Verification Of Net Ecosystem Exchange (Nee) Monitoring at System-Level of Hemp Carbon Standard Fields Using Carbon Space Technology Version 1.1

COMPANY NAME	: Hemp Carbon Standard, Inc
ADDRESS	: 1560 Hastings Crescent SE, Calgary, AB Canada, T2G 4E1
VERIFICATION DATE	: 10th March 2025 – Opening Meeting 7th – 15th May 2025 – Verification 16th May 2025 – Reporting

Report Number: CUC_CST04

PART 1: VERIFIED COMPANY DETAILS

1.1 Company Contact Details	
Company Name	Hemp Carbon Standard, Inc
Contact Person	Mr Darren Bondar
Business Address	1560 Hastings Crescent SE, Calgary, AB Canada, T2G 4E1
Office Contact Number	-
E-mail	darren.bondar@hempalta.com
Website	www.carbonspace.tech

1.2 Facilities Included in the Scope of the Assessment		
Name of Facility	**Location Address**	**Visited**
Carbon Space Technology (Version 1.1)	39 Northumberland Road, Ballsbridge, Dublin 4, Ireland, D04 H1F3, Dublin, Ireland	Remote Assessment

1.3 Assessment Overview		
Assessment Type	**Year**	**Assessment Date**
Independent verification of System-Level Compliance and Net Ecosystem Exchange (NEE) Monitoring for Hemp Carbon Standard Field Participants Using Carbon Space Technology V1.1	2025	• 10th March 2025 – Opening Meeting • 7th – 15th May 2025 – Verification • 16th May 2025 – Reporting

1.4 Assessment Objective
This verification aims to assess the compliance of participants under the Hemp Carbon Standard fields through the application of Carbon Space's digital MRV (Monitoring, Reporting, and Verification) platform, focusing on system-level NEE data quality and reporting accuracy.

1.5 Opening and Closing Meeting	
Date of Opening Meeting	10th March 2025
Attendees (Opening Meeting)	
Mr Darren Bondar	President & CEO, Hempalta
Brittany McKell	General Manager
Candace Ryan	Chief Financial Officer
Attendees (Carbon Space Demo)	
Paulina Roldan	Customer Success Associate
Diana Pedroza	Customer Success Manager

PART 2: INTRODUCTION

2.1 Carbon Space Technology, also referred to as Carbon Space dMRV, is a digital tool designed to enhance corporate carbon inventories by providing access to primary carbon data, reducing uncertainties, accounting for changes in carbon stocks within natural carbon pools, and evaluating the impact of sustainable land management practices. The technology is developed and operated by Carbon Space Ltd, based in Dublin, Ireland.

2.2 CarbonSpace offers a digital Monitoring, Reporting, and Verification (dMRV) tool powered by artificial intelligence to estimate Net Ecosystem Exchange (NEE) of carbon at the field level globally. By integrating satellite imagery, meteorological data, and ground-based station networks, the technology delivers precise, reliable, and cost-efficient measurements of carbon fluxes, supporting robust and transparent verification processes.

2.3 Net Ecosystem Exchange (NEE) represents the net balance of carbon exchanged between ecosystems and the atmosphere, capturing both photosynthesis (carbon uptake) and respiration (carbon release) processes. It reflects the overall change in carbon stocks across ecosystem pools—such as aboveground and belowground biomass, soil organic matter, and dead organic matter—prior to any carbon extraction. The CarbonSpace tool provides data on biogenic land-based CO_2 removals, supporting various carbon accounting frameworks and crediting mechanisms.

2.4 This verification report presents the outcomes of monitoring activities conducted for Hemp Carbon Standard fields across nine countries using the CarbonSpace platform. The technology was applied to 213 fields, covering a total area of 6,048.62 hectares. Monitoring was conducted throughout the full calendar year of 2024, with focused seasonal analysis from May to September.

2.5 The sampling sites selected for this verification ensure comprehensive coverage of the NEE procedure across each country. A detailed list of the sampled sites is provided in **Appendix 1.**

No.	Country	No. of Field/Polygon	Field Sampling	Field Size (Acres)	Field Size (Ha)
1	Total USA Acres	56	3	2259.23	914.30
2	Total Canada Acres	97	4	9471.28	3832.98
3	Total Australia Acres	4	1	270.45	109.45
4	Total UK Acres	19	1	583.50	236.14
5	Total Ukraine Acres	31	2	2173.34	879.54
6	Total Spain Acres	1	1	58.96	23.86

7	Total Zimbabwe Acres	1	1	9.85	3.99
8	Total Germany Acres	1	1	60.47	24.47
9	Total Sweden Acres	3	1	59.04	23.89
	Overall Project Total	**213**	**15**	**14,946.13**	**6,048.62**

PART 3: CONTENT AND ROLES

3.1 Carbon Space Limited (Carbon Space) utilized data produced by machine learning algorithms trained on multispectral satellite imagery, meteorological inputs, and Net Ecosystem Exchange (NEE) measurements from Eddy Covariance ground stations. As the developer and custodian of Carbon Space Technology, Carbon Space Limited assumes full responsibility for the platform's implementation and its resulting outputs.

3.2 Hemp Carbon Standard is an innovative carbon standard focused on sustainable hemp production and product innovation. Hemp Carbon Standard partnered with CarbonSpace to support climate accountability through science-based carbon stock and NEE monitoring. CarbonSpace conducted monitoring activities across 213 fields under the Hemp Carbon Standard, covering 6,048.62 hectares across nine countries. The verification process was carried out directly with CarbonSpace as the platform owner and data provider, without the involvement of Hemp Carbon Standard as the land manager.

3.3 Control Union, acting as the independent verifier, explicitly limits its verification scope for the Carbon Space NEE system under the Hemp Carbon Standard to assessments conducted using Carbon Space Technology Version 1.1 or earlier. Consequently, Control Union assumes no responsibility for any issues arising from the use or analysis of the NEE methodology and monitoring procedures in Carbon Space Technology Version 2.0. The user retains full responsibility for the proper implementation and interpretation of the system.

3.4 To ensure the robustness of carbon quantification for the Hemp Carbon Standard fields assessed under Carbon Space Technology Version 1.1, Hemp Carbon Standard engaged Control Union Malaysia to carry out an independent verification and assurance process. This process includes a comprehensive review of asset documentation, assessment of compliance with Carbon Space protocols, quality checks via the Carbon Space platform, evaluation of procedural adherence, review of NEE monitoring practices, and validation of the final carbon quantification and analysis report produced by Carbon Space Technology Version 1.1.

PART 4: METHODOLOGY

Project Summary for Hemp Carbon Standard Fields:

4.1 Hemp Carbon Standard (hereafter referred to as "HCS") is an innovative carbon standard focused on sustainable hemp production and product innovation. With operations spanning several continents, it leverages industrial hemp's regenerative potential to deliver eco-friendly solutions across multiple industries. To enhance climate accountability and build a science-based understanding of its carbon performance, HCS has partnered with CarbonSpace for carbon stock and Net Ecosystem Exchange (NEE) monitoring. As part of the independent verification requirements, Hemp Carbon Standard engaged Control Union Malaysia to conduct an independent verification and assurance process of the Carbon Space Technology's NEE analysis for its hemp fields.

HCS's Project Details:

Country	Ukraine, United States of America, Australia, United Kingdom, Canada, Germany, Spain, Sweden, Zimbabwe
Number of fields (polygons)	213
Total Area	6048.6 Ha
Land Cover Classification	Croplands (Hemp)
Reporting Period	May 2024 – September 2024
Monitoring Period	January 2024 – December 2024

4.2 The NEE results presented in the HCS's report April 2025 were generated using Carbon Space Technology Version 2.0, which incorporates improved data processing and advanced modelling capabilities from Version 1.1. In the CarbonSpace Platform, fields are also referred to polygons and sites also referred group.

No.	Country	No. of Field	Field Size (Acres)
1	Total USA Acres	56	2259.23
2	Total Canada Acres	97	9471.28
3	Total Australia Acres	4	270.45
4	Total UK Acres	19	583.50
5	Total Ukraine Acres	31	2173.34
6	Total Spain Acres	1	58.96
7	Total Zimbabwe Acres	1	9.85
8	Total Germany Acres	1	60.47
9	Total Sweden Acres	3	59.04

	Overall Project Total	**213**	**14,946.13**

Onboarding Assessment Process for NEE Carbon Flux Accounting Evaluation:

4.3 As part of the onboarding process, Carbon Space Technology personnel will request a KML shapefile of the assessed fields (polygons) from the system user. The quality and consistency of the KML file provided by HCS are verified against satellite data to ensure accurate location, GPS coordinates, land cover classification, and land area. It is crucial that the shapefile does not contain overlapping boundaries or include buildings within the designated assessment area. The validation of the KML file follows the quality procedures defined in Carbon Space Technology Version 1.1, under the section titled "Validating Customer Input Data."

4.4 For onboarding documentation purposes, only the KML shapefile was provided by the system user to CarbonSpace. Supporting documents such as land ownership records, planting and harvesting data, land cover classification, or crop type were not included, as this information was verified through satellite data analysis. Any data discrepancies identified were communicated to the landowner and cross-validated using satellite imagery. No on-the-ground verification was conducted by CarbonSpace.

4.5 HCS will maintain records and relevant documentation for all participating field sites, including land ownership documents, planting and harvesting data, land cover classification, and other supporting information. These documents will be made available to the verifier during the verification process and are accessible for review as part of the verification checks.

4.6 Land cover classification is determined prior to generating the shapefile for the NEE system. Carbon Space Technology personnel validate that the shapefile provided by the system user meets key criteria: each asset must have a minimum area of 1 hectare and a field width of at least 43 meters. Furthermore, each asset must consist of a homogeneous land cover type to ensure data accuracy. Any changes in land cover are cross-checked with satellite imagery to confirm alignment between the NEE readings and the land cover classification at the time of measurement. For HCS's field, there are no issues regarding crop type, as all fields are planted with homogeneous hemp crops, which fall under the cropland (CRO) classification.

4.7 For hemp crops, the harvesting season typically occurs between May and September. NEE monitoring is conducted throughout the entire year of 2024 (January to December), with a focused reporting period and seasonal analysis covering the peak harvesting months from May to September 2024.

KML Shapefile Quality Check using Google Earth Platform:

4.8 The NEE reading using CarbonSpace Technology was conducted by uploading the KML shapefile to the system, with the results to be generated at a later stage. The KML shapefile and associated information were verified through site sampling. A sample of the verification process for the KML shapefile via Google Earth platform is provided in this verification report.

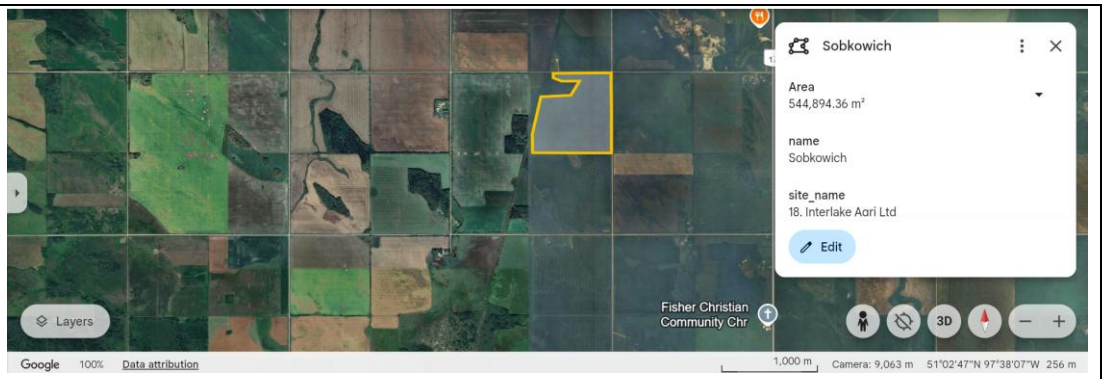
Sample 1 (USA):

Sample 2 (USA):

Sample 3 (USA):

Sample 4 (Canada):

Sample 5 (Canada):



Sample 6 (Canada):

Sample 7 (Canada):

Sample 8 (UK):

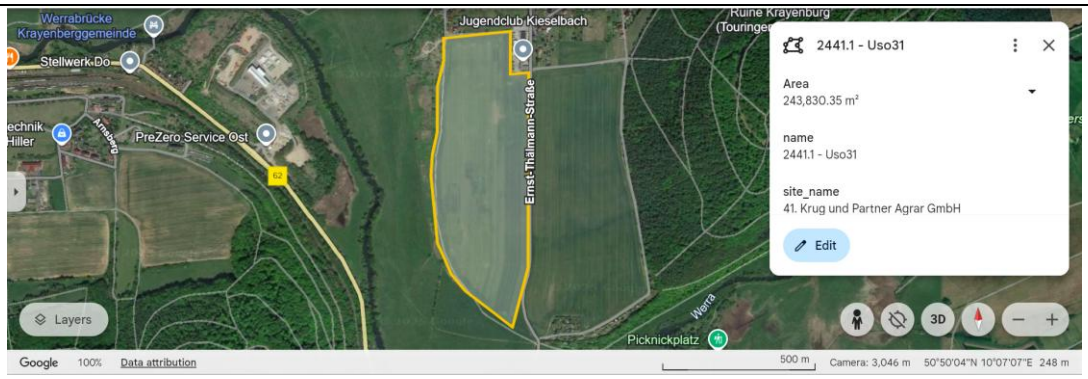
Sample 9 (Ukraine):

Sample 10 (Ukraine):

Sample 11 (Australia):

Sample 12 (Spain):

Sample 13 (German):



Sample 14 (Sweden):

Sample 15 (Zimbabwe):

Total NEE Monitoring Result for Hemp Carbon Standard fields:

4.1 According to the CarbonSpace UI Update: August 2024, User Guide - Net Ecosystem Exchange (NEE) - the net carbon dioxide exchange between an ecosystem and the atmosphere. NEE Intensity represents the Net Ecosystem Exchange (NEE) value per unit area (tCO_2/hectare) as displayed in the user interface. It reflects a relative measure of NEE rather than an absolute one. This metric is especially useful for comparing individual polygons or groups of varying sizes, as it highlights the "efficiency" of carbon exchange per hectare rather than focusing solely on total NEE values.

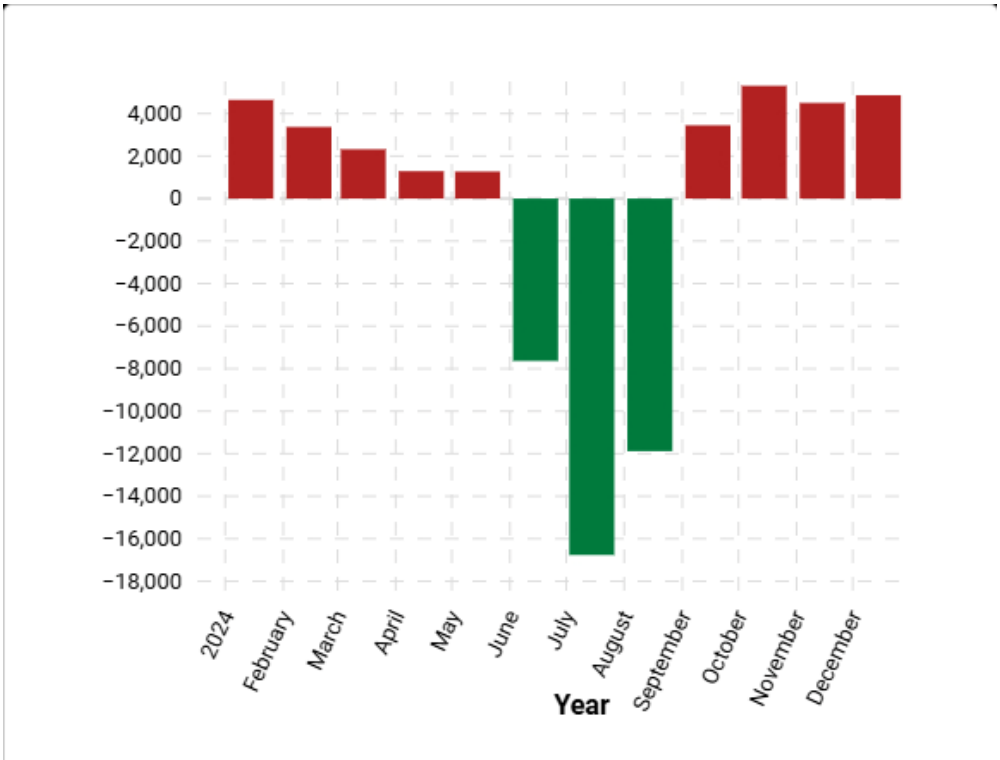
4.2 Negative NEE values, indicating net carbon sequestration, are displayed in green on the Carbon Space Technology platform's user interface graphs. In contrast, positive NEE values, which reflect net carbon emissions, are shown in red. These color-coded visual indicators

facilitate clear and consistent interpretation of carbon exchange status during the verification process.

4.3 From the assessment result, the NEE monitoring result reading for 9 countries for year of monitoring 2024 as following:

Month	Total NEE (tCO2)	NEE Intensity (tCO2/ha)
Jan 2024	4,641.38	0.77
Feb 2024	3,368.43	0.56
March 2024	2,319.68	0.38
April 2024	1,288.04	0.21
May 2024	1,271.62	0.21
June 2024	-7,637.33	-1.26
July 2024	-16,766.8	-2.77
August 2024	-11,879.6	-1.96
September 2024	3,445.76	0.57
October 2024	5,303.71	0.88
November 2024	4,498.14	0.74
December 2024	4,859.84	0.80

Table 1: Total NEE Total for 9 countries for year 2024



Graph 1: Monthly NEE Total for 9 countries for year 2024

4.4 Verified monthly NEE data for 2024 showed clear seasonal variation aligned with the expected hemp growth and harvesting cycle from May to September. The peak growing period—June to August—recorded the highest levels of carbon sequestration,

corresponding to the active biomass accumulation phase. July showed the greatest uptake at -16,767 tCO_2, followed by August (-11,880 tCO_2) and June (-7,637 tCO_2). Together, these three months contributed to a total net sequestration of -31,566 tCO_2.

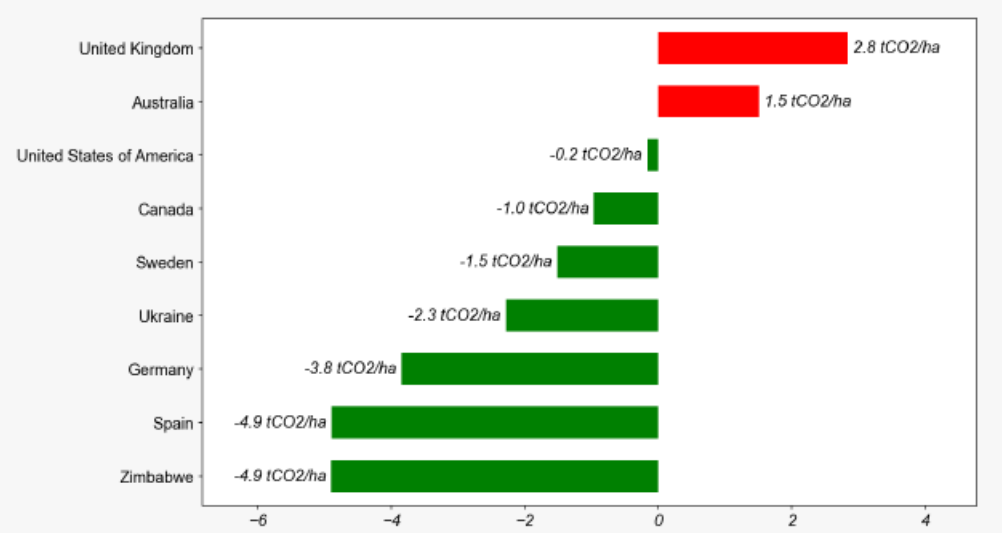
4.5 In contrast, the periods outside the main growing season (January to April and October to December) reflected net carbon emissions. This seasonal trend confirms the critical role of the active hemp growth phase in driving net ecosystem carbon sequestration at the field level.

NEE Monitoring Result based by each monitored country:

4.1 Based on the verification of seasonal NEE intensity data for the peak growing period (May to September 2024), the strongest carbon sequestration was recorded in Zimbabwe, with a verified NEE intensity of -10.4 tCO_2/ha. High levels of net carbon removal were also confirmed in Sweden (-7.0 tCO_2/ha), Ukraine (-6.8 tCO_2/ha), and Germany (-6.0 tCO_2/ha). Moderate sequestration performance was observed in Canada, Australia, and the United States, with intensities ranging from -5.4 to -4.2 tCO_2/ha. The United Kingdom demonstrated lower sequestration at -1.7 tCO_2/ha. Spain was the only country to show net emissions during the season, with a positive NEE intensity of +1.6 tCO_2/ha, indicating limited carbon uptake during the peak biomass accumulation phase.

4.2 The 2024 verified NEE intensity results reveal notable differences in carbon sequestration performance across the monitored countries. On an annual average basis, the highest net carbon removal was recorded in Zimbabwe and Spain, each with an NEE intensity of -4.9 tCO_2/ha, followed by Germany (-3.8 tCO_2/ha) and Ukraine (-2.3 tCO_2/ha).

4.3 In contrast, lower sequestration levels were observed in Sweden, Canada, and the United States, ranging from -1.5 to -0.2 tCO_2/ha. Australia and the United Kingdom exhibited net positive NEE values of +1.5 and +2.8 tCO_2/ha respectively, indicating that cropland areas in these regions acted as net carbon sources over the year.



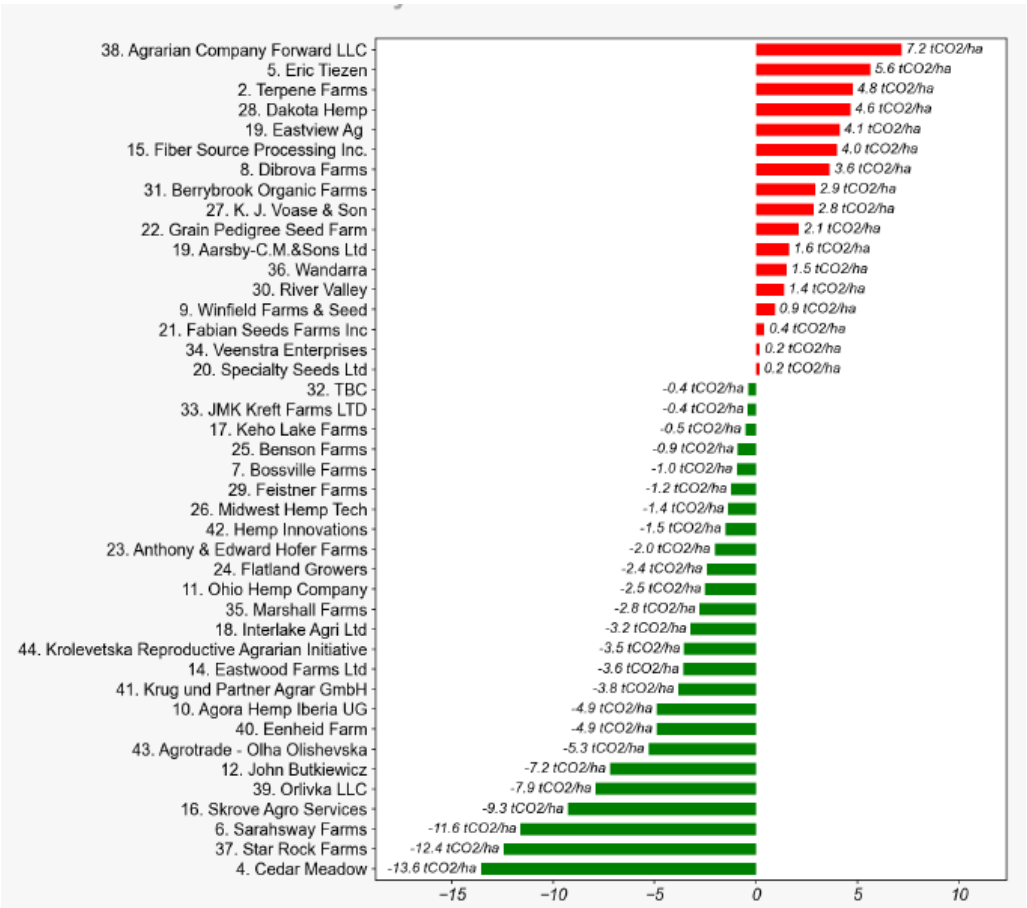
Graph 2: Annual NEE Intensity by country for monitoring year 2024

NEE Monitoring Result based on Farm Name (Site Name):

4.4 Based on the CarbonSpace UI Update: August 2024, User Guide - a polygon refers to a defined KML shape in the user interface representing a farm, field, or forest, replacing the previously used term "asset."

4.5 As part of the verification process, Net Ecosystem Exchange (NEE) data were analysed at the farm level to assess carbon sequestration performance across individual sites participating in the Hemp Carbon Standard project. Polygons were grouped by the "Farm" attribute to evaluate variations in NEE intensity (tCO_2/ha), enabling the identification of farms with the highest contributions to carbon uptake and those that may warrant further review. There are 42 farms group for Hemp Carbon Standard includes 213 registered polygons/fields monitored for NEE by Carbon Space Technology across nine countries.

4.6 For the reporting year 2024, the strongest annual sequestration was observed at Farm 4. Cedar Meadow (-13.6 tCO_2/ha) and Farm 37. Star Rock Farms (-12.4 tCO_2/ha). During the peak reporting period from May to September 2024, sequestration performance increased across most farms, with several exceeding -7 tCO_2/ha. Cedar Meadow remained the top-performing site (-12.3 tCO_2/ha), followed by Farm 6. Sarahsway Farms (-11.6 tCO_2/ha) and Farm 40. Eenheid Farm (-10.4 tCO_2/ha). These verified results reinforce the role of the active growing season in enhancing ecosystem-level carbon removal across cropland areas.

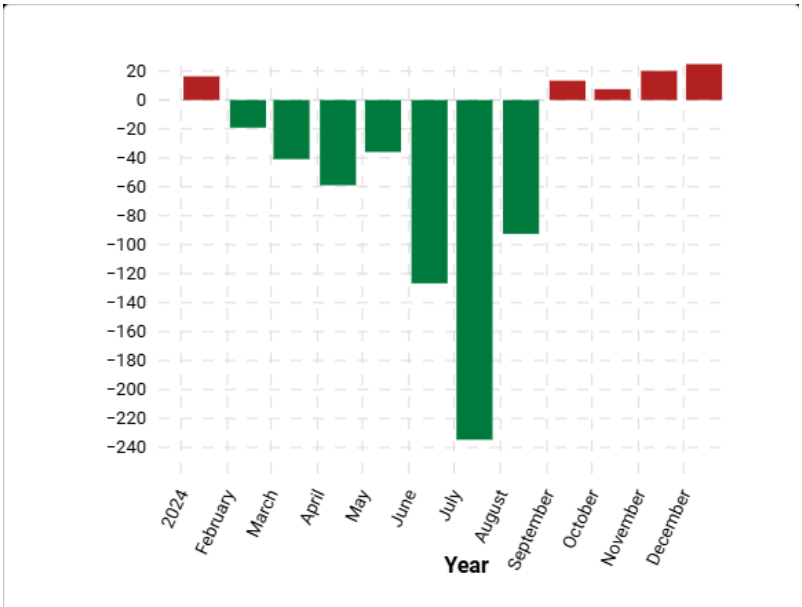


Graph 3: Annual NEE Intensity by farm sites for monitoring year 2024

4.7 The sample selection of 15 polygons (fields) is represented in the details and graph below:

Sampling 1:

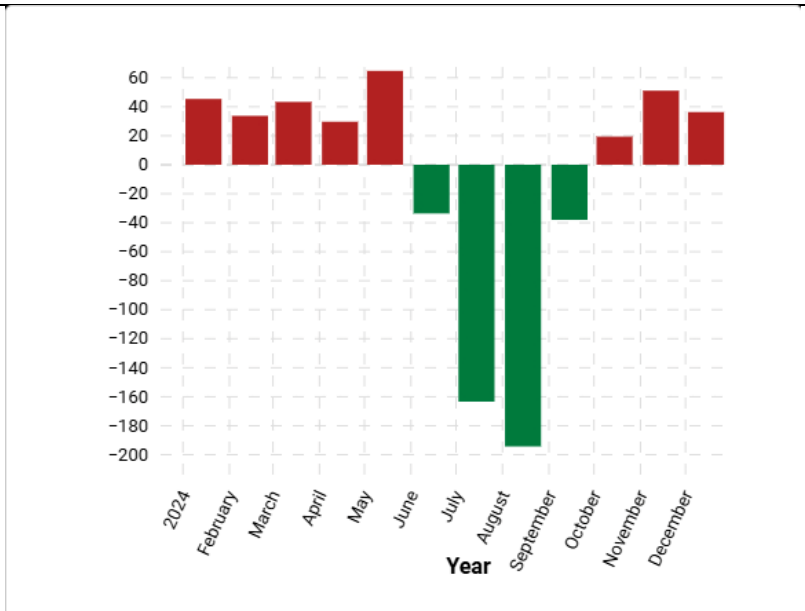
Country	USA
Site name	4. Cedar Meadow
No. of Polygons	9
Total Area	38.81 Ha
Total NEE	-0.53 kT
NEE Intensity	-13.56 T/ha
Sample of polygon	A1 (6.36 Ha)



Graph 4: Monthly NEE Total for Farm 4. Cedar Meadow

Sampling 2:

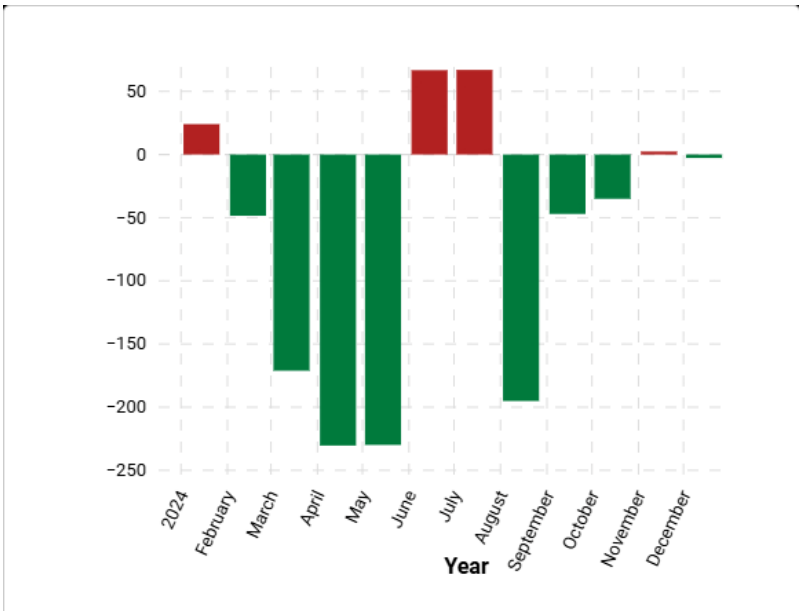
Country	USA
Site name	11. Ranlin (Trevor Richardson)
No. of Polygons	6
Total Area	42.25 Ha
Total NEE	-0.11 kT
NEE Intensity	-2.5 T/ha
Sample of polygon	Indian Creek 3 (7.3 Ha)



Graph 5: Monthly NEE Total for Farm 11. Ranlin (Trevor Richardson)

Sampling 3:

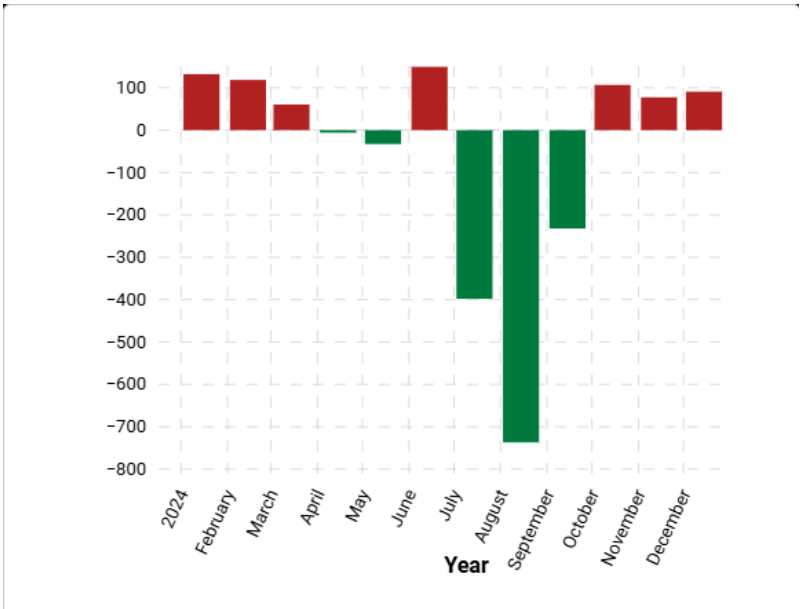
Country	USA
Site name	37. Star Rock Farms
No. of Polygons	4
Total Area	64.24 Ha
Total NEE	-0.8 kT
NEE Intensity	-12.45 T/ha
Sample of polygon	92-Nathan Kauffman - 1 - 1 (40.67 Ha)



Graph 6: Monthly NEE Total for Farm 37. Star Rock Farms

Sampling 4:

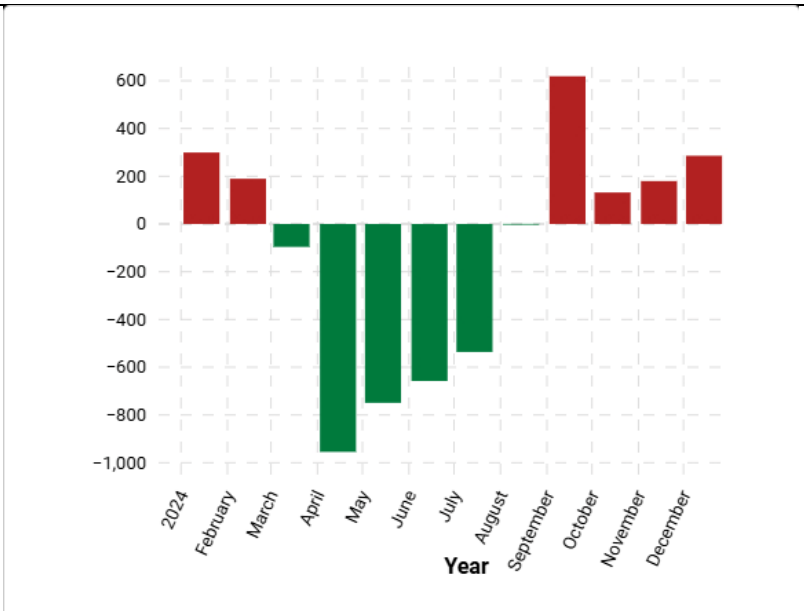
Country	Canada
Site name	14. Eastwood Farms Ltd
No. of Polygons	4
Total Area	186.79 Ha
Total NEE	-0.67 kT
NEE Intensity	-3.59 T/ha
Sample of polygon	SW22-14-14 (46.88 Ha)



Graph 7: Monthly NEE Total for Farm 14. Eastwood Farms Ltd

Sampling 5:

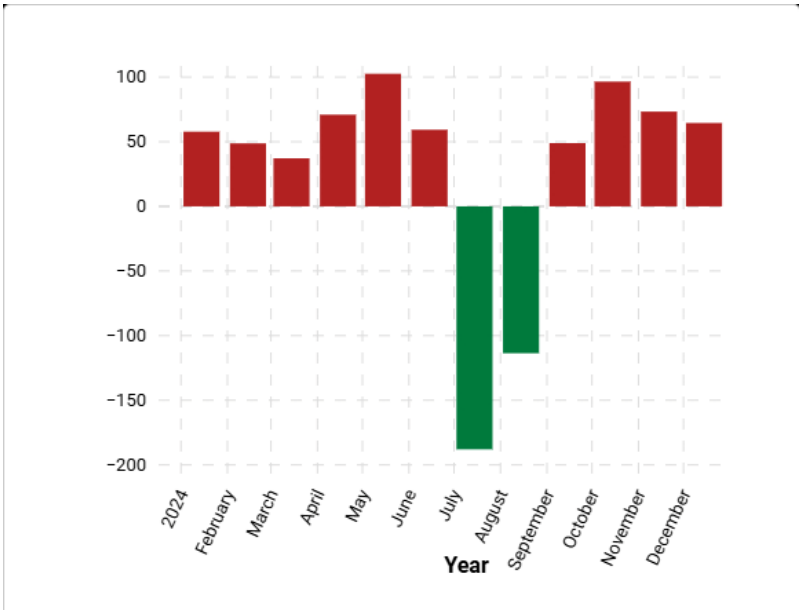
Country	Canada
Site name	18. Interlake Agri Ltd
No. of Polygons	11
Total Area	399.59 Ha
Total NEE	-1.29 kT
NEE Intensity	-3.23 T/ha
Sample of polygon	Sobkowich (54.69 Ha)



Graph 8: Monthly NEE Total for Farm 18. Interlake Agri Ltd

Sampling 6:

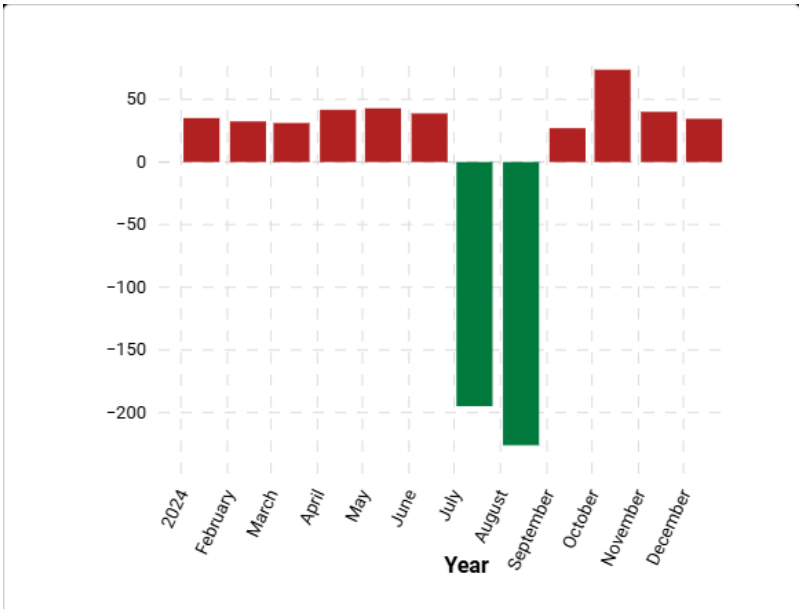
Country	Canada
Site name	5. Eric Tiezen
No. of Polygons	1
Total Area	63.62 Ha
Total NEE	+0.36 kT
NEE Intensity	+5.63 T/ha
Sample of polygon	Goldies (63.62 Ha)



Graph 9: Monthly NEE Total for Farm 5. Eric Tiezen

Sampling 7:

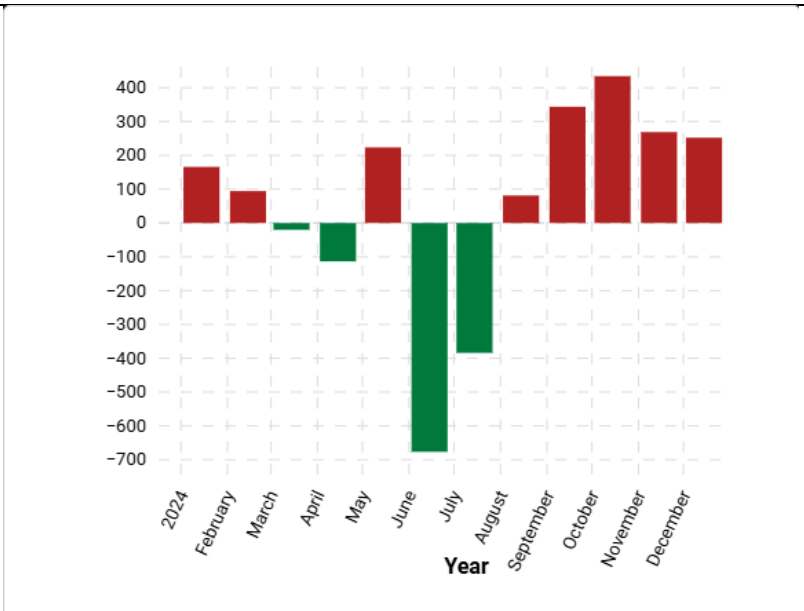
Country	Canada
Site name	33. JMK Kreft Farms LTD
No. of Polygons	2
Total Area	59.12 Ha
Total NEE	-0.02 kT
NEE Intensity	-0.41 T/ha
Sample of polygon	Hazuda (30.34 Ha)



Graph 10: Monthly NEE Total for Farm 33. JMK Kreft Farms LTD

Sampling 8:

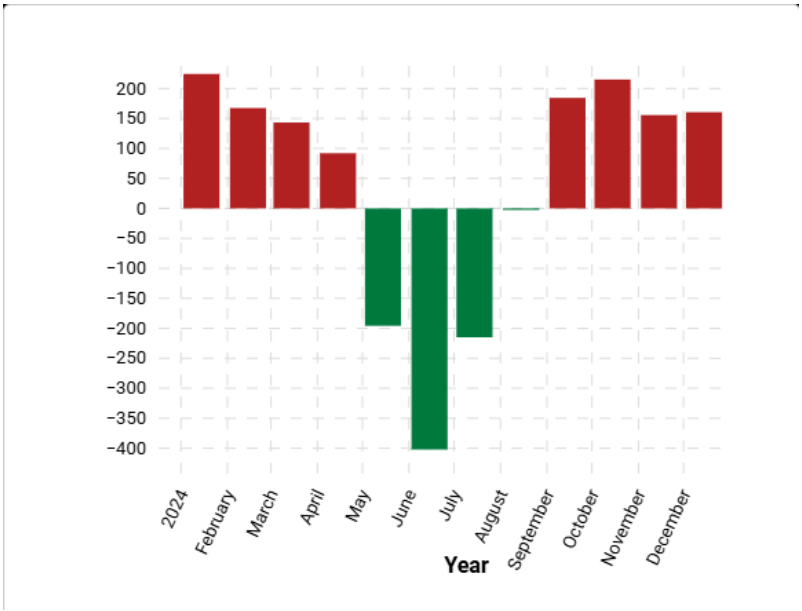
Country	UK
Site name	27. K. J. Voase & Son
No. of Polygons	19
Total Area	236.14 Ha
Total NEE	+0.67 kT
NEE Intensity	+2.84 T/ha
Sample of polygon	Aymleys G (22.93 Ha)



Graph 11: Monthly NEE Total for Farm 27. K. J. Voase & Son

Sampling 9:

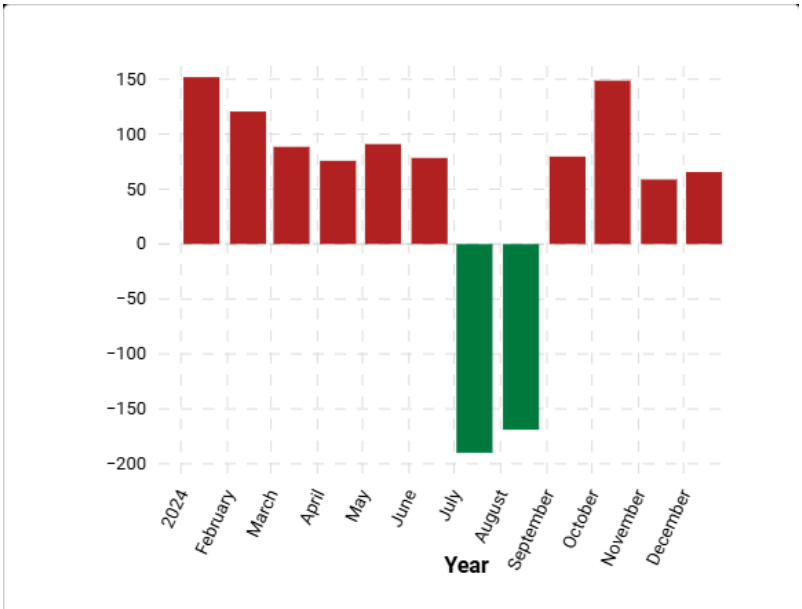
Country	Ukraine
Site name	8. Dibrova Farms
No. of Polygons	12
Total Area	144.97 Ha
Total NEE	+0.53 kT
NEE Intensity	+3.63 T/ha
Sample of polygon	L1 (8.49 Ha)



Graph 12: Monthly NEE Total for Farm 8. Dibrova Farms

Sampling 10:

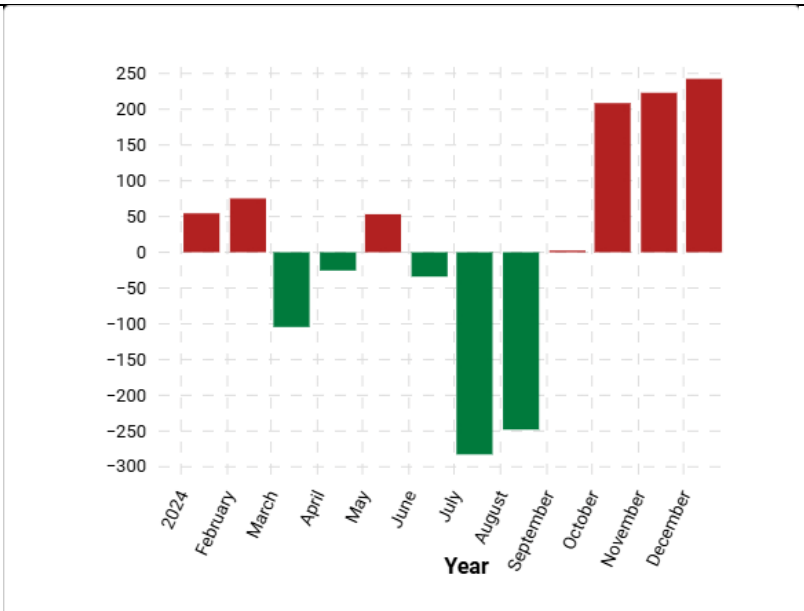
Country	Ukraine
Site name	38. LLC Agricultural Company
No. of Polygons	1
Total Area	83.84 Ha
Total NEE	+0.6 kT
NEE Intensity	+7.16 T/ha
Sample of polygon	SOR 8 (83.84 Ha)



Graph 13: Monthly NEE Total for Farm 38. LLC Agricultural Company

Sampling 11:

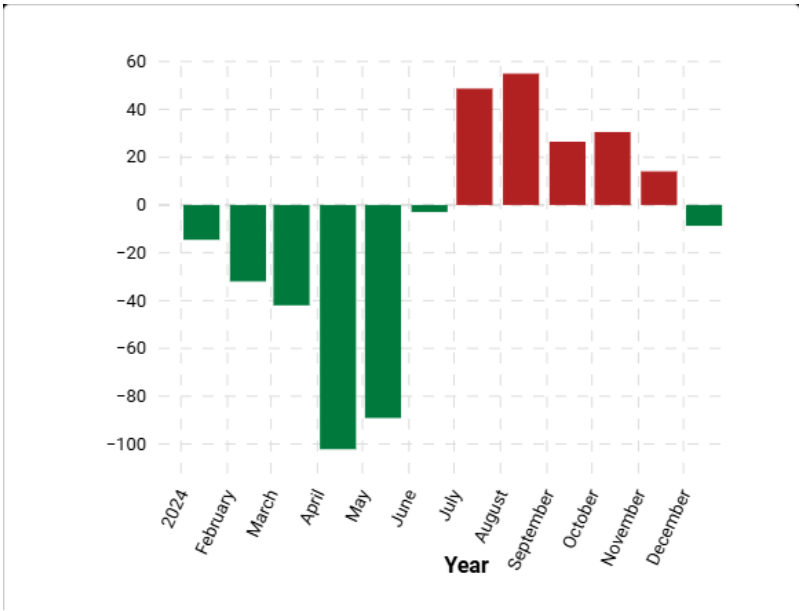
Country	Australia
Site name	36. Wandarra
No. of Polygons	4
Total Area	109.45 Ha
Total NEE	+0.16 kT
NEE Intensity	+1.51 T/ha
Sample of polygon	Ruby Centre Pivot 2 (14.39 Ha)



Graph 14: Monthly NEE Total for Farm 36. Wandarra

Sampling 12:

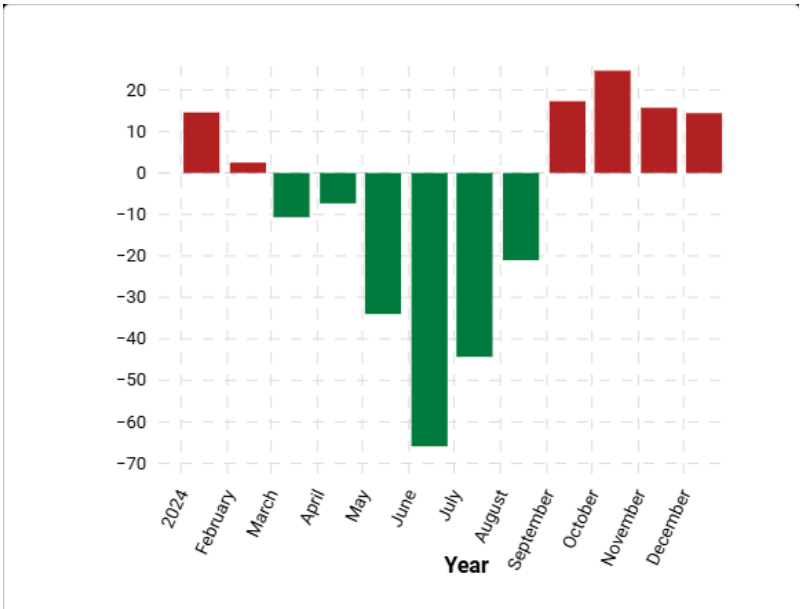
Country	Spain
Site name	10. Agora Hemp Iberia UG
No. of Polygons	1
Total Area	23.86 Ha
Total NEE	-0.12 kT
NEE Intensity	-4.9 T/ha
Sample of polygon	Florencia (23.86 Ha)



Graph 15: Monthly NEE Total for Farm 10. Agora Hemp Iberia UG

Sampling 13:

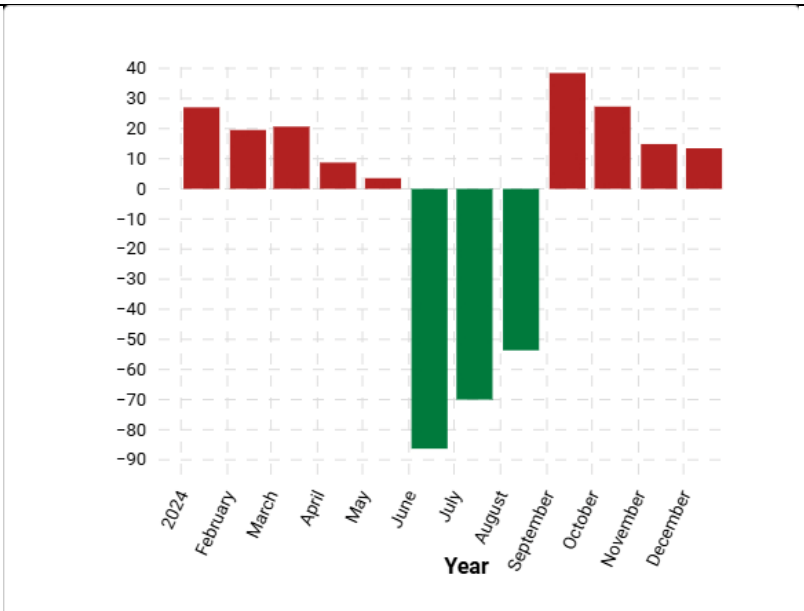
Country	German
Site name	41. Krug und Partner Agrar GmbH
No. of Polygons	1
Total Area	24.47 Ha
Total NEE	-0.09 kT
NEE Intensity	-3.85 T/ha
Sample of polygon	2441.1 - Uso31 (24.47 Ha)



Graph 16: Monthly NEE Total for Farm 41. Krug und Partner Agrar GmbH

Sampling 14:

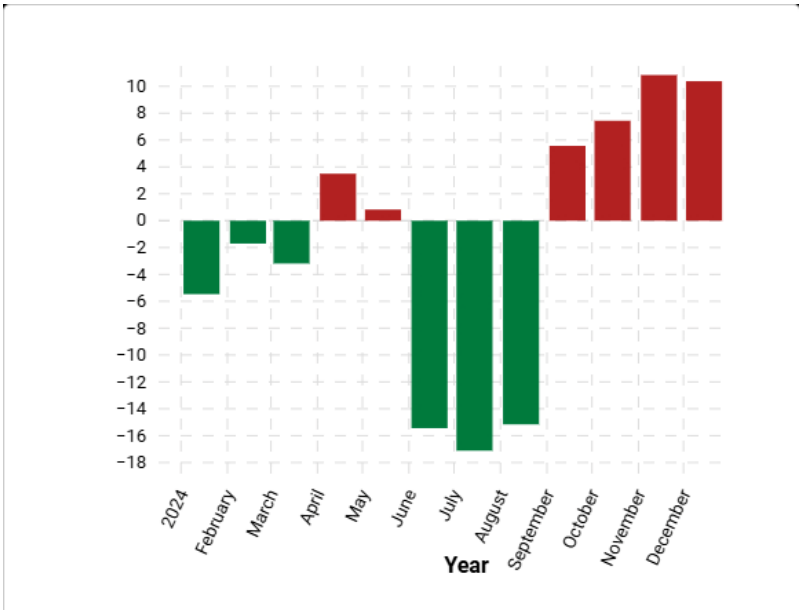
Country	Sweden
Site name	42. Hemp Innovations
No. of Polygons	3
Total Area	23.89 Ha
Total NEE	-0.04 kT
NEE Intensity	-1.52 T/ha
Sample of polygon	Ytter 1 (13.63 Ha)



Graph 17: Monthly NEE Total for Farm 42. Hemp Innovations

Sampling 15:

Country	Zimbabwe
Site name	40. Eenheid Farm
No. of Polygons	1
Total Area	3.99 Ha
Total NEE	-0.02 kT
NEE Intensity	-4.9 T/ha
Sample of polygon	Pivot 1 Section A (3.99 Ha)

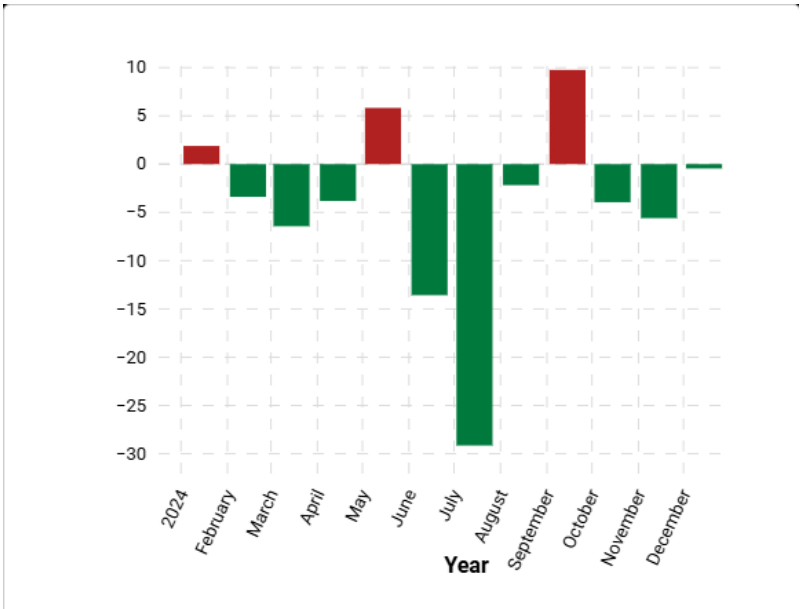


Graph 18: Monthly NEE Total for Farm 40. Eenheid Farm

4.8 Overall, the farms assessed in this project demonstrated the expected seasonal patterns of carbon emissions and sequestration, with notable carbon uptake occurring between May

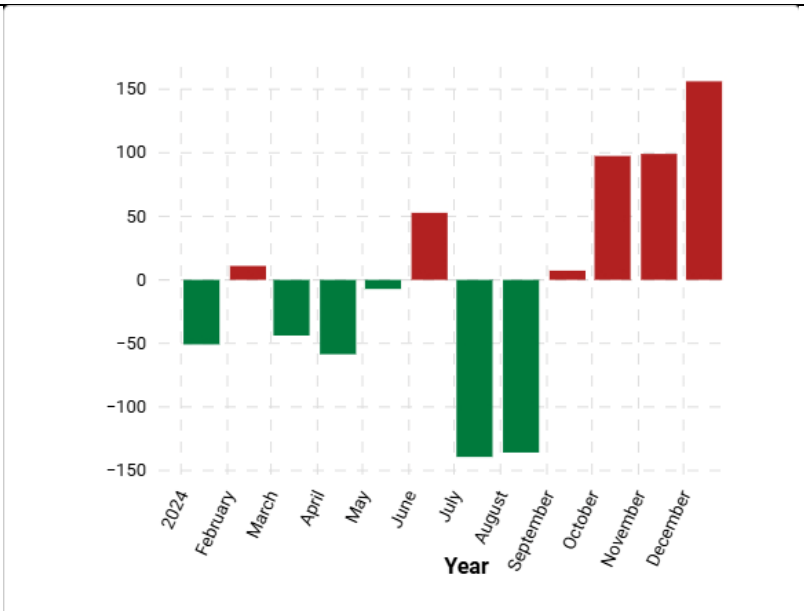
and September. However, among the 213 polygons monitored by the platform, three polygons exhibited atypical NEE patterns throughout the year, with the underlying causes remaining unclear. According to the Carbon Space team, these anomalies may be due to unrecorded activities that enhance carbon sequestration—such as fertilization, natural environmental factors, or deviations from typical seasonal planting and harvesting practices by certain farmers. The polygons with these unusual patterns are as follows:

Country	United States
Site name	4. Cedar Meadow
Polygon Name	N1
Total Area	4.51 Ha
Total NEE	-51.06 tCO2
NEE Intensity	-11.33 tCO2/ha



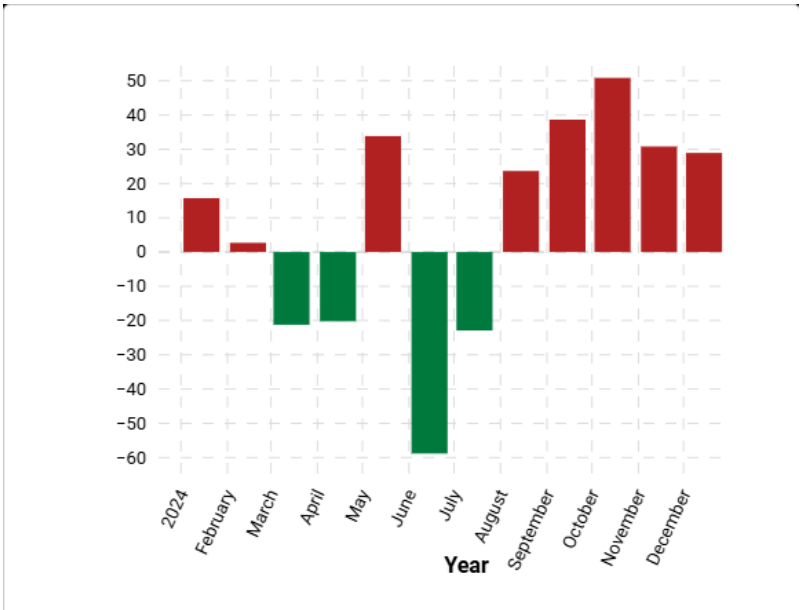
Graph 19: Monthly NEE Total for Polygon N1

Country	Australia
Site name	36. Wandarra
Polygon Name	MS77 Autumn 2024
Total Area	53.23 Ha
Total NEE	-11.76 tCO2
NEE Intensity	-0.22 tCO2/ha



Graph 20: Monthly NEE Total for Polygon MS77 Autumn 2024

Country	United Kingdom
Site name	27. K. J. Voase & Son
Polygon Name	Pond
Total Area	21.44 Ha
Total NEE	+102.01 tCO2
NEE Intensity	+4.76 tCO2/ha



Graph 20: Monthly NEE Total for Polygon Pond

Conclusion:

4.9 The CarbonSpace digital Monitoring, Reporting, and Verification (dMRV) tool was employed to monitor 213 fields across nine countries, covering a total cropland area of 6,048.6 hectares over the monitoring period from January to December 2024. For verification purposes, a representative sample of 15 fields was selected from the total 213 polygons managed under the Hemp Carbon Standard. The monitored fields span across Ukraine, the United States, Australia, the United Kingdom, Canada, Germany, Spain, Sweden, and Zimbabwe. Overall, participating farms exhibited notable seasonal carbon sequestration trends aligned with expected crop growth cycles.

4.1 Based on the verified NEE data for 2024, Cedar Meadow ranked as the top-performing farm in terms of carbon sequestration, achieving the highest net removal with -476 tCO_2 during the core growing season (May–September), corresponding to an intensity of -12.3 tCO_2/ha. Eric Tiezen's farm ranked second, with a seasonal net sequestration of -91 tCO_2, despite recording overall annual emissions due to sustained off-season carbon releases. Both farms are located in the United States, highlighting the strong carbon uptake performance of U.S. fields during the hemp growing season.

4.2 In 2024, Agrarian Company Forward LLC recorded the highest net annual carbon emissions among all monitored farms, totaling +600 tCO_2, driven by sustained emissions outside the peak growing season. Eric Tiezen's farm ranked second in net emissions, with a total of +358 tCO_2. While both farms exhibited seasonal carbon sequestration during the core growing season (May–September)—with Agrarian at -110 tCO_2 and Eric Tiezen at -91 tCO_2—these seasonal removals were not sufficient to offset the significant emissions during the rest of the year.

4.3 This assessment covered 213 field sites managed by the Hemp Carbon Standard, spanning a total area of 6,049 hectares. According to the 2024 monitoring data, Zimbabwe and Spain recorded the highest carbon sequestration intensities, both at -4.9 tCO_2/ha. In contrast, the United Kingdom exhibited the highest carbon emission intensity at +2.8 tCO_2/ha, followed by Australia at +1.5 tCO_2/ha.

4.4 Control Union has completed the verification of Carbon Space Technology Version 1.1 at system level for its use in Net Ecosystem Exchange (NEE) monitoring. However, the current Hemp Carbon Standard NEE assessment utilizes the updated Carbon Space Technology Version 2.0.

PART 5: VERIFICATION AND VALIDITY PROCEDURE

The verification process involved the assessment of Hemp Carbon Standard fields using Carbon Space Technology Version 1.1 for carbon flux monitoring from January 2024 to December 2024. The key activities conducted during the verification included:

i. **Methodology Review:** A comprehensive evaluation of the NEE monitoring methodology and procedural documentation of Carbon Space Technology Version 1.1, focusing on its application to Hemp Carbon Standard fields across nine countries.
ii. **Spatial and Data Analysis**: A detailed review of the KML shapefiles and associated data sources, including an in-depth assessment of carbon flux readings derived from the Carbon Space platform.
iii. **System Compliance Assessment**: Evaluation of the Net Ecosystem Exchange (NEE) system's compliance and quality management framework to ensure accurate application of NEE readings across 6,048.62 hectares of hemp cultivation in nine countries during the 2024 monitoring year.
Final Report Review: Rigorous analysis of the final carbon flux quantification and NEE monitoring records provided by Carbon Space Technology for submission to the Hemp Carbon Standard.

PART 6: ASSURANCE FINDINGS

Following an independent verification of the Net Ecosystem Exchange (NEE) evaluation and data analysis, Control Union conducted a comprehensive review of the methodologies and procedures outlined in Carbon Space Technology Version 1.1. This assessment included a representative sample of 15 fields selected from a total of 213 fields managed by the Hemp Carbon Standard across nine countries.

Based on this thorough evaluation, Control Union confidently concludes that the application of the NEE methodology by Carbon Space Technology Version 1.1 to the Hemp Carbon Standard fields is reasonably accurate and appropriately implemented at the project user level, consistent with the protocols defined in Version 1.1. Additionally, the final carbon flux quantification and analysis report, prepared by Carbon Space Limited, aligns with recognized greenhouse gas (GHG) project methodologies and fulfills the requirements set forth by the Hemp Carbon Standard.

PART 7: VERIFICATION OPINION

In line with the defined scope, objectives, and assessment criteria detailed in Section 1, a thorough evaluation was conducted on the Net Ecosystem Exchange (NEE) carbon flux quantification performed by Carbon Space Technology for the Hemp Carbon Standard fields. While the analysis follows the procedures and methodology established in Carbon Space Technology Version 1.1, the platform applied for the Hemp Carbon Standard utilizes the updated Version 2.0. The verification process was carried out on a representative sample of 15 fields selected from a total of 213 fields managed across nine countries under the Hemp Carbon Standard.

The verification of the Hemp Carbon Standard has been conducted in accordance with the guidelines specified in Carbon Space Technology version 1.1's system documentation, covering 213 sampled fields across nine countries as detailed in this report. Any additional sites or future monitoring activities carried out by Carbon Space Technology for Hemp Carbon Standard fields will undergo separate verification processes. This approach ensures ongoing accuracy and consistency in data quality and the application of methodologies, including NEE monitoring, aligned with the verified Carbon Space Technology System Version 1.1. The verification has been completed with a moderate level of assurance.

Disclaimer: *Control Union, as the independent verifier, explicitly limits its verification scope for the Carbon Space NEE system related to Hemp Carbon Standard fields to assessments conducted using Carbon Space Technology Version 1.1 or earlier. Accordingly, we do not assume any responsibility for issues arising from the application or analysis of the NEE methodology and monitoring procedures under Version 2.0. The user retains full accountability for the correct implementation and interpretation of the system. This limitation is detailed in Section 3.3 of this report.*

PART 8: VALIDATION AND ACKNOWLEDGE

Verification by		
Name	Aini Nazurah Mohd Zi	Aini Nazurah 16/05/2025
Role	Assessor	
Date	16/05/2025	
Acknowledged by		
Name	Shahizzudin bin Mohd Said	
Role	Climate Change Mitigation Program Manager	
Date	16/05/2025	

[THE END]

Appendix 1

i. List of Field Numbers by Country (submitted by Hempalta, December 2024)

No.	Country	No. of Field	Field Sampling	Field Size (Acres)	Field Size (Ha)
1	Total USA Acres	43	3	2007.68	812.50
2	Total Canada Acres	96	3	9563.98	3870.49
3	Total Australia Acres	4	1	264.61	107.09
4	Total UK Acres	19	2	583.67	236.21
5	Total Ukraine Acres	17	2	1369.12	554.08
6	Total Spain Acres	0	0	0	0
7	Total Africa Acres	1	1	25	10.12
8	Total Germany Acres	1	1	60	24.28
9	Total Sweden Acres	3	1	58.5	23.67
	Overall Project Total	**184**	**14**	**14,062.56**	**5,691.04**

ii. List of Field Numbers by Country (submitted by Carbon Space, February 2025)

No.	Country	No. of Field	Field Sampling	Field Size (Acres)	Field Size (Ha)
1	Total USA Acres	56	3	2259.23	914.30
2	Total Canada Acres	97	3	9471.28	3832.98
3	Total Australia Acres	4	1	270.45	109.45
4	Total UK Acres	19	2	583.50	236.14
5	Total Ukraine Acres	31	2	2173.34	879.54
6	Total Spain Acres	1	1	58.96	23.86
7	Total Africa Acres	1	1	9.85	3.99
8	Total Germany Acres	1	1	60.47	24.47
9	Total Sweden Acres	3	1	59.04	23.89
	Overall Project Total	**213**	**15**	**14,946.13**	**6,048.62**