



## Spectral reflectivity variations of *Brassica napus* depending on degree of soil moisture

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Studying of the optical properties of agricultural vegetation is one of the methods for plants condition estimation, prediction of their development and changes influenced by natural and anthropogenic factors.

The work is dedicated to the investigation of spectral reflectance function of agricultural *Brassica napus* taking into account the degree of soil moisture. When most of the agricultural lands in Belarus are covered with vegetation in summer, employing the optical properties of agricultural vegetation for deciphering the soil depends on the degree of soil moisture. Insufficient numbers of days in year when the soil is not covered by vegetation or is in a plowed state requires in-situ optical measurements, because there are more than 50 % cloudy conditions in the year, especially in spring and autumn time.

The study has been carried out near the Minsk 11.06.2020 (53.837004° N, 27.487597° E) in clear, cloudless day. The relief for investigated field is hilly-ridge, characterized by a predominance of elevation marks from 250 to 300 m and it is actively sown field. During the spectrometric measurements, the field has been sown with *Brassica napus* in the phenological phase of pod formation.

When studying the spectral reflectance of *Brassica napus*, in-situ spectrometric measurements and analysis of a multispectral image have been carried out. Spectrometric measurements have been carried out by FSR-02 spectrometer (spectral range 400-900 nm, spectral resolution 4.3 nm) aiming to retrieve spectral reflectance function.

The normalized vegetation index NDVI has been used for analyzing the multispectral image from Landsat 8 OLI system with a spatial resolution of 30 m. The results of a study of the correlation between the reflection coefficient of *Brassica napus* and the area of observed soils will be presented. In addition, the results of the analysis of quasi-synchronous values of the NDVI index and in-situ measurements of the spectral reflectance of *Brassica napus* will be discussed.