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Soil Health Bench Marking-Reference Project C1920-0036-Y4
Objectives

The objective of this project is to expand the benchmark data set of soil health values or parameters across a range of soil types and/or management practices common to New Brunswick farm systems to establish a score and rating system to benchmark improvement.

Summary

Improving soil health and crop productivity in a rotation requires a delicate balance between crop species and crop production techniques to sustain or build organic matter and soil microflora while minimizing physical degradation of the soil. Soil quality or health can be defined as "the capacity of a specific type of soil to function." It is generally assessed by measuring a minimum data set of soil properties to evaluate the soil's ability to perform basic functions (i.e., maintaining productivity, regulating and partitioning of water and solute flow, filtering and buffering against pollutants and storing and cycling nutrients).

The PEI Analytical Laboratory Soil Health package includes Soil Respiration, Aggregate Stability, Active Carbon, Biological Nitrogen Availability and Soil Texture with the following standard soil sample analysis: pH, OM, P2O5, K2O, Ca, Mg, Cu, Zn, Fe, Mn, S, B, Na, Al, Lime Index and CEC. The soil texture classification is calculated from the percent sand, clay and silt values using the USDA Natural Resources Conservation textural classification.

Approximately 330 soil health samples from the PEI Analytical Soil Health Laboratory have been reported over the three project years. Differences exist between cropped and non-cropped areas such as fence lines, pastures and forage rotations in each region. A significant differentiation between the potato rotation (Carleton) and other regions of the province was observed in the data.

As critical as soil health measurements may be in managing the adaptation to climate change, based on the limited data available to date there appears to be a significant difference between agricultural regions in New Brunswick and between cropping systems within the regions. Therefore, it may not be possible to establish a province wide soil health rating system in New Brunswick similar to PEI.

Although more data is required prior to a final conclusion, the best approach might be for a producer to adopt a lab methodology and measure improvement from a consistent reference point specific to the farm's cropping system or fields within the farm.

Conclusion

As critical as soil health measurements may be in managing the adaptation to climate change, based on the limited data available to date there appears to be a significant difference between agricultural regions in New Brunswick and between cropping systems within the regions. Therefore, it may not be possible to establish a province wide soil health rating system in New Brunswick similar to PEI.

Given the observed variability between NB agricultural regions, between cropping systems and within fields, it may be impractical to establish a single classification system for the province or a region within the province. Although more data is required prior to a final conclusion, the best approach might be for a producer to adopt a lab methodology and measure improvement from a consistent reference point specific to the farm's cropping system or fields within the farm.

Évaluation de la santé des sols - Projet de référence C1920-0036-Y4

Objectifs

Ce projet a pour objectif d'élargir l'ensemble des données de référence sur les valeurs ou les paramètres de la santé des sols dans une gamme de types de sols et/ou de pratiques de gestion communes aux systèmes agricoles du Nouveau-Brunswick, afin d'établir un système de notation et d'évaluation qui servira de référence pour l'amélioration de la santé des sols.

Résumé

L'amélioration de la santé des sols et de la productivité des cultures dans une rotation nécessitent un équilibre délicat entre les espèces cultivées et les techniques de production végétale afin de maintenir ou de développer la matière organique et la microflore du sol tout en minimisant la dégradation physique du sol. La qualité ou la santé du sol peut être définie comme "la capacité d'un type spécifique de sol à fonctionner". Elle est généralement évaluée en mesurant un ensemble minimum de données sur les propriétés du sol afin d'évaluer la capacité du sol à remplir ses fonctions de base (c'est-à-dire le maintien de la productivité, la régulation et la répartition des flux d'eau et de solutés, le filtrage et la protection contre les polluants, ainsi que le stockage et le cycle des éléments nutritifs).

Le kit de santé des sols du laboratoire analytique de L'Île-du-Prince-Édouard comprend la respiration des sols, la stabilité des agrégats, le carbone actif, la disponibilité de l'azote biologique et la texture des sols, ainsi que les analyses standard suivantes d'échantillons de sol : pH, OM, P2O5, K2O, Ca, Mg, Cu, Zn, Fe, Mn, S, B, Na, Al, indice de chaux et CEC. La classification de la texture du sol est calculée à partir des valeurs de pourcentage de sable, d'argile et de chaux en utilisant la classification texturale de l'USDA Natural Resources Conservation.

Environ 330 échantillons de sol prélevés par le laboratoire de L'Ile du Prince Édouard ont été rapportés au cours des trois années du projet. Il existe des différences entre les zones cultivées et non cultivées, telles que les clôtures, les pâturages et les rotations fourragères dans chaque région. Une différenciation significative entre la rotation des pommes de terre (Carleton) et les autres régions de la province a été observée dans les données.

Bien que les mesures de la santé des sols soient essentielles pour gérer l'adaptation au changement climatique, les données limitées disponibles à ce jour semblent indiquer une différence significative entre les régions agricoles du Nouveau-Brunswick et entre les systèmes de culture à l'intérieur des régions. Par conséquent, il n'est peut-être pas possible d'établir un système d'évaluation de la santé des sols à l'échelle de la province au Nouveau-Brunswick, comme c'est le cas à l'Île-du-Prince-Édouard.

Bien qu'il faille davantage de données avant de tirer une conclusion définitive, la meilleure approche pourrait être pour un producteur d'adopter une méthodologie de laboratoire et de mesurer l'amélioration à partir d'un point de référence cohérent spécifique au système de culture de la ferme ou aux champs de la ferme.

Conclusion

Malgré l'importance des mesures de la santé des sols dans la gestion de l'adaptation au changement climatique, les données limitées disponibles à ce jour indiquent qu'il existe des différences significatives entre les régions agricoles du Nouveau-Brunswick et entre les systèmes de culture au sein de ces régions. Par conséquent, il n'est peut-être pas possible d'établir un système d'évaluation de la santé des sols à l'échelle de la province au Nouveau-Brunswick, comme c'est le cas à l'Île-du-Prince-Édouard.

Étant donné la variabilité observée entre les régions agricoles du Nouveau-Brunswick, entre les systèmes de culture et à l'intérieur des champs, il n'est peut-être pas pratique d'établir un système de classification unique pour la province ou une région de la province. Bien qu'il faille davantage de données avant de tirer une conclusion définitive, la meilleure approche pourrait être pour un producteur d'adopter une méthodologie de laboratoire et de mesurer l'amélioration à partir d'un point de référence cohérent spécifique au système de culture de la ferme ou aux champs à l'intérieur de la ferme.

Enabling Agricultural Research and Innovation
Final Report

Element 1, Innovative Research and Development

1. *Project title and project number*: Soil Health Bench Marking-Reference Project C1920-0036-Y4

2. *Project leader and collaborators*:
   Project Lead Ray Carmichael
   NBSCIA Club Agrologists
   Hardy Strom, Soil Health Research Coordinator, PEI Department of Agriculture & Land

3. *Summary*

Improving soil health and crop productivity in a rotation requires a delicate balance between crop species and crop production techniques to sustain or build organic matter and soil microflora while minimizing physical degradation of the soil. Soil quality or health can be defined as "the capacity of a specific type of soil to function." It is generally assessed by measuring a minimum data set of soil properties to evaluate the soil's ability to perform basic functions (i.e., maintaining productivity, regulating and partitioning of water and solute flow, filtering and buffering against pollutants, and storing and cycling nutrients).

The project objective is to expand the data set of soil health values or parameters across a range of soil types and/or management practices common to New Brunswick farm systems to establish a score and rating system to benchmark improvement. With the primary deliverables being;

- Definition of soil health values around a specific agricultural systems or management practices in New Brunswick's major commodities and regions.
- Values defined will lead to soil health reference standards for New Brunswick

The PEI Analytical Laboratory Soil Health package includes Soil Respiration, Aggregate Stability, Active Carbon, Biological Nitrogen Availability, and Soil Texture with the following standard soil sample analysis: pH, OM, P2O5, K2O, Ca, Mg, Cu, Zn, Fe, Mn, S, B, Na, Al, Lime Index, and CEC. The soil texture classification is calculated from the percent sand, clay and silt values using the USDA Natural Resources Conservation textural classification.

Approximately 330 soil health samples from the PEI Analytical Soil Health Laboratory have been reported over the three project years. Differences exist between cropped and non-cropped areas such as fence lines, pastures and forage rotations in each Region. A significant differentiation between the potato rotation (Carleton) and other regions of the province was observed in the data.

As critical as soil health measurements may be in managing the adaptation to climate change, based on the limited data available to date there appears to be a significant difference between agricultural regions in New Brunswick and between cropping systems within the regions. Therefore, it may not be possible to establish a province wide soil health rating system in New Brunswick similar to PEI.

Although more data is required prior to a final conclusion, the best approach might be for a producer to adopt a lab methodology and measure improvement from a consistent reference point specific to the farm's cropping system or fields within the farm.

4. *Introduction*

Improving soil health and crop productivity in a rotation requires a delicate balance between crop species and crop production techniques to sustain or build organic matter and soil microflora while minimizing physical degradation of the soil. Soil quality or health can be defined as "the capacity of a specific type of soil to function." It is generally assessed by measuring a minimum data set of soil properties to evaluate the soil's ability to perform basic functions (i.e., maintaining productivity, regulating and partitioning of water and solute flow, filtering and buffering against pollutants, and storing and cycling nutrients).

Soil health assessments are comprised of three basic criteria chemical, physical and biological. Numerous in-field and laboratory techniques have been developed to quantify and describe components of each of the criteria. While soil nutrient (chemical) testing has long been available to farmers, physical and especially biological testing had largely remained only in research labs until the first version of the Cornell Assessment of Soil Health was made publicly available in 2006. Dr. David Burton, Dalhousie University (DalAC) in cooperation with the Province of Prince Edward Island Department of Agriculture and the PEI Analytical Laboratory (PEIAL) undertook a project to establish the standards or reference values for the soil health criteria identified in the Cornell CASH. NBSCIA initiated a project in 2019 with DalAC to identify the most practical and cost-effective techniques to asses soil health and establish reference values or benchmarks for soil and crop health criteria in New Brunswick.

In September 2019 the PEI Analytical Laboratory announced the delivery of a package of soil health assessments as a standard service option with their regular chemical analysis services These assessments include Soil Respiration, Aggregate Stability, Active Carbon, Biological Nitrogen Availability, and Soil Texture.

5. *Project Objective(s):*
   Expand the benchmark data set of soil health values or parameters across a range of soil types and/or management practices common to New Brunswick farm systems to establish a score and rating system to benchmark improvement.

6. *Project Deliverable(s):*
   - A definition of soil health values around a specific agricultural systems or management practices in New Brunswick's major commodities and regions.
   - Values defined will lead to soil health reference standards for New Brunswick
   - A final report documenting the project results and recommended protocols.

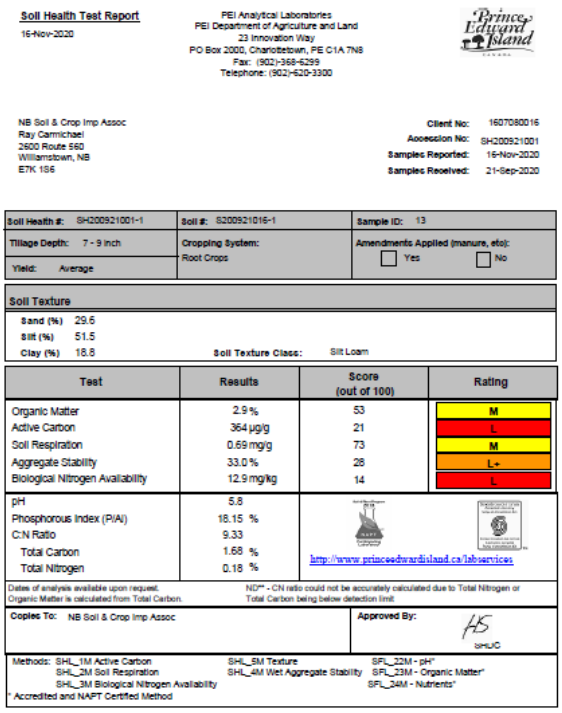
7. *Materials and Methods:*

Field sampling techniques and delivery logistics for this activity followed those developed in 2019 and reported in Project C1920-0036. All field sites were identified using the NBARMS field identification system for future reference. To maintain standard reference values, all analysis and reporting followed procedures from the PEI Analytical Laboratory (PEIAL).

The PEI Analytical Laboratory Soil Health package (Appendix A) includes Soil Respiration, Aggregate Stability, Active Carbon, Biological Nitrogen Availability, and Soil Texture with the following standard soil sample analysis: pH, OM, P2O5, K2O, Ca, Mg, Cu, Zn, Fe, Mn, S, B, Na, Al, Lime Index, and CEC. The soil texture classification is calculated from the percent sand, clay and silt values using the USDA Natural Resources Conservation textural classification.

The PEIAL input sheet was completed to record crop history and crop management practices that impact soil health.

PEIAL soil health results are provided in a report with a provincial rating for each sample, as illustrated below. However, data for NB is insufficient to provide such a province wide comparative rating.



Soil Health Test Report
16-Nov-2020

PEI Analytical Laboratories
PEI Department of Agriculture and Land
23 Innovation Way
PO Box 2000, Charlottetown, PE C1A 7N8
Fax: (902)-368-6255
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NB Soil & Crop Imp Assoc
Ray Carmichael
2620 Route 560
Williamstown, NB
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Client No: 1607080016
Accession No: SH200921001
Samples Reported: 16-Nov-2020
Samples Received: 21-Sep-2020

Soil Health #: SH200921001-1	Soil #: S200921016-1	Sample ID: 13
Tillage Depth: 7 - 9 inch	Cropping System: Root Crops	Amendments Applied (manure, etc): ☐ Yes ☐ No
Yield: Average		

Soil Texture

Sand (%) 29.6
Silt (%) 51.5
Clay (%) 18.8
Soil Texture Class: Silt Loam

Test	Results	Score (out of 100)	Rating
Organic Matter	2.9 %	53	M
Active Carbon	364 µg/g	21	L
Soil Respiration	0.69 mg/g	73	M
Aggregate Stability	33.0 %	28	L+
Biological Nitrogen Availability	12.9 mg/kg	14	L
pH	5.8		
Phosphorous Index (P/Al)	18.15 %		
C:N Ratio	9.33		
Total Carbon	1.68 %		
Total Nitrogen	0.18 %		

http://www.princeedwardisland.ca/labservices

Dates of analysis available upon request.
Organic Matter is calculated from Total Carbon.
ND** - CN ratio could not be accurately calculated due to Total Nitrogen or Total Carbon being below detection limit

Copies To: NB Soil & Crop Imp Assoc
Approved By: SHLIC

Methods: SHL_1M Active Carbon
SHL_2M Soil Respiration
SHL_3M Biological Nitrogen Availability
SHL_5M Texture
SHL_4M Wet Aggregate Stability
SFL_22M - pH*
SFL_23M - Organic Matter*
SFL_24M - Nutrients*
* Accredited and NAPT Certified Method

The PEI soil health parameter scoring and rating values reported are derived from a database of over 547 samples using a cumulative normal distribution model in which the highest value is 100 and the lowest 0.

Rating	Interpretation
Low (0-25)	The "Low" rating means the test value is among the lowest 25% for all sites sampled across PEI and may be limiting the productivity of the system. Short and long term management strategies should be implemented to build up the soil health within the field.
Low+ (26-50)	The "Low +" rating means the test value is below average of all sites sampled across PEI. Review management practices and consider including additional short and long term management. Re-test again after one full rotation to determine if the field is trending towards improvement or decline.
Medium (51-75)	The "Medium" rating means the test value is above average of all sites sampled across PEI. Consider which practices are currently working on the farm and where areas for improvement may exist. Prioritize this against the status of other tests and fields reported to determine where resources and time should be spent.
High (76-100)	The "High" rating means the test value is among the top 25% of all sites sampled across PEI. Consider field history and previous management practices to identify ways of maintaining the strong rating. If making changes to cropping practices, consider how it may affect soil health and in this event, plan future re-sampling to observe changes or trends. Focus management strategies on other lower-rated soil health test results if they exist.

A detailed interpretation of the PEIAL Soil Health Report is presented in Appendix A.

8. Results and Discussion

Approximately 330 soil health samples from the PEI Analytical Soil Health Laboratory have been reported over the three project years. Data for all samples collected in 2020, 2021 and 2022 are reported in Appendix C.

District average values and standard deviations are presented in Table 1 (below) for each of the three years. Table 2 below illustrates the average values across the three years for each Region. Caution is advised when interpreting these values, because within a region there were not the same number of samples each year and the number of samples per region were not equivalent.

As previously reported differences exist between cropped and non-cropped areas such as fence lines, pastures and forage rotations. A significant differentiation between the potato rotation (Carleton) and other regions of the province was observed in the data. To better define the effect of cropping systems and history a single farm site with a confirmed cropping history in the Carleton region was selected in 2021.As observed in Table 3, (below) Active Carbon appears similar to samples from a potato rotation, however Respiration and Aggregate Stability are considerably higher.

TABLE 1: Average and Standard Deviation Values by Region for Soil Health Parameters

DISTRICT	Year		%_SAND	% SILT	% CLAY	OM	ACTIVE_CARBON	RESPIRATION	AG_STABILITY	BNA	pH	P_INDEX	C:N RATIO	% C	% N
Carleton	2020	**Average:**	**29.0**	**51.2**	**19.7**	**5.0**	**538.3**	**0.9**	**49.1**	**38.6**	**5.9**	**11.5**	**10.6**	**2.9**	**0.3**
	2020	St.Dev.	6.4	5.9	7.6	2.5	231.4	0.5	28.6	32.3	0.5	6.9	2.4	1.4	0.1
Carleton	2021	**Average:**	**32.2**	**50.9**	**16.5**	**4.9**	**556.2**	**0.7**	**51.1**	**37.0**	**6.0**	**12.8**	**11.5**	**2.8**	**0.3**
	2021	St.Dev.	10.2	8.2	3.4	1.5	114.6	0.3	22.1	19.8	0.4	6.2	5.4	0.9	0.1
Carleton	2022	**Average:**	**33.8**	**48.7**	**17.5**	**5.7**	**646**	**0.87**	**43.8**	**51.7**	**6.2**	**10.13**	**10.92**	**3.33**	**0.30**
	2022	St.Dev.	5.7	4.6	1.4	2.7	181.0	0.5	24.3	48.2	0.6	5.6	1.4	1.6	0.1
Northwest	2020	**Average:**	**33.7**	**51.4**	**14.9**	**7.3**	**813.3**	**1.0**	**77.0**	**45.9**	**6.1**	**11.2**	**10.3**	**4.2**	**0.4**
	2020	St.Dev.	11.4	8.7	4.5	2.9	249.8	0.5	21.0	21.8	0.7	7.1	0.8	1.7	0.2
Northwest	2021	**Average:**	**35.0**	**48.6**	**14.8**	**5.2**	**613.0**	**0.7**	**43.3**	**33.0**	**5.9**	**14.3**	**10.0**	**3.0**	**0.3**
	2021	St.Dev.	7.9	10.2	1.7	2.7	251.8	0.5	33.7	14.6	0.6	4.8	1.4	1.5	0.1
Northwest	2022	**Average:**	**26.9**	**57.3**	**16.8**	**5.9**	**617.3**	**1.1**	**71.7**	**56.7**	**6.0**	**7.5**	**9.8**	**3.4**	**0.3**
	2022	St.Dev.	12.8	10.8	4.0	2.6	172.8	0.5	23.1	32.8	0.7	8.1	2.5	1.5	0.1
Central	2020	**Average:**	**41.6**	**45.9**	**12.5**	**5.8**	**661.5**	**1.1**	**73.4**	**53.8**	**5.9**	**6.6**	**10.5**	**3.4**	**0.3**
	2020	St.Dev.	17.2	14.1	3.8	2.7	231.8	0.5	15.6	27.0	0.4	5.1	1.9	1.6	0.1
Central	2021	**Average:**	**44.0**	**41.3**	**14.7**	**6.1**	**605.1**	**0.9**	**77.6**	**50.5**	**5.8**	**8.5**	**15.3**	**3.5**	**0.3**
	2021	St.Dev.	22.6	17.8	6.0	2.2	157.8	0.4	18.0	22.5	0.4	7.0	9.8	1.3	0.2
Central	2022	**Average:**	**28.0**	**58.3**	**13.7**	**5.4**	**600.7**	**1.0**	**61.8**	**52.7**	**6.1**	**10.2**	**9.3**	**3.1**	**0.3**
	2022	St.Dev.	9.0	9.3	3.2	3.1	231.2	0.5	30.1	27.1	0.7	13.4	1.9	1.8	0.1
Kings	2020	**Average:**	**48.5**	**39.7**	**11.8**	**5.0**	**658.3**	**0.9**	**50.4**	**45.3**	**6.1**	**9.0**	**10.4**	**2.9**	**0.3**
	2020	St.Dev.	13.0	10.3	3.6	1.5	184.2	0.3	22.9	20.0	0.5	6.4	1.6	0.9	0.1
Kings	2021	**Average:**	**45.8**	**41.1**	**13.2**	**5.6**	**693.5**	**1.0**	**68.9**	**55.2**	**6.1**	**4.6**	**11.2**	**3.2**	**0.3**
	2021	St.Dev.	12.1	9.6	3.4	1.7	119.6	0.4	21.8	20.6	0.3	2.6	1.7	1.0	0.1
Kings	2022	**Average:**	**50.0**	**37.7**	**12.3**	**5.4**	**707.0**	**1.2**	**56.2**	**48.1**	**6.4**	**8.4**	**11.5**	**3.1**	**0.3**
	2022	St.Dev.	11.4	8.7	3.3	0.7	123.3	0.3	26.4	13.5	0.9	8.9	2.5	0.4	0.0
North Shore	2020	**Average:**	**31.9**	**48.7**	**19.5**	**7.1**	**902.4**	**1.3**	**67.6**	**50.8**	**6.7**	**12.4**	**10.8**	**4.1**	**0.4**
	2020	St.Dev.	13.5	10.7	4.7	2.0	199.9	0.3	16.3	20.9	0.4	15.3	0.8	1.2	0.1
North Shore	2021	**Average:**	**52.8**	**32.3**	**14.9**	**5.4**	**577.2**	**0.8**	**66.7**	**33.9**	**5.5**	**6.2**	**14.5**	**3.1**	**0.3**
	2021	St.Dev.	18.5	13.4	6.8	3.0	246.3	0.4	17.8	21.9	0.9	11.1	7.6	1.7	0.1
North Shore	2022	**Average:**	**50.4**	**35.4**	**14.2**	**5.7**	**607.9**	**1.2**	**80.7**	**49.2**	**5.4**	**3.5**	**13.7**	**3.3**	**0.3**

	2022	St.Dev.	16.7	13.7	3.5	2.0	190.2	0.7	13.7	27.8	0.5	1.9	3.4	1.2	0.1
Moncton	2020	**Average:**	**45.3**	**40.6**	**14.0**	**5.6**	**654.6**	**1.3**	**60.2**	**55.6**	**5.6**	**8.0**	**12.0**	**3.3**	**0.3**
	2020	St.Dev.	4.4	5.3	2.6	1.9	189.1	0.8	19.0	25.9	0.8	4.7	1.7	1.1	0.1
Moncton	2021	**Average:**	**31.1**	**45.2**	**23.8**	**9.9**	**1094.5**	**1.5**	**58.3**	**81.8**	**5.6**	**15.1**	**10.7**	**5.8**	**0.6**
	2021	St.Dev.	22.5	12.3	10.5	4.2	368.4	0.8	22.7	45.1	0.6	14.3	2.4	2.5	0.3
Moncton	2022	**Average:**	**68.1**	**22.0**	**9.8**	**3.5**	**547.7**	**1.0**	**45.6**	**27.5**	**6.4**	**10.0**	**11.2**	**2.0**	**0.2**
	2022	St.Dev.	10.9	6.2	5.1	1.5	246.1	0.8	17.9	17.6	0.6	11.3	3.3	0.9	0.2
Chignecto	2020	**Average:**	**38.7**	**43.8**	**17.4**	**7.0**	**719.2**	**1.2**	**63.3**	**60.2**	**6.0**	**6.9**	**10.7**	**4.0**	**0.4**
	2020	St.Dev.	19.4	12.5	9.6	5.2	292.4	0.4	24.1	32.0	1.0	5.0	1.1	3.0	0.3
Chignecto	2021	**Average:**	**27.6**	**49.8**	**22.6**	**7.1**	**797.0**	**1.1**	**43.0**	**60.6**	**5.5**	**12.1**	**11.0**	**4.1**	**0.4**
	2021	St.Dev.	22.3	13.2	12.3	4.6	279.1	0.6	17.1	25.3	0.7	10.6	2.4	2.7	0.2
Chignecto	2022	**Average:**	**18.5**	**60.4**	**21.1**	**6.2**	**744.4**	**2.0**	**36.1**	**68.8**	**5.9**	**8.2**	**10.3**	**3.6**	**0.4**
	2022	St.Dev.	22.8	18.1	10.1	3.8	231.3	0.9	24.3	24.1	0.8	5.2	2.9	2.2	0.3

TABLE 2: THREE YEAR AVERAGE SOIL HEALTH VAUES BY REGION (2020-2021-2022)

DISTRICT	%SAND	%SILT	%CLAY	OM	ACTIVE_CARBON	RESPIRATION	AGREGR-STABILITY	BNA	pH	P_INDEX	C:N	%C	%N
Carleton	**32**	**51**	**17**	**5.0**	**562**	**0.8**	**50**	**39**	**6.0**	**12.2**	**11**	**2.9**	**0.3**
Northwest	**31**	**53**	**16**	**6.2**	**683**	**1.0**	**67**	**47**	**6.0**	**10.3**	**10**	**3.6**	**0.4**
Central	**39**	**49**	**13**	**5.4**	**616**	**1.0**	**68**	**51**	**6.0**	**8.4**	**10**	**3.1**	**0.3**
Kings	**48**	**40**	**12**	**5.3**	**683**	**1.0**	**58**	**49**	**6.2**	**7.3**	**11**	**3.1**	**0.3**
Moncton	**58**	**30**	**12**	**4.6**	**622**	**1.1**	**50**	**39**	**6.0**	**9.9**	**12**	**2.7**	**0.3**
Chignecto	**27**	**53**	**20**	**6.4**	**712**	**1.4**	**45**	**61**	**5.8**	**8.6**	**11**	**3.7**	**0.4**
North Shore	**48**	**37**	**15**	**5.9**	**654**	**1.1**	**73**	**44**	**5.7**	**6.2**	**13**	**3.4**	**0.3**

Table 3: Soil Health Parameters from a Non Potato Rotation											
	OM	ACTIVE_CARBON	RESPIRATION	AG_STABILITY	BNA	pH	P_INDEX	C:N	%_C	%_N	
FIELD_ID											Crop History/Description
As Wet	5.8	594	1.61	77.8	98.5	5.5	20.4	9.3	3.4	0.4	Wet spot, very grey soil, no animal traffic, ferns growing.
As-Ls Good	8.1	781	1.32	95.9	82.5	6.1	1.6	39.2	4.7	0.1	Normal part of field, not plowed in at least 40 years, timothy/naturalized stand
As-Ls Bad	8.3	635	1.12	98.1	25.6	5.3	1.0	37.0	4.8	0.1	Barely anything grows, not plowed in at least 40 years, thin grass and junipers growing
As-Tw Good	7	655	1.15	95.1	66.9	5.8	3.6	29.0	4.1	0.1	Normal part of field, not plowed in 20 years, was potatoes before permanent forage, timothy/naturalized grass
As-Tw Bad	5.9	490	0.89	83.2	42.9	5.2	0.8	6.1	3.4	0.6	Barely anything grows, not plowed in 20 years, potatoes prior to permanent forage, thin grass growing here
Heif Wet Spot	9.8	550	1.3	96.3	54.7	5.8	22.9	9.5	5.7	0.6	Wet spot, soil very coarse sand, lots of animal traffic by the looks of it, swamp grass and bullrushes growing
C1 Front	5.3	747	0.65	40.4	43.6	6.5	13.8	11.0	3.1	0.3	Plowed in spring 2021 and planted in soybeans. Previously had timothy but was always quite a thin stand. Not plowed in 15 years. Prior to timothy was a potato crop rotation.
C1 Silage	6.8	800	1.2	78.6	68.2	6.1	8.4	11.3	3.9	0.4	Not plowed in 15 years, timothy/naturalized forage stand. Prior to this it was potatoes
C1 Bad	9	782	1.31	94.8	64.1	5.7	1.2	13.4	5.2	0.4	Not plowed in 15 years. Timothy, goldenrods and bedstraw growing there. No crop ever taken off, just bush hogged each year. Never used for potatoes, just forage and probably never plowed much.
C2 Front	3.7	361	0.45	38	29.8	5.6	15.0	11.3	2.2	0.2	Plowed in spring 2021 and planted in soybeans. Previously had timothy but was always quite a thin stand and not plowed in 15 years. Prior to timothy was potato crop system
Average:	**7.0**	**639.5**	**1.1**	**79.8**	**57.7**	**5.8**	**8.9**	**17.7**	**4.0**	**0.3**	

As reported in Soil Health Bench Marking-Reference Project C1920-0036-Y2 in-field variability, as illustrated in Figures A, B, C and D (below), between key Soil Health Indicator parameters exists; similar to that demonstrated for soil pH, OM and nutrient availability with geo-referenced soil sampling. There does not appear to be a strong correlation in location between the soil health parameters reported. This variability must be accounted for when defining sampling methodology to establish benchmarks to measure remediation procedures to improve soil health.

Figure A: Active Carbon

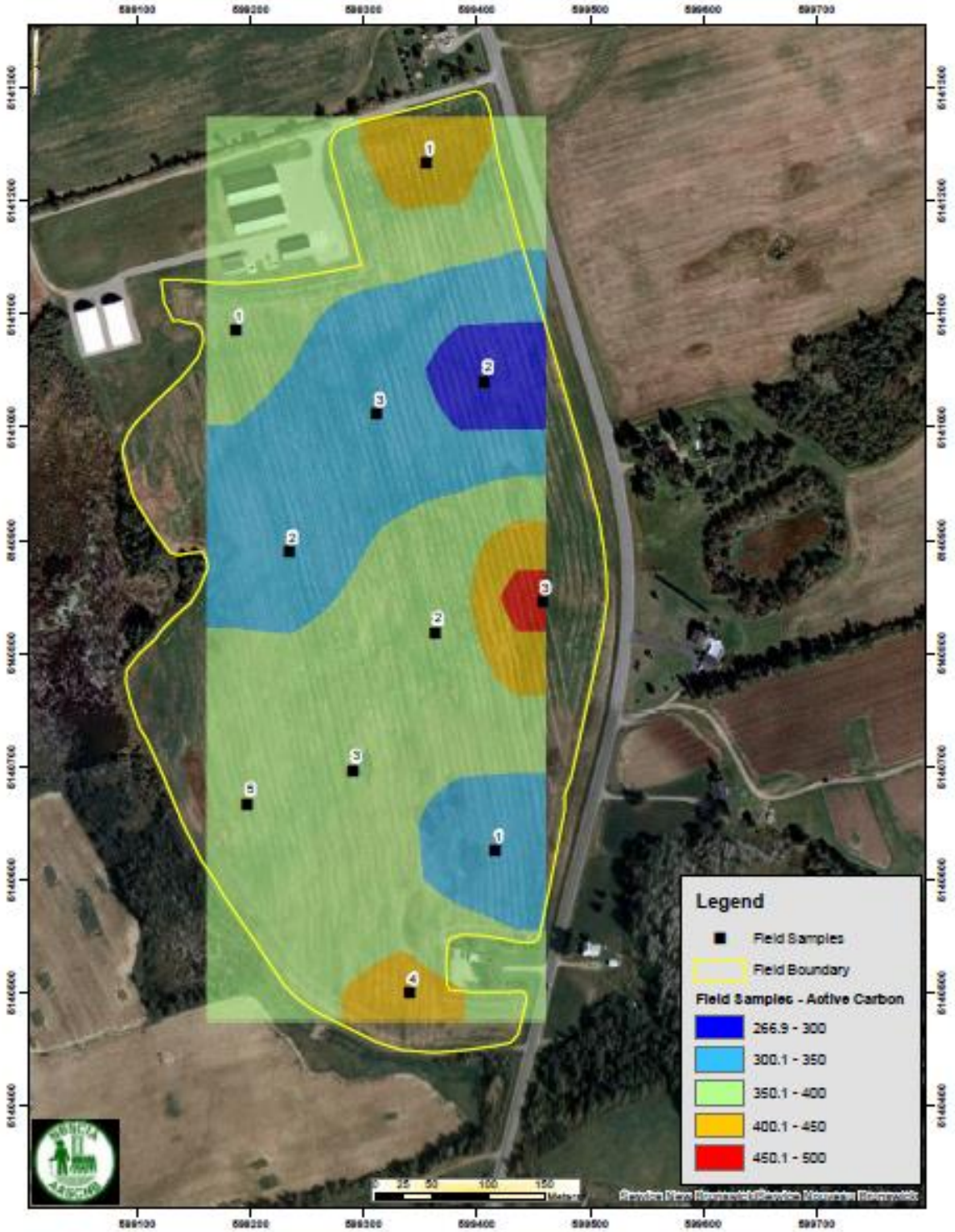


Figure B: Soil Respiration

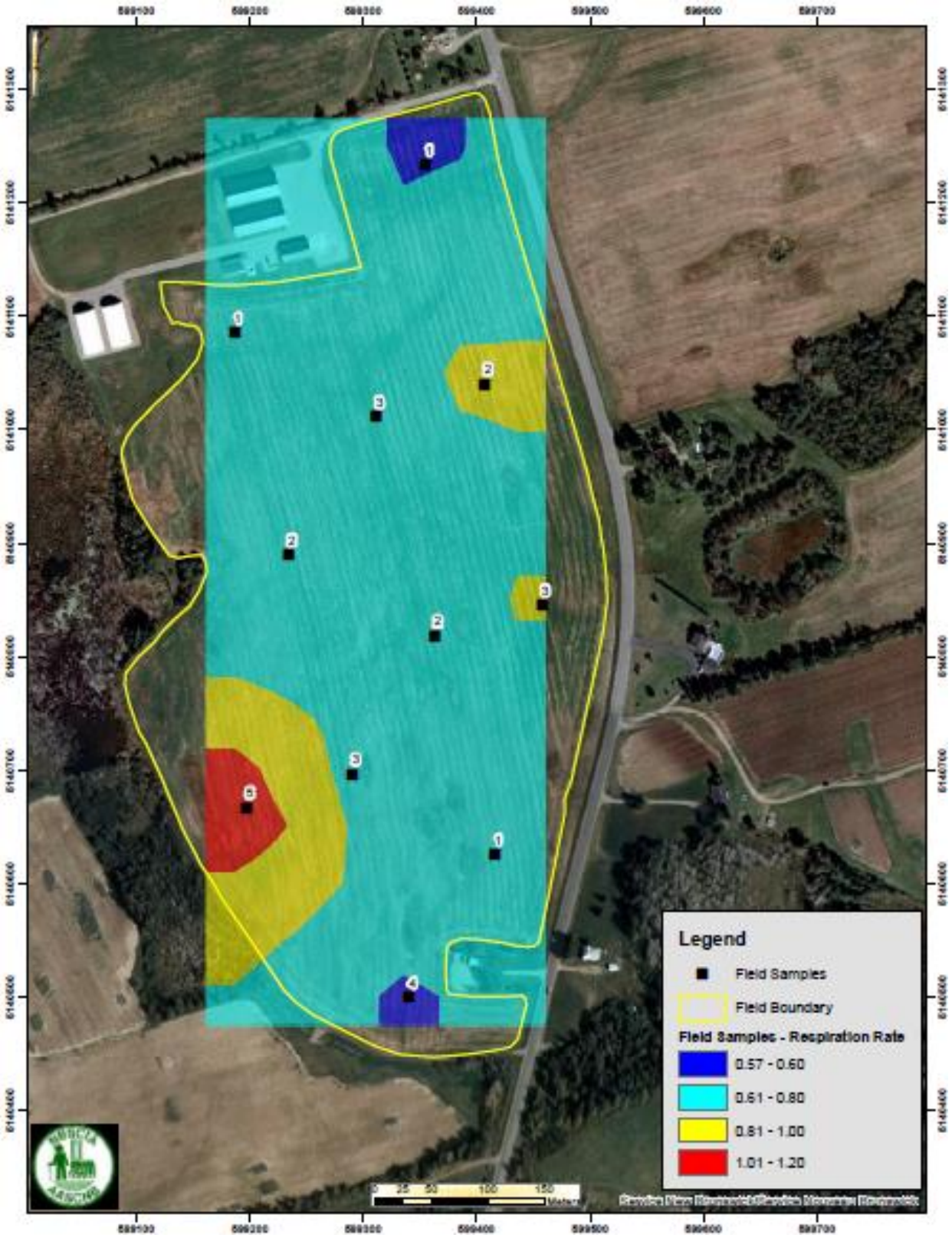


Figure C: Aggregate Stability

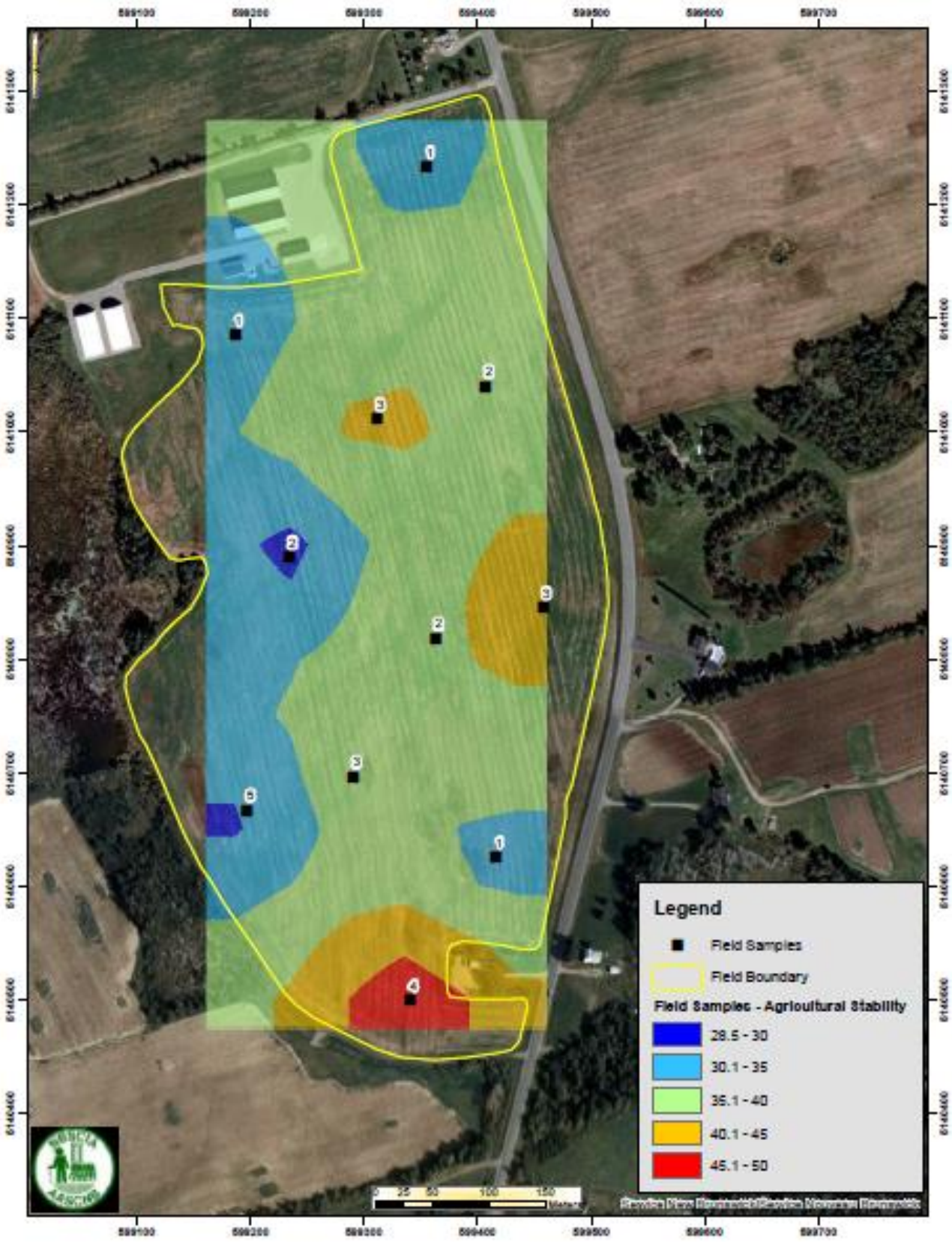
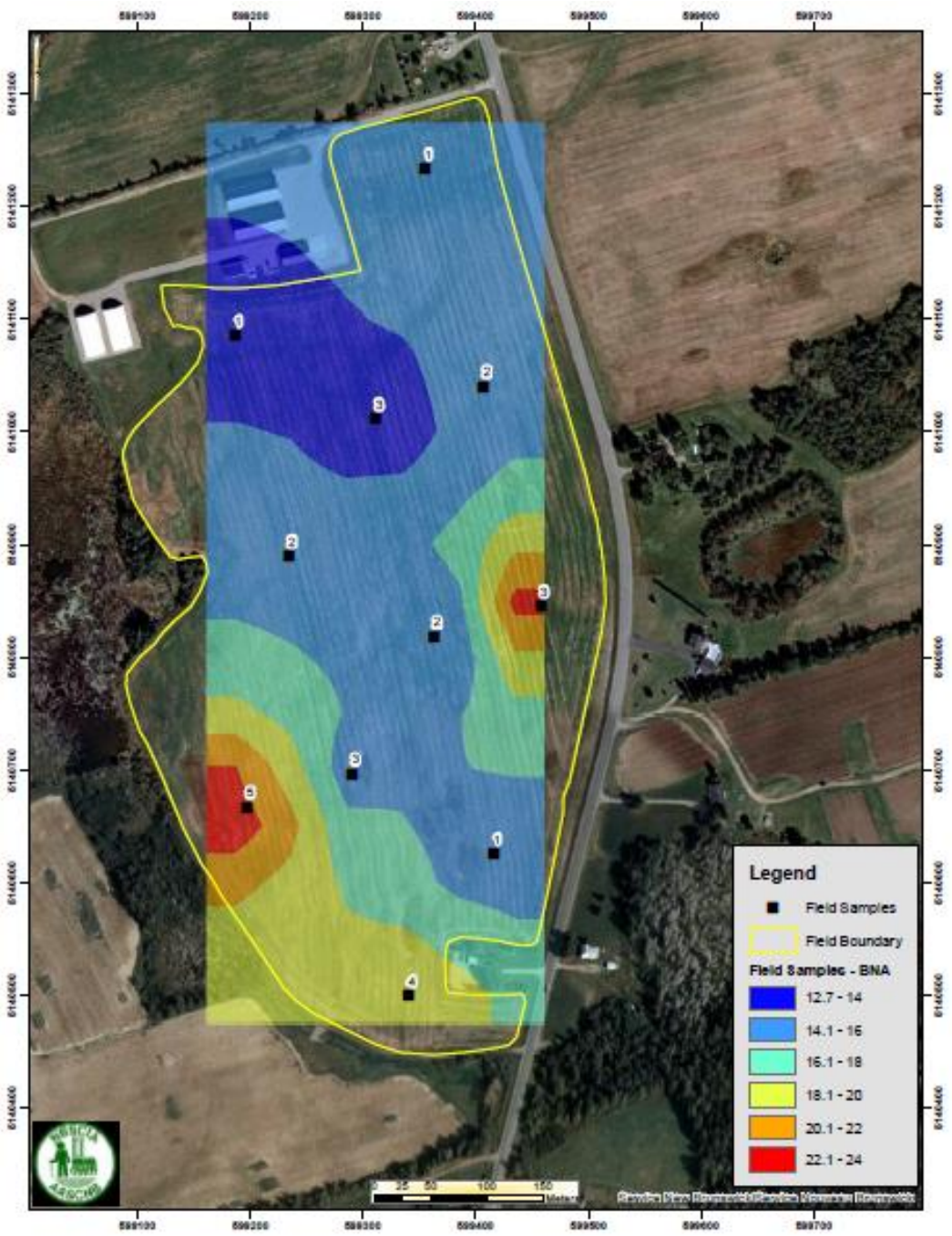


Figure D: Biological Nitrogen Availability



Compounding the discussion on soil health in the Atlantic Region is the lack of consensus among the local academic community and crop consultants. on the "best" method or parameters for measuring and monitoring soil health. A&L Canada Laboratories Inc., London, Ontario (https://www.alcanada.com/content/solutions/soil-health) is marketing soil health monitoring in Atlantic Canada with a somewhat different approach than the PEI Analytical Soil Health Laboratory. A brief comparison of the methodologies is presented in Appendix B. The A&L methodology has not been calibrated with field trials in New Brunswick. All parameters are based on interpolation or extrapolation from another climatic zone with different cropping systems and by different agrologists from outside of NB.

The PEI Analytical Laboratory Soil Health package (Appendix A) includes Soil Respiration, Aggregate Stability, Active Carbon, Biological Nitrogen Availability, and Soil Texture with the following standard soil sample analysis: pH, OM, P2O5, K2O, Ca, Mg, Cu, Zn, Fe, Mn, S, B, Na, Al, Lime Index, and CEC. The soil texture classification is calculated from the percent sand, clay and silt values using the USDA Natural Resources Conservation textural classification.

9. *Conclusions:*

As critical as soil health measurements may be in managing the adaptation to climate change, based on the limited data available to date there appears to be a significant difference between agricultural regions in New Brunswick and between cropping systems within the regions. Therefore, it may not be possible to establish a province wide soil health rating system in New Brunswick similar to PEI.

Given the observed variability between NB agricultural regions, between cropping systems and within fields, it may be impractical to establish a single classification system for the Province or a Region within the Province. Although more data is required prior to a final conclusion, the best approach might be for a producer to adopt a lab methodology and measure improvement from a consistent reference point specific to the farm's cropping system or fields within the farm.

10. Required next steps:

The capacity of the PEIAL to complete soil health analysis is limited and impractical. Final results for this report from the fall of 2022 were received on the date of this reporting (March 27,2023). Academics and industry stakeholders in New Brunswick must arrive at a single laboratory and methodology to evaluate soil health parameters.

In-field sampling methodologies need to be defined to ensure minimum variability between samples within a year and between years.

Further statistical analysis of the existing data set should be undertaken to evaluate methodologies and test a soil health rating to benchmark reference points to measure soil health improvement with subsequent BMP adoption.

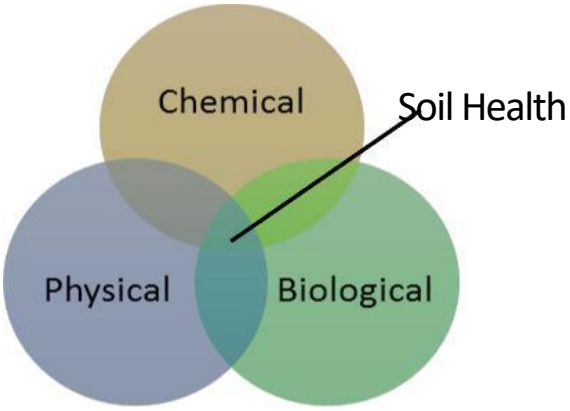
11. Communication:

Once established appropriate methodologies and soil health parameters will be communicated to the industry via social media, newsletters, workshops and field days.

Prince Edward Island CANADA Agriculture and Land

PEI Soil Health Test - How to Interpret Your Results

September 2019



What is Soil Health?

"Soil health" is a term often used to define the ability of a soil to function. It focuses on all three primary soil properties: the physical, chemical, and biological components and how they affect plant productivity. By testing soil health parameters, we can better understand the limitations and stressors to a soil system, and try to adapt management practices to increase the areas that require improvement.

The chemical, biological, and physical properties of soil work cohesively together. By neglecting one aspect of soil health, you could be limiting other areas.

Section I - Soil Health Indicator Tests

Each soil health test listed below is a useful indicator of one or more soil functions. The active carbon, soil respiration, aggregate stability, and soil texture tests were adapted from the Cornell Soil Health Assessment and Atlantic Soil Health Lab. The biological nitrogen availability test was adapted from the Atlantic Soil Health Lab.

Soil Texture

Soil texture is presented as the percentage of sand, silt, and clay particles found in a soil. Based on those results, your soil falls into one of several soil texture classes. There is no rating associated with soil texture results since texture cannot be altered or influenced through management practices. Generally, soil texture class will not change over time.

Soil texture can strongly influence many soil characteristics, such as the amount of soil organic matter that a soil could potentially contain. Therefore, soil texture can influence soil health test results. With sandy soils like those found on PEI, it can be difficult to build and maintain high levels of soil organic matter, which has the potential to decline faster than other soil types in response to crop management practices. On the other hand, sandy soils generally have better drainage than heavier clay soils.

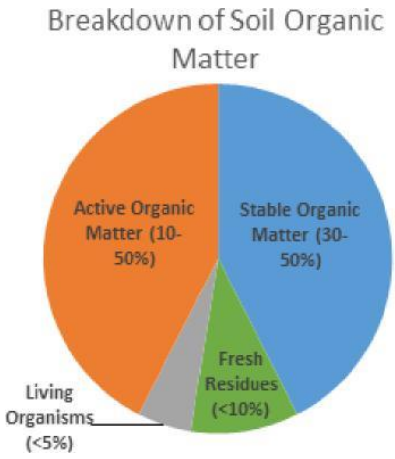
Soil Organic Matter

One of the best indicators of soil health is soil organic matter content. Soil organic matter, measured as total soil carbon, represents the amount of carbon compounds in the soil that are derived from living and dead organisms and plant tissues. Organic matter exists in various stages of decomposition and is considered vital to soil health because it

influences almost every important soil property, including fertility, nutrient cycling, water storage and infiltration, and extreme weather events.

The total soil organic matter value is reported as a percentage of the overall soil amount. **The higher the value - the better.**

It can take several years to notice an increasing or decreasing trend in soil organic matter levels beyond lab or field variability. This is partially due to the fact that a relatively large portion of soil organic matter is highly inactive and has taken thousands of years to form.



Atlantic Soil Health Lab, 2018

Active Carbon

Soil organic matter can be divided into two different groups: the "stable" fraction and the "active" fraction. The "stable" (or "humus") fraction has formed over thousands of years, is resistant to breakdown, and not usable by plants. It stores carbon and provides an essential role in maintaining soil structure and cation exchange capacity. The "active" soil organic matter fraction is more recently formed (1-5 years) and is more readily available to plants. The active fraction consists of decomposing plant and animal (microbe) tissues and acts to supply and recycle soil nitrogen. The active fraction is also involved in the formation of soil aggregates. The active soil organic matter fraction responds more quickly to crop management changes than the much larger stable soil organic matter in soil. Therefore, being able to evaluate the amount of active carbon is useful for measuring and tracking the impact of soil management practices on organic matter.

For the active carbon test, the **higher the value - the better.**

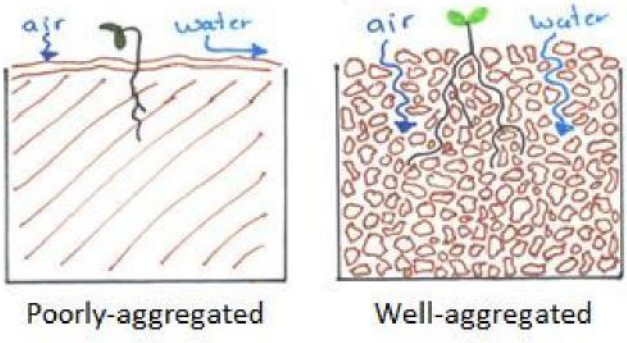
Soil Respiration

Microbes, including bacteria and fungi, play a critical role in regulating the carbon cycle and mineralizing nutrients, turning them into plant-available forms. Soil microbes also influence tilth (soil structure) and help protect crops against pests and disease. As the name implies, the soil respiration test assesses microbial activity by measuring the release of carbon dioxide (CO_2) from the soil. CO_2 respiration is a by-product of microbial metabolism, which includes mineralizing nutrients and breaking down residues. This test is a good indicator of overall microbial activity.

The value reported for the soil respiration test is in milligrams of CO_2 per gram of dry soil. **The higher the value - the better.**

Aggregate Stability

Soils are composed of many shapes and sizes of particles (sand, silt, and clay), and these particles form into structures known as "aggregates." These aggregates of soil particles are held together by organic matter, microorganisms, and the compounds these microorganisms produce. Having aggregates of different sizes results in spaces (or pores) between the aggregates, which allows water and air to move through the soil. The structural stability of soil is dependenton how well these aggregates are held together and by the types of particles present in the aggregate. Therefore, the presence and durability of aggregates is key to maintaining good soil structure.



Adapted from Sullivan (1999)

A well-aggregated soil is more likely to maintain its structure in response to physical stress such as tillage, precipitation, and compaction. We measure aggregate stability by testing how well soil aggregates resist breaking apart during a simulated heavy rainstorm event. The value reported is in percentage of stable aggregates. **The higher the value - the better.**

Aggregate Stability Test

On the left, this soil only retained 20% of the soil aggregates on the sieve during the rainfall simulation, whereas the soil on the right retained 63% of the soil aggregates. The higher aggregate stability found in the sample on the right means it will have greater resistance to breakdown during stress (i.e., during extreme weather conditions).

Biological Nitrogen Availability

Nitrogen is stored in the soil in two forms – one is immediately plant available (inorganic), and the other (organic) is tied-up in a variety form (i.e., in organic matter, microbial organisms, plant and root residues, etc.). Nitrogen becomes plant available when it is broken down (also known as mineralized) into an "inorganic" form, and can then be actively taken up by plant roots. This breakdown process occurs by microbes metabolizing these compounds and releasing nitrogen into a plant available form. This process is driven by microbes and is dependent on soil temperatures and moisture levels.

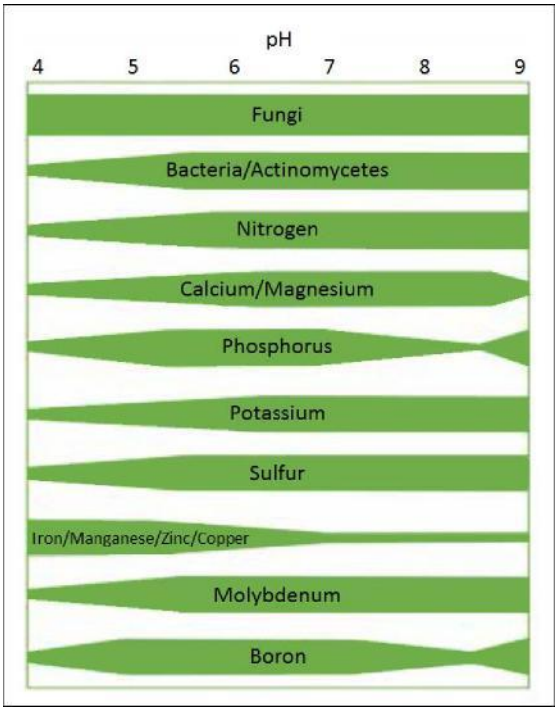
To measure how well your soil can provide plant-available nitrogen during the growing season, the biological nitrogen availability is tested by taking a dry, relatively inactive soil and exposing it to optimum moisture and temperature conditions over two weeks. This allows microbial activity to resume and the amount of nitrogen that gets mineralized into plant-available forms can be measured. The amount of plant-available (inorganic) nitrogen that is mineralized during this period is reported and the **higher the value** – **the better.** This test was adapted for use specifically for PEI producers by the Atlantic Soil Health Lab in Truro, NS.

Soil pH and nutrient availability

Soil pH measures the acidity of the soil. Soil acidity affects many soil processes, including microbial activity and the availability of nutrients to crops. Optimum soil pH can differ by crop type, with most crops having an optimum of 6.2-6.8. However, potatoes and wild blueberries can grow well in lower pH soils.

The image below depicts the availability of different nutrients at various pH levels. The wider the band, the greater the availability of that nutrient. As pH changes, nutrients take on different chemical forms, making them more or less reactive with other compounds. Therefore, at different pH levels some nutrients are more available, and some nutrients are less available.

Crop growth is largely dependent on ensuring adequate nutrients are taken up by the plant, and can be slowed down if nutrients are not in a plant-available form. Nutrients can be referred to as macronutrients if they are required by the plant in a large volume, and micronutrients if they are required in a small amounts. Soil chemistry is an integral component of soil health, which is why the soil health test is accompanied by a full nutrient analysis. Please consult the S3 report accompanying your soil health test for detailed nutrient results for each of your samples.



Moebius-Clune et al. (2016), modified from Brady and Weil (1999).

Phosphorus Saturation Index

Phosphorus is a relatively immobile nutrient within the soil and can be inaccessible to the crop unless it is in a form available for plant uptake. Factors that affect phosphorus plant uptake include organic matter content, fertilizer placement, and pH. Because PEI has slightly acidic soils, iron and aluminum can chemically tie-up "free" phosphorus that would otherwise be plant available at lower pH values. The Phosphorus Saturation Index is a calculation that can help predict the amount of P available to the crop, by accounting for the total amount of phosphorus and iron within the soil, as well as pH. Refer to the table below to determine if the phosphorus saturation (P/Al %) is above or below the critical P-Saturation level for your pH.

pH level of your sample	Critical P-Saturation Level	Interpretation
pH < 5.5	19%	If the P/AL % is above the critical P-saturation level listed for your pH level, then the soil is saturated with excess phosphorus. Therefore, the likelihood that crop yield will be impacted by the addition of phosphorus fertility is very low. Excess phosphorus can cause environmental issues if it moves with soil through erosion to bodies of water. A reduction in your phosphorus fertilization strategy is recommended.
pH > 5.5	14%	

For more information on the P-Saturation Index, please refer to the factsheet "Understanding the factors controlling phosphorus availability" at: https://www.princeedwardisland.ca/en/information/agriculture-and-land/understanding-factors-controlling-phosphorus-availability-crop. Specific phosphorus recommendations using the phosphorus index for potato has been developed for PEI. The P-saturation index is also used to estimate potato P requirements in Quebec (CRAAQ, 2010), and New Brunswick (New Brunswick Department). These recommendations were developed for PEI soils at plot-scale studies and validation of the recommendations for field-scale is in development. For more information see the link below:

https://www.princeedwardisland.ca/sites/default/files/publications/af_nmp_p_fertilization_recommendation.pdf

C:NRatio

Soil microbes decompose organic materials in search of nutrients and energy sources. The relative amounts of energy (C) and nutrients (N, P, S) will determine whether decomposition will result in removal (immobilization) or release of nutrients (mineralization). Organisms will only use the nutrients needed to meet their growth needs, releasing the excess nutrients into the soil in a plant-available form (mineralization).

The ratio of C:N in the soil therefore reflects the relative amounts of energy (C) and nitrogen (N) in organism matter and whether nitrogen mineralization or immobilization will occur during decomposition. When the ratio of C:N falls below 20:1, decomposition will result in plant available nitrogen being released (mineralization).

The C:N ratio for soil is calculated simply by comparing the total carbon and total nitrogen values of the sample, which are reported below the ratio. Greater soil N supply is expected in soils with a narrow C:N ratio.

APPENDIX B Comparison of the PEI Analytical Soil Health Laboratory and A&L Canada Laboratories Inc Soil Health Methodology and Reporting

Solvita C02 burst:
Measure of C02 released in 24 hrs after soil has been dryed and re-wetted. High correlation to microbial activity in the soil and directly related to soil fertility.

Compares to PEIAL Soil Respiration

Microbes, including bacteria and fungi, play a critical role in regulating the carbon cycle and mineralizing nutrients, turning them into plant-available forms. Soil microbes also influence tilth (soil structure) and help protect crops against pests and disease. As the name implies, the soil respiration test assesses microbial activity by measuring the release of carbon dioxide (CO2) from the soil. CO2 respiration is a by-product of microbial metabolism, which includes mineralizing nutrients and breaking down residues. This test is a good indicator of overall microbial activity.

The value reported for the soil respiration test is in milligrams of CO2 per gram of dry soil. The higher the value - the better.

Reactive C:
Composed of dead and actively decomposing OM in the rhizosphere that will feed microbes. Reactive C is linked to a number of soil processes including microbial biomass, growth and activity, and nutrient cycling. This number should ideally sit between 500-700ppm.

Compares to PEIAL Active Carbon

Soil organic matter can be divided into two different groups: the “stable” fraction and the “active” fraction. The “stable” (or “humus”) fraction has formed over thousands of years, is resistant to breakdown, and not usable by plants. It stores carbon and provides an essential role in maintaining soil structure and cation exchange capacity. The “active” soil organic matter fraction is more recently formed (1-5 years) and is more readily available to plants. The active fraction consists of decomposing plant and animal (microbe) tissues and acts to supply and recycle soil nitrogen. The active fraction is also involved in the formation of soil aggregates. The active soil organic matter fraction responds more quickly to crop management changes than the much larger stable soil organic matter in soil. Therefore, being able to evaluate the amount of active carbon is useful for measuring and tracking the impact of soil management practices on organic matter.
For the active carbon test, the higher the value - the better.

Soil Health Index:
Scale of 0-60. Used as a snapshot of soil fertility and microbial health. Over 40 is generally good.

This is sort of what PEIAL is getting at with their rating system. However, we do not have sufficient NB data to attempt this yet.

Rating	Interpretation
Low (0-25)	The "Low" rating means the test value is among the lowest 25% for all sites sampled across PEI and may be limiting the productivity of the system. Short and long term management strategies should be implemented to build up the soil health within the field.
Low+ (26-50)	The "Low +" rating means the test value is below average of all sites sampled across PEI. Review management practices and consider including additional short and long term management. Re-test again after one full rotation to determine if the field is trending towards improvement or decline.
Medium (51-75)	The "Medium" rating means the test value is above average of all sites sampled across PEI. Consider which practices are currently working on the farm and where areas for improvement may exist. Prioritize this against the status of other tests and fields reported to determine where resources and time should be spent.
High (76-100)	The "High" rating means the test value is among the top 25% of all sites sampled across PEI. Consider field history and previous management practices to identify ways of maintaining the strong rating. If making changes to cropping practices, consider how it may affect soil health and in this event, plan future re-sampling to observe changes or trends. Focus management strategies on other lower-rated soil health test results if they exist.

Water Extracted Carbon/Nitrogen:

Basically, a C:N ratio (Haney Test) used to determine microbial activity in the mineralization of N and P. Optimal ratio is between 8:1 and 15:1. A soil C:N ratio above 20:1 generally indicates that no net N and P mineralization will occur and these nutrients are tied up within the microbial cell.
This C pool is 80X smaller than the total organic C pool (%OM) and reflects the energy source feeding microbes. The water extractable organic C reflects the quality of the C in your soil and is highly related to Microbial activity. To put in producer terms: the soil OM is the house the microbes live in, but what this is measuring is the food they eat! Should ideally range from 100-300ppm.

Compares to PEIAL Biological Nitrogen Availability
Nitrogen is stored in the soil in two forms – one is immediately plant available (inorganic), and the other (organic) is tied-up in a variety of forms (i.e. in organic matter, microbial organisms, plant and root residues, etc.). Nitrogen becomes plant available when it is broken down (also known as mineralized) into an "inorganic" form, and can then be actively taken up by plant roots. This breakdown process occurs by microbes metabolizing these compounds and releasing nitrogen into a plant available form. This process is driven by microbes and is dependent on soil temperatures and moisture levels.
To measure how well your soil can provide plant-available nitrogen during the growing season, the biological nitrogen availability is tested by taking a dry, relatively inactive soil and exposing it to optimum moisture and temperature conditions over two weeks. This allows microbial activity to resume and the amount of nitrogen that gets mineralized into plant-available forms can be measured. The amount of plant-available (inorganic) nitrogen that is mineralized during this period is reported and the higher the value – the better. This test was adapted for use specifically for PEI producers by the Atlantic Soil Health Lab in Truro, NS.

This test requires a two-week incubation in the lab.

PEIAL also reports a C:N Ratio which sort of gets at this.
Soil microbes decompose organic materials in search of nutrients and energy sources. The relative amounts of energy (C) and nutrients (N, P, S) will determine whether decomposition will result in removal (immobilization) or release of nutrients (mineralization). Organisms will only use the nutrients needed to meet their growth needs, releasing the excess nutrients into the soil in a plant-available form (mineralization).
The ratio of C:N in the soil therefore reflects the relative amounts of energy (C) and nitrogen (N) in organism matter and whether nitrogen mineralization or immobilization will occur during decomposition. When the ratio of C:N falls below 20:1, decomposition will result in plant available nitrogen being released (mineralization).
The C:N ratio for soil is calculated simply by comparing the total carbon and total nitrogen values of the sample, which are reported below the ratio. Greater soil N supply is expected in soils with a narrow C:N ratio.

APPENDIX C: Summary of Soil Health Attributes for All Fields and Sample Sites-2019-2020-2021-2022

DISTRICT	FIELD_ID	% SAND	% SILT	% CLAY	TEXTURE_CLASS	OM	ACTIVE CARBON	RESPIRATION	AG_STABILITY	BNA	pH	P_INDEX	C:N RATIO	%_C	%_N
Carleton	1	31.8	51.5	16.8	Silt Loam	2.8	420	0.58	34.3	14.5	7.2	18.40	9.53	1.62	0.17
Carleton	3	37.1	47.1	15.8	Loam	2.8	254	0.85	39.2	15.1	5.5	19.92	9.00	1.62	0.18
Carleton	5	36.7	48.0	15.3	Loam	4.0	496	0.84	43.3	24.0	6.0	15.41	10.55	2.32	0.22
Carleton	7	34.7	45.9	19.4	Loam	2.9	306	0.77	33.2	14.6	5.9	19.96	9.33	1.68	0.18
Carleton	9	32.3	49.0	18.6	Loam	3.3	368	0.60	40.0	13.2	5.8	14.09	10.05	1.91	0.19
Carleton	11	33.6	50.4	16.0	Silt Loam	3.1	326	0.69	41.7	12.1	5.8	21.36	9.47	1.80	0.19
Carleton	13	29.6	51.5	18.8	Silt Loam	2.9	364	0.69	33.0	12.9	5.8	18.15	9.33	1.68	0.18
Carleton	15	18.5	37.9	43.6	Clay	3.0	328	0.61	28.3	15.2	5.7	16.87	9.16	1.74	0.19
Carleton	17	18.9	38.0	43.1	Clay	3.6	368	0.75	38.9	14.8	5.6	14.92	9.95	2.09	0.21
Carleton	19	33.3	49.8	16.9	Loam	4.1	418	0.57	48.5	19.3	5.6	13.13	9.92	2.38	0.24
Carleton	21	28.0	51.9	20.1	Silt Loam	3.3	373	1.16	28.8	23.9	5.8	12.84	10.05	1.91	0.19
Carleton	BP 1	30.7	52.5	16.8	Silt Loam	3.5	428	0.30	23.7	40.8	4.5	12.39	9.23	2.03	0.22
Carleton	BP 1 Fence	19.1	60.7	20.2	Silt Loam	6.5	815	1.82	88.9	81.1	6.2	2.18	19.84	3.77	0.19
Carleton	CM 3	41.9	46.1	12.0	Loam	4.0	541	0.30	23.2	22.2	6.6	15.78	10.55	2.32	0.22
Carleton	Field 3	29.2	52.1	18.7	Silt Loam	8.8	871	2.09	94.4	63.4	6.6	4.06	10.85	5.10	0.47
Carleton	Home 3	26.6	57.9	15.5	Silt Loam	5.0	572	0.36	20.9	17.9	5.6	9.91	11.15	2.90	0.26
Carleton	Home 6	35.1	50.1	14.9	Silt Loam	5.1	676	0.65	16.8	28.7	6.2	10.11	11.38	2.96	0.26
Carleton	KT 1	32.8	51.1	16.1	Silt Loam	3.4	366	0.45	21.6	29.3	5.8	18.92	5.97	1.97	0.33
Carleton	KT 1 Fence	26.4	56.1	17.5	Silt Loam	8.1	705	1.47	93.3	62.0	5.5	5.36	13.82	4.70	0.34
Carleton	Paul 48-1A	26.4	55.9	17.8	Silt Loam	4.4	487	0.55	25.8	32.3	6.1	7.62	10.62	2.55	0.24
Carleton	AS Main P	21.7	56.4	21.9	Silt Loam	8.4	791	1.38	89.0	115.1	5.7	2.45	9.19	4.87	0.53
Carleton	AS Twin P	27.9	52.4	19.7	Silt Loam	7.5	769	1.48	91.5	87.6	5.8	1.21	10.36	4.35	0.42
Carleton	AS Twin Low	26.2	54.1	19.6	Silt Loam	7.1	670	1.35	93.3	48.5	5.4	0.72	11.77	4.12	0.35
Carleton	AS Woods	18.4	63.5	18.2	Silt Loam	12.3	1207	1.68	87.4	116.7	6.2	1.09	12.29	7.13	0.58
Carleton	CM 5	27.2	55.1	17.7	Silt Loam	4.6	678	0.51	61.0	29.3	6.1	15.71	9.89	2.67	0.27
Carleton	CM 4	25.7	57.0	17.3	Silt Loam	4.8	715	0.52	50.8	28.7	6.2	15.59	10.30	2.78	0.27
Carleton	Cbell Med 2	23.5	60.1	16.4	Silt Loam	2.6	467	0.32	26.9	18.1	6.4	18.17	8.39	1.51	0.18
Carleton	Home 8 8	18.1	63.4	18.5	Silt Loam	4.8	585	0.41	28.6	23.7	6.0	8.06	11.12	2.78	0.25
Carleton	Home 8 11	17.6	63.1	19.2	Silt Loam	4.7	569	0.40	27.9	29.4	6.1	10.02	10.50	2.73	0.26
Carleton	Cbell Med 1	22.6	59.9	17.5	Silt Loam	3.0	349	0.36	27.1	19.7	6.4	14.62	9.16	1.74	0.19
Carleton	M3-1	42.7	44.3	13.1	Loam	4.9	488	0.71	76.3	29.0	6.9	10.42	12.91	2.84	0.22

Carleton	M4-1	33.9	51.0	15.1	Silt Loam	5.2	535	0.58	64.5	24.4	6.0	7.96	13.13	3.02	0.23
Carleton	D1-F (1)	38.8	48.3	12.8	Loam	4.1	515	0.67	51.9	22.2	5.8	8.04	9.92	2.38	0.24
Carleton	J3-1	58.9	30.6	10.5	Sandy Loam	4.1	462	0.65	76.0	30.2	5.6	16.53	14.00	2.38	0.17
Carleton	M1-1	42.6	44.7	12.7	Loam	4.9	493	0.39	68.2	19.7	6.2	9.35	13.52	2.84	0.21
Carleton	M2-1	35.7	49.9	14.4	Loam	5.5	543	0.41	65.0	20.4	5.8	5.76	13.29	3.19	0.24
Carleton	A4-1	40.3	45.0	14.7	Loam	3.9	451	0.64	52.3	22.2	6.3	20.43	12.56	2.26	0.18
Carleton	J1-1	37.9	49.2	12.9	Loam	4.6	496	0.62	73.1	33.4	5.8	13.62	11.12	2.67	0.24
Carleton	J2-1	32.5	49.7	17.8	Loam	3.8	408	0.49	56.2	29.2	5.6	9.23	9.57	2.20	0.23
Carleton	A3-1st (1)	43.0	42.4	14.6	Loam	4.1	498	0.63	59.3	28.1	6.4	13.47	11.90	2.38	0.20
Carleton	A3-2nd (1)	47.6	39.4	12.9	Loam	4.9	549	0.76	65.8	31.6	6.3	21.00	11.83	2.84	0.24
Carleton	A3-3rd (1)	49.7	37.8	12.5	Loam	4.0	514	0.71	74.6	31.8	6.4	22.97	11.05	2.32	0.21
Carleton	A1-E-B (1)	33.7	49.7	16.6	Loam	3.7	433	0.43	40.0	26.0	5.7	15.57	11.32	2.15	0.19
Carleton	A1-E-C (1)	30.3	52.4	17.4	Silt Loam	4.0	481	0.82	43.7	20.4	6.0	13.56	11.60	2.32	0.20
Carleton	A1-D (1)	43.9	44.2	11.9	Loam	4.4	641	0.52	32.8	26.5	6.7	25.42	10.62	2.55	0.24
Carleton	BR3-I (1)	39.8	45.7	14.5	Loam	4.1	502	0.48	35.9	30.0	5.5	15.36	11.90	2.38	0.20
Carleton	BR2-4 (1)	38.2	47.2	14.5	Loam	3.2	577	0.60	32.3	26.4	6.8	18.33	9.30	1.86	0.20
Carleton	A1-EA (2)	35.2	50.6	14.2	Silt Loam	3.6	455	0.42	39.4	23.0	5.9	16.98	11.00	2.09	0.19
Carleton	D1-G1	36.4	50.7	12.9	Silt Loam	3.7	435	0.52	37.1	22.1	5.5	17.58	11.94	2.15	0.18
Carleton	D2-1	41.5	45.7	12.8	Loam	4.7	544	0.64	60.9	24.2	6.0	12.47	11.38	2.73	0.24
Carleton	D3-1	46.9	41.5	11.5	Loam	5.4	568	0.49	67.0	22.2	5.9	11.28	13.04	3.13	0.24
Carleton	A2 Pre Graze	28.2	56.1	15.7	Silt Loam	5.0	688	0.83	45.3	48.7	6.4	16.57	10.00	2.90	0.29
Carleton	A2 Strip 1	23.5	57.1	19.4	Silt Loam	4.0	563	0.79	39.1	30.4	6.3	14.12	8.59	2.32	0.27
Carleton	A2 Strip 2	28.6	54.8	16.5	Silt Loam	4.3	636	1.08	50.0	42.0	6.3	13.16	8.89	2.49	0.28
Carleton	A2 Strip 3	29.8	53.8	16.4	Silt Loam	4.6	685	0.91	44.2	50.0	6.1	12.05	8.09	2.67	0.33
Carleton	A3 First	38.5	48.2	13.2	Loam	5.1	763	1.03	42.5	45.9	6.3	17.50	9.55	2.96	0.31
Carleton	A3 Second	31.9	50.9	17.1	Silt Loam	5.2	617	1.08	41.9	46.8	6.0	21.65	10.07	3.02	0.30
Carleton	A3 Third	34.5	49.7	15.7	Loam	4.6	569	1.00	36.8	55.3	6.1	18.66	10.27	2.67	0.26
Carleton	BR2 First	32.9	50.8	16.4	Silt Loam	3.4	549	0.72	23.4	27.5	6.8	15.60	8.95	1.97	0.22
Carleton	BR2 Second	38.4	46.8	14.9	Loam	2.9	472	0.41	26.4	21.5	5.7	15.21	8.84	1.68	0.19
Carleton	BR2 Third	38.1	47.9	14.1	Loam	2.6	473	0.45	23.4	23.7	5.7	16.36	7.55	1.51	0.20
Carleton	BR3 1-1	29.0	55.0	16.1	Silt Loam	4.8	643	0.61	20.8	32.7	5.8	20.81	11.12	2.78	0.25
Carleton	BR3 2-1	27.1	26.4	16.5	Silt Loam	4.1	700	0.59	22.8	43.7	5.6	18.88	8.50	2.38	0.28
Carleton	BR3 3-1	30.5	52.7	16.9	Silt Loam	3.4	287	0.58	21.0	32.0	5.8	19.04	8.57	1.97	0.23
Carleton	A4 First	40.7	45.7	13.6	Loam	3.7	447	0.46	33.3	25.6	6.0	15.05	9.35	2.15	0.23

Carleton	A4 Second	32.9	51.3	15.9	Silt Loam	4.1	535	0.50	34.7	29.2	5.9	20.27	10.82	2.38	0.22
Carleton	A4 Third	33.6	51.9	14.5	Silt Loam	4.7	575	0.57	34.5	30.9	5.7	16.75	10.92	2.73	0.25
Carleton	CampbellMid1	25.8	55.7	18.5	Silt Loam	3.0	403	0.47	34.6	25.5	6.2	15.51	8.29	1.74	0.21
Carleton	CampbellMid2	21.6	59.3	19.1	Silt Loam	2.6	358	0.42	25.0	23.4	6.0	15.60	7.95	1.51	0.19
Carleton	Max 1	25.4	57.7	16.9	Silt Loam	4.7	489	0.54	47.2	19.5	6.2	6.87	9.41	2.73	0.29
Carleton	Max 2	21.9	58.6	19.5	Silt Loam	4.9	548	0.43	49.1	29.2	6.5	6.29	9.16	2.84	0.31
Carleton	Home 8-8	20.7	59.2	20.2	Silt Loam	4.7	591	0.47	26.4	44.2	6.1	6.53	9.75	2.73	0.28
Carleton	Home 8-11	18.7	61.3	20.0	Silt Loam	4.4	601	0.51	26.6	34.0	6.1	11.39	9.11	2.55	0.28
Carleton	1	20.4	51.3	28.3	Clay Loam	7.7	849	1.87	78.6	105.1	6.3	1.78	9.51	4.47	0.47
Carleton	3	23.9	59.0	17.0	Silt Loam	8.2	684	1.56	80.6	98.7	5.4	3.57	10.35	4.76	0.46
Carleton	4	23.0	60.2	16.8	Silt Loam	6.3	522	1.46	80.5	58.3	5.3	2.11	9.61	3.65	0.38
Carleton	5	23.2	58.9	17.9	Silt Loam	7.3	664	1.16	79.9	67.2	5.2	2.67	10.58	4.23	0.40
Carleton	CM-5	35.7	50.3	14.0	Silt Loam	5.4	612	0.70	65.5	45.2	6.0	16.89	11.59	3.13	0.27
Carleton	CM-4	36.2	46.6	17.2	Loam	4.9	569	0.50	52.9	49.4	5.9	14.98	11.36	2.84	0.25
Carleton	HW 1	26.4	53.7	19.9	Silt Loam	4.3	460	0.40	26.4	6.4	6.4	8.52	9.58	2.49	0.26
Carleton	HW 2	25.8	55.3	18.9	Silt Loam	4.8	503	0.67	35.9	31.9	7.1	5.18	10.69	2.78	0.26
Carleton	HW 3	23.7	55.4	20.9	Silt Loam	4.9	471	0.62	39.6	24.9	6.1	7.45	10.14	2.84	0.28
Carleton	HW 4	24.3	56.0	19.7	Silt Loam	5.3	508	0.49	46.5	33.5	6.5	6.82	10.96	3.07	0.28
Carleton	As Wet	29.8	56.0	14.0	Silt Loam	5.8	594	1.61	77.8	98.5	5.5	20.42	9.33	3.36	0.36
Carleton	As-Ls Good	20.7	59.0	20.3	Silt Loam	8.1	781	1.32	95.9	82.5	6.1	1.56	39.17	4.70	0.12
Carleton	As-Ls Bad	32.2	49.0	18.7	Loam	8.3	635	1.12	98.1	25.6	5.3	0.95	37.00	4.81	0.13
Carleton	As-Tw Good	20.0	54.7	25.2	Silt Loam	7.0	655	1.15	95.1	66.9	5.8	3.61	29.00	4.06	0.14
Carleton	As-Tw Bad	29.6	47.4	23.0	Loam	5.9	490	0.89	83.2	42.9	5.2	0.84	6.11	3.42	0.56
Carleton	Heif Wet Spot	78.3	15.0	6.7	Loamy Sand	9.8	550	1.30	96.3	54.7	5.8	22.85	9.47	5.68	0.60
Carleton	C1 Front	27.1	54.3	18.6	Silt Loam	5.3	747	0.65	40.4	43.6	6.5	13.81	10.96	3.07	0.28
Carleton	C1 Silage	27.8	53.6	18.7	Silt Loam	6.8	800	1.20	78.6	68.2	6.1	8.40	11.26	3.94	0.35
Carleton	C1 Bad	25.4	54.9	19.7	Silt Loam	9.0	782	1.31	94.8	64.1	5.7	1.19	13.38	5.22	0.39
Carleton	C2 Front	30.0	51.4	18.6	Silt Loam	3.7	361	0.45	38.0	29.8	5.6	15.02	11.32	2.15	0.19
Carleton	CM Strawberry	40.6	42.6	16.8	Loam	4.9	596	0.54	59.4	40.6	4.9	15.70	8.88	2.84	0.32
Carleton	CM Oats	39.3	45.4	15.3	Loam	4.6	581	0.63	61.9	33.0	6.1	16.59	10.27	2.67	0.26
Carleton	CM Woods	33.4	50.1	16.5	Silt Loam	8.9	966	1.45	89.5	116.4	5.6	1.74	11.22	5.16	0.46
Carleton	37533-J3/1	37.0	45.6	17.4	Loam	4.8	604	0.56	27.5	24.3	6.3	11.43	12.09	2.78	0.23
Carleton	37533-J3/2	36.5	46.8	16.7	Loam	4.6	612	0.55	29.5	23.9	6.3	11.93	12.14	2.67	0.22
Carleton	37533-J3/3	34.1	47.5	18.4	Loam	4.6	604	0.61	27.8	24.5	6.3	11.58	10.27	2.67	0.26

Carleton	M3-1	33.5	49.4	17.0	Loam	4.2	517	0.52	23.2	21.1	6.4	8.95	12.20	2.44	0.20
Carleton	M3-2	33.9	49.1	17.0	Loam	4.0	517	0.49	24.6	17.9	6.4	9.11	11.60	2.32	0.20
Carleton	KTI 2022	30.2	50.5	19.3	Silt Loam	3.5	447	1.03	25.8	28.8	6.6	20.09	9.67	2.03	0.21
Carleton	BPI 2022	18.3	61.3	20.5	Silt Loam	3.3	481	0.59	21.8	24.3	6.1	7.43	9.10	1.91	0.21
Carleton	Lower Place	36.6	46.4	17.0	Loam	10.7	898	1.79	52.7	165.4	7.2	3.46	13.21	6.21	0.47
Carleton	Lower Place NC	32.6	49.1	18.3	Loam	10.7	934	1.63	81.5	100.2	5.7	3.54	10.35	6.21	0.60
Carleton	HF Grass	21.2	59.4	19.4	Silt Loam	8.6	758	1.5	86.8	112.1	5.3	4.07	9.78	4.99	0.51
Carleton	F Potato	24.4	54	21.5	Silt Loam	4.2	488	0.52	24.3	33.3	5.8	21.47	10.61	2.44	0.23
Carleton	HF Trees	16	59.4	24.6	Silt Loam	10.7	1067	2	90.1	101.8	5.2	1.25	10.18	6.21	0.61
Carleton	HF Grass	21.2	59.4	19.4	Silt Loam	8.6	758	1.5	86.8	112.1	5.3	4.07	9.78	4.99	0.51
Carleton	F Potato	24.4	54	21.5	Silt Loam	4.2	488	0.52	24.3	33.3	5.8	21.47	10.61	2.44	0.23
Carleton	HF Trees	16	59.4	24.6	Silt Loam	10.7	1067	2	90.1	101.8	5.2	1.25	10.18	6.21	0.61
Northwest	QEU 283	32.0	52.6	15.4	Silt Loam	9.9	1187	0.91	80.2	56.3	6.9	7.37	10.44	5.74	0.55
Northwest	DAV 253 G	21.6	61.5	16.9	Silt Loam	3.0	677	0.48	71.2	37.3	6.0	13.70	9.67	1.74	0.18
Northwest	BOU 286	39.0	47.8	13.2	Loam	9.3	397	0.35	33.4	17.6	6.0	2.41	11.23	5.39	0.48
Northwest	DAV 253 Marc	35.9	51.0	13.2	Silt Loam	4.9	542	0.58	70.6	38.1	5.7	11.79	10.92	2.84	0.26
Northwest	BOU 380	39.3	46.0	14.7	Loam	8.8	1050	1.34	87.3	49.9	7.1	27.99	11.09	5.10	0.46
Northwest	AMA 214	37.5	46.7	15.8	Loam	5.2	678	0.35	61.3	26.6	6.1	5.78	10.07	3.02	0.30
Northwest	BEL 072	62.1	31.1	6.8	Sandy Loam	6.0	773	1.03	94.6	25.7	6.8	16.72	10.55	3.48	0.33
Northwest	VAN 039-049	50.2	36.3	13.5	Loam	10.6	876	0.94	100.0	58.6	5.2	3.42	9.46	6.15	0.65
Northwest	QEU 306	24.4	58.6	16.9	Silt Loam	5.8	851	0.63	52.7	35.6	6.0	12.24	9.88	3.36	0.34
Northwest	VIO 230	28.2	53.1	18.7	Silt Loam	10.2	1218	1.51	88.0	58.8	7.0	24.23	9.25	5.92	0.64
Northwest	CH 4 Mille	24.6	52.1	23.3	Silt Loam	8.7	814	1.20	98.2	69.6	5.7	6.07	11.48	5.05	0.44
Northwest	BOU 372	20.5	58.4	21.1	Silt Loam	13.5	1092	1.39	97.9	99.3	5.2	4.42	11.51	7.83	0.68
Northwest	BEL 202	24.9	59.8	15.4	Silt Loam	6.6	825	1.86	90.4	39.7	6.8	10.94	10.35	3.83	0.37
Northwest	GOD 033	39.0	48.6	12.4	Loam	3.4	386	0.42	42.0	15.3	5.0	13.73	9.85	1.97	0.20
Northwest	QUE 306 RAY	37.6	57.1	5.2	Silt Loam	5.2	936	1.88	95.3	66.8	6.4	9.02	9.74	3.02	0.31
Northwest	QUE 306 PDT	21.9	61.7	16.4	Silt Loam	5.7	710	0.59	68.6	38.4	5.5	8.83	9.46	3.31	0.35
Northwest	CTRL	39.1	54.5	15.4	Loam	2.9	450	0.40	35.1	25.9	5.7	15.14	7.30	1.68	0.23
Northwest	CFPM	44.1	42.6	13.4	Loam	3.3	441	0.49	32.7	26.0	5.9	14.61	9.10	1.91	0.21
Northwest	PM	43.8	42.2	13.8	Loam	3.3	389	0.38	27.3	24.2	5.5	17.50	10.61	1.91	0.18
Northwest	SS	43.8	42.8	13.5	Loam	4.2	419	0.47	35.8	24.3	6.3	14.75	11.62	2.44	0.21
Northwest		35.6	51.8	12.7	Silt Loam	3.1	466	0.25	12.3	17.6	5.7	17.13	9.00	1.80	0.20
Northwest		26.9	56.8	16.3	Silt Loam	9.4	943	1.37	97.8	65.6	5.9	6.70	11.85	5.45	0.46

Northwest	BOU 380	36.8	51.2	12.0	Silt Loam	6.1	856	1.21	92.4	42.7	6.8	18.62	10.41	3.54	0.34
Northwest	DAV 253	31.7	25.2	16.1	Silt Loam	3.8	488	0.30	26.2	27.6	5.4	16.00	9.57	2.20	0.23
Northwest	VIO 230	26.2	58.0	15.8	Silt Loam	8.5	990	1.29	6.5	38.5	7.0	19.11	10.96	4.93	0.45
Northwest	DAV 091-M	36.6	47.3	16.1	Loam	3.0	386	0.30	19.1	21.3	5.1	13.62	8.70	1.74	0.20
Northwest	VIO 302-1	20.6	62.1	17.3	Silt Loam	9.3	915	1.11	91.4	49.7	5.8	3.69	11.00	5.39	0.49
Northwest	DAV194	37.7	48.2	14.1	Loam	3.8	373	0.31	31.2	21.0	5.1	19.63	8.80	2.20	0.25
Northwest	DAV163	40.2	46.9	12.9	Loam	3.4	460	0.35	33.8	23.8	5.8	18.83	8.95	1.97	0.22
Northwest	BOU299	35.3	50.3	14.4	Silt Loam	7.8	873	1.15	95.1	59.2	6.2	3.45	11.02	4.52	0.41
Northwest	QUE123	8.0	66.1	25.1	Silt Loam	5.6	630	0.80	81.3	65.3	6.0	2.41	9.03	3.25	0.36
Northwest	VAN093	36.2	48.2	15.5	Loam	4.0	550	0.67	50.9	40.3	6.4	1.62	9.28	2.32	0.25
Northwest	BOU372	26.7	56.9	16.4	Silt Loam	8.9	618	1.33	89.7	95.3	5.7	4.83	10.32	5.16	0.50
Northwest	VIO371	31.8	64.7	19.8	Loam	11.4	762	1.22	97.8	111.7	5.1	3.59	11.80	6.61	0.56
Northwest	QUE193	15.4	64.7	19.8	Silt Loam	3.3	535	0.98	44.0	26.3	6.9	4.66	8.30	1.91	0.23
Northwest	DAV194Edge	36.5	50.3	13.1	Silt Loam	8.0	556	1.93	70.0	39.0	7.2	11.16	17.85	4.64	0.26
Northwest	DAV163Edge	34.4	48.7	16.9	Loam	4.1	792	1.16	94.0	109.6	6.4	16.40	4.76	2.38	0.50
Northwest	BOU299Edge	39.4	48.7	16.9	Loam	6.6	747	1.12	97.4	20.9	5.7	1.58	11.97	3.83	0.32
Northwest	QUE123Edge	9.5	67.3	23.3	Silt Loam	6.1	805	0.98	86.2	64.8	6.2	2.25	9.08	3.54	0.39
Northwest	VAN093Edge	27.5	54.3	18.2	Silt Loam	4.6	599	1.13	72.8	57.6	6.5	1.26	8.61	2.67	0.31
Northwest	BOU372Edge	34.0	52.0	14.1	Silt Loam	5.5	475	1.43	85.9	74.3	5.5	2.81	9.38	3.19	0.34
Northwest	VIO371Edge	28.2	49.8	22.0	Loam	10.9	758	1.31	90.8	47.3	4.6	1.82	11.92	6.32	0.53
Northwest	QUE193Edge	12.0	67.1	20.9	Silt Loam	6.4	871	1.47	79.4	78.6	7.1	1.87	9.27	3.71	0.40
Northwest	LAVO34	24.0	64.8	11.2	Silt Loam	5.1	669	0.77	67.1	52.5	5.9	31.25	9.55	2.96	0.31
Northwest	LAVO34Edge	47.9	41.4	10.7	Loam	1.8	279	0.76	49.2	4.4	5.7	4.19	8.00	1.04	0.13
Northwest	KEE151	5.3	81.9	12.8	Silt Loam	2.6	342	0.63	32.6	27.7	6.0	7.74	8.39	1.51	0.18
Northwest	KEE151Edge	8.2	74.4	17.5	Silt Loam	7.4	651	2.20	85.3	114.4	5.5	9.41	9.98	4.29	0.43
Central	BB Pre Fum	71.6	19.3	9.1	Sandy Loam	4.0	454	0.52	74.0	22.8	5.4	6.60	10.55	2.32	0.22
Central	BB Undist	67.3	22.5	10.2	Sandy Loam	4.8	619	0.55	80.0	37.1	5.9	3.34	13.90	2.78	0.20
Central	Home Farm Frt	39.9	49.5	10.6	Loam	6.6	798	1.43	74.5	48.9	6.2	16.35	10.35	3.83	0.37
Central	Home Farm B	35.2	51.7	13.1	Silt Loam	8.4	960	1.52	70.9	55.7	6.5	20.10	11.07	4.87	0.44
Central	Tree Line	46.4	44.4	9.3	Loam	7.7	711	0.96	93.1	35.9	5.7	4.20	13.15	4.47	0.34
Central	6-May	25.2	55.6	19.2	Silt Loam	8.2	990	1.58	81.7	84.0	6.3	3.09	11.07	4.76	0.43
Central	Treeline 5/6	21.4	59.2	19.4	Silt Loam	7.2	722	1.68	89.4	96.2	5.7	2.92	10.20	4.18	0.41
Central	Strip 1	54.1	37.7	8.2	Sandy Loam	1.6	327	0.64	46.0	29.5	6.1	5.31	7.75	0.93	0.12
Central	Strip 2	45.9	43.6	10.5	Loam	2.2	290	0.68	52.7	34.3	6.0	9.40	8.00	1.28	0.16

Central	Strip 3	39.3	49.8	10.9	Loam	1.9	292	0.64	56.3	37.0	6.0	5.58	7.33	1.10	0.15
Central	Tree Line	43.0	46.8	10.2	Loam	3.1	615	1.65	53.0	53.0	6.4	3.74	9.47	1.80	0.19
Central	Blue After F	71.4	20.9	7.7	Sandy Loam	4.7	519	0.68	65.0	25.8	5.6	7.27	12.41	2.73	0.22
Central	BC 38	33.1	52.9	13.8	Silt Loam	6.0	718	0.70	68.0	47.7	6.0	6.40	9.67	3.48	0.36
Central	BC 38 Woods	26.0	56.6	17.5	Silt Loam	10.2	834	1.63	93.9	111.7	4.8	8.05	12.87	5.92	0.46
Central	BC 21	22.7	62.7	14.6	Silt Loam	7.1	787	0.62	82.3	52.1	6.2	2.42	9.36	4.12	0.44
Central	BC 21 Woods	22.3	61.4	16.2	Silt Loam	8.9	948	1.36	93.3	88.4	5.9	1.41	10.12	5.16	0.51
Central	Raspberry	73.7	18.2	8.0	Sandy Loam	4.2	498	0.81	88.3	29.9	4.9	15.94	11.62	2.44	0.21
Central	RaspberryPlow	77.6	14.8	7.6	Sandy Loam	3.2	409	0.40	81.9	25.8	5.5	7.86	12.40	1.86	0.15
Central	Beside Hill	70.9	19.1	10.0	Sandy Loam	3.6	541	0.57	69.5	21.8	6.5	6.40	13.06	2.09	0.16
Central	Sprayer F	69.8	21.4	8.8	Sandy Loam	4.0	504	0.65	70.8	49.4	6.1	4.85	14.50	2.32	0.16
Central	Spray Tanks Grass	68.8	21.7	9.6	Sandy Loam	2.8	369	0.45	76.8	27.3	5.6	1.89	10.12	1.62	0.16
Central	NW3 SH	31.0	58.8	10.3	Silt Loam	6.8	702	0.97	62.0	57.9	5.9	8.91	10.94	3.94	0.36
Central	South SH	36.0	52.5	11.4	Silt Loam	8.6	868	1.21	72.3	69.8	6.2	9.24	11.09	4.99	0.45
Central	690B	18.7	67.2	14.1	Silt Loam	2.0	341	0.48	15.2	17.3	6.2	8.99	7.25	1.16	0.16
Central	2581A	31.4	55.1	13.5	Silt Loam	2.2	393	0.50	11.0	25.0	6.7	25.00	8.00	1.28	0.16
Central	2581B	19.7	65.4	14.9	Silt Loam	2.8	361	0.64	44.8	37.5	5.1	3.02	8.10	1.62	0.20
Central	2609 Sod	16.5	69.3	14.1	Silt Loam	1.5	251	0.41	20.6	26.3	6.7	8.08	6.21	0.87	0.14
Central	2609 Woods	9.2	75.1	15.6	Silt Loam	8.0	777	1.59	76.5	46.8	5.0	1.60	11.32	4.64	0.41
Central	1-2 2022 MB	34.7	48.6	16.7	Loam	5.7	607	0.66	83.1	40.0	6.4	4.75	8.71	3.31	0.38
Central	5-6 2022 MB	27.9	51.3	20.8	Silt Loam	9.6	819	1.42	89.3	80.1	6.6	4.66	10.31	5.57	0.54
Central	789 2022 MB	27.6	53.2	19.1	Silt Loam	7.9	722	0.99	83.4	59.7	6.6	3.60	10.41	4.58	0.44
Central	39	46.5	41.4	12.0	Loam	7.7	751	1.15	89.5	91.4	6.2	16.79	10.40	4.47	0.43
Central	15	38.1	48.7	13.2	Loam	7.8	829	0.92	94.5	85.0	6.2	11.55	10.51	4.52	0.43
Central	15-Woods	41.2	42.0	16.8	Loam	11.2	781	1.69	91.4	104.3	4.8	2.72	13.00	6.50	0.50
Central	Coburn Orchard 1	27.5	57.9	14.6	Silt Loam	9.8	1116	1.97	80.4	98.6	7.0	58.90	10.33	5.68	0.55
Central	Coburn Corn	26.4	63.3	10.2	Silt Loam	4.5	744	0.75	47.6	52.5	5.9	7.77	8.16	2.61	0.32
Central	Coburn Pumpkin	36.3	54.6	9.1	Silt Loam	2.5	422	0.39	22.3	21.2	7.0	13.40	10.36	1.45	0.14
Central	CoburnBShoresSoys	28.8	61.5	9.7	Silt Loam	2.2	344	0.70	51.9	43.3	5.7	3.69	6.40	1.28	0.20
Central	Roger Love	22.9	66.8	10.2	Silt Loam	2.6	446	0.64	26.1	32.5	6.3	14.27	7.95	1.51	0.19
Central	BShoresHlandPerim	21.6	67.7	10.7	Silt Loam	3.3	529	1.09	69.9	58.9	5.7	1.71	7.35	1.91	0.26
Central	CoburnOrcHlandPer	26.2	60.6	13.2	Silt Loam	6.9	761	2.12	90.7	48.7	6.2	2.20	12.12	4.00	0.33
Central	CoburnPumHlandPer	30.0	58.5	11.5	Silt Loam	3.7	420	1.47	85.5	32.8	5.1	0.81	8.96	2.15	0.24
Central	41	44.4	43	12.6	Loam	8.3	730	1.03	91	85.4	6.3	12.78	12.02	4.81	0.4

Central		40	44.3	42.6	13.1	Loam	8.5	793	0.92	91.5	71.2	6	14.16	10.49	4.93	0.47
Central	40-Woods		39.4	41.3	19.3	Loam	13.1	981	2.39	89.7	194.8	4.8	2.17	11.69	7.6	0.65
Central		41	44.4	43	12.6	Loam	8.3	730	1.03	91	85.4	6.3	12.78	12.02	4.81	0.4
Central		40	44.3	42.6	13.1	Loam	8.5	793	0.92	91.5	71.2	6	14.16	10.49	4.93	0.47
Central	40-Woods		39.4	41.3	19.3	Loam	13.1	981	2.39	89.7	194.8	4.8	2.17	11.69	7.6	0.65
Kings	SUS 037A		36.2	49.8	14.0	Loam	5.3	767	0.92	50.2	61.8	6.0	10.87	8.53	3.07	0.36
Kings	SPR 305		42.5	41.8	15.7	Loam	5.4	599	1.77	74.3	79.6	5.5	1.77	8.94	3.13	0.35
Kings	SPR 286		55.9	32.7	11.4	Sandy Loam	6.8	706	1.17	78.6	62.8	5.8	3.05	10.94	3.94	0.36
Kings	STU 261		23.8	59.1	17.1	Silt Loam	5.2	656	0.89	50.2	54.2	6.0	4.40	9.44	3.02	0.32
Kings	DIC 457		77.1	17.1	5.8	Loamy Sand	6.2	529	0.36	38.7	8.5	6.2	19.33	12.41	3.60	0.29
Kings	ORT 011		57.4	31.9	10.7	Sandy Loam	5.4	702	1.13	55.6	58.3	6.2	9.08	10.79	3.13	0.29
Kings	SUS 037B		33.3	52.3	14.4	Silt Loam	6.1	813	1.01	61.2	67.6	6.3	7.03	9.57	3.54	0.37
Kings	BER 526		61.9	28.4	9.7	Sandy Loam	1.7	250	0.43	15.6	23.8	6.1	6.60	9.00	0.99	0.11
Kings	PHI 351A		40.7	41.9	17.3	Loam	4.1	734	0.80	18.5	33.2	6.7	8.41	13.22	2.38	0.18
Kings	PHI 351B		39.6	44.7	15.7	Loam	4.0	498	0.80	46.9	26.9	4.6	2.61	13.65	2.32	0.17
Kings	SUS 081		43.3	46.9	9.9	Loam	4.6	686	1.03	45.5	60.1	6.3	8.89	9.21	2.67	0.29
Kings	BER 448		57.8	35.9	6.4	Sandy Loam	6.7	863	0.83	85.2	39.2	6.8	7.58	11.44	3.89	0.34
Kings	BER 431		48.3	43.5	8.1	Loam	6.2	915	1.02	82.9	45.3	6.4	26.81	10.00	3.60	0.36
Kings	BER 478		57.3	31.3	11.3	Sandy Loam	2.8	381	0.34	22.7	17.5	5.9	7.66	9.53	1.62	0.17
Kings	SUS 308A		54.1	35.2	10.6	Sandy Loam	3.2	546	0.65	21.1	34.3	6.3	13.69	9.30	1.86	0.20
Kings	SUS 308B		47.5	42.5	10.0	Loam	6.8	888	0.94	59.5	52.4	6.5	5.66	10.65	3.94	0.37
Kings	DIC 295		70.7	22.1	7.2	Sandy Loam	7.0	599	1.12	95.7	25.7	5.9	2.84	12.30	4.06	0.33
Kings	SUS 037		31.4	51.3	17.3	Silt Loam	5.7	776	1.37	56.8	98.8	6.6	3.91	8.07	3.31	0.41
Kings	DIC 443		53.4	35.9	10.7	Sandy Loam	5.5	759	1.16	85.0	73.7	6.0	5.93	9.67	3.19	0.33
Kings	DIC 446A		56.7	33.5	9.8	Sandy Loam	6.0	755	0.85	75.6	53.7	6.1	5.46	12.43	3.48	0.28
Kings	DIC 446B		55.4	34.1	10.5	Sandy Loam	6.1	805	0.63	77.5	44.5	6.3	6.85	12.64	3.54	0.28
Kings	DIC 446C		50.6	35.9	13.5	Loam	5.7	554	1.21	89.4	41.6	5.8	2.12	13.24	3.31	0.25
Kings	SUS098		41.7	43.8	14.5	Loam	2.7	487	0.56	29.8	31.9	6.5	8.96	10.47	1.57	0.15
Kings	SUS341		26.7	54.4	18.9	Silt Loam	3.5	584	0.74	24.3	46.0	6.3	6.54	8.46	2.03	0.24
Kings	SPR259		56.7	28.0	15.3	Sandy Loam	9.1	689	1.53	93.1	67.6	5.6	1.15	13.54	5.28	0.39
Kings	ICK157A		32.9	51.1	16.0	Silt Loam	5.1	708	1.13	68.7	72.6	6.1	5.07	10.57	2.96	0.28
Kings	ICK157B		39.8	43.5	16.7	Loam	5.1	620	1.46	63.2	81.3	5.9	3.00	10.57	2.96	0.28
Kings	CHA059		37.6	50.0	12.4	Silt Loam	4.8	750	0.38	68.8	45.2	6.0	1.16	10.69	2.78	0.26
Kings	CHA001		43.8	46.7	9.6	Loam	3.7	672	0.85	54.5	41.5	6.0	8.78	12.65	2.15	0.17

Kings	SUS949	43.2	44.5	12.3	Loam	7.9	951	1.47	82.3	48.5	6.2	3.03	11.74	4.58	0.39
Kings	SPR319A	63.7	26.8	9.5	Sandy Loam	6.4	788	1.68	86.3	65.5	7.0	1.97	11.97	3.71	0.31
Kings	SPR319B	65.3	26.8	7.8	Sandy Loam	6.0	692	1.26	91.4	35.9	5.9	1.26	11.60	3.48	0.30
Kings	SPR319C	63.8	24.7	11.5	Sandy Loam	5.7	588	1.26	85.7	47.6	5.2	1.38	10.34	3.31	0.32
Kings	SUS009	40.5	43.4	16.1	Loam	6.6	599	0.78	75.4	26.4	4.9	1.83	17.41	3.83	0.22
Kings	SUS010A	45.2	41.0	13.8	Loam	5.1	658	1.52	41.3	58.6	6.5	8.70	10.96	2.96	0.27
Kings	SUS010B	36.6	48.6	14.8	Loam	4.9	634	1.30	50.9	64.1	7.1	6.89	10.52	2.84	0.27
Kings	MIL028	40.3	45.0	14.7	Loam	4.7	851	0.98	24.6	48.3	7.1	10.13	9.41	2.73	0.29
Kings	MIL028B	37.6	45.8	16.6	Loam	4.6	565	1.15	50.7	59.3	5.7	3.65	12.14	2.67	0.22
Kings	BER837	53.3	37.9	8.8	Sandy Loam	4.9	758	0.90	27.5	37.4	7.4	24.09	12.91	2.84	0.22
Kings	BER837B	53.4	37.4	9.2	Sandy Loam	4.9	937	1.55	28.5	37.9	7.4	24.09	8.11	2.84	0.35
Moncton	COR 487 Corn	49.2	37.5	13.3	Loam	5.0	751	0.66	32.20	42.4	6.3	17.70	14.50	2.90	0.20
Moncton	COR 487 Bush	43.4	38.2	18.4	Loam	9.2	836	2.48	78.80	78.5	4.5	7.43	13.69	5.34	0.39
Moncton	Col New	47.1	36.8	16.1	Loam	3.3	310	0.70	35.10	22.3	5.3	3.01	12.73	1.91	0.15
Moncton	HIL 431	45.9	40.9	13.1	Loam	6.3	706	0.72	63.40	43.5	5.2	4.56	10.43	3.65	0.35
Moncton	Col 184	44.7	40.6	14.7	Loam	5.9	777	1.48	64.50	43.4	6.8	8.65	10.06	3.42	0.34
Moncton	URY 331 Corn	50.2	38.3	11.5	Loam	5.5	724	0.86	71.00	59.4	5.8	6.68	11.00	3.19	0.29
Moncton	URY 331 Bush	36.9	52.1	11.0	Silt Loam	4.1	478	2.17	76.30	99.4	5.0	7.66	11.33	2.38	0.21
Moncton	47 Peren	46.5	39.2	14.4	Loam	6.7	1265	1.28	27.20	46.2	6.9	50.66	14.41	3.89	0.27
Moncton	Hop380-NF	55.9	33.7	10.4	Sandy Loam	6.6	678	2.29	76.80	89.9	5.3	6.24	11.61	3.83	0.33
Moncton	Hop380-Top	8.4	55.1	36.6	Silty Clay Loam	13.9	1242	1.47	73.90	160.7	5.3	1.87	7.33	8.06	1.10
Moncton	Hop380-Bot	13.7	52.7	33.6	Silty Clay Loam	12.5	1193	0.92	55.10	30.2	4.8	1.58	9.29	7.25	0.78
Moncton	LAG285 CL5	71.9	20.7	7.4	Sandy Loam	2.4	359	0.27	41.40	13.1	5.9	19.22	12.64	1.39	0.11
Moncton	LAG286 CL6	71.2	20.8	8.0	Sandy Loam	1.9	320	0.27	53.00	13.6	6.3	14.47	11.00	1.10	0.10
Moncton	LAG096 CR2	59.8	29.9	10.2	Sandy Loam	3.3	446	0.59	32.50	20.6	5.3	4.35	13.64	1.91	0.14
Moncton	LAG093 RR8	56.5	32.0	11.5	Sandy Loam	3.2	431	0.33	20.00	15.3	5.6	7.14	13.29	1.86	0.14
Moncton	LAG096 RR9	53.4	34.2	12.4	Sandy Loam	2.0	473	0.46	32.20	27.0	6.3	8.34	8.29	1.16	0.14
Moncton	LAG114 RR2	74.1	19.4	6.5	Sandy Loam	2.9	470	0.40	33.50	15.4	6.3	4.85	14.00	1.68	0.12
Moncton	LAG110 NF	69.4	22.4	8.2	Sandy Loam	3.0	693	2.27	88.20	32.7	5.9	1.69	13.38	1.74	0.13
Moncton	A7	51.9	29.2	18.9	Loam	6.6	985	2.43	16.80	37.2	7.5	44.94	6.84	3.83	0.56
Moncton	Sec E	50.0	29.9	20.1	Loam	3.4	972	2.64	17.40	11.2	7.3	9.48	4.10	1.97	0.48
Moncton	LAF 787 (RDT)	56.2	28.6	15.2	Sandy Loam	4.7	526	1.22	44.50	54.2	5.9	1.10	13.65	2.73	0.20
Moncton	LAF 773 (BR)	65.6	24.2	10.1	Sandy Loam	3.8	511	0.82	48.00	22.5	6.1	1.09	16.92	2.20	0.13
Moncton	LAF 764 (P)	68.7	22.6	8.8	Sandy Loam	3.4	534	1.33	45.20	29.2	7.0	3.39	14.07	1.97	0.14

Moncton	WLD 145 (BSO)	67.6	24.4	8.0	Sandy Loam	4.7	685	0.77	64.30	49.4	6.4	7.29	10.92	2.73	0.25
Moncton	WLD 145 (BHO)	60.4	29.4	10.3	Sandy Loam	4.7	680	1.23	57.20	55.4	5.9	7.99	10.92	2.73	0.25
Moncton	TREE LAG 764	71.3	20.5	8.2	Sandy Loam	4.5	562	1.62	82.80	38.3	5.8	3.74	13.74	2.61	0.19
Moncton	LAG 760 (43)	79.9	15.1	5.0	Loamy Sand	2.0	300	0.09	44.10	11.1	6.5	8.89	11.60	1.16	<0.10
Moncton	LAG 750 (37)	76.8	16.6	6.7	Loamy Sand	1.7	308	0.28	31.30	11.4	6.6	16.71	9.90	0.99	0.10
Moncton	LAG 748 (40)	81.6	13.1	5.3	Loamy Sand	1.7	227	0.07	41.00	9.2	5.7	10.71	9.90	0.99	<0.10
Moncton	LAG 764 (38)	81.6	13.0	5.4	Loamy Sand	1.7	242	0.34	57.00	10.5	6.4	5.74	9.90	0.99	<0.10
Moncton	LAG 751 (35)	74.1	20.0	5.9	Sandy Loam	2.6	588	0.53	43.10	18.4	6.6	8.28	12.58	1.51	0.12
Chignecto	Ell113 (H)	49.7	35.4	14.9	Loam	5.3	451	1.02	71.80	66.2	5.7	2.66	10.96	3.07	0.28
Chignecto	Ell113 (N)	37.4	42.6	20.0	Loam	6.1	669	1.68	78.50	69.0	5.9	2.04	10.41	3.54	0.34
Chignecto	Wes 228	54.5	34.2	11.3	Sandy Loam	4.9	780	1.52	64.80	37.4	6.9	11.40	11.83	2.84	0.24
Chignecto	Mel 276	54.0	36.0	10.0	Sandy Loam	1.5	276	0.73	10.30	23.1	6.6	16.94	8.70	0.87	0.10
Chignecto	Cok 186	46.1	41.3	12.3	Loam	5.3	850	1.53	78.10	54.8	6.8	7.09	10.59	3.07	0.29
Chignecto	GIN 770	46.6	39.8	13.6	Loam	6.4	640	0.87	80.90	51.0	4.9	9.99	11.97	3.71	0.31
Chignecto	SAC 852 (1)	7.8	51.5	40.7	Silty Clay	19.6	1320	1.21	81.10	64.1	4.5	2.95	11.15	11.37	1.02
Chignecto	SAC 852 (3)	3.8	74.2	22.0	Silt Loam	9.6	853	1.61	67.00	135.5	5.3	4.86	9.28	5.57	0.60
Chignecto	GIN 812	48.7	39.4	11.8	Loam	4.1	634	0.68	37.10	41.1	7.2	3.83	11.33	2.38	0.21
Chignecto	Paddock 3	5.3	54.8	39.9	Silty Clay Loam	16.3	1238	1.27	57.50	31.7	4.6	1.39	16.58	9.45	0.57
Chignecto	Paddock 1	3.4	65.7	30.9	Silty Clay Loam	8.2	758	1.17	48.00	65.7	4.9	1.00	9.52	4.76	0.50
Chignecto	Gue 254	49.6	40.0	10.4	Loam	1.9	374	0.45	13.10	36.3	6.3	24.00	10.00	1.10	0.11
Chignecto	Gue 008-Po	46.6	42.4	11.0	Loam	1.8	353	0.44	16.00	27.3	5.6	28.84	9.45	1.04	0.11
Chignecto	Gue 008-NF	50.0	40.3	9.7	Loam	3.0	617	1.25	49.80	69.2	5.8	5.47	9.16	1.74	0.19
Chignecto	Gue 066	51.5	36.6	11.9	Loam	2.0	405	0.40	23.20	22.0	6.3	20.17	11.60	1.16	<0.10
Chignecto	OGD255-NF	7.9	74.9	17.2	Silt Loam	5.8	726	2.14	55.70	93.2	5.5	6.24	10.18	3.36	0.33
Chignecto	OGD255-Top	7.2	59.3	33.5	Silty Clay Loam	7.4	839	1.17	34.50	76.7	6.0	7.51	11.00	4.29	0.39
Chignecto	OGD255-Bot	13.3	53.1	33.7	Silty Clay Loam	6.8	673	0.60	27.90	39.2	4.7	2.60	13.13	3.94	0.30
Chignecto	OGD288 (KZ)	7.3	63.1	29.6	Silty Clay Loam	4.1	297	0.93	13.20	30.6	5.8	6.32	11.90	2.38	0.20
Chignecto	WES633(Tarp)	48.3	39.4	12.3	Loam	3.7	615	0.84	35.70	65.7	5.9	7.80	10.24	2.15	0.21
Chignecto	TRI407(RO11)	57.1	31.7	11.2	Sandy Loam	7.8	807	2.94	48.20	105.9	5.9	13.09	16.14	4.52	0.28
Chignecto	TRI407(TREE)	55.8	33.0	11.2	Sandy Loam	5.2	781	4.14	87.60	82.2	6.0	2.48	11.62	3.02	0.26
Chignecto	GIN022(BM1)	0.3	67.2	32.5	Silty Clay Loam	5.5	998	1.99	21.10	64.9	6.8	5.75	6.02	3.19	0.53
Chignecto	GIN027(BM2)	6.1	78.5	15.4	Silt Loam	5.0	791	1.84	17.60	71.7	6.1	11.38	8.29	2.90	0.35
Chignecto	GIN023(BM3)	5.3	78.1	16.6	Silt Loam	4.2	641	1.83	14.80	31.6	7.5	18.04	11.62	2.44	0.21
Chignecto	GIN021(BM4)	6.8	75.9	17.3	Silt Loam	3.7	753	1.88	21.20	79.1	6.3	13.50	6.32	2.15	0.34

Chignecto	Unfarmed Marsh	7.0	71.4	21.5	Silt Loam	4.9	581	1.67	23.50	48.0	5.1	7.23	12.35	2.84	0.23
Chignecto	Paddock 1	4.9	73.1	22.0	Silt Loam	7.2	723	2.53	44.40	93.9	5.4	3.38	9.50	4.18	0.44
Chignecto	Paddock 3	4.4	52.9	42.7	Silty Clay	17.0	1201	1.47	69.50	83.5	4.4	1.20	9.05	9.86	1.09
North Shore	DAL949	33.0	48.5	18.5	Loam	5.9	713	0.93	51.8	22.7	7.1	43.14	9.77	3.42	0.35
North Shore	DAL315	22.3	55.6	22.1	Silt Loam	8.9	1109	1.12	81.7	54.4	6.6	2.89	12.59	5.16	0.41
North Shore	COL 150	46.7	35.2	18.1	Loam	10.1	1087	1.33	61.3	67.6	7.3	28.94	11.27	5.86	0.52
North Shore	FRE158	34.9	47.4	17.7	Loam	9.3	1149	1.11	82.3	84.3	6.5	10.41	10.57	5.39	0.51
North Shore	NEP076	9.6	69.7	20.8	Silt Loam	5.8	677	1.65	75.1	45.9	6.3	1.58	10.50	3.36	0.32
North Shore	CAN041	40.2	41.5	18.3	Loam	5.2	901	1.22	40.2	47.8	6.9	5.49	11.19	3.02	0.27
North Shore	CLI247	20.4	51.3	28.4	Clay Loam	6.8	916	1.73	62.8	59.8	6.5	4.54	10.37	3.94	0.38
North Shore	LAD038	47.7	40.6	11.7	Loam	4.9	667	0.91	85.4	23.6	6.3	2.07	10.52	2.84	0.27
North Shore	FRE 197	67.2	24.2	8.6	Sandy Loam	9.0	873	0.89	89.8	43.7	6.6	3.15	11.86	5.22	0.44
North Shore	DUG 022	42.6	42.7	14.8	Loam	2.3	290	0.46	32.8	15.7	4.6	5.05	12.09	1.33	0.11
North Shore	CF LAS 594	57.0	31.3	11.7	Sandy Loam	4.3	560	0.94	76.3	35.3	6.0	2.32	12.45	2.49	0.20
North Shore	CF LBC 228	78.9	14.8	6.3	Loamy Sand	2.4	415	0.39	64.0	6.0	4.3	1.30	13.90	1.39	<0.10
North Shore	LAI 172	43.4	40.0	16.6	Loam	4.8	708	0.95	69.0	51.3	6.4	6.50	8.97	2.78	0.31
North Shore	LBB 013	79.4	13.6	7.0	Loamy Sand	2.9	332	0.45	74.9	14.0	4.8	1.36	16.80	1.68	<0.10
North Shore	CF DUGAS	64.3	22.3	13.4	Sandy Loam	4.3	332	0.46	80.4	19.1	4.5	1.42	17.79	2.49	0.14
North Shore	CF CLI 304	39.2	43.4	17.5	Loam	3.6	367	0.60	45.1	21.8	5.2	3.85	14.93	2.09	0.14
North Shore	SAL 058	62.6	22.4	15.0	Sandy Loam	5.7	625	1.16	76.6	55.0	6.3	3.46	15.05	3.31	0.22
North Shore	CF MOR 315	73.2	17.5	9.3	Sandy Loam	6.9	794	0.58	54.4	4.3	4.3	3.53	40.00	4.00	0.10
North Shore	DUR 757	49.0	31.4	19.6	Loam	7.3	574	0.81	86.0	53.8	5.7	5.54	10.85	4.23	0.39
North Shore	MTR 055	55.4	33.4	11.2	Sandy Loam	3.6	385	0.76	68.5	21.1	5.7	3.13	11.61	2.09	0.18
North	DAL 326	24.6	42.5	32.9	Clay Loam	13.8	1194	1.68	80.2	74.4	6.6	4.75	13.33	8.00	0.60

North Shore	NEP 271	21.3	61.0	17.8	Silt Loam	6.0	643	1.09	69.4	63.9	5.2	1.42	9.41	3.48	0.37
North Shore	DAL 949	33.6	44.1	22.3	Loam	4.4	566	0.52	33.3	28.7	7.0	45.88	8.50	2.55	0.30
North Shore	NEP075-N	17.7	61.3	21.0	Silt Loam	6.2	571	3.40	59.4	75.7	5.5	1.24	9.00	3.60	0.40
North Shore	NEP073-C	9.1	71.0	19.9	Silt Loam	6.3	757	1.57	46.7	67.4	6.6	4.07	10.43	3.65	0.35
North Shore	LAS594-C	57.3	31.7	11.0	Sandy Loam	4.2	428	0.88	73.4	50.4	5.7	1.29	12.84	2.44	0.19
North Shore	LAS594-N	57.5	30.1	12.4	Sandy Loam	3.3	359	0.75	64.3	20.2	5.2	0.72	14.69	1.91	0.13
North Shore	SAL053-C	44.9	41.2	13.9	Loam	5.8	592	1.29	74.8	73.1	5.6	2.18	12.44	3.36	0.27
North Shore	SAL053-N	64.7	25.2	10.1	Sandy Loam	6.7	745	1.47	87.2	72.6	5.1	2.02	14.41	3.89	0.27
North Shore	DUR840-C	49.6	35.2	15.2	Loam	5.1	726	1.28	81.0	67.5	5.8	5.43	10.96	2.96	0.27
North Shore	DUR840-N	46.7	36.0	17.4	Loam	4.7	654	1.27	85.0	37.7	5.6	2.73	13.65	2.73	0.20
North Shore	DUR007-C	52.1	34.7	13.1	Sandy Loam	10.0	984	1.23	88.1	77.0	5.8	5.33	11.84	5.80	0.49
North Shore	DUR007-N	45.1	38.8	16.1	Loam	8.3	772	1.66	93.3	78.3	5.4	7.63	12.66	4.81	0.38
North Shore	COL111-C	38.5	43.4	18.2	Loam	10.1	975	1.96	94.1	90.1	6.0	2.56	11.27	5.86	0.52
North Shore	COL111-N	38.8	44.6	16.6	Loam	5.4	650	1.37	88.5	69.2	5.8	1.37	9.21	3.13	0.34
North Shore	MTR055-C	57.4	30.4	12.2	Sandy Loam	3.9	418	0.69	92.6	16.5	5.5	2.94	14.12	2.26	0.16
North Shore	MTR055-N	59.4	29.9	10.7	Sandy Loam	3.9	404	0.84	94.1	16.6	5.1	4.40	16.14	2.26	0.14
North Shore	EVA 393-C	62.6	23.2	14.3	Sandy Loam	4.5	452	0.39	84.2	15.7	4.7	4.90	15.35	2.61	0.17
North Shore	EVA 393-N	62.7	22.9	14.4	Sandy Loam	4.7	541	0.77	89.1	20.7	4.7	4.68	18.20	2.73	0.15
North Shore	BAR082-C	71.4	19.0	9.5	Sandy Loam	4.2	406	0.44	65.7	14.8	4.7	5.69	16.27	2.44	0.15
North Shore	BAR082-N	71.9	19.1	9.0	Sandy Loam	5.5	509	0.71	90.3	22.3	4.9	3.21	22.79	3.19	0.14