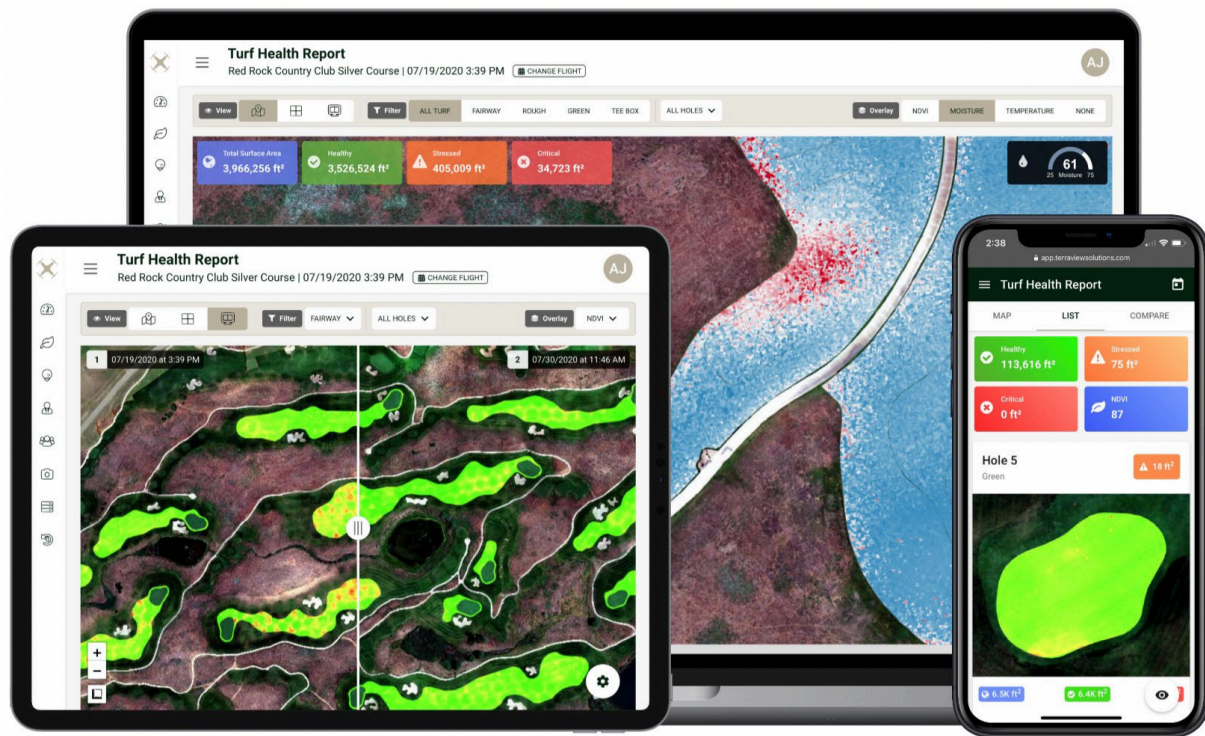




A Commercial Drone Service Provider

Agronomy Package



DJI Matrice 200
MicaSense RedEdge-M





Midair360, LLC uses specialized equipment to monitor the plants chlorophyll content. Giving you a direct indicator of the plants photosynthetic potential.

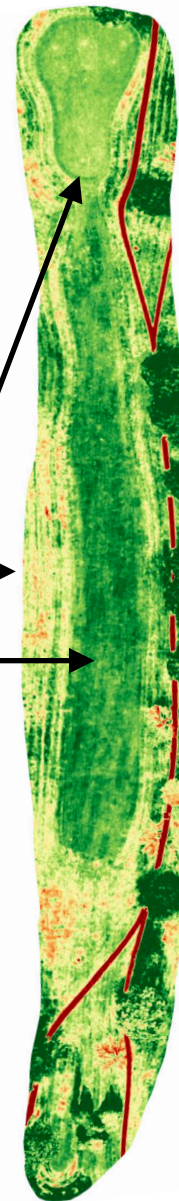
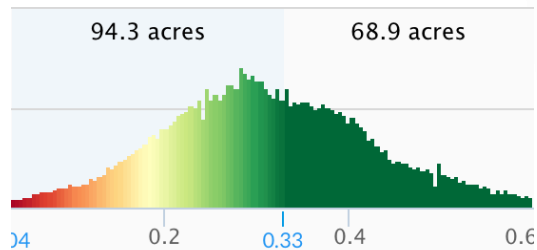
Midair360, LLC identifies areas of turf stress

Midair360, LLC identifies poor irrigation performance

Midair360, LLC identifies optimum turf health

Midair360, LLC identifies issues earlier and with greater precision

Value	Indication
< 0	Inanimate / dead material, e.g. roads, buildings, soil or dead plants
0 -> 0.33	Unhealthy plant material
0.33 -> 0.66	Healthy plant material
> 0.66	Very healthy plant material





How can using drones and multispectral remote sensing data benefit golf courses?

- Multispectral data provides the Golf Course Superintendent with the ability to **monitor the chlorophyll content** in the plant and identify the plants nutrient status, senescence and stress due to water, disease outbreak, etc. This allows you to optimize pesticide and water usage through early detection.
- Provides essential data on soil fertility by detecting nutrient deficiencies.
- Measures irrigation to properly identify areas where water stress or drainage is not working correctly. This allows for improvements to the irrigation and drainage systems.
- View damage by machinery that's not working correctly.

Why is Chlorophyll monitoring important?

Chlorophyll is the green pigment present in the leaves and plays an important role in photosynthesis i.e. conversion of light energy to chemical energy. Chlorophyll is a direct indicator of the plant's primary production and photosynthetic potential. Several indices have been developed to estimate the chlorophyll content of the leaves as follows:

- Chlorophyll Index (CI)
- Normalized Difference Red-Edge Index (NDRE)



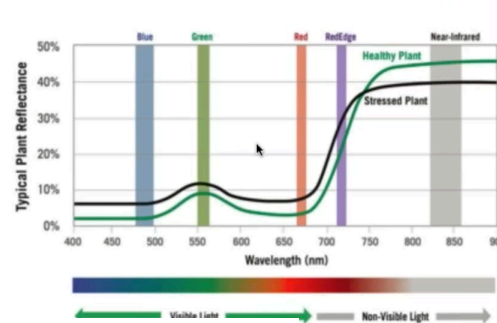
Examples of Multispectral Imagery Advantages



Plant reflectance changes based on health

- Blue/Red: Healthy plants reflect less
- Green: Healthy plants reflect more
- NIR: Healthy plants reflect more
- RedEdge: Healthy plants reflect less

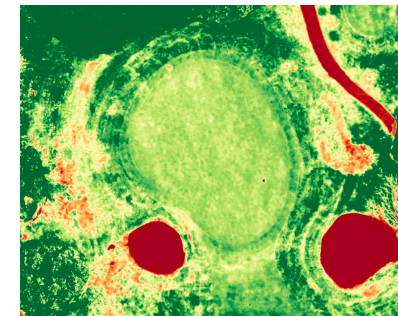
** Vegetation indexes compare these differences in plant reflectance **



RGB Imagery

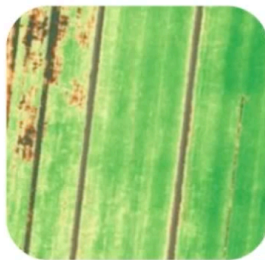


Multispectral Imagery

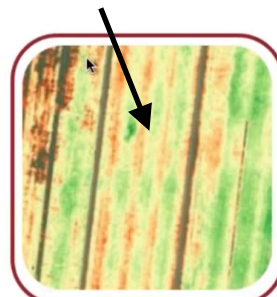


Detect stress, disease earlier

See stress, diseases that doesn't show in other bands



NDVI
(no red edge waveband)



NDRE
(with red edge waveband)

Radiometric calibration allows us to compare the same turfgrass or crops over time to see how they developed.

Radiometric calibration

- Important to know input light in all five spectral bands.
- Reflectance panel 'anchors' the captured data that is independent of the lighting conditions of the flight.
- Enables time analysis, use of agronomic models



Dec 31st Mar 14th June 8th



What Does MIDAIR360, LLC Agronomy Package Consist Of?

- Conduct 18 hole UAS operations on a 14 to 21 day schedule to safety and effectively gather RGB and Multispectral imagery.
- Process RGB and Multispectral imagery into a cloud-based turf health analysis platform that is provided by **TerraView Solutions** to give you actionable data that will help you optimize fertilizer, pesticide and irrigation in areas that need it most.
- Support UAS data with ground verification by visual inspections
- Coordinate UAS data transfer to the customer

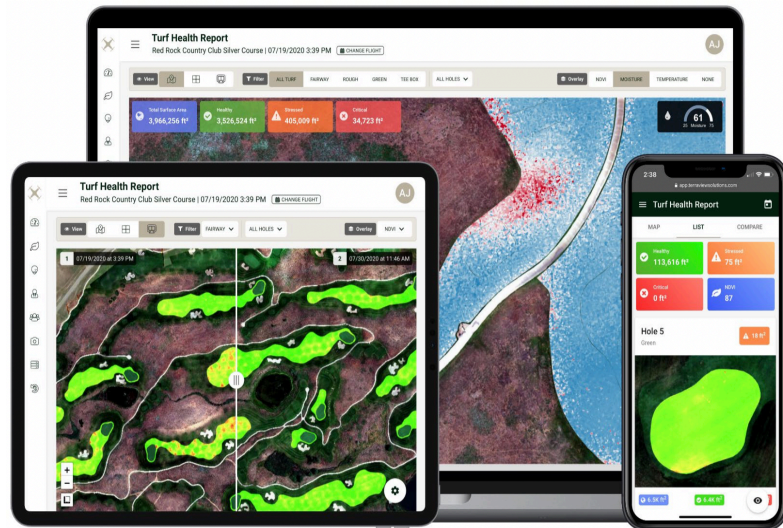


Midair360, LLC is commercial drone service provider that uses state of the art technology to produce real time actionable imagery to help optimize the management of your golf course.
We bring decades of golf course management experience.

MIDAIR360, LLC
nbauman@midair360.com
midair360.com
740.827.2794

MIDAIR360 LLC, partnered with **TerraView Solutions**, offers a cloud-based turf health analysis platform for golf courses. We help courses save time and money, as well as improve their turf health by turning drone-based imagery into actionable intelligence and a powerful visual tool.

- Quickly identify and remediate turf health issues
- Prioritize labor and resource usage tailored to your budget and maintenance objectives
- Make traceable, data-driven decisions to address current course conditions
- Compare your turf health against customized calibration thresholds, or regress data against previous turf reports for your course



Golf course superintendents manage long days and immense pressure to produce a wall-to-wall green course that golfers love – typically with limited resources and a tightly - monitored budget.

We understand there are many stakeholders to please, aside from the golfers themselves - owners, board members, greens committees, and local residents.

We are confident that our solution can help you lower operating costs and improve turf health conditions.