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28.03.2008
http://idw-online.de/de/news252718

Forschungsergebnisse
Biologie, Meer / Klima, Tier / Land / Forst, Umwelt / Ökologie
überregional

Climate change will enforce sulphur deficiency in crops

Federal Research Centre for Cultivated Plants (Julius Kühn Institute) established first risk map for Germany

(Braunschweig, 28th March 2008) Still 25 years ago, farmers received the plant nutrient sulphur for free because clean air acts had not come into force by then. Desulphurisation of fumes resulted in a continuously declining atmospheric sulphur input each year so that farmers have to fertilise sulphur regularly in order to warrant a sufficient sulphur supply and crop productivity. Oilseed rape is particularly sensitive to sulphur deficiency. Oilseed rape is one of Germany's most important crops for the production of bio-energy. Problem: High rainfall will cause exhaustive leaching of plant available sulphate on agricultural soils.

Parallel to the predicted climate change in the next decades, the risk of sulphur deficiency in agricultural crops will increase, so the forecast of geo-ecologist Knut Hartmann and Dr. Holger Lilienthal, both researchers at the Institute for Crop and Soil Science of the Julius Kühn Institute (JKI). They extended and implemented the "MOdel for Predicting Sulphur deficiency (MOPS) into a Geographical Information System (GIS). By means of the same technology the JKI researchers computed that this year about 38 % of the arable land in Germany is subjected to a high risk of sulphur deficiency. In 60 years (with an expected temperature increase of two degrees Celsius, an increase of winter precipitation by 30 % and a summer rainfall decrease by 30%, the area of land with a high risk of sulphur deficiency will increase to nearly 50%. Without additional efforts in fertilisation and crop protection, the costs of the resulting yield losses for oilseed rape and wheat in Germany, will add up to one billion euros for each crop. For risk assessment MOPS does not only take climatic factors into consideration, but also site-specific, soil-physical and hydrological properties.

Explanation Julius Kühn Institute:
The research branch of the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV) has a new structure since January 1st, 2008.
The Federal Biological Research Centre for Agriculture and Forestry (BBA), the Federal Centre for Breeding Research on Cultivated Plants (BAZ) and two institutes of the Federal Agricultural Research Centre (FAL) were merged to Julius Kuehn Institute (JKI), Federal Research Centre for Cultivated Plants.

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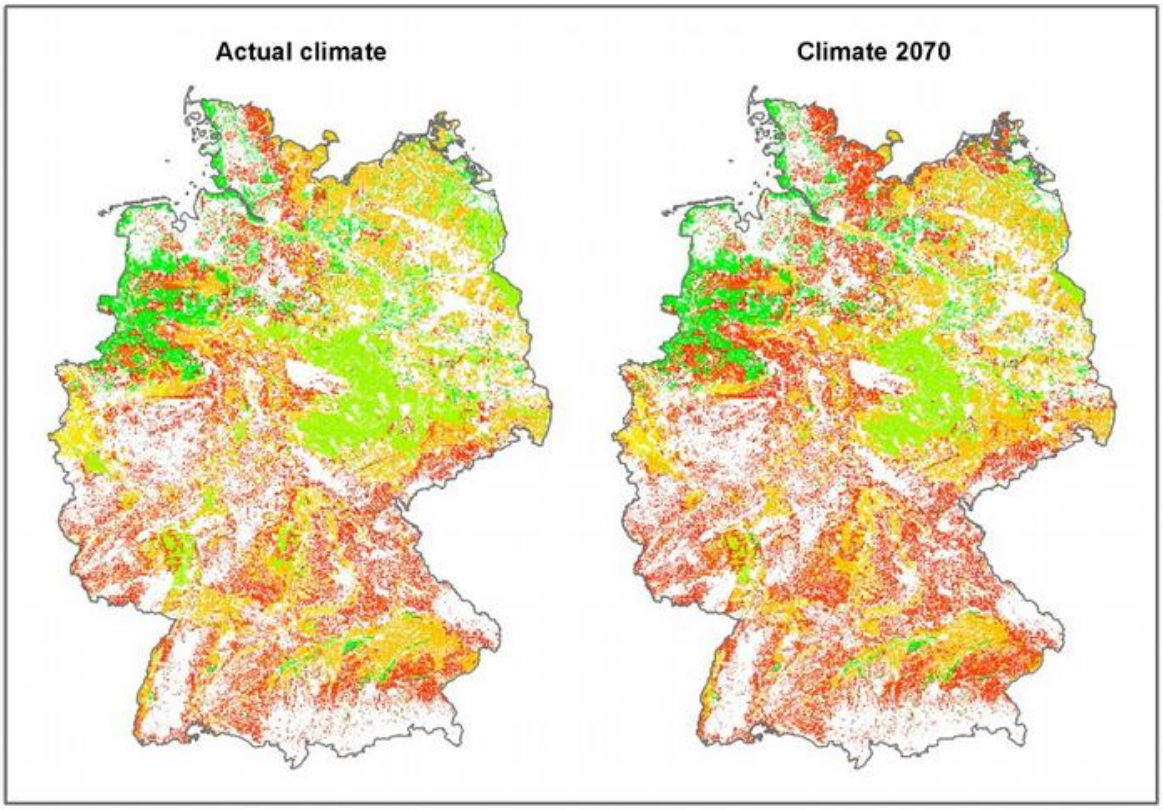
URL zur Pressemitteilung: http://www.jki.bund.de/cln_044/nn_813794/DE/pressestelle/Presseinfos/2008/2803__Klimawandel__verschaerft__Schwefelmangel.html__nnn=true - Download of pictures in high quality

Oilseed rape is especially sensitive for sulphur deficiency (Oilseed rape crop with sulphur deficiency in Lower Saxony, Germany)
JKI-PB



Risk map for sulphur deficiency in German arable cropping (red: high, yellow: medium, light green - green: low or no risk for sulphur deficiency); left side: actual situation, right side: prognosis for the year 2070
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