Gap Percentage Map
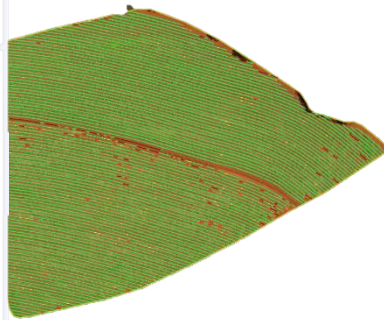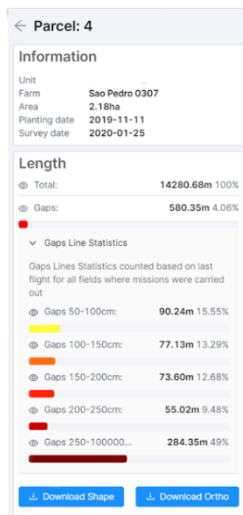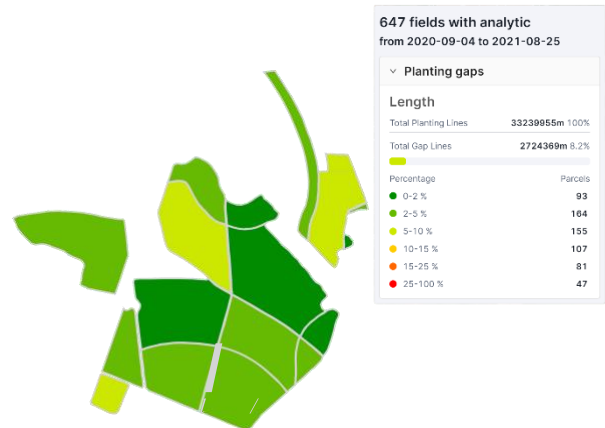
USE CASE

Compare the impact of gaps (relative total gap length in relation to total line length) amongst all parcels. This is done in order to:
- define the most impacted parcels by a low density of plants and higher potential yield losses
- better plan the replanting operation- making it more effective and cheaper

OUTPUT

Total gap lines length per parcel are computed and compared with the total planting line length of the equivalent parcel. Different percentages of gaps appear in different color gradients.

647 fields with analytic
from 2020-09-04 to 2021-08-25

˅ Planting gaps

Length

Total Planting Lines	33239955m	100%
Total Gap Lines	2724369m	8.2%

Percentage	Parcels
0-2 %	93
2-5 %	164
5-10 %	155
10-15 %	107
15-25 %	81
25-100 %	47

Parcel: 4

Information

Unit
Farm   Sao Pedro 0307
Area   2.18ha
Planting date 2019-11-11
Survey date   2020-01-25

Length

Total: 14280.68m 100%
Gaps: 580.35m 4.06%

˅ Gaps Line Statistics

Gaps Lines Statistics counted based on last flight for all fields where missions were carried out

Gaps 50-100cm: 90.24m 15.55%
Gaps 100-150cm: 77.13m 13.29%
Gaps 150-200cm: 73.60m 12.68%
Gaps 200-250cm: 55.02m 9.48%
Gaps 250-100000... 284.35m 49%

⌄ Download Shape   ⌄ Download Ortho

Total Planting Lines Map

USE CASE

Gives the geolocation, geometry and length of each planting line within parcels in order to:
- accurately quantify the area covered by a crop (in terms of length of planted cane).

OUTPUT

Gamaya's algorithm retrieves all sugarcane planting lines from drone RGB orthomosaic within the crop area of a given parcel. It then generates a digital vector file representing each individual planting line. This information is used to have the total expected length of crop planted in the field.

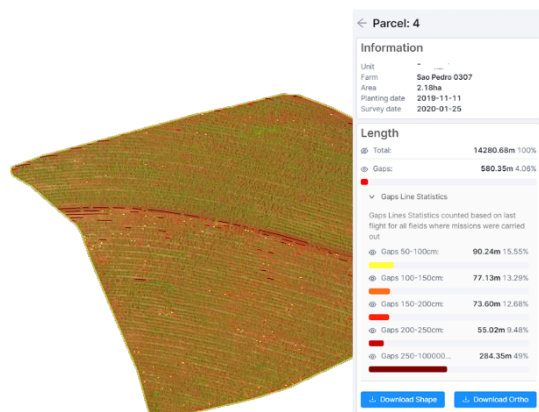# Gap Lines Map

USE CASE

Geolocate, compare and quantify all lines identified as gaps within each parcel:
- allows an estimate of losses of seedlings or planting setts
- calculates the density of sugarcane plants in each field. This consequently leads users to have better estimates of yield, understand better the impact of biotic and abiotic stress factors, and manage inputs better.

OUTPUT

Gamaya's surface classification is based on a Deep Learning Segmentation Model, which enables identification of areas without sugarcane plants. Gap lines are detected after overlapping this information with the detected planting lines. The minimum gap length can be predefined by the user, as can the length intervals shown on the platform.

Parcel: 4

Information

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General specifications

DATA FORMAT	Geotagged .jpg (raw data) or .tif (orthomosaic)
DRONE	Any UAV that can follow the basic protocol for flight specifications
IMAGE QUALITY	According to Gamaya's data quality document (automatic feedback will be provided if the quality is not on specs)
CAMERA	HD-RGB (specified by Gamaya)
GROUND RESOLUTION	3-4.5 cm/ px
DATA UPLOAD	Gamaya uploader interface. Account is created prior to data acquisition.
CUSTOMER DATA SETTINGS	Basic request specifications: - Sugarmill Unit - Minimum gap length and gap length intervals (Can be customized at time of contract) - Include ortho alignment and parcel boundaries editing - Spacing system (single or double lines) .shp file containing: - Farm Name - Parcel ID Code (Parcel Name) - Planting/Last Cut Date - Variety (optional)
INTERNET SPEED	Internet connection min 10 mbps recommended

WEB PLATFORM	Gamaya's web platform: https://app.gamaya.com/
DRONE PLATFORM ACCESS	Authenticated user access for employees (requires internet access)
WEB PLATFORM FEATURES	- Sugarmill unit, farmland & individual field views - Visualization of the results in an interactive maps - Refined field boundaries onder previous request - Statistics of total planting lines and total gap lines and percentage of gaps per parcel - Table view showing results per parcels of the entire chosen time period or entire selected farm or entire sugarmill unit - Export to .shp (for field boundaries), .GeoJSON (for Planting Gaps) and .tif (orthomosaic) files (GIS compatible format)

PERIOD OF DETECTION	Early growing stage fields. Plants size up to 1m
MINIMUM GAP/CROP LENGTH	50 cm
GROUND RESOLUTION	3 - 4.5 cm/px
NUMBER OF FLIGHTS	
DETECTION ACCURACY	Analytics shall consistently map planting lines and gaps with 90% accuracy
WEB PLATFORM	Gamaya's own web platform: https://app.gamaya.com/
DATA PROCESSING TIME	72 hours from the time of all datawas uploaded (after 1 month of contract

GAMAYA