

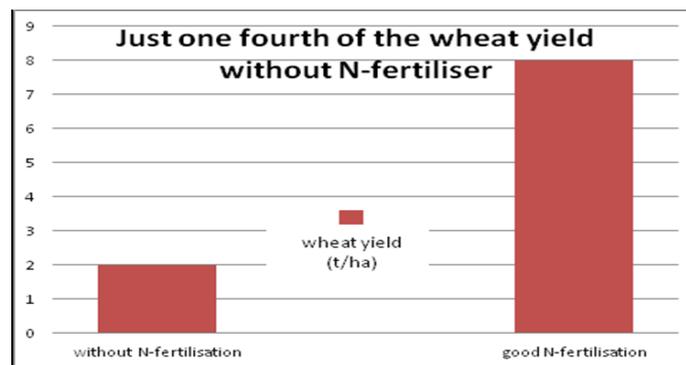
Why our breakfast toast depends on nitrogen

Nitrogen is essential for all life on earth

The body of a normal-weight adult contains almost two kilograms of nitrogen (N). Also, growth and development of plants base upon an optimum N supply. Accordingly, nitrogen has an ample relevance as plant nutrient and fertiliser.

An N-supply which is tailored to the demand of the crops is an important prerequisite for the economically viable and environmentally friendly application of fertilisers. At the same time, this allows for avoiding negative impacts on water quality in surrounding environments. However, and in spite of thorough calculations, there will always be a certain risk of oversupply or undersupply due to unforeseeable weather conditions, i.e. particularly heavy rainfall. Hence, a true “precision landing” cannot be taken for granted.

What would happen, however, if the nitrogen input were permanently reduced or if no nitrogen would be applied at all?



According to prevailing estimates, the total wheat yield in Germany will amount to approximately 23.7 mio. tonnes in 2012 ¹⁾. Without the use of nitrogen, only one fourth – about 6 mio. tonnes – could be harvested ²⁾. This equals 4.2 mio. breads for toast which could no longer be produced ³⁾. When looking at the present per-capita use of bread and bakery products, which amounts to roughly 82.5 kg per year ⁴⁾, this equals the demand of 51 mio. German citizens.

Currently, the food for about half the world’s population is produced thanks to mineral fertilisers. If the „set-screw“ nitrogen were turned carelessly, this would soon endanger the world food supply.

Therefore, politics should support measures which help farmers to further optimise the use of nitrogen. The so-called N-sensor, a modern tool to measure N in plants, is just one example for such tools. On the basis of exact measurements on the spot, this sensor allows for a reduction of nitrogen input without putting the safe supply at risk.

¹ Source: First harvest-estimate DRV for 2012, 8 March 2012.

² Source: Rothamsted Research, UK, Broadbalk long term field trial. Assumption: “Optimum” N-fertilisation equals fertilisation according to good agricultural practice.

³ Source: Own calculations, based on a flour yield of 800 grams per kg of grain and a 60 % fraction of flour in toast.

⁴ Source for the consumption of bread and bakery products: Situationsbericht DBV 2011/2012, page 21.