HYPERCEPTIONS

HYPERCEPTIONS LIMITED (HL) AIMS TO BE THE RECOGNISED LEADER OF HYPERSPECTRAL SENSING CAPABILITY, SERVING NEW ZEALAND'S PRIMARY INDUSTRIES, GOVERNMENT AND LAND MANAGEMENT AGENCIES.

WE ARE FORGING A ROAD INTO ADDITIONAL APPLICATIONS FOR HYPERSPECTRAL ANALYSIS IN FORESTRY, HORTICULTURE, FOOD SAFETY AND BIO-SECURITY.

THE TECHNOLOGY

Farmers are faced with many challenges when managing pasture and soil conditions. They need to make decisions on controlling stock, irrigation, drainage and fertiliser application. Technologies like soil testing and pasture measurement (pasturemeter or plate metering) are commonly used to assist farmers with these crucial pasture and soil decisions.

Commercial demand now exists for the emerging technology of hyperspectral imaging, which contains information beyond standard image analysis.

Hyperceptions Limited (HL) is offering full service hyperspectral surveys for NZ agricultural and forestry industries, using a range of instruments (Fenix ASIA, ASD Field Pro) and know-how at Massey University.

Hyperspectral analysis provides accurate and dependable qualitative information on pasture

"Commercial demand now exists for the emerging technology of hyperspectral imaging"

construct to help guide farming operations. This can be used to accurately determine effective farming areas, pasture-carrying capacity through to more targeted pasture renewal and fertilizer application. Identifying the best land to crop enables farmers to calculate better returns from fertiliser investment prior to planting.

HL surveys can also provide information on native forest biodiversity including weed control, monitoring of regenerating native bush and provide disaster damage assessment for regional councils.

The current capability is focused on a range of pasture quality and quantifying parameters, forest health monitor and tree species classification but there is potential to develop reference spectral libraries for a much wider range of applications.

THE RESEARCH AND DEVELOPMENT

Led by Professor Ian Yule and supported by analysts Dr Reddy Pullanagari and Dr Gabor Kereszturi, HL builds on the R & D work already completed by Massey University, using a variety of hyperspectral and multispectral sensing instruments.   Through the NZ Centre for Precision Agriculture (NZCPA), Massey University has been investing in hyperspectral equipment and developing expertise in its use in the Agritech sector for the last 10 years. Projects have been completed in pasture measurement and the technology has also been used for meat analysis and monitoring meat for a specific animal health condition.

The application of full service hyperspectral surveys has been trialed and confirmed through the research activities of NZCPA. These flights, covering up to 1000 ha/hr have established the protocols for conducting successful surveys, including details like the best time of day, extent of cloud cover and ground calibration.

As well as producing research outcomes, a significant amount of analytical expertise has been developed to quickly and precisely analyse the large amounts of data generated by the hyperspectral surveys.

This knowledge and expertise is now at the point where surveys can be planned and executed with a high degree of confidence.

THE COMMERCIALISATION

Massey University recognised the opportunity to fully commercialise this technology through the establishment of HL.

Market research, conducted by Consumer Insights Ltd, indicates that farmers and foresters with larger land holdings, or in intensive farming operations, have a need for the services hyperspectral imaging offers - particularly those services related to pasture carrying capacity, cropping and plantations. This market validation, at the projected survey costs, indicates there would be good market demand for these services.

With a first target market of large landowners, forestry and horticulture companies, and with numerous secondary markets, it's predicted HL will rapidly extend across a wide range of applications delivering the key information to clients to enable more profitable decision making.