REPORT

«Skhidne» LLC

Crop type: winter wheat

Field: #3. Plants density measurments

Kharkiv oblast, Balakliya Rayon, village Skhidne

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1. Weather conditions

The analysis of weather and climate data showed that the available soil moisture during the growing season in April-May 2020 was insufficient. In April, there was up to 20 mm of precipitation, which is half of the monthly norm, and in May - up to 13 mm. The rains were in strips. Also in April, night frosts down to -6-8°C were observed, which led to plant stress.

In general, it can be said that the conditions of the spring growing season were not entirely favorable for the development of winter wheat. At the time of the survey, the crops were in good condition due to the fact that no high temperatures were observed during the critical periods of generative organs formation.

2. General comments on the state of the crop

The winter wheat crops of Vostochne LLC were inspected on May 13, 2020. The condition of the crops was good at the time of inspection. The spring vegetation of winter wheat is taking place in satisfactory weather conditions. The phase of plant development is the beginning of stemming. The predecessor is corn. Plants are evenly developed. The winter wheat crops are free from drops and deaths. There are small areas with poor development of plants biomass.

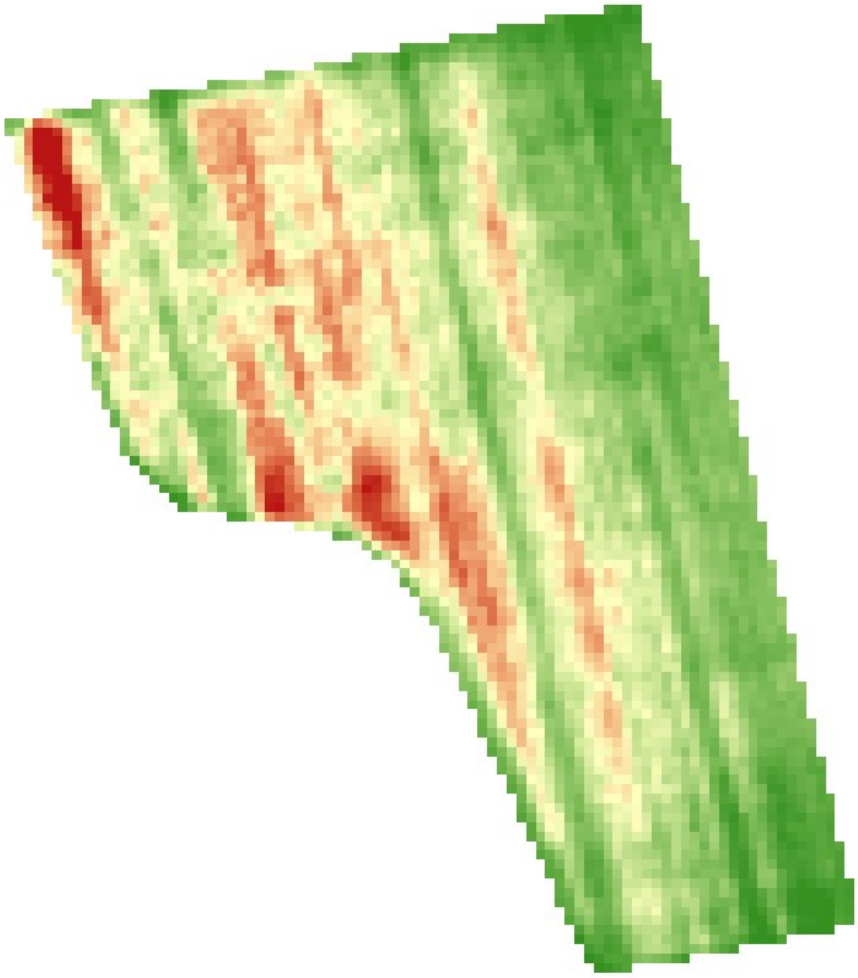
2.1 Plants density measurements

Prediction of winter wheat stem density was carried out on the basis of using vegetation parameters of winter wheat plants according to remote sensing data. The variation of stem density by NDVI was determined. Areas with reduced stem density were identified.

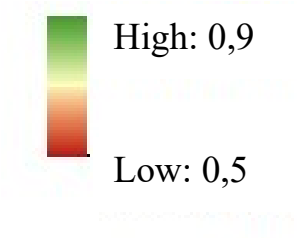
The predicted density value at the beginning of stemming ranged from 310 to 441 pcs/m2 with an average of 397. There are 5 classes of plant density, their share is 43% of the field area.

Statistical analysis of the distribution of density showed the predominance of the value of the indicator from 388 to 415 pcs/m2.

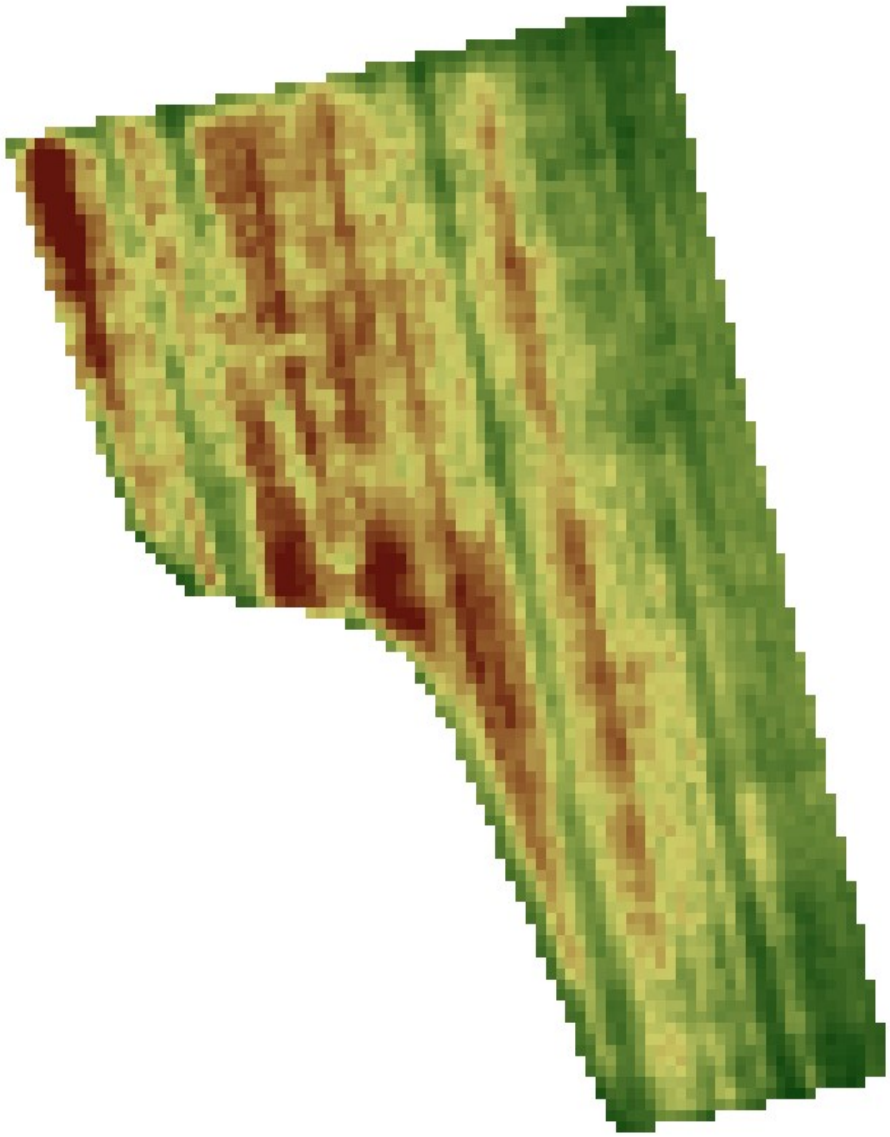
2.1 Vegetation index



NDVI scale



2.2 Plants density



Plants density, pcs/sq.m.

High: 441

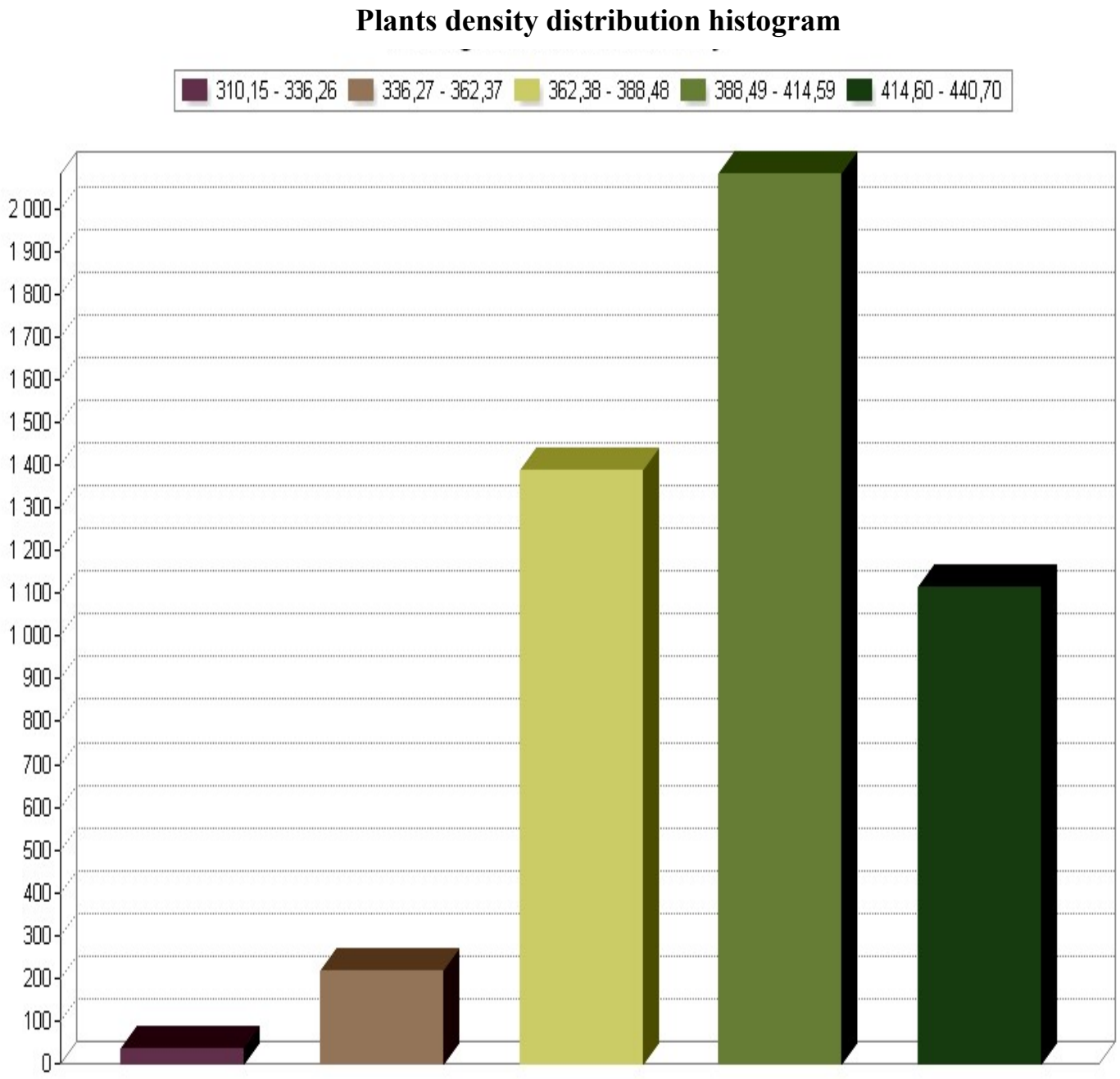
Low: 310

Statistics

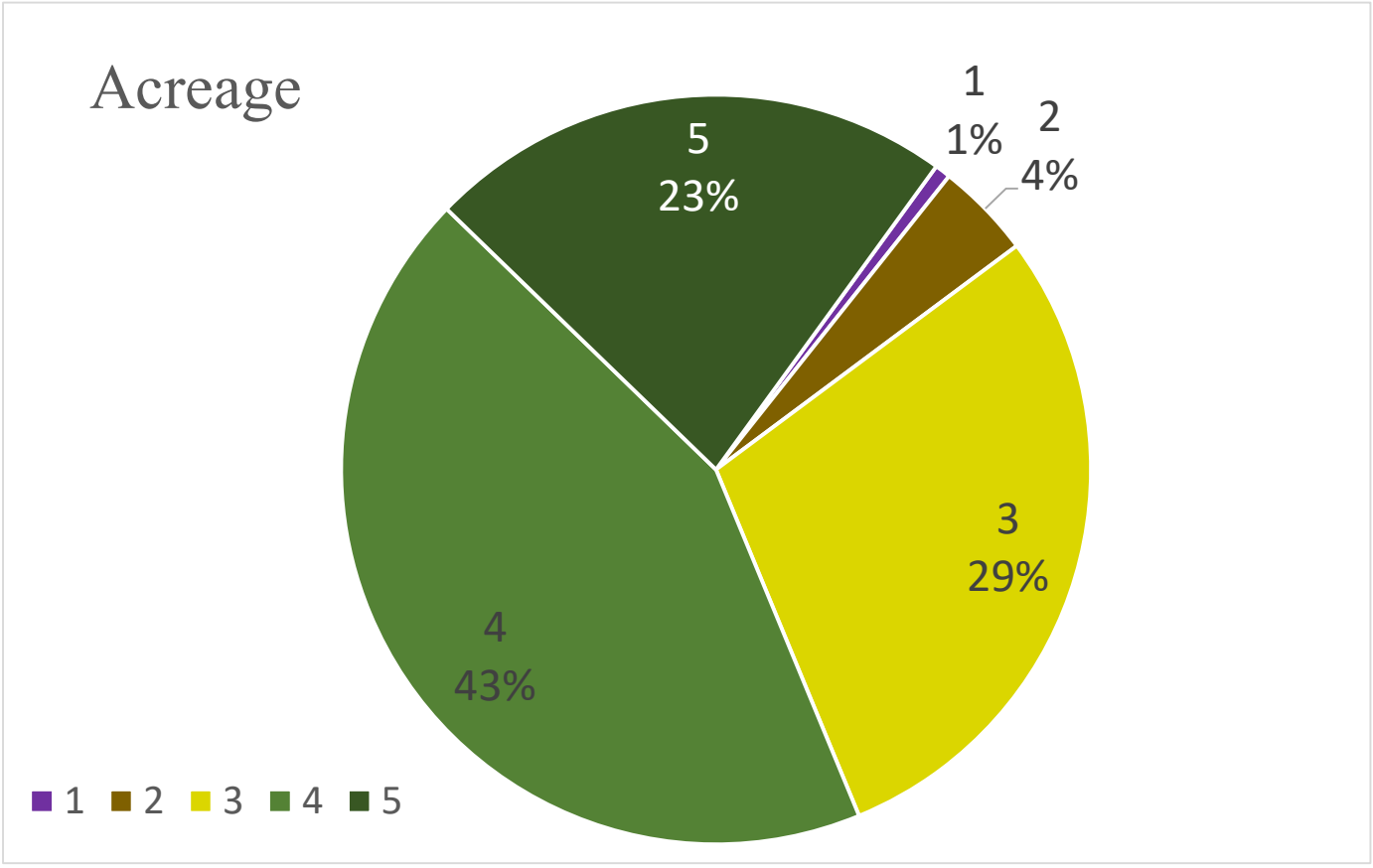
Min :	310,14624023437
Max :	440,69979858398
Mean :	397,14348800608
Std Dev. :	20,706609384102

2.3 Plants density zones

2.4 Statistical analysis



Plants density zones	1	2	3	4	5
Number of plants	310,15 – 336,26	336,27 – 362,37	362,38 - 388,48	388,49 – 414,59	414,6 – 440,7
Acreage of zones (ha)	0,33	2,00	13,97	20,98	10,98
MIN	310,15	336,58	354,58	376,38	408,80
MAX	335,78	371,50	402,72	421,20	440,70
RANGE	25,64	34,92	48,14	44,82	31,90
MEAN	326,31	354,43	377,94	401,76	422,33
STD	7,41	6,65	7,36	8,20	6,00
SUM	10768,13	73366,24	522308,34	842089,54	464985,32



3. Conclusions of the expert

Based on the results of the inspection, it can be stated that winter wheat crops are in good condition, and under further favorable weather conditions, especially moisture supply, it is possible to form the planned yield.

In case of drought, the planned yield may be reduced by 1.0-1.1 t/ha.