

# Content

Foreword .....	9
1      Sensing techniques used for crop monitoring, elements of theory behind ..	11
2      Spectral reflectance of crop canopy .....	16
2.1    Spectral reflectance of vegetation .....	16
2.2    Remote sensing platforms used in agriculture .....	22
2.3    Close-up remote sensing to determine crop variability for nitrogen application .....	26
3      Spectral reflectance data as affected by crop variety and nitrogen deficit ..	33
3.1    Effect of nitrogen deficiency on spectral reflectance data .....	34
3.2    Effect of crop variety on spectral reflectance.....	36
4      Determining crop parameters suitable for variable nitrogen application by commercial remote sensing sensors.....	41
4.1    Comparison of active and passive sensor to determine crop parameters ....	41
4.2    Comparison of ground based sensors with satellite platform to determine crop parameters.....	54
4.3    Crop fluorescence <i>versus</i> spectral reflectance .....	57
5      Use of close-up remote sensing in practical farming .....	67
5.1    Determining the field crop variability on the go during field operation.....	67
5.2    Summary of results on nitrogen application based on data from remote sensing sensors .....	69
6      Conclusions and future trends.....	73
7      Summary .....	74
8      References .....	75