USE CASE
DRONE HIGH THROUGHPUT PHENOTYPING

Maisadour is a leading European seed producer for maize and oil seeds. The group is active in 40 nations, in France, continental Europe and around the Mediterranean basin, for all our field crops hybrids.

MAÏSADOUR s e m e n c e s

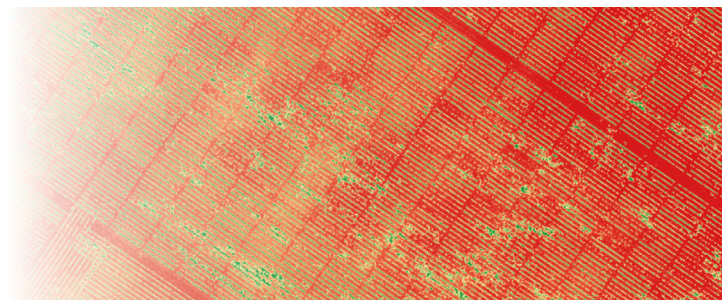| 135K	10	4000	2	7%
PLANTS DETECTED	HECTARES ANALYZED	MICRO-PLOTS IN ONE FLIGHT	HOURS INSTEAD OF DAYS	AVERAGE ERROR

THE NEED

Sunflower is a major cash crop supplying 50 percent of Europe's food oil market.
Maisadour Semences continuously improves sunflower seeds. Decrease the breeding burden while enhancing the phenotyping capacities: that's the goal of Maïsadour.

It starts with getting reliable information of experimental fields, on 1000's of micro-plots and assess the number of plants.

FRANCE

THE SOLUTION

DT18 AG

Maisadour Semences selected Delair Tech to look at two key aspects of seed breeding and production—plant counting and yield forecasting—using unmanned aircraft system. Before Delair-Tech, the seeds counting was mostly done manually, a long and time consuming process. Using drone solutions is a way to save money and gain precious time and accuracy. Maisadour Semences chose Delair-Tech's DT18AG, a long range drone with the RedEdge multispectral sensor - a package designed especially for precision agriculture applications that come with Delair Stack platform for data analysis and business intelligence.

THE OPERATION

Maisadour seeds fields are split into micro-plots, with 4,000 micro-plots in a field with an area of around 10 hectares (about 25 acres). Delair-Tech performed a first flight and then built an orthorectified raster image from the individual images and computed maps of vegetation indices.   Using those maps, the Delair-Tech Stack platform was able to identify, for each micro-plot, rows, plants and gaps instantly.

DATA ANALYSIS & DELIVERABLES

Delair Tech analytics delivers an orthorectified raster image that can be viewed as a snapshot of the crop and is available for later use. So the customer can check the quality of the results from that image, because they can view simultaneously the identified plants and the raster image. The whole concept of geolocalized parcels and micro-plots is very interesting. It brings many new applications such as precise scouting maps such as NDVI, a ratio of several wavelength bands typically re-emitted by plants, to create maps. When using a drone flying 70m above the ground, looking at single plants, those ratio are said to be correlated with several plant characteristics including biomass, leaf area index and chlorophyll concentration.

BUSINESS BENEFITS

Drone solutions is much less time-consuming and more reliable than conventional sunflower plant counting. Usually the process is done with seasonal workers that estimate gap lengths for each micro-plot. Different people count in different ways. In a single drone flight, less than two hours in duration, we can map an area that takes days to cover on foot with 100% reliability. Having a global and accurate view of the fields is critical for seeds companies, making it easier to manage key decisions.

WHY DID THEY CHOOSE DELAIR-TECH

End-to-end drone solution - from hardware to software to business intelliegence.

Experienced team with **photogrammetrists, agronomist,** drone design and data scientists on board.

Dedicated seeds solution from long-range drones to **plant counting business intelligence.**

Drone technology specifically well adapted for many other AG applications.