

Penergetic 2019



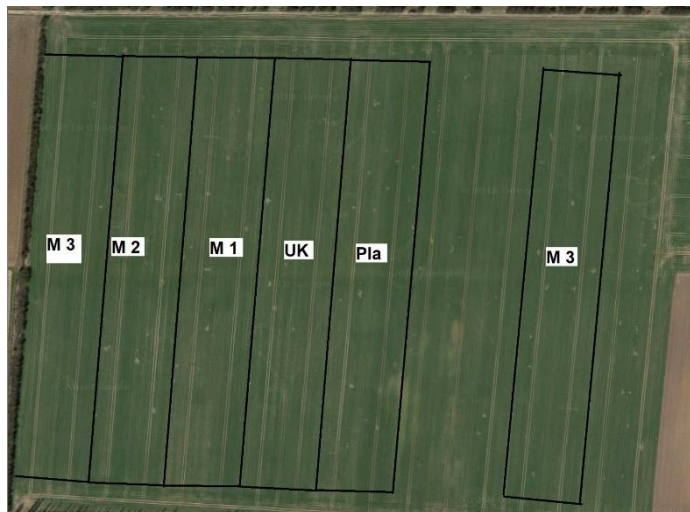
optimize your harvest

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Introduction

The evaluation of the Penegetic test 2018 showed a difficult to quantify influence of soil quality on the test results. For this reason, a further plot (M3) treated with penegetic products was laid out in the rear area of the "1.-3. Weg" test field. In this area the soil quality is worse and comparable with the UK and Pla variants.



New layout of M3 in Schlag „1.-3. Weg“

The plots of the experimental areas were measured and exposed. Harvesting was carried out by seed thrashing with a cutter bar with an effective width of 9.15m. The plots were each 400m long, with 4 passages each. Each variant thus harvested approx. 1.5 ha. With this simplified yield measurement, fuel consumption and losses were not documented.

The output quantities of the Penegetic products were calculated according to the scheme of the previous year. In the Penegetic variants, the amount of artificial fertilizer was reduced by 20% with the application.

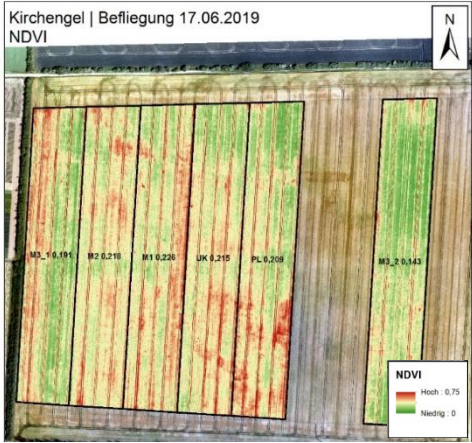
Abbreviation	M3	M2	M1	UK	PL (Pla)	M3
Designation	A	Application 2	Application 3	Untreated	Placebo	Application 3
Application	penegetic b 500 g/ha	penegetic b 500 g/ha	penegetic b 500 g/ha	Farm	Bentonite without Penegetic	penegetic b 500 g/ha
	penegetic p 300 g/ha	penegetic p 300 g/ha	penegetic p 300 g/ha			
	penegetic p 300 ml/ha		penegetic p 300 ml/ha			
Organic fertilizer	Liquid manure	Liquid manure	Liquid manure	Liquid manure	Liquid manure	Liquid manure
1. N Application	Fertilizer recommend. - 20%	Fertilizer recommend. - 20%	Fertilizer recommend. - 20%	Fertilizer recommendation	Fertilizer recommend. - 20%	Fertilizer recommend. - 20%
2. N Application	- 20%	- 20%	- 20%	Fertilizer recommendation	- 20%	- 20%
3. N Application	calcium ammonium nitrate*	calcium ammonium nitrate*	calcium ammonium nitrate*	Fertilizer recommendation	calcium ammonium nitrate*	calcium ammonium nitrate *
Fungicide	Standard operating	Standard operating	Standard operating	Standard operating	Standard operating	Standard operating
3 rd N-Application only as little as the reduction of 40% total N-Application can be guaranteed.						
Combination with herbicides						
Combination with fungicides						

Fertilizer plan Penegetic Westerengel

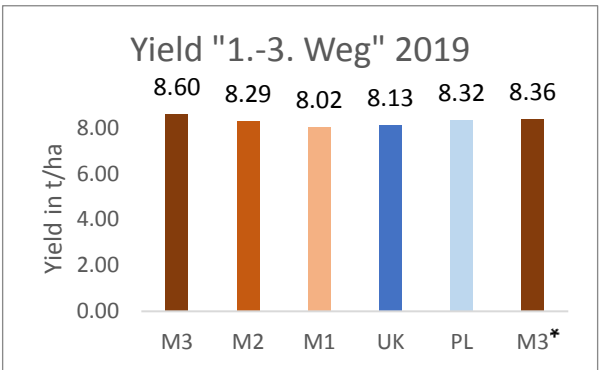
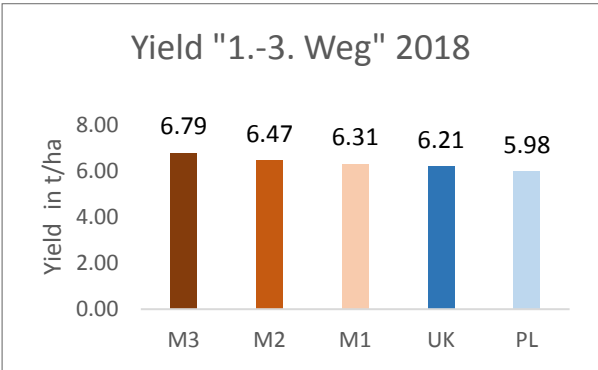
Due to the extreme weather conditions in the previous year 2018 and the resulting heterogeneity due to default grain, the trial area should only be credited to a small extent in 2019 and no yield measurements shall be carried out. However, as the crop developed relatively homogeneously, a simplified yield measurement was carried out on the trial plot "1.-3. Weg". A drone flight was also commissioned, and soil sampling continued. The results obtained in 2019 are only of limited informative value due to the heterogeneities caused by lost grain. Nevertheless, they confirm the trends of the previous year's results and can support the expected results for 2020.

outcomes

The drone flight was used to determine a reference value for the yield measurement. The NDVI was calculated and these indices correlated with the biomass. The results of the 2018 survey showed a significant correlation between NDVI and measured yield. In 2019, this correlation is less clear: This can be attributed to the heterogeneity of the default grain which forms straw with little grain. This is why the NDVI correlates less strongly with the yield.



NDVI 2019



Comparison of yield 2018 and 2019

The yields in 2019 are on average approx. 2t/ha higher than in the drought year 2018. The yield differences between the variants are similarly pronounced in both years. The Pen-ergetic variant M3 shows a higher yield (despite reduced fertilization) compared to the UK and PL variants. Also, the new plot M3* on the poorer soil showed a higher yield compared to the 0-variants.



