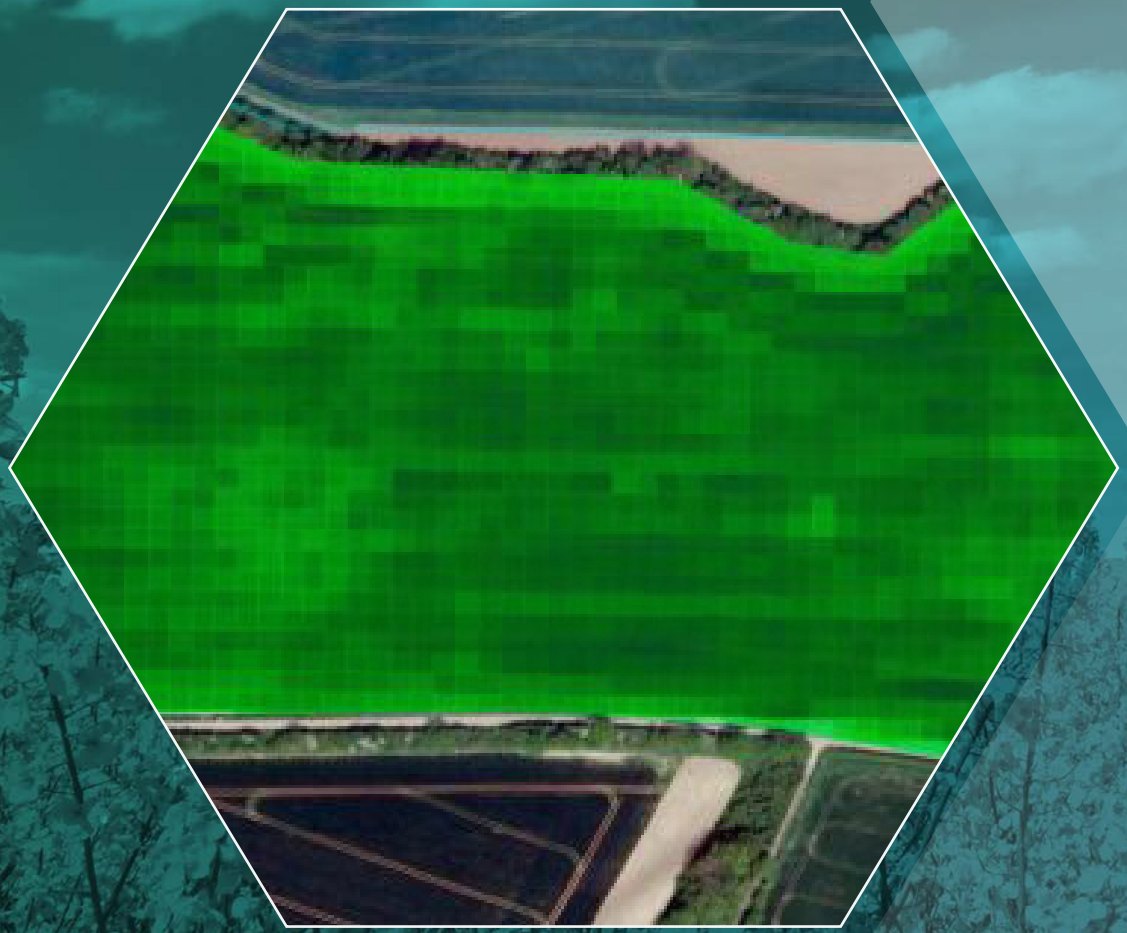
CASE STUDY

MEASURING **GREEN AREA INDEX** FOR CANOPY

Green area index (GAI) is the ratio of green leaf area to the ground area on which the crop is growing. It is theindustry recognised metric for canopy management in oilseed crops. Hummingbird has created a model based on multispectral UAV captured imagery that measures and maps GAI of OSR. This is used as the basis of variable application maps to target the use of nitrogen fertiliser and growth regulating fungcide, optimising canopy size and thereby maximizing yield.



"Hummingbird provided a GAI assessment flight, which showed high levels of variability in the canopy, but strong overall early growth. Measured GAI recommended an overall requirement of 18 Kg/Ha nitrogen, as opposed to standard farm practice of 109 Kg/Ha nitrogen.

The GAI map also highlighted the requirement for a slightly higher dose of PGR on the thickest part of the crop, but far less on the delayed growth. By applying nitrogen and PGR based on precise canopy requirement, the field has seen a successful reduction in input costs of £49/ha."

Farm Manager, Dorset

TARGETED CANOPY **MANAGEMENT**

- Large canopies have poor light use efficiency and a greater risk of lodging. By tailoring nitrogen rates and timings, OSR canopy size can be optimised in order to maximise yield.
- Nitrogen applications should target an optimum canopy size of GAI 3.5 at flowering.
- Oilseed rape must take up 50 kg N/ha to build each unit of GAI.
- Where a large canopy is present, the application of nitrogen fertiliser can be delayed to reduce the chance of creating an over-large canopy and to mitigate lodging risk.
- Applying growth regulating fungicides to crops with GAI below 1 has been shown.

WHAT OUR **CUSTOMERS** ARE SAYING...

"The flight on 23rd March shows significantly low NDVI, which is a sign of early season stress in the crop. The histogram shows high levels of variance in the field, with a peak NDVI reading of 0.35.

The green area index (GAI) map shows high levels of variability in the canopy, with a low average GAI of 1.

Hummingbird's algorithms automatically created a Variable Rate Nitrogen Map based on the GAI flight data, which was applied to the crop on the 5th April. The follow-up imagery taken on 12th April, shows a significant increase in NDVI and a more even GAI across the whole field."

Farm Manager, Wiltshire