



FarmBox

**The farmer's toolbox
for climate change
mitigation**

CSA Simulatore

Un breve tutorial

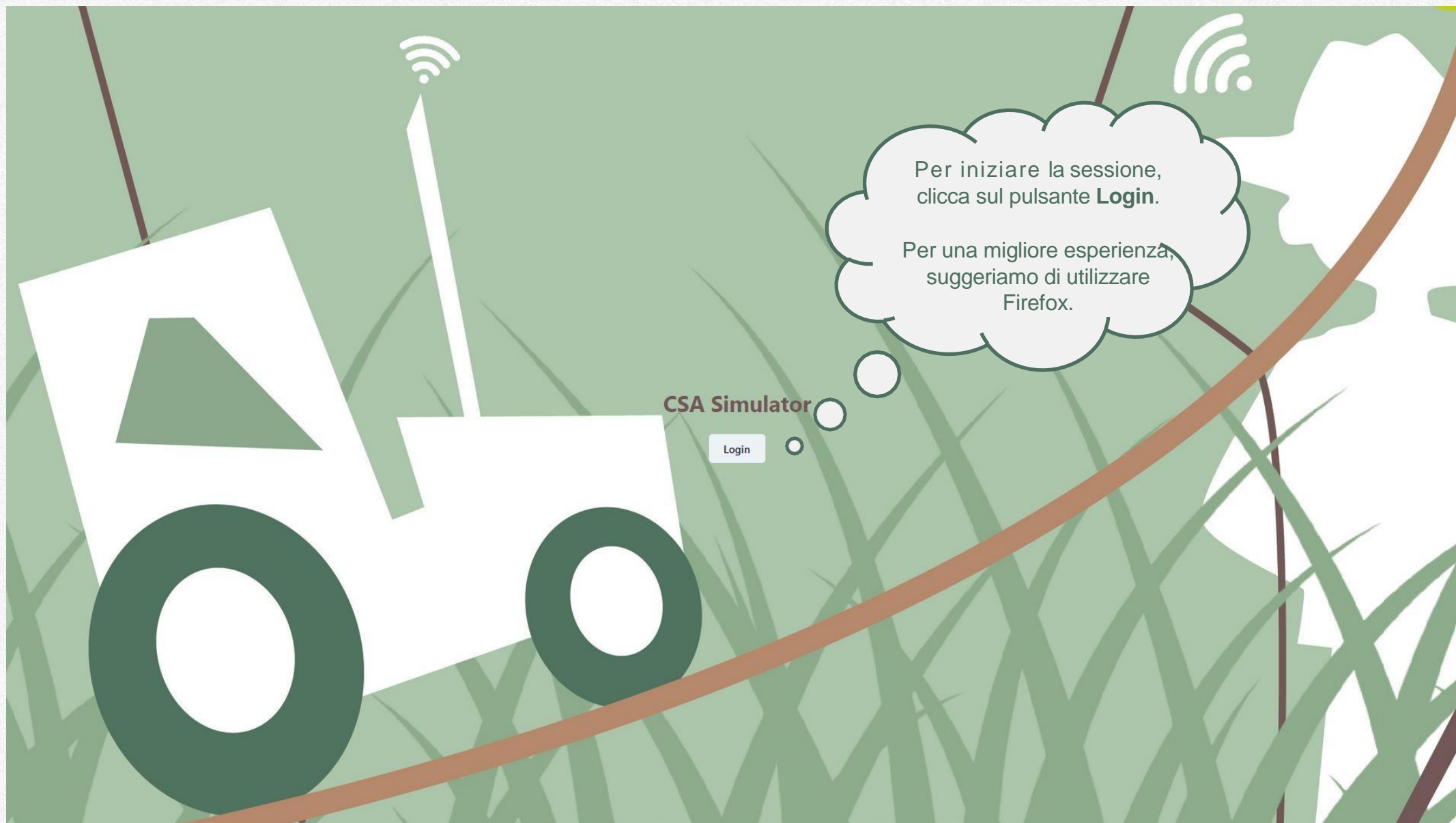


Introduzione

Questa presentazione è un manuale di istruzioni conciso che illustra l'utilizzo di un'applicazione basata sul web, progettata allo scopo di simulare e implementare pratiche agronomiche efficaci associate alla Climate Smart Agriculture. In particolare, sottolinea l'utilizzo dell'agricoltura conservativa come strumento di mitigazione del clima.

Registrazione

Come registrare un utente e richiedere l'attivazione



UPTOEARTH

Sign in to your account

Email

Password

Sign In

New user? [Register](#)

Per creare un
nuovo profile, clicca
su **Registrati**

UPTOEARTH

Register

First name

Last name

Email

Password

Confirm password

[« Back to Login](#)

Inserisci i tuoi
dati e clicca su
Registrati.

Simulator Environment

🏠 Home

↩ Logout

Se la procedura è
completata
correttamente, dovresti
visualizzare questa
pagina web. Per
completare la
registrazione, clicca sul
pulsante **Logout**.

Welcome

Please select a dashboard



Completata la registrazione, invia una email all'indirizzo **helpdesk@uptoearth.eu** per richiedere l'attivazione del profilo e indicare a quale modulo formativo vuoi accedere.

Iniziare

Come accedere e navigare sul Simulatore



UPTOEARTH

Sign in to your account

Email
v.bujauske@zur.it

Password
••••••••

Sign In

New user? [Register](#)

Qui dovrai
inserire le
credenziali che
hai ricevuto.

Simulator Environment

Home

Sustainable farming

Logout

La sezione sulla sinistra include i pulsanti di navigazione.

In particolare, i pulsanti per attivare i casi studio della simulazione.

Welcome

This is your personal bulletin board.

Here you will find general messages regarding the operation of the CSA Simulator.

For a better visual experience and proper functionality, you gotta use Firefox as your browser.

Please select a dashboard

Nell'area centrale, sono presenti i messaggi per l'utente.

In questo caso ad esempio, è riportato un avviso per migliorare le funzioni del simulatore.

Impostare il simulatore

Scegliere i giusti parametri per il tuo caso studio da simulare

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Scenario description

Introduction

In this simulation, learners will be exposed to different 'Good Agricultural Practices' that are necessary for a successful and efficient farming system. Learners will be required to use the data-driven decision-making tools to make their own decisions to optimise their farming activities. The aim is for learners to understand the importance of making data-driven decisions to achieve sustainable and productive farming systems. Through this simulation, learners will gain insights into how to use data-driven techniques and technologies to produce crops more efficiently and sustainably.

Feedback to learners allows them to reflect on their experience and why they played with the variables provided. The feedback provides an understanding of the importance of data-driven decisions and how they affect agricultural production. In addition, the feedback helps learners to better understand the concepts of smart agriculture and the role that data plays in making informed decisions.

The Content of the Exercise

Simulation title

Evaluate the effectiveness of agronomic practices in increasing the amount of cover crops.

Simulation scope and learning outcomes

The simulation will provide students with access to the Earth's surface and its topography, as well as to data on the area of protein crops declared in different regions of Lithuania, which are available in the databases of the Centre for Agricultural Information and Rural Business.

The simulator uses geo-referenced land cover databases, a digital elevation model and agronomic data from agronomic practices. The simulation will help students to understand the current state of the terrain and the associated farming practices and opportunities. It can be found at will also provide an insight into how agricultural practices vary with different quantities and types of protein crops, can affect soil quality as well as providing knowledge on ways in which data can be used to set priorities to improve farm sustainability.

Finally, the simulation gives students the opportunity to explore and learn about the complexities of land features of soil and land conservation, helping them become better informed and more responsible stewards of the Earth's soil.

Coordinates of the simulation

The region being tested is located in Lithuania and corresponds to the NUTS level 3 zone of Kauno apskritis.

Variables and indexes involved

The simulation includes a range of variables, including land cover, topography, and agronomic practices. Land cover is a physical characteristic of the Earth's surface, and topography refers to the shape and form of the land. Morphology is a measure of the shape and form of land features, such as hills, valleys, and rivers. Agronomic practices, such as fertilization, irrigation, and crop rotation, are used to improve soil quality and increase crop yields. All these variables are taken into account in the simulation.

Instructions to exercise

The following data is provided to the user, including the area of protein crops, the topographic data (based on factors such as elevation, slope, and aspect), and the results before and after the application of agronomic practices. The user can choose to apply or not to apply agronomic practices, and the simulation will show the results of the application.

Feedback

The aim of the simulation is to help learners understand the importance of making data-driven decisions to achieve sustainable and productive farming systems. By manipulating the variables, learners can see the impact of their decisions on the simulation. This exercise is designed to help learners understand the complexities of land features of soil and land conservation, helping them become better informed and more responsible stewards of the Earth's soil.

Nel Simulatore, è disponibile un pulsante di controllo che consente di impostare delle azioni per ogni fase della simulazione.

Questo porta all'apertura della sezione di navigazione e alla possibilità di selezionare componenti aggiuntive

Questa sezione riporta una guida per l'utente sui contenuti e lo scopo della simulazione

La guida riporta il titolo, lo scopo della simulazione, gli obiettivi di apprendimento, le variabili e gli indici coinvolti e le istruzioni per svolgere la simulazione.

Open control panel

Simulator Environment

Home

Sustainable farming

Logout

Scenario description

Here you will find the information contained in the **Use Case for Simulation - Student** present in the **Sustainable farming** scenario.

In particular, the following topics are explained:

1. Simulation title
2. Simulation scope and learning objectives
3. Coordinates of the simulation area
4. Variables and indexes involved
5. Instructions to experiment
6. Feedback and explanation

A general description of the scenario is provided.

Regarding the simulation, the following aspects are highlighted:

With regard to the simulation, the following aspects are highlighted:

Simulation controls

View base scenario

Parameters

1) Identification of the geographical area *

Select

Run simulation

Open control panel

Questo pulsante può essere utilizzato per attivare lo **Scenario di Base** che include tutte le info relative al contesto e offre una prima analisi del contesto geografico

In questa area si attiva il simulatore e sono disponibili due strumenti:

Uno o più opzioni per inserire i parametri della simulazione

Un pulsante per **Attivare la simulazione** dopo aver selezionato i parametri.

Scenario di base

Capire il contesto geografico di riferimento: cosa sapere

Simulator Environment

Home

Sustainable farming

Logout

Scenario description

Here you will find the information contained in the **Use Case for Simulation - Student document** prepared for the **Sustainable farming** scenario.

In particular, the following topics are explained:

1. Simulation title
2. Simulation scope and learning outcomes
3. Coordinates of the simulation
4. Variables and indexes involved
5. Instructions to execute the simulation
6. Feedback and explanation of the executed simulation

L'utente attiva lo scenario cliccando su **Vedi lo Scenario di Base**

Open control panel

Simulation controls

View base scenario

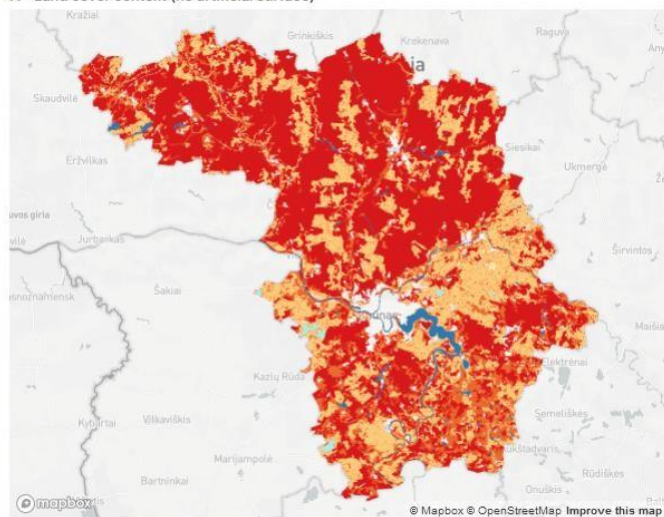
Parameters

1) Identification of the geographical area *

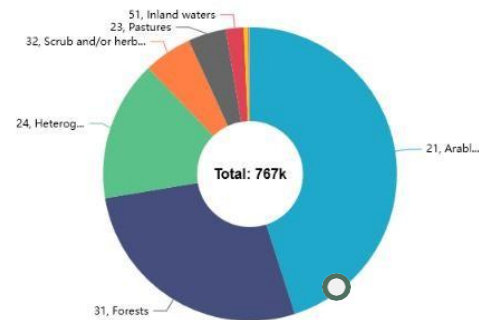
Select

Run simulation

A - Land cover context (no artificial surface)



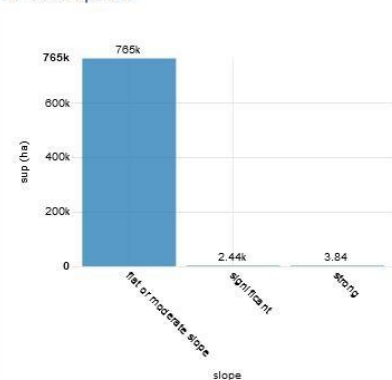
A - Distribution of land cover (ha)



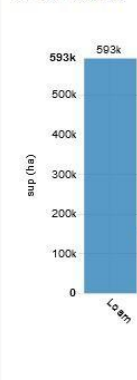
A - General information on land cover

code_18	l3_desc	Sup tot (ha)	% Sup tot
211	Non-irrigated arable land	345,726	45.063%
222	Fruit trees and berry plantations	1,324	0.173%
231	Pastures	32,167	4.193%
242	Complex cultivation patterns	76,379	9.956%
243	Land principally occupied by agriculture, with significant areas of natural vegetation	42,136	5.492%
311	Broad-leaved forest	61,503	8.016%
312	Coniferous forest	54,003	7.039%
313	Mixed forest	94,002	12.253%
321	Natural grasslands	453	0.059%
322	Moors and heathland	320	0.042%
324	Transitional woodland-shrub	40,182	5.237%
333	Sparsely vegetated areas	380	0.050%
411	Inland marshes	318	0.042%
412	Peat bogs	3,135	0.409%
511	Water courses	4,699	0.612%
512	Water bodies	10,477	1.368%
Totals		767,203	

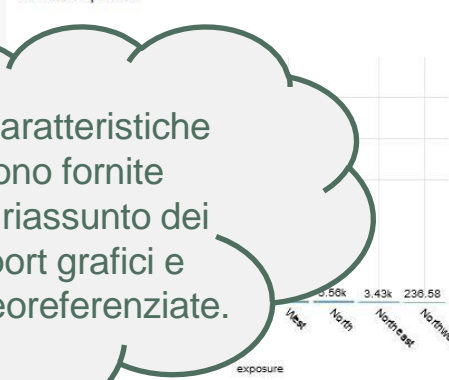
A - Soil Slope level



A - Soil Texture



A - Soil Exposure

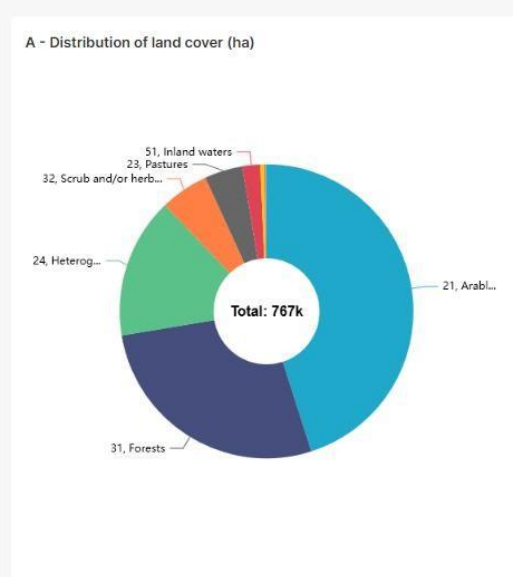
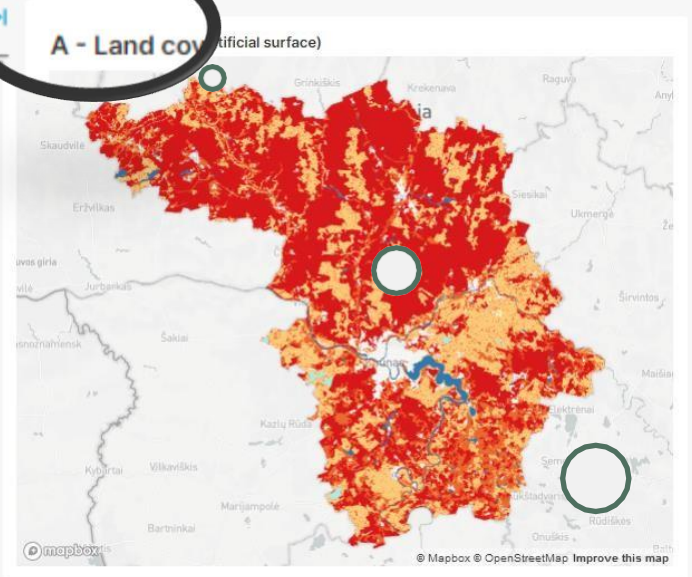


Le principali caratteristiche dell'area sono fornite attraverso un riassunto dei dati, con report grafici e informazioni georeferenziate.

A - Distribution of Arable land vs Agricultural area (%)

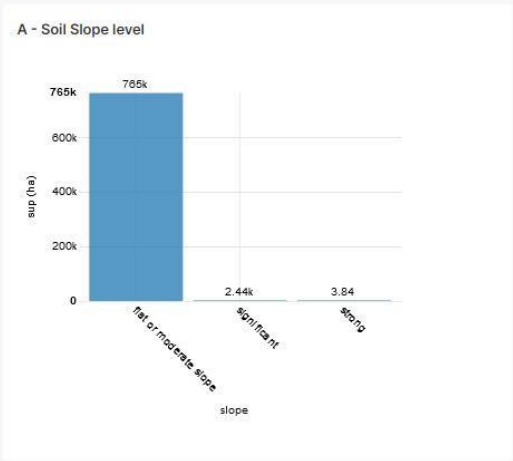
lau_name	arable_land_ha	agricultural_areas_ha	% Sup vs Sup Tot
Kėdainių rajono savivaldybė	102,803	116,507	89.2%
Raseinių rajono savivaldybė	88,203	111,921	78.8%
Kauno rajono savivaldybė	59,886	84,056	71.2%
Jonavos rajono savivaldybė	33,712	46,188	73.0%
Prienų rajono savivaldybė	30,283	68,201	44.4%
Kašiadoryų rajono savivaldybė	28,305	63,785	44.4%
Birštono savivaldybė	2,331	5,323	43.8%
Kauno miesto savivaldybė	203	1,751	11.6%
Totals			56.9%

Open control panel



A - General information on land cover

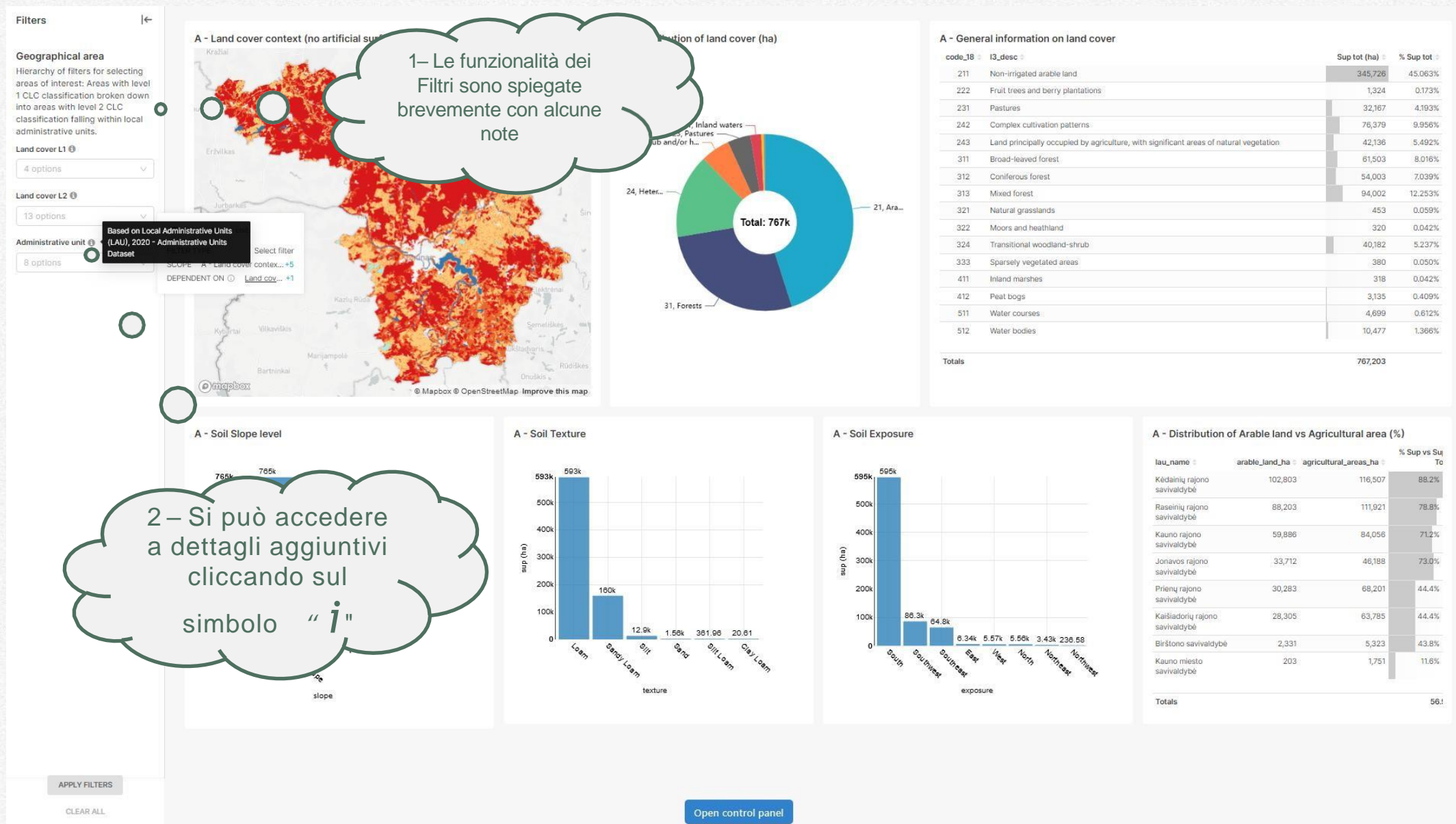
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Totals		767,203	

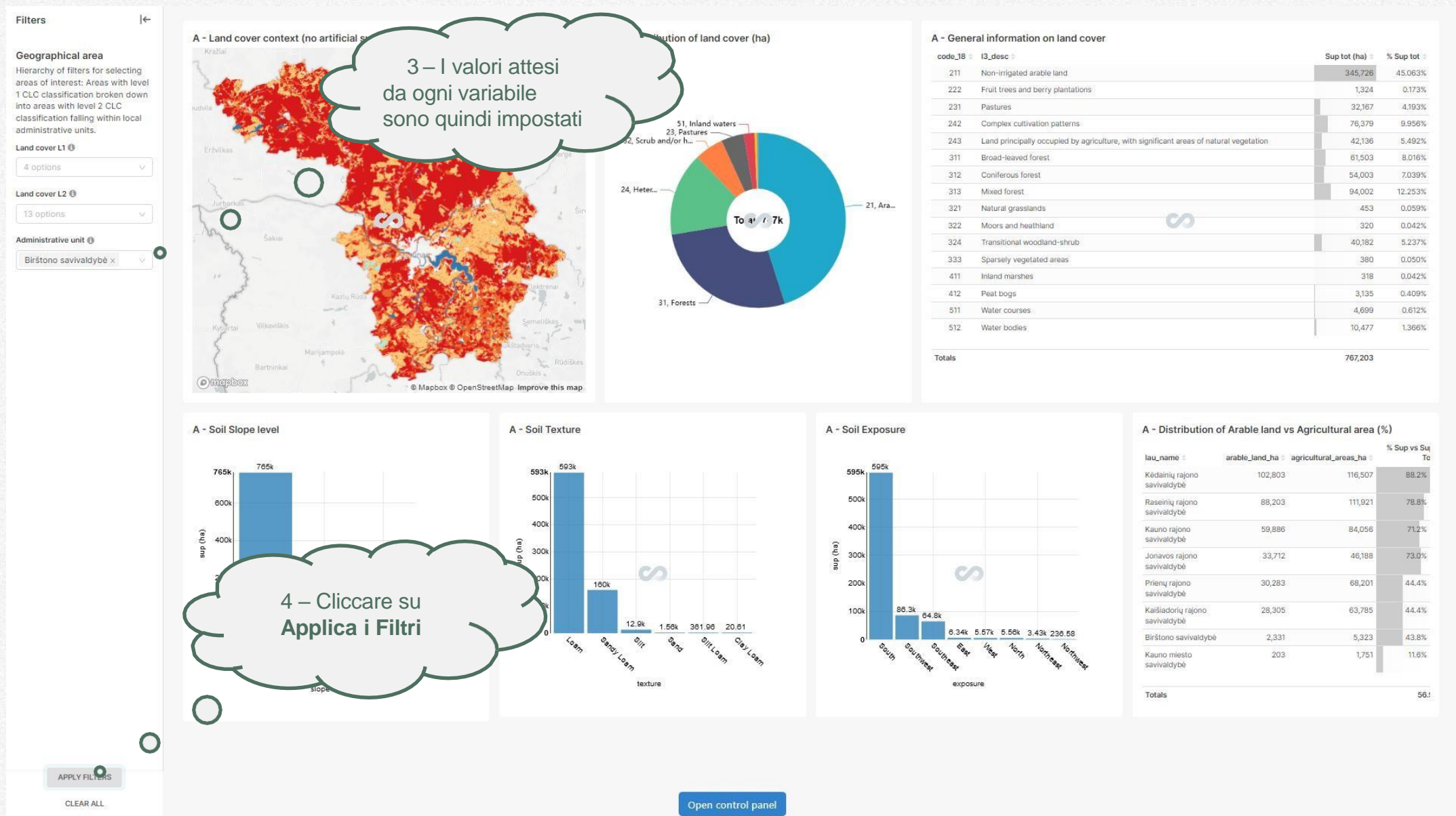


A - Distribution of Arable land vs Agricultural area (%)

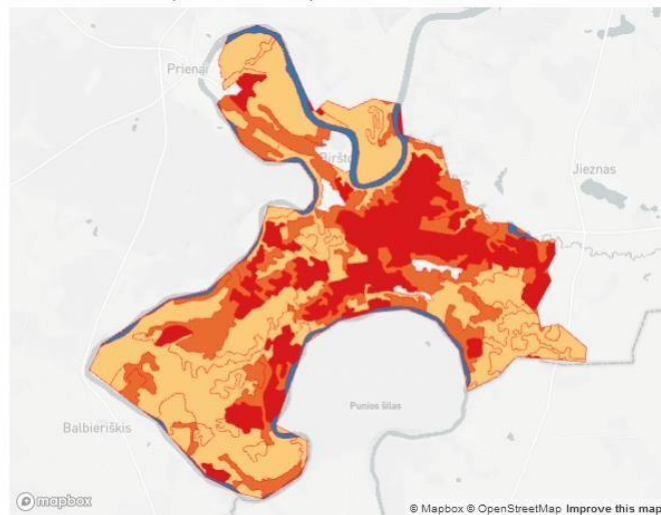
lau_name	arable_land_ha	agricultural_areas_ha	% Sup vs Sup Tot
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Open control panel

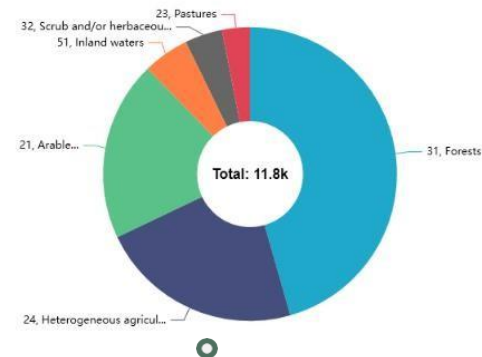




A - Land cover context (no artificial surface)



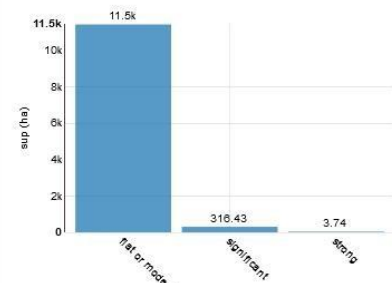
A - Distribution of land cover (ha)



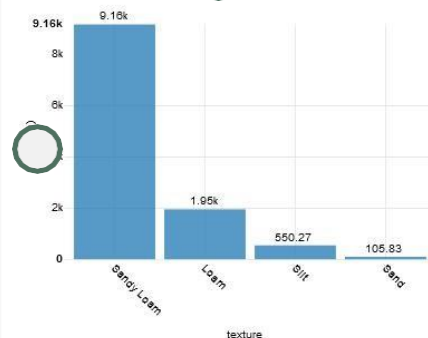
A - General information on land cover

code_18	I3_desc	Sup tot (ha)	% Sup tot
211	Non-irrigated arable land	2,331	19.801%
231	Pastures	360	3.061%
242	Complex cultivation patterns	1,558	13.232%
243	Land principally occupied by agriculture, with significant areas of natural vegetation	1,074	9.121%
311	Broad-leaved forest	117	0.990%
312	Coniferous forest	3,843	32.645%
313	Mixed forest	1,406	11.939%
324	Transitional woodland-shrub	488	4.142%
511	Water courses	597	5.069%
Totals		11,773	

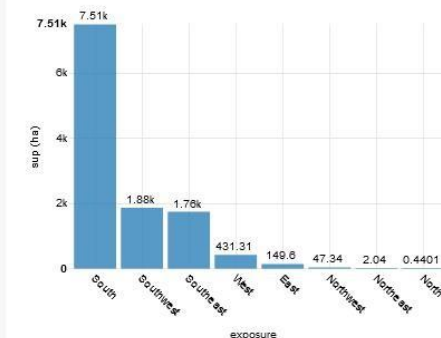
A - Soil Slope level



A - Soil Texture



A - Soil Exposure



A - Distribution of Arable land vs Agricultural area (%)

lau_name	arable_land_ha	agricultural_areas_ha	% Sup vs Sup Tot
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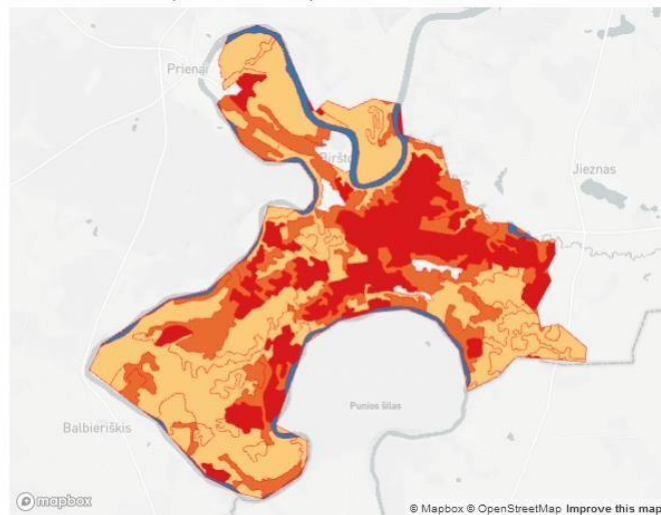
5 – Le nuove informazioni sono visualizzate e possono essere consultate

Open control panel

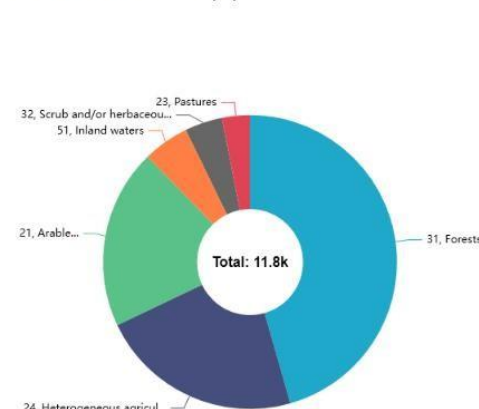
Scenario di Simulazione

Inizia la simulazione e osserva i risultati.

A - Land cover context (no artificial surface)



A - Distribution of land cover (ha)

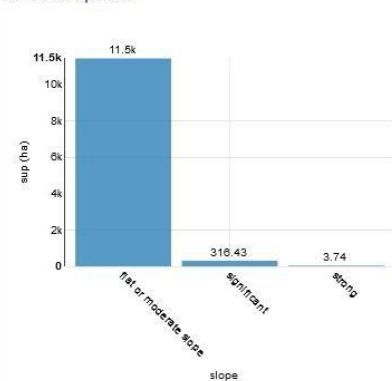


A - General information on land cover

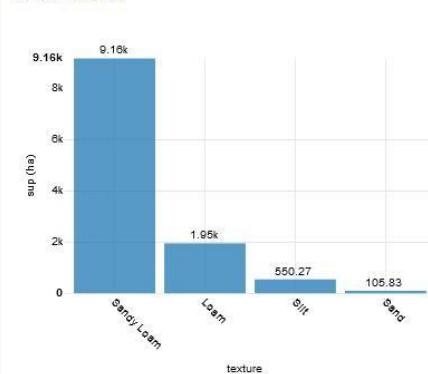
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511	Water courses	597	5.069%
Totals		11,773	

Attiva la simulazione
cliccando sul pulsante
di **Apertura del
Pannello di Controllo**

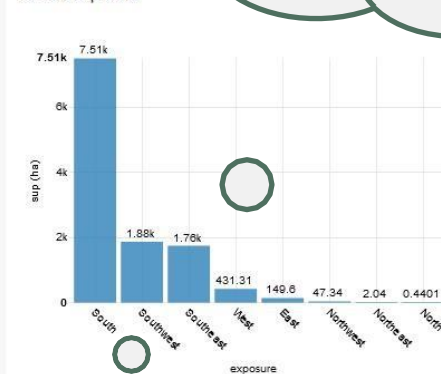
A - Soil Slope level



A - Soil Texture



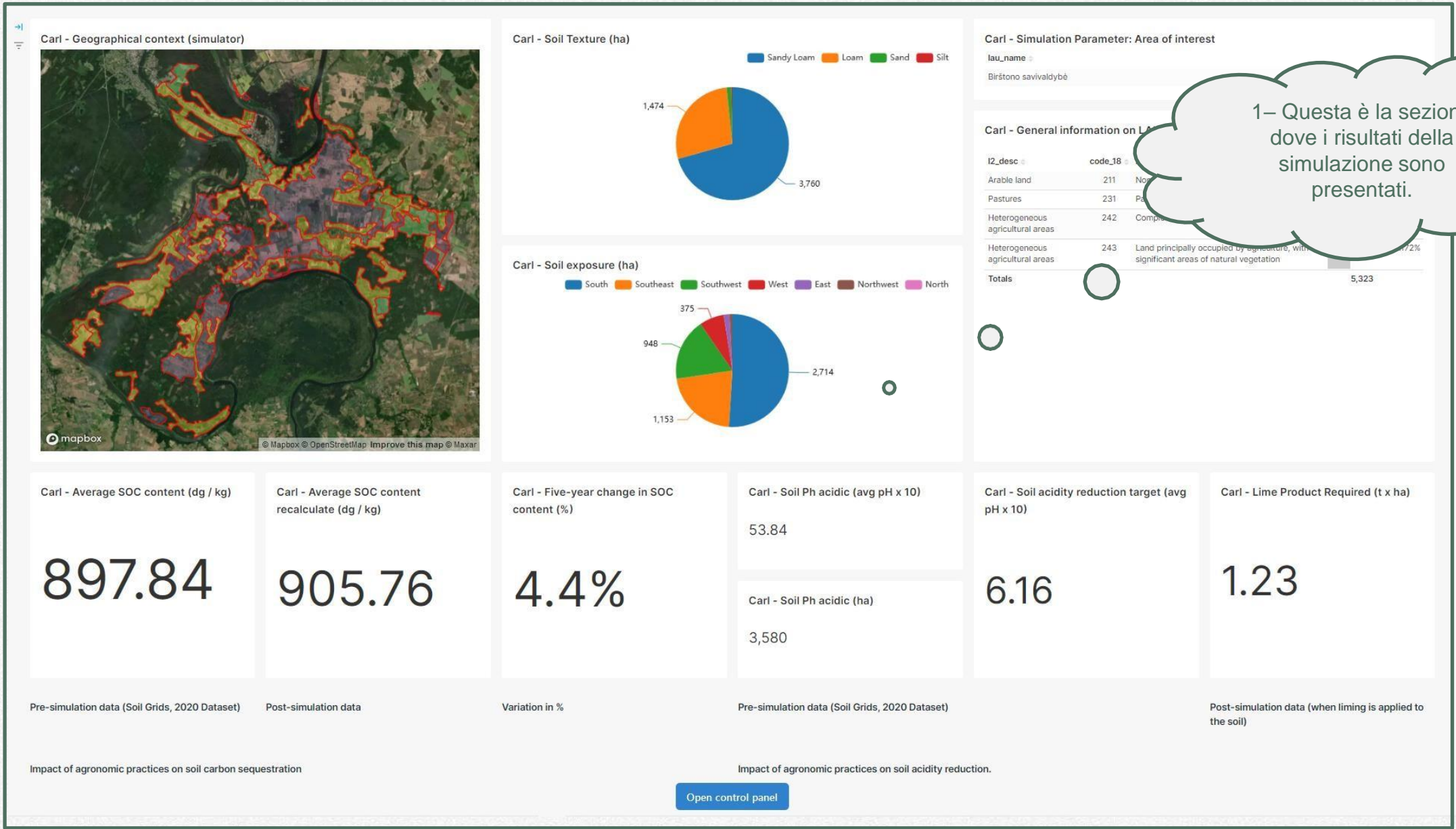
A - Soil Exposure



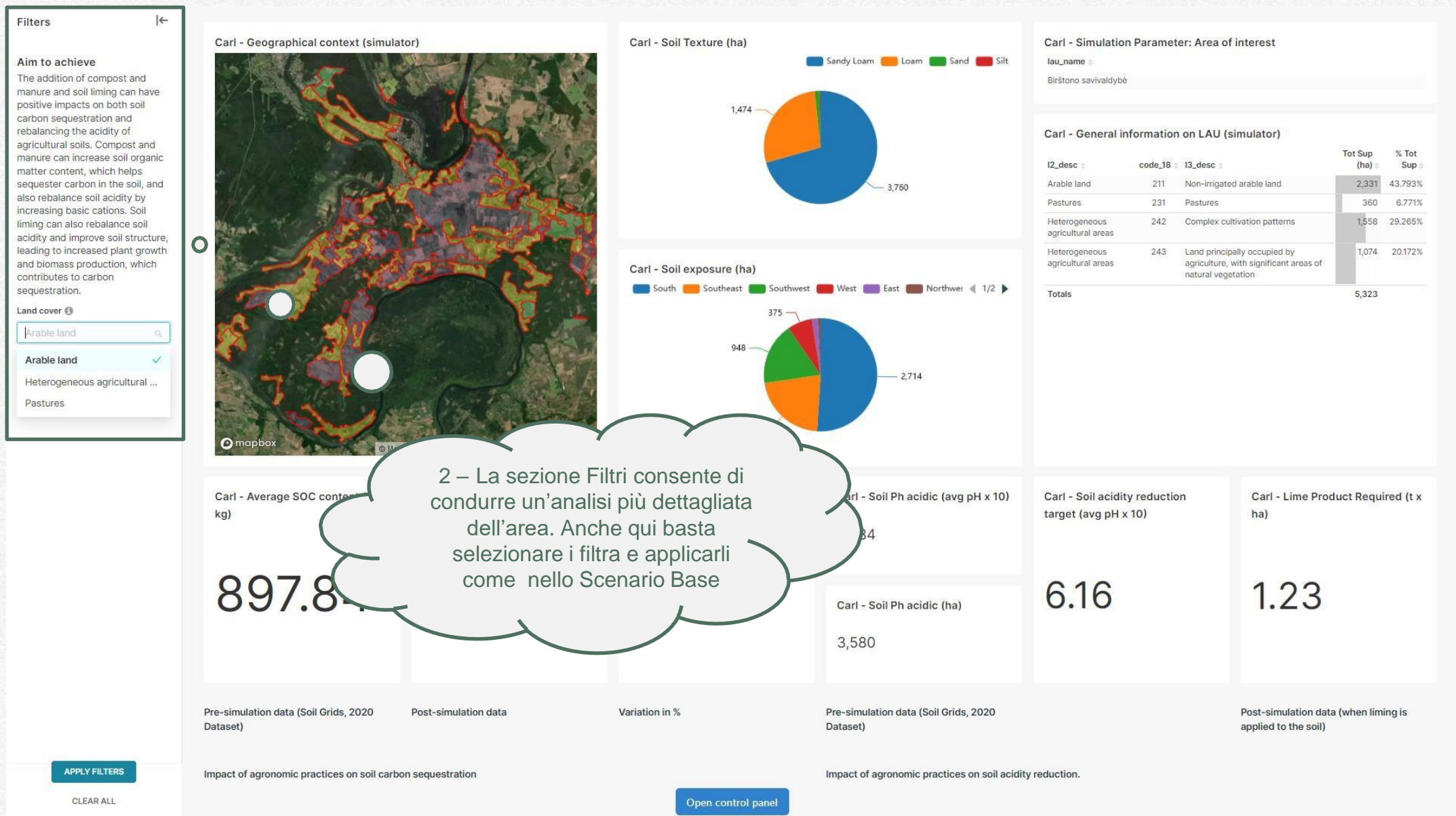
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Kauno miesto savivaldybė	203	1,751	11.6%
Totals			56.9%

Open control panel



1- Questa è la sezione dove i risultati della simulazione sono presentati.



Filters

Aim to achieve

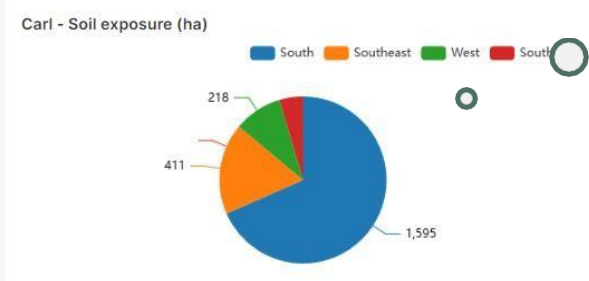
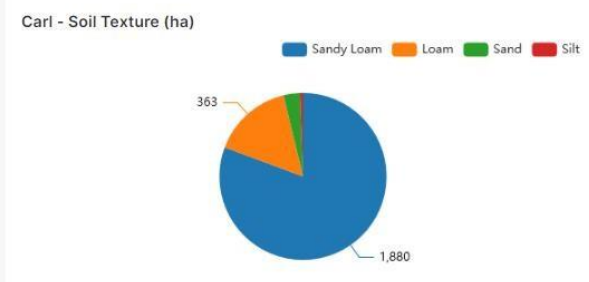
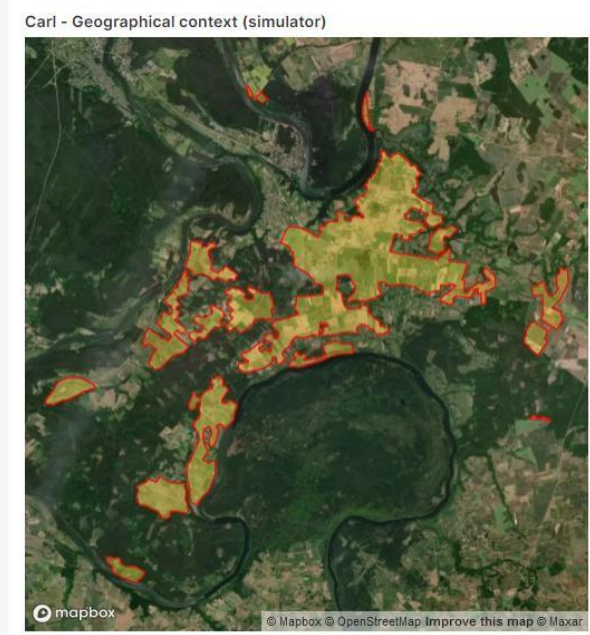
The addition of compost and manure and soil liming can have positive impacts on both soil carbon sequestration and rebalancing the acidity of agricultural soils. Compost and manure can increase soil organic matter content, which helps sequester carbon in the soil, and also rebalance soil acidity by increasing basic cations. Soil liming can also rebalance soil acidity and improve soil structure, leading to increased plant growth and biomass production, which contributes to carbon sequestration.

Land cover

Arable land

Agronomic practice

Soil liming



Carl - Simulation Parameter: Area of interest

lau_name

Birštono savivaldybė

Carl - Gen

I2_desc

Arable land

Totals

I contenuti si modificano dopo l'applicazione dei filtri

<div>Carl - Average SOC content (dg / kg)</div> <div>815.33</div> <div>Pre-simulation data (Soil Grids, 2020 Dataset)</div>	<div>Carl - Average SOC content recalculate (dg / kg)</div> <div>818.3</div> <div>Post-simulation data</div>	<div>Carl - Five-year change in SOC content (%)</div> <div>1.8%</div> <div>Variation in %</div>	<div>Carl - Soil Ph acidic (avg pH x 10)</div> <div>49.84</div> <div>Carl - Soil Ph acidic (ha)</div> <div>796</div> <div>Pre-simulation data (Soil Grids, 2020 Dataset)</div>	<div>Carl - Soil acidity reduction target (avg pH x 10)</div> <div>10.16</div> <div>Impact of agronomic practices on soil acidity reduction.</div>	<div>Carl - Lime Product Required (t x ha)</div> <div>2.03</div> <div>Post-simulation data (when liming is applied to the soil)</div>
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APPLY FILTERS

CLEAR ALL

Open control panel

Filters

Aim to achieve

The addition of compost and manure can increase soil organic matter content, which helps sequester carbon in the soil, and also rebalance soil acidity by increasing basic cations. Soil liming can also rebalance soil acidity and improve soil structure, leading to increased plant growth and biomass production, which contributes to carbon sequestration.

Land cover

Arable land

Agronomic practice

Soil liming

APPLY FILTERS

CLEAR ALL

Carl - Geographical context (simulator)



Carl - Soil Texture (ha)



Carl - Soil exposure (ha)



Carl - Simulation Parameter: Area of interest

lau_name

Birštono savivaldybė

Carl - General information on LAU (simulator)

I2_desc	code_18	I3_desc	Tot Sup (ha)	% Tot Sup
Arable land	211	Non-irrigated arable land	2,331	100.000%
Totals			2,331	

Carl - Average SOC content (dg / kg)

18.3

Carl - Average SOC content recalculate (dg / kg)

Carl - Five-year change in SOC content (%)

1.8%

Carl - Soil Ph acidic (avg pH x 10)

49.84

Carl - Soil acidity reduction target (avg pH x 10)

10.16

Carl - Lime Product Required (t x ha)

2.03

Carl - Soil Ph acidic (ha)

796

Pre-simulation data (Soil Grids, 2020 Dataset)

Post-simulation data (when liming is applied to the soil)

Variation in %

Impact of agronomic practices on soil carbon sequestration

Impact of agronomic practices on soil acidity reduction.

Open control panel

Per ripetere la simulazione, cliccare sul pulsante di Apertura del Pannello di Controllo

| 30

Filters

Aim to achieve

The addition of compost and manure and soil liming can have positive impacts on both soil carbon sequestration and rebalancing the acidity of agricultural soils. Compost and manure can increase soil organic matter content, which helps sequester carbon in the soil, and also rebalance soil acidity by increasing basic cations. Soil liming can also rebalance soil acidity and improve soil structure, leading to increased plant growth and biomass production, which contributes to carbon sequestration.

Land cover

3 options


Agronomic practice

2 options

APPLY FILTERS

CLEAR ALL

Carl - Geographical context (simulator)



Carl - Soil Texture (ha)

Sandy Loam

Loam

Sand

Silt

3,760

1,474

1,153

2,714

Carl - Average SOC content (ug / kg)

897.84

Carl - Average SOC content (ug / kg) recalculate (ug / kg)

905.76

Carl - Five-year change in SOC content (%)

4.4%

Carl - Soil Ph acidic (avg pH x 10)

53.84

Carl - Soil Ph acidic (ha)

3,580

Pre-simulation data (Soil Grids, 2020 Dataset)

Post-simulation data

Variation in %

Pre-simulation data (Soil Grids, 2020 Dataset)

Impact of agronomic practices on soil carbon sequestration

Impact of agronomic practices on soil carbon sequestration

Open control panel

Simulation controls

View base scenario

Back to scenario description

Back to home

Parameters

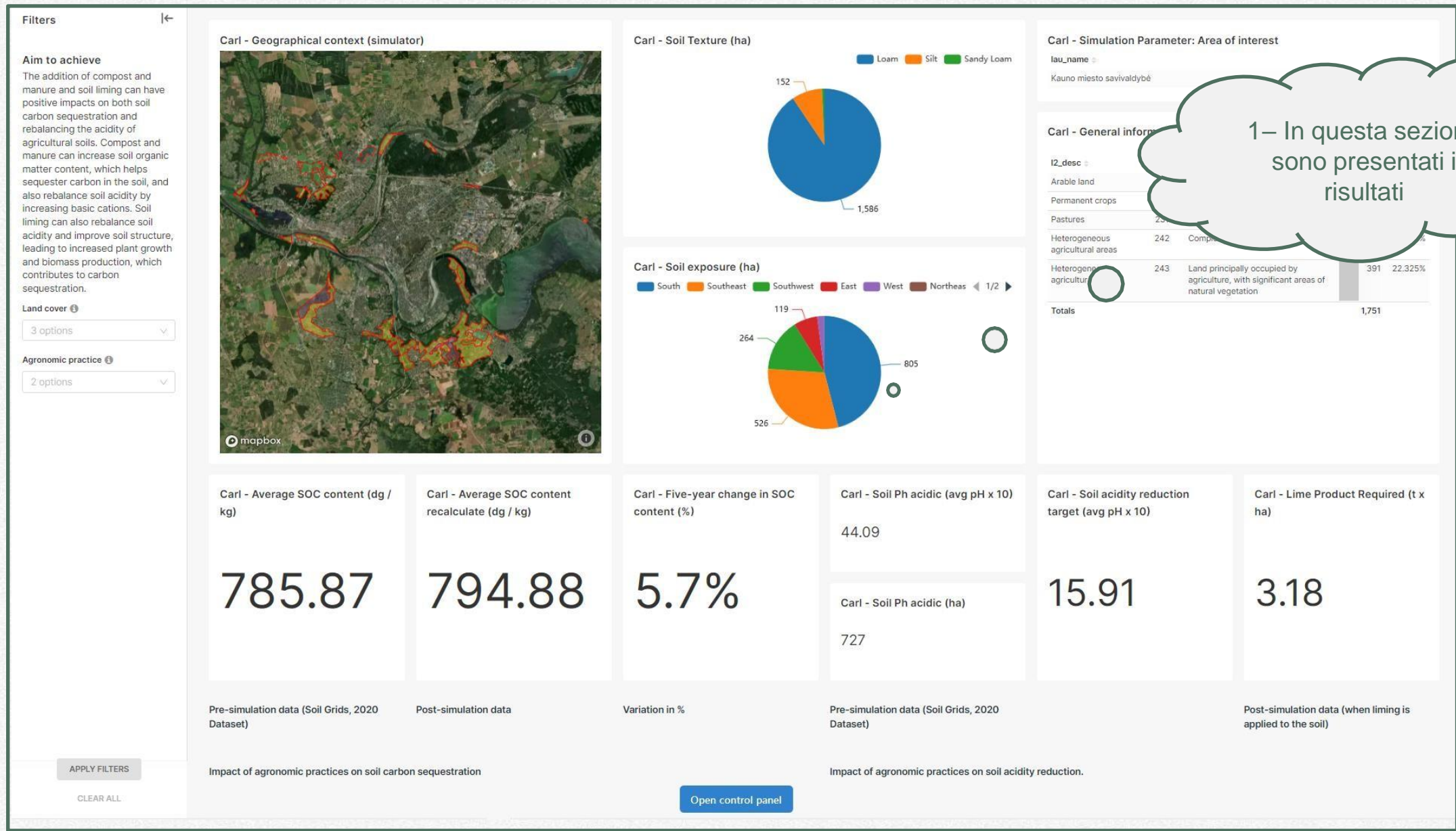
1) Identification of the geographical area *

Kauno miesto savivaldybė

Run simulation

Ripetere la simulazione inserendo nuovi valori e attiva la simulazione cliccando su **Attiva la Simulazione**

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Chiudere la sessione di simulazione

Che cosa fare per concludere la sessione di uso del simulatore

Filters

Aim to achieve

The addition of compost and manure and soil liming can have positive impacts on both soil carbon sequestration and rebalancing the acidity of agricultural soils. Compost and manure can increase soil organic matter content, which helps sequester carbon in the soil, and also rebalance soil acidity by increasing basic cations. Soil liming can also rebalance soil acidity and improve soil structure, leading to increased plant growth and biomass production, which contributes to carbon sequestration.

Land cover

3 options

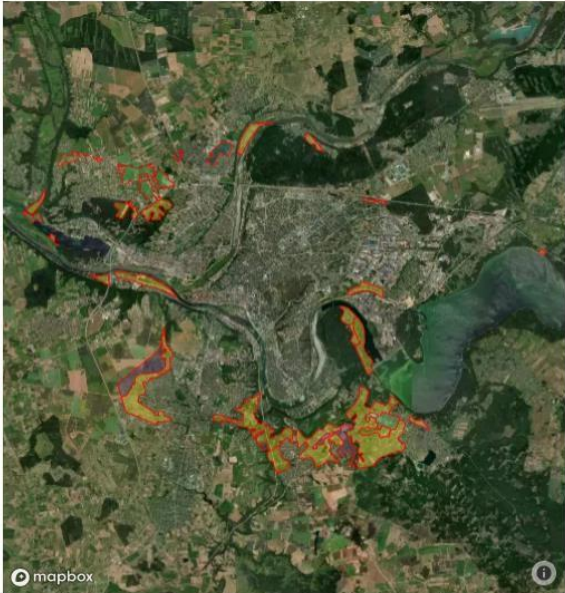
Agronomic practice

2 options

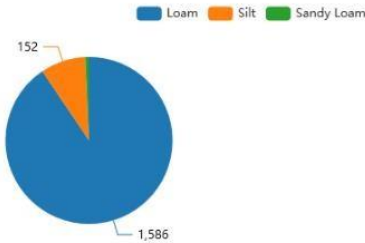
APPLY FILTERS

CLEAR ALL

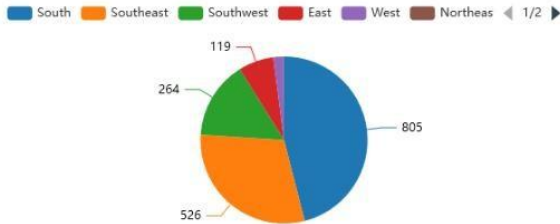
Carl - Geographical context (simulator)



Carl - Soil Texture (ha)



Carl - Soil exposure (ha)



Carl - Simulation Parameter: Area of interest

lau_name

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Carl - General information on LAU (simulator)

I2_desc	code_18	I3_desc	Tot Sup (ha)	% Tot Sup
Arable land	211	Non-irrigated arable land	203	11.615%
Permanent crops	222	Fruit trees and berry plantations	37	2.123%
Pastures	231	Pastures	221	12.627%
Heterogeneous agricultural areas	242	Complex cultivation patterns	898	51.310%
Heterogeneous agricultural areas	243	Land principally occupied by agriculture, with significant areas of natural vegetation	391	22.325%
Totals			1,751	

Carl - Average SOC content (dg / kg)

44.88

Carl - Average SOC content recalculate (dg / kg)

5.7%

Carl - Five-year change in SOC content (%)

5.7%

Carl - Soil Ph acidic (avg pH x 10)

44.09

Carl - Soil Ph acidic (ha)

727

Carl - Soil acidity reduction target (avg pH x 10)

15.91

Carl - Lime Product Required (t x ha)

3.18

Pre-simulation data (Soil Grids, 2020 Dataset)

Post-simulation data (when liming is applied to the soil)

Variation in %

Impact of agronomic practices on soil carbon sequestration

Impact of agronomic practices on soil acidity reduction.

Open control panel

Per concludere la sessione, cliccare sul pulsante di **Apertura del Pannello di Controllo**.

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Filters

Aim to achieve

The addition of compost and manure and soil liming can have positive impacts on both soil carbon sequestration and rebalancing the acidity of agricultural soils. Compost and manure can increase soil organic matter content, which helps sequester carbon in the soil, and also rebalance soil acidity by increasing basic cations. Soil liming can also rebalance soil acidity and improve soil structure, leading to increased plant growth and biomass production, which contributes to carbon sequestration.

Land cover

3 options

Agronomic practice

2 options

APPLY FILTERS

CLEAR ALL

Carl - Geographical context (simulator)

Carl - Soil Texture (ha)

Loam Silt Sandy Loam

152

1,586

805

526

Carl - Average SOC content (ug kg)

785.87

Carl - Average SOC content (ug kg) recalculate (ug kg)

794.88

Carl - Five-year change in SOC content (%)

5.7%

Carl - Soil Ph acidic (avg pH x 10)

44.09

Carl - Soil Ph acidic (ha)

727

Pre-simulation data (Soil Grids, 2020 Dataset)

Post-simulation data

Variation in %

Pre-simulation data (Soil Grids, 2020 Dataset)

Impact of agronomic practices on soil carbon sequestration

Impact of agronomic practices on soil carbon sequestration

Open control panel

Simulation controls

View base scenario

Back to scenario description

Back to home

Parameters

1) Identification of the geographical area

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Run simulation

Qui l'utente potrà scegliere di iniziare una nuova analisi e una sessione di simulazione (pulsante **Vedi lo Scenario di Base** o pulsante **Torna alla descrizione dello Scenario**) oppure di terminare la sessione (cliccare sul pulsante **Torna alla Home**).

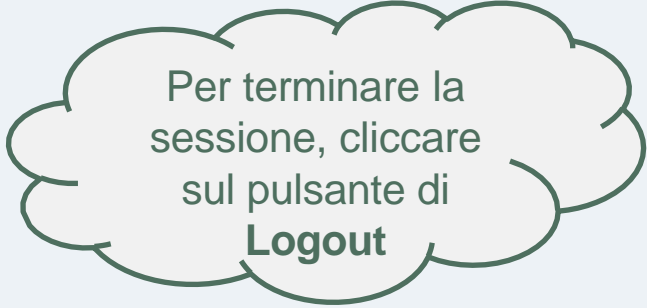
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Simulator Environment

🏠 Home

Sustainable farming

🔑 Logout



Per terminare la
sessione, cliccare
sul pulsante di
Logout

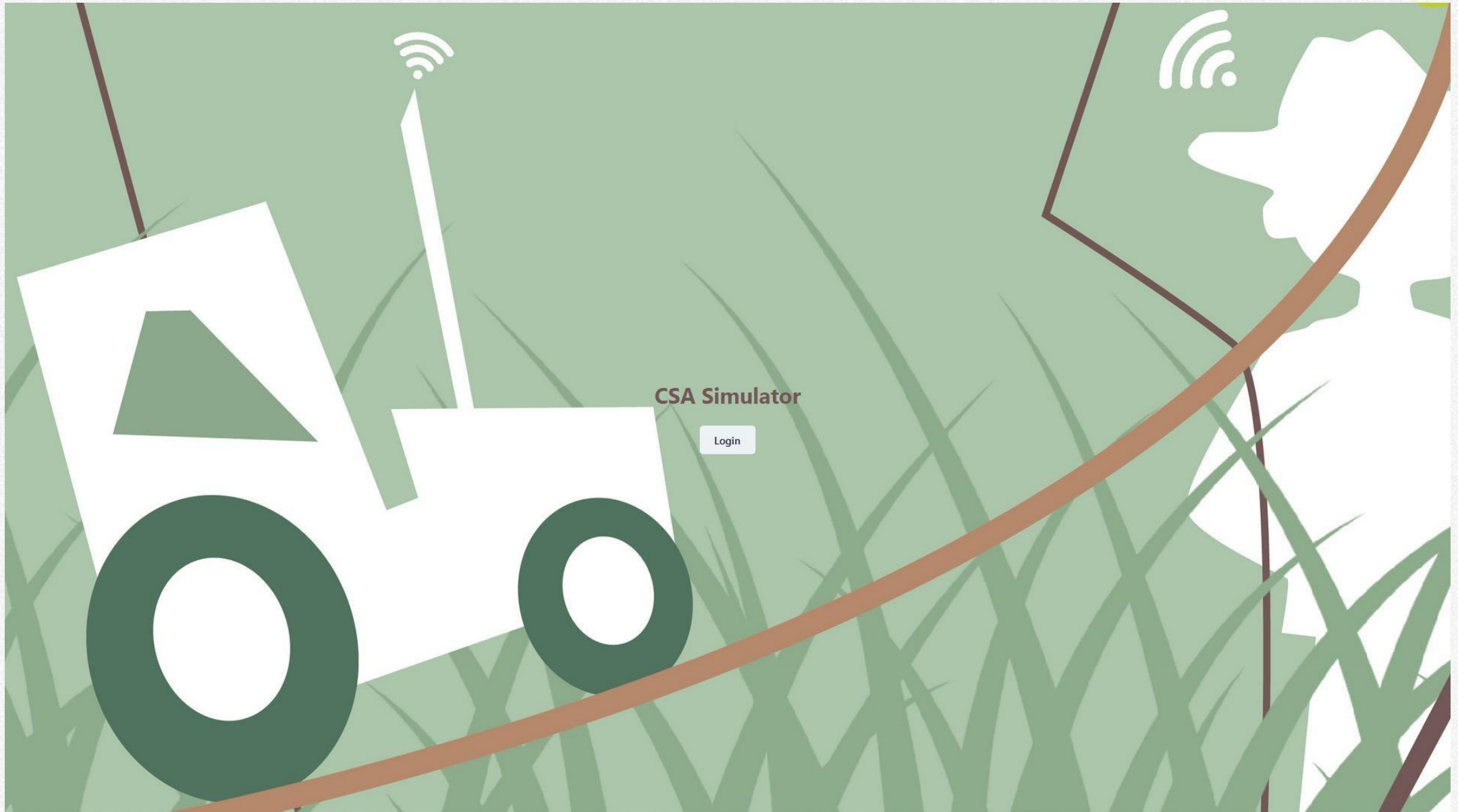
Welcome

This is your personal bulletin board.

Here you will find general messages regarding the operation of the CSA Simulator.

For a better visual experience and proper functionality, you gotta use Firefox as your browser.

Please select a dashboard





FarmBox

**The farmer's toolbox
for climate change
mitigation**

Grazie per l'attenzione!

