



# Official report from crop analysis

Vegetation indices are numerical indicators that measure green vegetation and photosynthetic activity of plants based on the spectral response of the plant part of the spectrum. These indices are used to assess vegetation cover, crop yield, and monitor changes in the environment.

These maps and reports are generated based on vegetation indices, which are numerical indicators that measure vegetation cover and photosynthetic activity of plants.

## Assignment

<b>Project</b>	2022_06_05_Rapeseed_oil
<b>Crop</b>	Rapeseed oil
<b>State</b>	-----
<b>City</b>	-----
<b>Measurement date</b>	June 5th, 2022
<b>Company / Client</b>	-----
<b>Source MOSAIC</b>	2022_06_05_Rapeseed_oil_mosaic.tif
<b>Source NDVI</b>	2022_06_05_Rapeseed_oil_ndvi.tif
<b>Source GNDVI</b>	2022_06_05_Rapeseed_oil_gndvi.tif
<b>Source GRVI</b>	2022_06_05_Rapeseed_oil_grvi.tif
<b>Source NDRE</b>	2022_06_05_Rapeseed_oil_ndre.tif
<b>Source Vectorized NDVI</b>	2022_06_05_Rapeseed_oil_vector_ndvi.shp
<b>Number of classes</b>	10
<b>Area covered</b>	571286 m <sup>2</sup>   57.12 ha   141.17 acres

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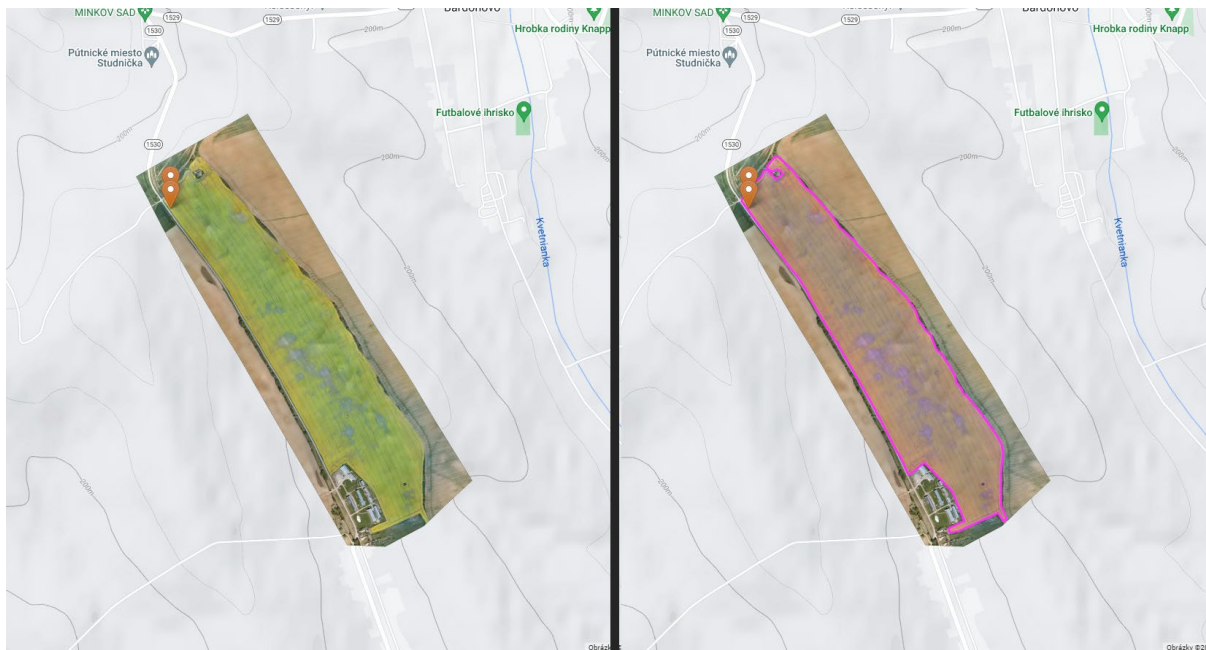
Processed by: \_\_\_\_\_ Date: June 10th, 2022 Signature: \_\_\_\_\_



AGRO Inspector

Analytical tool for precise agriculture

## 1. Preview - Orthomosaic



**Figure 1: Orthomosaic (LEFT) and orthomosaic with polygon area (RIGHT)**



## 2. Analysis: Vitality and health of crops based on NDVI vegetation index



Figure 2: NDVI - Normalized Difference Vegetation Index



Min	Max	Area		Color
		[ha]	[%]	
0,70	0,73	0,24	0,42	
0,66	0,70	0,35	0,62	
0,63	0,66	0,97	1,70	
0,60	0,63	4,85	8,52	
0,56	0,60	20,06	35,25	
0,53	0,56	24,68	43,37	
0,50	0,53	4,34	7,63	
0,47	0,50	0,72	1,27	
0,43	0,47	0,42	0,73	
0,40	0,43	0,29	0,51	

**Table 1: Prescription of NDVI**

### 3. Analysis: Detection of water and nitrogen content based on GNDVI vegetation index



Figure 3: GNDVI – Green Normalized Difference Vegetation Index



Min	Max	Area		Color
		[ha]	[%]	
0,68	0,71	0,28	0,49	Dark Green
0,66	0,68	0,53	0,91	Green
0,64	0,66	1,48	2,56	Light Green
0,62	0,64	5,41	9,72	Yellow-Green
0,60	0,62	17,46	30,26	Yellow
0,57	0,60	21,83	37,84	Orange
0,55	0,57	9,06	13,98	Light Orange
0,53	0,55	1,31	2,27	Red-Orange
0,51	0,53	0,44	0,77	Red
0,40	0,51	0,69	1,26	Dark Red

**Table 2: Prescription of GNDVI**



## 4. Analysis: Monitoring of biomass content in the plants based on GRVI vegetation index



Figure 4: GRVI – Green Red Vegetation Index



Min	Max	Area		Color
		[ha]	[%]	
5,60	5,99	0,19	0,33	Dark Green
5,20	5,60	0,31	0,54	Medium Green
4,81	5,20	0,75	1,29	Light Green
4,42	4,81	3,02	5,24	Yellow-Green
4,02	4,42	16,38	28,38	Yellow
3,63	4,02	30,36	52,60	Orange
3,24	3,63	5,63	9,75	Light Orange
2,85	3,24	0,71	1,23	Red-Orange
2,45	2,85	0,31	0,53	Red
2,06	2,45	0,07	0,12	Dark Red

**Table 3: Prescription of GRVI**





## 5. Analysis: Monitoring of chlorophyll content in the plants based on NDRE vegetation index



Figure 5: NDRE - Normalized Difference Red Edge Index



Min	Max	Area		Color
		[ha]	[%]	
0,23	0,24	0,25	0,43	Dark Green
0,21	0,23	0,77	1,34	Green
0,20	0,21	3,39	5,89	Light Green
0,18	0,20	11,01	19,12	Yellow-Green
0,17	0,18	17,61	30,59	Yellow
0,16	0,17	13,71	23,83	Light Orange
0,14	0,16	5,91	10,27	Orange
0,13	0,14	2,36	4,10	Red-Orange
0,11	0,13	1,44	2,50	Red
0,10	0,11	1,10	1,91	Dark Red

**Table 4: Prescription of NDRE**



## 6. Recommendation for fertilization and irrigation



**Figure 6: Vectorized NDRE - this can be uploaded into the software of agricultural machines and tractors**



Dosage [l/ha, kg/ha,...]	Area		Overall [kg]
	[ha]	[%]	
120	0,59	1,03	70,39
130	5,8	10,2	754,64
150	44,73	78,61	6708,94
160	5,08	8,92	812,27
170	0,71	1,24	119,9
		Σ	8466,13

**Table 5: Recommendation for fertilization and irrigation**