# Imageprocessing with PixelWrench2, Agisoft and QGIS to monitor black grass patches within wheat fields

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#### **PixelWrench**

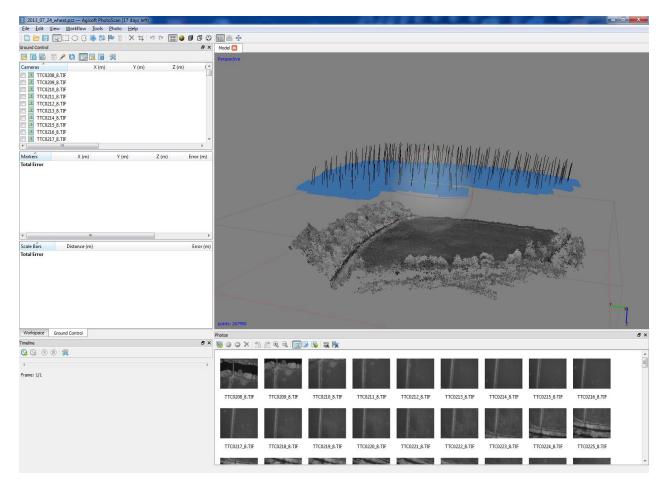
Raw data processing with PixelWrench2 10min)

Raw Imagery: 6 x 182 raw files (5 bands plus ILS)

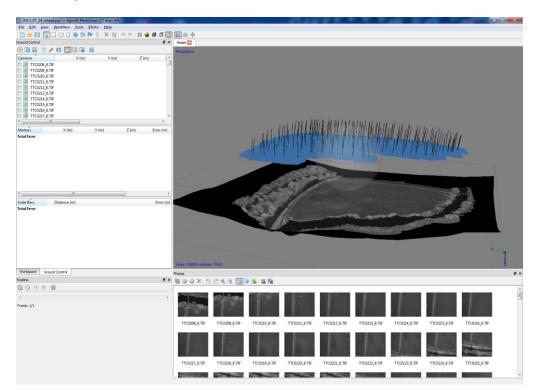
Results: 182 5-band Multiband tiffs (Green, Red, Nir1, Nir2, Nir3)

### **Agisoft Photoscan Pro**

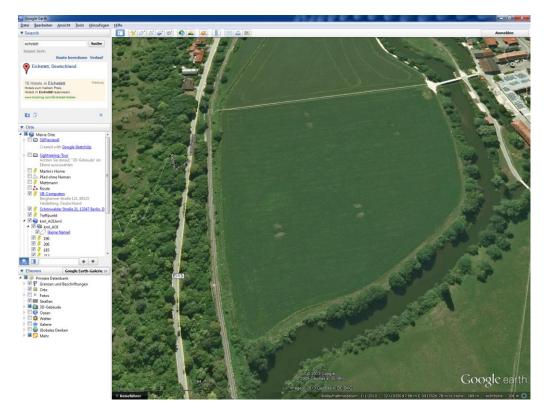
Alignment of xxx 5-Band Images ( 12min)



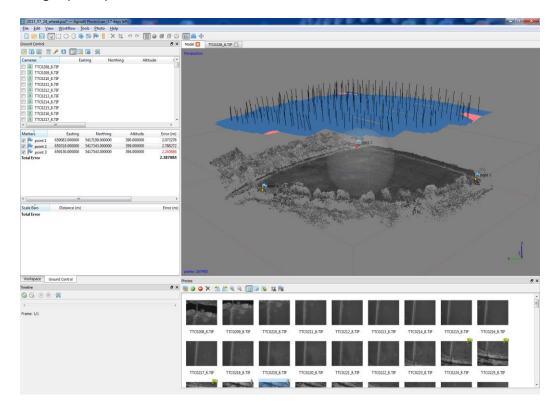
Processing of a low detailed 3D-mesh (3min)



Getting the UTM coordinates (+- 2m) from GoogleEarth (5min)

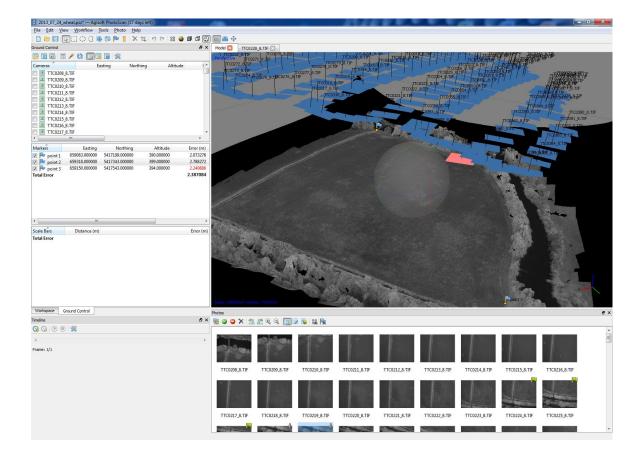


Creating 3 Markers with the GoogleEarth UTM coordinates (**3min**) and placing markers on 3 pairs of images (**5 min**)



Creating a 3D mesh with high accuracy (10min + 3min)

Processing in progress			
Reconstructing depth			
5% done, 00:00:33 elapsed, 00:09:01 left			
Overall progress:			
Minimize Pause Cancel			
	ļ		
Processing in progress			
Generating mesh			
10% done, 00:01:27 elapsed, 00:01:27 left			
Overall progress:			
Minimize Pause Cancel			



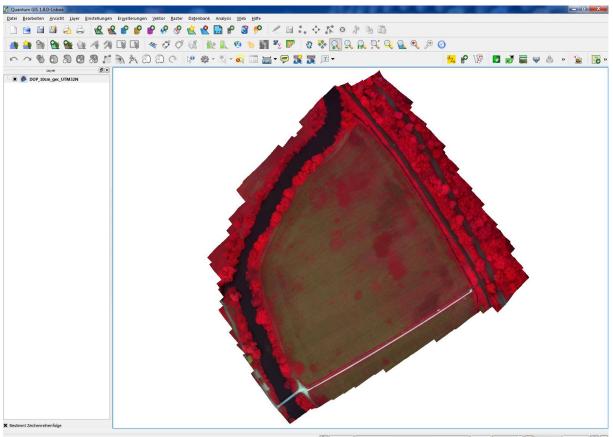
Export of Digital Ortho-Photo (DOP) with 10cm Pixel resolution (5min)

Export Orthophoto			
Projection			
Туре: 🔘 ғ	Planar () Geographic		
ETRS89 / UTM zone 32N (EPSG::25832)			
Image			
Blending mode:	Average	•	
Fill holes			
Pixel size:	0.1	н	
Metres	0.1	v	
Max. dimension (pix):	4096		
Split in blocks:	1024 x 1024		
Region			
Setup boundaries:	-	н	
Estimate	-	v	
Write KML file	Write World file		
Export Cancel			

Processing in progress
Rendering mosaic
4% done, 00:00:12 elapsed, 00:04:58 left
Overall progress:
Minimize Pause Cancel

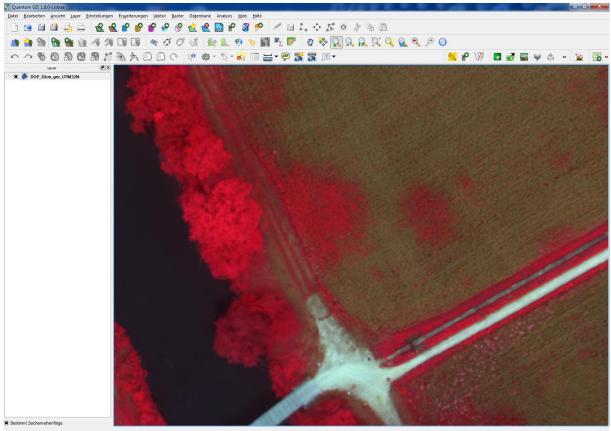
## QGIS

Loading DOP\_10cm\_gec\_UTM32N.tif



🋞 Koordinate: 659162.5,5417627.3 Maßstab 1:1895 🔻 🏏 K Zeichnen EPSG 25832 🚇 🛕

RGB = NIR,RED, GREEN with zoom to take of area near the little bridge. Black grass patch visible in NIR,RED,GREEN composite.

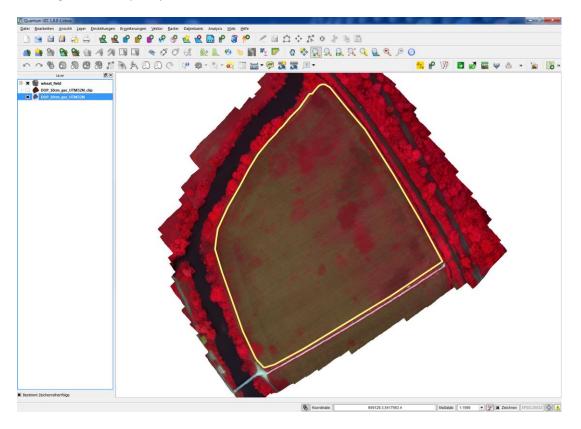


 Koordinate:
 659088.38,5417255.30
 Maßstab
 1.258
 ♥
 ¥
 Zeichnen
 EPSG.25832
 ▲

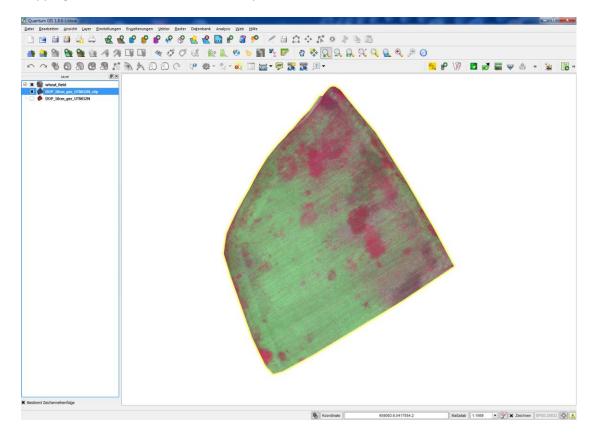
Photo, showing the black grass patch near the bridge



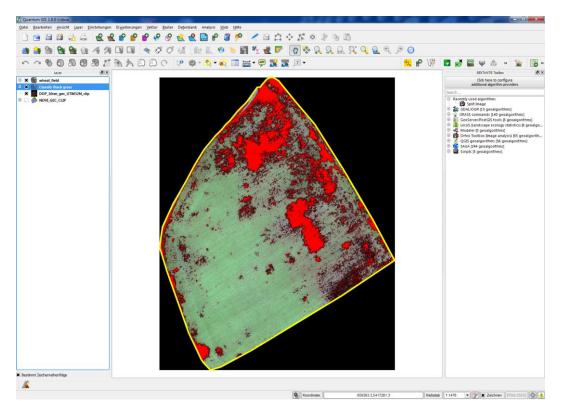
Loading a boundary shape file



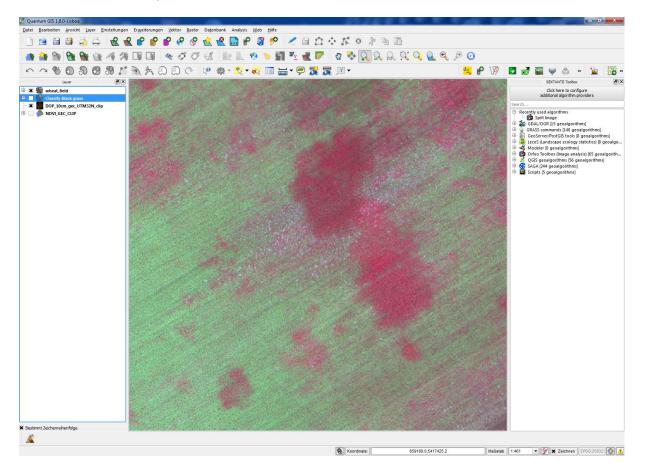
Clipping the DOP file with the boundary vector



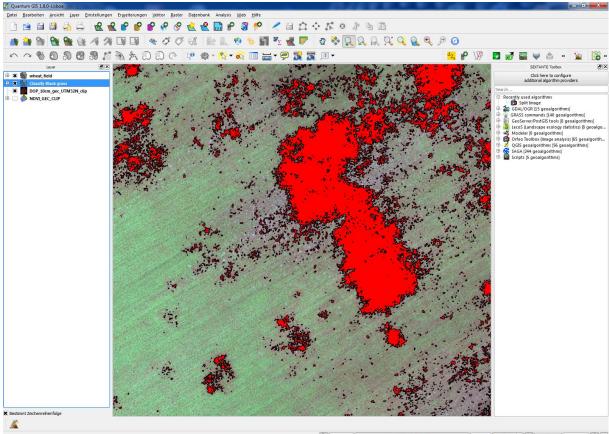
Results of black grass classification



#### DOP without Vector Layer



DOP with overlayed vector layer



🛞 Koordinate: 659133.6,5417357.2 Maßstab 1.461 🔹 🏏 🕱 Zeichnen EPSG 25832 🚳 🛕

Total processing time in QGIS: 5min