Precision Agriculture in Action:

Commander 3 XL Enhances Crop Health Monitoring and Flood Risk Assessment

The Request

The client wanted an **overview of the health of their crops and terrain elevation data to plan for irrigation and potential flooding** from the nearby river. Traditional crop scouting methods are not only time-consuming but are also error-prone.

Multispectral and LiDAR Analysis

The team deployed a **multispectral sensor** over an alfalfa crop. Alfalfa, a highly nutritious plant from the pea family, is susceptible to various diseases and pests, such as bacterial wilt and alfalfa weevil. These threats often manifest as yellow or brown spots on the leaves, **which can be detected through changes in light reflection.** Multispectral cameras **capture subtle differences in light reflection across the spectrum, distinguishing between healthy green vegetation and diseased areas.** This capability allows for rapid assessment of crop health, providing farmers with a crucial tool for monitoring their fields. During this mission, **the drone surveyed a 6-hectare alfalfa farm,** flying at an **altitude of 70 meters above ground level (AGL)** to avoid power lines. The entire area was **mapped in a 12-minute flight.** The NDVI (Normalized Difference Vegetation Index) data revealed **consistent plant health across the field,** with no areas of concern detected.

Following the multispectral survey, **the team also deployed LiDAR.** This mission aimed to capture **detailed topographical data, processed into a bare earth Digital Elevation Model (DEM).** The drone flew at **70 meters AGL with 50% overlap and three returns** to ensure optimal penetration through the alfalfa foliage, **completing the mission in under 10 minutes.** A key focus of the survey was the north end of the property, which is adjacent to a river flagged as a flooding risk. The DEM provided **critical insights into the elevation of the dike and a drainage map of the crop field,** helping the farmer address potential flood concerns.

Conclusion

In less than an hour, the Draganfly team completed two missions with different payloads, offering a **comprehensive overview of crop health and terrain elevations**. This operation exemplifies the efficiency and effectiveness of drone technology in agricultural monitoring and land management, delivering valuable data that empowers farmers to make informed decisions about their crops and property.