potential soil acidity.

* Nitrate-N and ammonium-N are measured on the dried soil sample. b. d. l. = below detection limit (hardly measurable).

Haney Soil Vitality

Order number	Example	Sampling date	03.09.2026
Sample no.	3	Sampling depth	20 cm
Description	Example plot C	Soil type	humic sand
Land use	Woodland area	Crop	Heather



NUTRIENT CONTENTS

Marker position: red = unfavourable; green = optimal

Basic data

pH (H ₂ O)	3.83	
pH (CaCl)	3.22	
Organic matter	9.80 %	
org. C : total N	36.0 : 1	

Soil biology

microb. respiration (CO ₂)	52.0 mg/kg		1
microbially active C	15.0 %		1
Microbial food C	346 mg/kg	57,000	0.6
Microbial food N	39.6 kg/ha	1,600	0.8

Nitrogen & phosphorus

Nitrate-N*	2.26 kg/ha	1,600	0.0
Ammonium-N*	23.7 kg/ha	1,600	0.5
reserve org. P	28.2 kg/ha	100	9.6
Phosphorus (PO ₄)	12.3 kg/ha	100	4.2

Base cations

Calcium	103 kg/ha	480	7.3
Magnesium	22.8 kg/ha	190	4.1
Potassium	76.1 kg/ha	300	8.6

Sulphur

Sulphur	29.8 kg/ha	300	3.4
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Trace elements

Boron	b. d. l.	3.0	0.0
Iron	1,053 kg/ha	2,018	17.7
Manganese	3.44 kg/ha	31.6	3.7
Copper	b. d. l.	4.4	0.0
Zinc	2.88 kg/ha	8.8	11.1
Molybdenum	0,106 kg/ha	0.14	25.7
Cobalt	0,026 kg/ha	0.40	2.3

Prioritisation of the need for action

1 highest	2 high	3 medium	4 monitor
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Total digestion: columns "Total" = total content in the soil, "avail. %" = plant-available share (H3A) of the total content; green = within target range, red = outside.

Targets (avail. % of total content): Ca > 8 · Mg > 5 · K > 3 · Na > 3 · P and org. P > 5 · S > 15 · B > 8 · Cu > 3 · Mn 1 -3 · Fe 1-3 · Al < 0.5

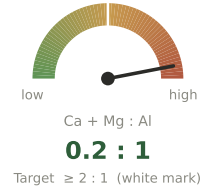
Microbial food C 2-4 (of total C) · microbial food N 3-5 · nitrate-N < 0.3 · ammonium-N < 0.5 (of total N) · zinc/molybdenum/cobalt/selenium without target.

Further total digestion values: sodium 100 mg/kg · avail. 1.3 % (target > 3) · aluminium 2,181 mg/kg · avail. 8.1 % (target < 0.5) · selenium total 0.62 mg/kg

RATIOS

in excess	←	balanced	→	in excess
Microbial food N				Microbial food C
inorg. N				Microbial food N
microb. active C				Potassium
Magnesium				Calcium
Calcium				Potassium
Potassium				Magnesium
Sodium				Potassium
Sulphur				Nitrogen
Sulphur				Phosphorus
Zinc				Phosphorus
Boron				Calcium
Copper				Calcium
Manganese				Iron

POTENTIAL ACIDITY



Methods & notes

Soil vitality = (CO₂-C / 10) · (microbial food C / 100) · ((WEN - NH₄-N - NO₃-N) / 10)

SHS — Soil Health Score (US calculation according to Regen Ag Lab) = CO₂-C / 10 + microbial food C / 50 + microbial food N / 10

Microbial respiration (CO₂-C): 24-hour incubation after drying and rewetting of the soil sample.

H₂O extraction: microbial food C and microbial food N (water-extractable organic carbon and nitrogen).

H3A extraction: plant-available nutrients — nitrate-N, ammonium-N, phosphorus, calcium, magnesium, potassium, sulphur, trace elements.

* CEC plant-available = sum of calcium, magnesium, potassium, sodium and H⁺ from the H3A extraction. It represents only the immediately available part of the exchanger and is therefore clearly lower than the familiar CEC pot, CEC act or TEC.

Potential acidity: derived from the ratio (Ca + Mg) : Al of the H3A extraction — a narrower ratio means a higher share of exchangeable aluminium relative to the base cations and thus a higher potential soil acidity.

* Nitrate-N and ammonium-N are measured on the dried soil sample. b. d. l. = below detection limit (hardly measurable).

Haney soil vitality · total digestion & sample comparison

1 Example plot A 2 Example plot B 3 Example plot C

Bar up to the red centre line = target reached

KEY FIGURES

	1 Plot A	2 Plot B	3 Plot C
Soil vitality	36.5	22.5	24.2
SHS (US calculation)	13.6	12.3	13.5
microbially active C %	10.8	13.4	15.0
Microbial food C : N	12.9	19.6	25.7
CEC plant-avail. mmol/100 g	2.4	4.0	1.0
pot. acidity Ca+Mg : Al	1.9 : 1	4.8 : 1	0.2 : 1
organic matter %	6.71	4.72	9.80
pH (CaCl ₂)	4.42	6.31	3.22
Cover crop grasses : leg.	46 : 54	50 : 50	34 : 66

BASE SATURATION (CEC PA) — DEVIATION FROM TARGET

	1 Plot A	2 Plot B	3 Plot C
Calcium	47.6 %	41.8 %	18.3 %
Magnesium	18.7 %	39.6 %	6.7 %
Potassium	4.2 %	1.3 %	6.9 %
Sodium	7.2 %	7.1 %	0.6 %
H ⁺	42.9 %	3.1 %	80.1 %

ALL PARAMETERS — ACTUAL IN % OF TARGET

pH (H ₂ O)	1 Plot A: 5, 2 Plot B: 127, 3 Plot C: -78
pH (CaCl)	1 Plot A: -32, 2 Plot B: 73, 3 Plot C: -99
Organic matter	1 Plot A: 268, 2 Plot B: 189, 3 Plot C: 392
org. C : total N	1 Plot A: 199, 2 Plot B: 133, 3 Plot C: 360
microb. respiration (CO ₂)	1 Plot A: 38, 2 Plot B: 43, 3 Plot C: 52
microbially active C	1 Plot A: 18, 2 Plot B: 22, 3 Plot C: 25
Microbial food C	1 Plot A: 117, 2 Plot B: 107, 3 Plot C: 115
Microbial food N	1 Plot A: 78, 2 Plot B: 51, 3 Plot C: 39
Nitrate-N*	1 Plot A: 181, 2 Plot B: 15, 3 Plot C: 8
Ammonium-N*	1 Plot A: 97, 2 Plot B: 76, 3 Plot C: 134
reserve org. P	1 Plot A: 98, 2 Plot B: 116, 3 Plot C: 97
Phosphorus (PO ₄)	1 Plot A: 124, 2 Plot B: 27, 3 Plot C: 21
Calcium	1 Plot A: 70, 2 Plot B: 62, 3 Plot C: 27
Magnesium	1 Plot A: 155, 2 Plot B: 330, 3 Plot C: 56
Potassium	1 Plot A: 104, 2 Plot B: 34, 3 Plot C: 173
Sulphur	1 Plot A: 38, 2 Plot B: 33, 3 Plot C: 34
Boron	1 Plot A: 0, 2 Plot B: 0, 3 Plot C: 0
Iron	1 Plot A: 953, 2 Plot B: 485, 3 Plot C: 1,193
Manganese	1 Plot A: 103, 2 Plot B: 7, 3 Plot C: 23
Copper	1 Plot A: 0, 2 Plot B: 0, 3 Plot C: 0
Zinc	1 Plot A: 208, 2 Plot B: 78, 3 Plot C: 142
Molybdenum	1 Plot A: 22, 2 Plot B: 18, 3 Plot C: 21
Cobalt	1 Plot A: 2, 2 Plot B: 0, 3 Plot C: 1

Values = ACTUAL in % of the respective TARGET (100 % = TARGET reached; scale up to 200 %).

TOTAL DIGESTION — AVAILABLE SHARE OF TOTAL CONTENT (%)

plant-available fraction (H3A) or microbial food in % of total content · red mark = target (for target ranges: centre)

Calcium	1 Plot A: 17.4, 2 Plot B: 18.3, 3 Plot C: 7.3	(> 8)	●●●
Magnesium	1 Plot A: 12.1, 2 Plot B: 26.0, 3 Plot C: 4.1	(> 5)	●●●
Potassium	1 Plot A: 5.7, 2 Plot B: 3.0, 3 Plot C: 8.6	(> 3)	●●●
Sodium	1 Plot A: 28.8, 2 Plot B: 36.3, 3 Plot C: 1.3	(> 3)	●●●
Phosphorus (PO ₄)	1 Plot A: 8.2, 2 Plot B: 1.3, 3 Plot C: 4.2	(> 5)	●●●
reserve org. P	1 Plot A: 3.2, 2 Plot B: 2.9, 3 Plot C: 9.6	(> 5)	●●●
Sulphur	1 Plot A: 3.8, 2 Plot B: 3.3, 3 Plot C: 3.4	(> 15)	●●●
Boron	1 Plot A: 0.0, 2 Plot B: 0.0, 3 Plot C: 0.0	(> 8)	●●●
Copper	1 Plot A: 0.0, 2 Plot B: 0.0, 3 Plot C: 0.0	(> 3)	●●●
Manganese	1 Plot A: 4.9, 2 Plot B: 0.4, 3 Plot C: 3.7	(1–3)	●●●
Iron	1 Plot A: 5.4, 2 Plot B: 1.7, 3 Plot C: 17.7	(1–3)	●●●
Zinc	1 Plot A: 18.5, 2 Plot B: 3.1, 3 Plot C: 11.1	(–)	●●●
Aluminium	1 Plot A: 2.7, 2 Plot B: 1.9, 3 Plot C: 8.1	(< 0.5)	●●●
Microbial food C	1 Plot A: 0.9, 2 Plot B: 1.2, 3 Plot C: 0.6	(2–4)	●●●
Microbial food N	1 Plot A: 1.4, 2 Plot B: 0.8, 3 Plot C: 0.8	(3–5)	●●●
Nitrate-N	1 Plot A: 0.9, 2 Plot B: 0.1, 3 Plot C: 0.0	(< 0.3)	●●●
Ammonium-N	1 Plot A: 0.3, 2 Plot B: 0.2, 3 Plot C: 0.5	(< 0.5)	●●●

Green/red dot = within / outside target range. Zinc without target (bars relative to each other). Microbial food C relative to total C, N parameters to total N.