



Hecterra

SOLUTION FOR AGRIBUSINESSES



Wialon-based app

wialon



Scope of application

It is a simple yet effective application for the agro-industry that allows controlling field works based on telematics data.



Fields and crops

Effortless crop rotation control, detailed operation history for every field



Special vehicles and drivers

Usage of drivers, units, and trailers created in Wialon. Calculation and control of numerous parameters for each field cultivation



Reports and integrations

Simple generation of reports on various parameters. Import of reports to csv. API for ensuring data transfer to accounting systems



Hecterra user profile



DISPATCHER

- **Controls** the performance quality and workload of agricultural machinery on a daily basis
- Processes **performance reports**



AGRONOMIST

- **Controls crops and operations** over them
- **Plans operations** in the fields and monitors the progress made



ACCOUNTANT

- Works with **data** received through API in accounting systems
- **Keeps record** of consumables and fuel costs, the actual work performed by vehicles and drivers

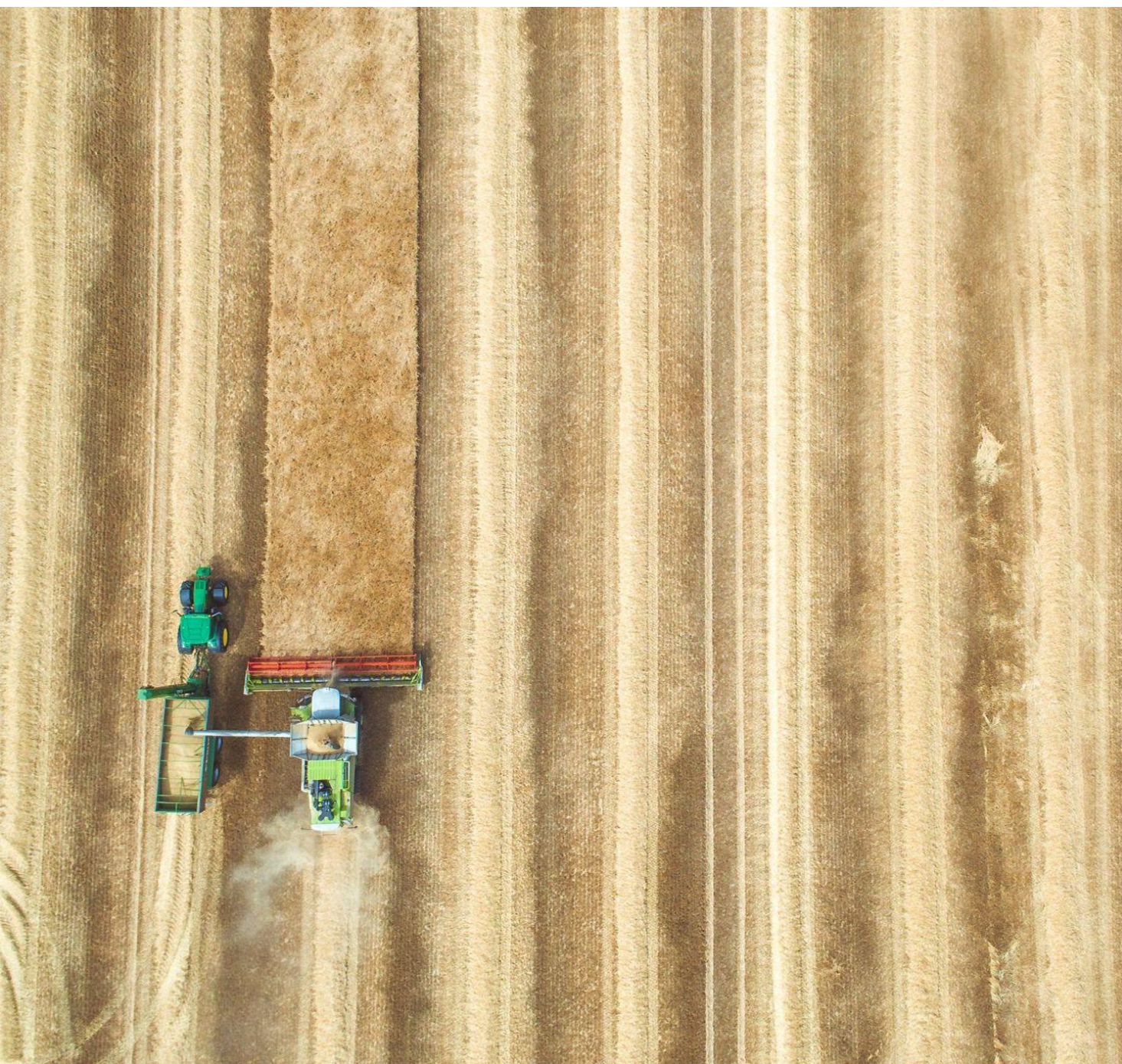


MANAGER

- Makes **decisions** based on reliable data
- **Plans and optimizes** agribusiness processes



How Hecterra changes business?



Special vehicles control

Get clear data about the **quality and volume of the field operations**, as well as the actions of agricultural vehicles and vehicle operators. Monitor the performance of each employee daily.

Reliable data

Monitor the work quality and **improve the results**. Hecterra calculates the cultivated field, including fields of complex shapes with uncultivated areas inside. The solution also detects omissions and overlaps, including the cases when several machines work together in the field.

Automated calculations

View the **detailed information on the daily work** performed and use it in accounting and reporting. The app calculates the cultivated field area, fuel consumption, consumables, and other parameters, saving time for dispatchers and managers.

API integration

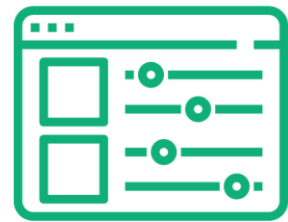
Transfer data from Hecterra and employ it in any accounting systems using API. Stop practicing the time-consuming manual data transfer.



Why use Hecterra?



**Specialized
Wialon-based
solution**



**Simple and
user-friendly
interface**



**Special vehicle
and driver
control**



**Detailed reports
on operations
performed**



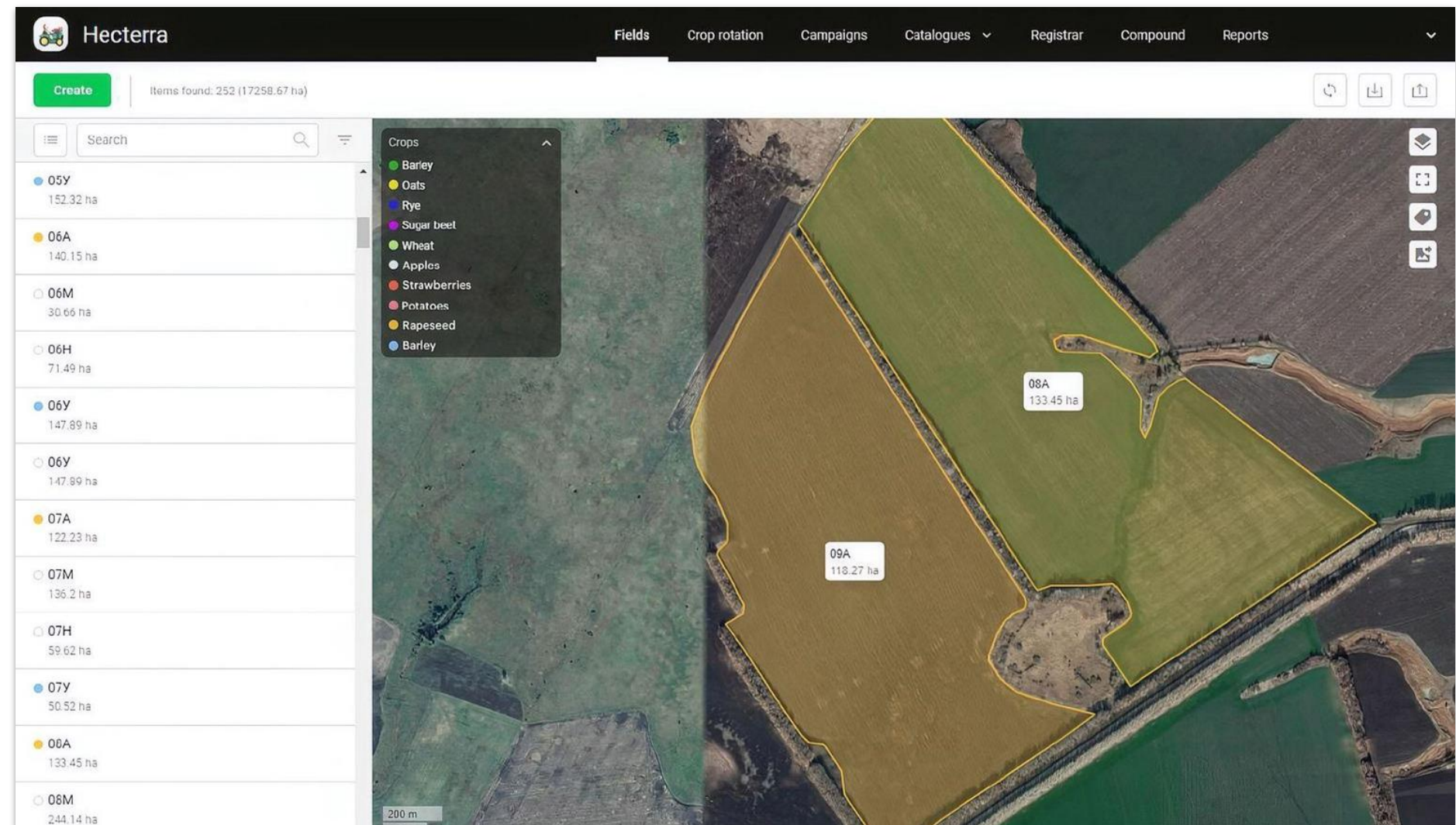
**Full-featured
API for all
sorts of
integrations**



How does it work? Fields and crops

1

- **Create fields in the app or import** them from Wialon or the KML, KMZ, SHP files. **Export** to KMZ and **save** as PNG.
- Create **crop catalogue**. The fields on the map are of different colors depending on the crops cultivated, their sowing and harvesting dates.
- Enter **crop rotation data from previous years**. Specify the crop, its sowing and harvesting dates. Plan your crop rotation for the upcoming season.
- Quickly find the required fields and **observe the dynamics** of the cultivation progress with WMS time layers.
- View a **detailed operation history** for every field in the reports.





How does it work? Field cultivations

2

• Finished the working day? Launch a new field cultivation search to know what your employees did today and how. Hecterra will show the list of potential cultivations.

Potential cultivation is the intersection of the unit's track with the field geofence that matches the cultivation criteria and the settings you specified.

• View and edit the found cultivations. Approve or reject cultivations; when approved they will get into reports. When the cultivation has been approved, it becomes possible to keep a record of data collected from the work sensors installed on the implements.

We recommend searching and approving cultivations daily.

The screenshot shows the Hecterra mobile application interface. At the top, there is a navigation bar with the Hecterra logo and several menu items: Fields, Crop rotation, Campaigns, Catalogues, Registrar, Compound, and Reports. Below the navigation bar, there is a date selector set to 12.10.2021 and a search bar. The main content is a table with the following columns: Field, Crop, Unit, Start time, End time, Duration, Driver, Implement, Wid..., Operation, and Cultiv... The table contains six rows of data, each representing a different cultivation event. The first row shows a cultivation on Aleksandr... (42.16 ha) using a Pronar 522... unit, starting on 12.10.2021 at 06:00 and ending on 13.10.2021 at 06:00, with a duration of 2 h 36 min, driven by Georgi Georgiev, using a Disc Harrow, with a width of 2.6 m, performing Residue incorporation, and resulting in 13% (5.47 ha) of cultivation. The second row shows a cultivation on Aleksandr... (54.63 ha) using a Pronar 522... unit, starting on 12.10.2021 at 06:08 and ending on 12.10.2021 at 08:02, with a duration of 1 h 21 min, driven by Georgi Georgiev, using a Disc Harrow, with a width of 2.6 m, performing Residue incorporation, and resulting in 6.6% (3.63 ha) of cultivation. The third row shows a cultivation on Kablesk... (20.95 ha) using a Claas Axion... unit, starting on 12.10.2021 at 06:00 and ending on 13.10.2021 at 06:00, with a duration of 4 h 57 min, driven by Sergej Velchev, using a Subsoiler Case 530, with a width of 2.3 m, performing Deep tillage 1, and resulting in 29.4% (6.15 ha) of cultivation. The fourth row shows a cultivation on Kamenar 1 (17.41 ha) using a Claas Axion... unit, starting on 12.10.2021 at 06:00 and ending on 13.10.2021 at 05:59, with a duration of 4 h 47 min, driven by Philip Stanimiro, using a Sprayer Caruelle Olympia, with a width of 4 m, performing Irrigation, and resulting in 61.5% (10.7 ha) of cultivation. The fifth row shows a cultivation on Kamenar 2 (1.29 ha) using a Pronar 522... unit, starting on 13.10.2021 at 00:56 and ending on 13.10.2021 at 03:17, with a duration of 0 h 23 min, driven by Dimitar Gerganov, using a Cultivator KOH-2,8A-05, with a width of 3.4 m, performing Soil mixing, and resulting in 78.2% (1.01 ha) of cultivation. The sixth row shows a cultivation on Kamenar 2 (1.29 ha) using a PRONAR 5... unit, starting on 13.10.2021 at 01:30 and ending on 13.10.2021 at 02:14, with a duration of 0 h 5 min, driven by Krassimir Yankov, using a Header CASE IH 3020, with a width of 3.2 m, performing Harversting, and resulting in 15.5% (0.2 ha) of cultivation. There are red and green checkmarks next to the last two rows, indicating approval or rejection status.

Field	Crop	Unit	Start time	End time	Duration	Driver	Implement	Wid...	Operation	Cultiv...
Aleksandr... 42.16 ha		Pronar 522...	12.10.2021 06:00	13.10.2021 06:00	2 h 36 min	Georgi Georgiev	Disc Harrow	2.6 m	Residue incorporation	13% 5.47 ha
Aleksandr... 54.63 ha		Pronar 522...	12.10.2021 06:08	12.10.2021 08:02	1 h 21 min	Georgi Georgiev	Disc Harrow	2.6 m	Residue incorporation	6.6% 3.63 ha
Kablesk... 20.95 ha	—	Claas Axion...	12.10.2021 06:00	13.10.2021 06:00	4 h 57 min	Sergej Velchev	Subsoiler Case 530	2.3 m	Deep tillage 1	29.4% 6.15 ha
Kamenar 1 17.41 ha	—	Claas Axion...	12.10.2021 06:00	13.10.2021 05:59	4 h 47 min	Philip Stanimiro	Sprayer Caruelle Olympia	4 m	Irrigation	61.5% 10.7 ha
Kamenar 2 1.29 ha		Pronar 522...	13.10.2021 00:56	13.10.2021 03:17	0 h 23 min	Dimitar Gerganov	Cultivator KOH-2,8A-05	3.4 m	Soil mixing	78.2% 1.01 ha
Kamenar 2 1.29 ha		PRONAR 5...	13.10.2021 01:30	13.10.2021 02:14	0 h 5 min	Krassimir Yankov	Header CASE IH 3020	3.2 m	Harversting	15.5% 0.2 ha



How does it work? Special vehicles and drivers

3

- Use drivers, units, and trailers created in Wialon.
- Fill in the **operation catalog**. Operations are specified in the implement properties and used in cultivations and reports.
 - Wialon trailers are called **implements** in Hecterra. You can specify the working width in meters and operation for each implement, for example, harrowing. Hecterra uses the working width to define where the cultivation took place and if there are missed or overlapping areas in it.
 - **Drivers** are specified for each cultivation and displayed in the reports.

The screenshot shows the Hecterra web application interface. At the top, there is a navigation bar with the Hecterra logo and several menu items: Fields, Crop rotation, Campaigns, Catalogues (with a dropdown arrow), Registrar, Compound, and Reports. Below the navigation bar, the page title is "Implements". Underneath, it says "Items found: 12" and there is a search input field with the placeholder text "Search". The main content is a table with four columns: "Implement", "Operation", "Working width", and "Deviation". The table contains the following data rows:

Implement	Operation	Working width	Deviation
Chisel Plow KUHN	Deep tillage 2	2 m	–
Cultivator CASE Tiger Mate	Weeds removing	4 m	–
Cultivator KOH-2,8A-05	Soil mixing	3.4 m	–
Disc Harrow	Residue incorporation	2.6 m	-0.1 m
Header CASE IH 3020	Harvesting	3.2 m	–
Moldboard plow	Soil loosening	3 m	-0.2 m
Mulcher RHINO RC 20	Mulching	3.4 m	–
Roller 4240	Land flattening	4.8 m	–



How does it work? Consumables

4

• **Keep track of consumables** and control cultivation costs. You can choose from three types of consumables:

- Seeds
- Fertilizers
- Chemicals

• Create as many specific items as you need within the types of consumables.

• Keep track of **fuel consumed** by agricultural vehicles.

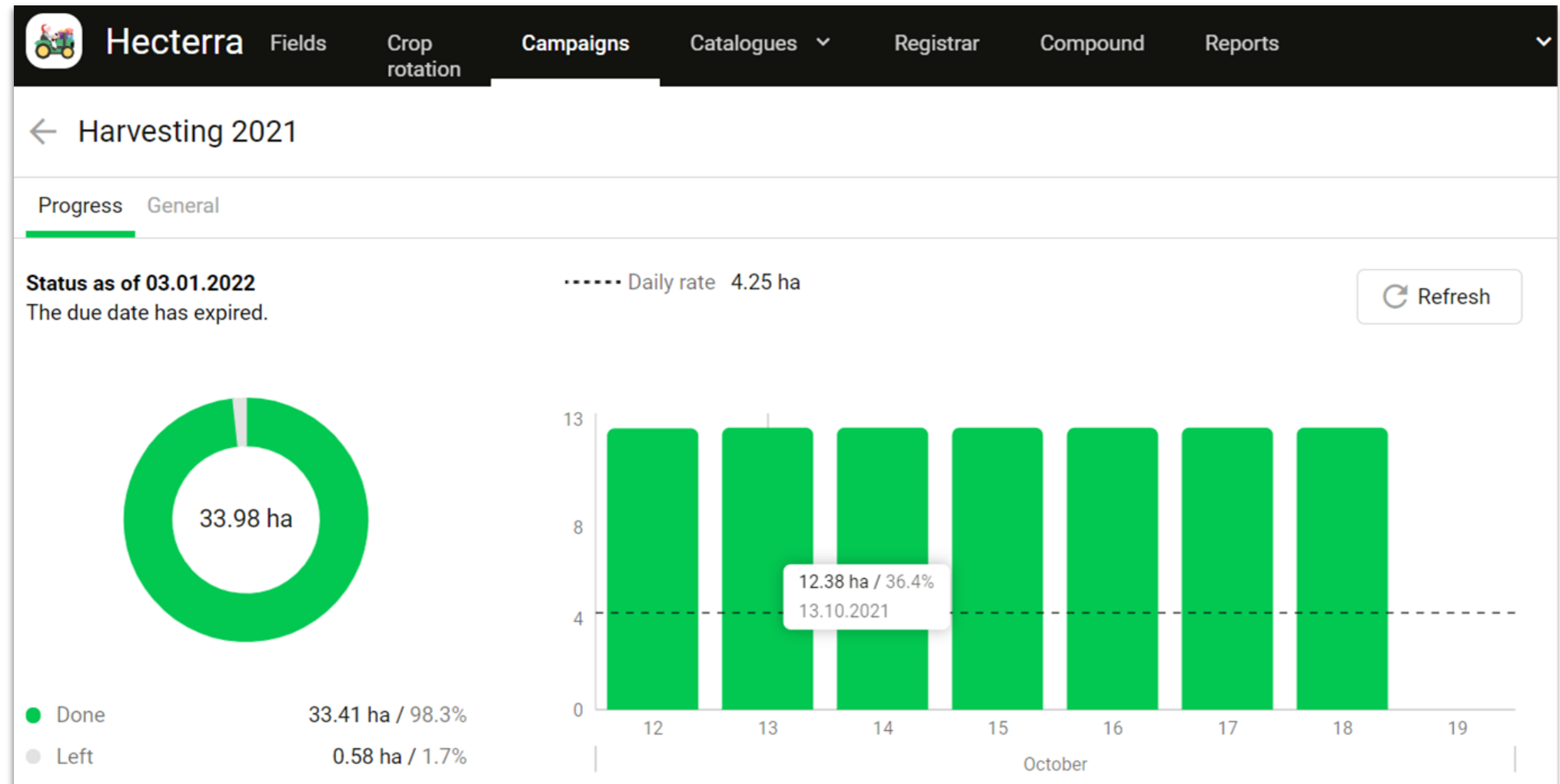
Field	Area	Crop	Operation	Start time	End time	Duration
Kableskovo 4	20.95 ha	–	Deep tillage 1	12.10.2021 06:00	13.10.2021 06:00	4 h 57
Aleksandrovo 1	42.16 ha	■	Residue incorporation	12.10.2021 06:00	13.10.2021 06:00	2 h 36
Kamenar 3	29.08 ha	■	Harvesting	12.10.2021 06:00	13.10.2021 06:00	5 h 39
Laka 1	106.97 ha	–	Land flattening	12.10.2021 06:00	13.10.2021 05:59	2 h 26
Kamenar 3	29.08 ha	■	Soil mixing	12.10.2021 06:00	13.10.2021 05:50	4 h 14



How does it work? Campaigns

5

- **Create campaigns.** Use the Campaigns tab to specify the dates of works, cultivation types, and fields where the works should be performed.
- **Arrange cultivations and control the plan implementation.**
- Effortlessly **determine how much work needs to be done per day** to meet the deadline.
- Check whether your enterprise follows the schedule and take timely measures to catch up if needed.





How does it work? Reports

6

- **Build reports** on all cultivations, specific drivers, fields, operations, units, and crops.

- Reports contain all the data on cultivations: mileage, omissions, operations duration, fuel consumption, overlaps, maximum and average speed, and other parameters.

- **Import** reports to csv.

Merge individual cultivations performed by different vehicles on different days into the compound cultivation for the convenient display in reports and correct calculation of the overall cultivated area.

Group the data by several parameters.

Reports are generated based on the approved cultivations. Data on the approved cultivations is stored for 5 years, its visual elements (polygons, tracks on the map, etc.) are stored for 11 months.

The screenshot shows the Hecterra Reports interface. At the top, there is a navigation bar with the Hecterra logo and menu items: Fields, Crop rotation, Campaigns, Catalogues, Registrar, Compound, and Reports. Below the navigation bar, there are filters for Interval (12.10.2021 - 12.10.2021), Report type (All cultivations), Item (Select item), Grouping (None), and Shift (All shi...). There are also buttons for .csv and .xlsx export options. Below the filters, a summary row shows: Cultivations 22, Duration 49 h 33 min, Mileage 371.76 km, Cultivated area 106.62 ha, and Fuel spent 1 343.14 l. The main table has columns: Field, Cultivated area, % cultivated, Omissions, % omissions, and Overlaps. The table contains five rows of data.

Field	Cultivated area	% cultivated	Omissions	% omissions	Overlaps
Kableshkovo 4	6.15 ha	29%	8.13 ha	57%	0.55 ha
Aleksandrovo 1	5.47 ha	13%	16.25 ha	75%	0.56 ha
Kamenar 3	11.69 ha	40%	8.35 ha	42%	2.38 ha
Laka 1	15.32 ha	14%	11.01 ha	42%	1.23 ha
Kamenar 3	12.17 ha	42%	6.89 ha	36%	2.07 ha



How does it work? Reports

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Reports allow you to not only control all types of works but also assess their quality, and improve the agricultural processes of your enterprise.

Example 2

Making a financial plan? Check how much fuel your employees spent last season, and consider these numbers when allocating funds for future costs.

Example 1

Too many omissions or overlaps during a field cultivation? Give instructions to the driver because part of the field was left unsown or the other way around, the too dense sowing can affect the quality of seedlings.





API for integration with enterprise software

Hecterra is a ready-made solution for agribusinesses that can be set up and put into use for one day. But for the solution to be able to function for literally any agricultural enterprise, we created Hecterra API within Wialon API and SDK.



Transfer fields, cultivations, operations, crops, drivers, and implements data to all sorts of accounting systems. **Use this data when creating financial, personnel, or technical reports.**



Add, edit, or delete crops, operations, cultivations, and fields through API. Give the client a **possibility to manage agricultural processes using any software** by combining Hecterra API with custom development.



Develop the agribusiness **management system of any complexity** with data received from Hecterra.





API for integration with enterprise software



Results:

- Agribusiness automation and digitalization
- Integration with corporate accounting systems
- Integration with any corporate software
- Ease of use, resources savings, employees and enterprise effectiveness



API Hecterra use cases:

- Trip tickets auto-filling
- Field works billing for salary calculation
- Farming machinery lease calculation
- Interval calculation for farming machinery maintenance

