



# CaneFit

## Precision Harvest Lines – Product Specifications

### Precision Harvest Lines Maps

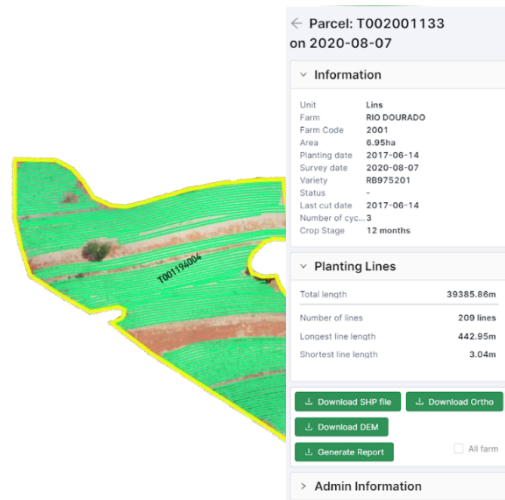
#### USE CASE

Visualize the geometry, position and length of each planting line in parcels:

- accurately determine the length and number of planting rows of planted cane
- assess the quality and efficiency of the planting operation, in terms of row spacing and location.

#### 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 with high geo-location accuracy.



### Ready-to-use file in the field

#### USE CASE

Ready-to-use information in field machines with autopilot functions (e.g. in harvesters, sprayers, tractors):

- provides precise and accurate plant positioning in the field
- allows machinery to accurately operate through the crop area, avoiding trampling.

#### OUTPUT

Digital vector lines representing the real position of each row of sugarcane plant in the field is exported in a file format and configured in a way that can be used as guidance for autopilot technology.

The effectiveness of these lines in the field is subject to the quality of the RTK drone flight, which needs to be done following Gamaya's recommended protocol.

### Parallelism Map

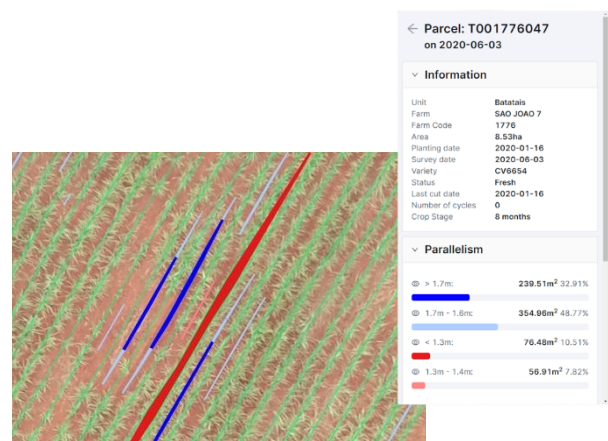
#### USE CASE

Visualize, in map form, the areas where the lines of crop are not parallel and not in the right distance to their respective neighbouring plant.

- spot where lines are narrower than the intended spacing between rows, and where there is the potential of trampling during machinery operations
- find locations with wider spacing between rows, resulting in low plants density areas

#### OUTPUT

Polygons represent areas where spacing between rows deviate by more than 10cm from the intended planting spacing. If wider, a certain area is lost, and if too narrow, there is a potential risk for machinery trampling.



## General specifications

DATA FORMAT	Geotagged .jpg (raw data) or .tif (orthomosaic)
DRONE	Any UAV equipped with RTK GNSS technology 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)
CUSTOMER FLIGHT SETUP AUDIT	Before commercial agreement and delivery of results, an audit is done, including: <ul style="list-style-type: none"><li>- Checking customer's equipments and infrastructure (drone, RTK base, Geodesic network and landmarks)</li><li>- Assessment of customer's flight setup</li><li>- Validation flight as part of the Spot Demo offer</li><li>- Autopilot field validation done with small young cane</li></ul> If needed, additional training for the drone operator can be offered
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: <ul style="list-style-type: none"><li>- Sugarmill Unit</li><li>- Plant spacing (distance between rows)</li></ul> .shp file containing: <ul style="list-style-type: none"><li>- Farm Name</li><li>- Parcel ID Code (Parcel Name)</li><li>- Planting/Last Cut Date</li></ul>
INTERNET SPEED	Internet connection min 10 mbps recommended
CONF. PLATFORM	
WEB PLATFORM	Gamaya's web platform: <a href="https://app.gamaya.com/">https://app.gamaya.com/</a>
ACCESS	Authenticated user access for employees (requires internet access)
WEB PLATFORM FEATURES	<ul style="list-style-type: none"><li>- Sugarmill unit, farmland &amp; individual field views</li><li>- Visualization of the results in an interactive maps</li><li>- Statistics of total lines and parallelism</li><li>- Export to .shp and .tif files (GIS and autopilot devices compatible format)</li></ul>
PERIOD OF DETECTION	Early growing stage fields. plants size between up to 1m.
GROUND RESOLUTION	3-4.5 cm/px
NUMBER OF FLIGHTS	
DETECTION ACCURACY	Analytics shall consistently map planting lines (90% of the lines) within a maximum of +/-15 cm offset from the center of the plants and maximum angle of 10 degrees
PLANTING SYSTEM	Single plant spacing system only
WEB PLATFORM	Gamaya's own web platform: <a href="https://app.gamaya.com/">https://app.gamaya.com/</a>
DATA PROCESSING TIME	72 hours from the time of all data was uploaded