



Home Livestock ▾ Crops ▾ Technology ▾ Buyers' Guide ▾ Magazine ▾ Events ▾ Contact Us ▾

Over 11,000 key buyers use it as a source of reference throughout the year!

Annual Poultry BUYERS' GUIDE

Search ... SEARCH

Home • Crops • Fertilizers & Pesticides • Use of excessive nitrogen fertiliser in wheat crops linked to celiac disease

Use of excessive nitrogen fertiliser in wheat crops linked to celiac disease

Created: 08 March 2021



Data provided at the last International Conference of the Nitrogen Initiative indicates that global nitrogen fertiliser consumption increased by 33% between 2000 and 2013. (Image source: Adobe Stock)

Between the 1960s and the present day, the use of nitrogen fertiliser for growing wheat crops has increased ten times globally

Although nitrogen improves soil yields, excessive use of nitrogen in the wheat fields may directly be linked to the increasing risk of celiac disease, an autoimmune human condition.

The study **"Could Global Intensification of Nitrogen Fertilisation Increase Immunogenic Proteins and Favour the Spread of Coeliac Pathology?"** published in the journal *Foods*, concludes that wheat grown with excess nitrogen, transfers gliadin- a group of proteins involved in the formation of gluten- to the grains, and the flour, and the allergic reaction among humans to the excess gluten, causes the coeliac disease.

The study, led by Josep Peñuelas, CREAM and CSIC researcher, with the participation of Jordi Sardans, another CREAM researcher and specialists from the Czech Academy of Sciences (Czech Republic), the University of Antwerp (Belgium), the Pierre Simon Laplace Institute (France), the International Institute for Applied Systems Analysis (Austria) and the Chinese Academy of Sciences in Beijing (China) confirms that the per capita intake of wheat products has remained more or less constant over the last decades, although the concentration of gliadins in wheat has increased.

As a consequence, the average consumption of gliadins per person has increased approximately 1.5 kg more per year. Likewise, the study also confirms, that the amount of land fertilised with nitrogen, is practically the same, and what has intensified over the years, is the amount of nitrogen applied. Factors such as the new bread additives, may also cause allergies, and lead to the diagnosis of coeliac disease.

"Nitrogen fertilisation translates into a possible direct global health problem," said Josep Peñuelas, director of the research, although he insists on the need for caution, when drawing conclusions, and reminds us that there has been very few studies on the subject. "We do not carry out the medical study, but rather warn of a new consequence. The relationship we have identified does not imply the existence of a single direct cause: there may be other factors, but this one is important."

He adds, "The nitrogen fertilisation that we ecologists study has very important effects on micro-organisms and the land functioning, and we add that it also has an effect on human health."

A global health change

The impact and harms of excessive nitrogen fertilisation has been observed mainly at the environmental scale (e.g. eutrophication and acid rain), and a direct effect on human health linked to coeliac disease is also possible.

"Everything suggests that we have another risk factor caused by a world richer in nitrogen, through the increase in gliadins in wheat, an important risk factor that may explain, at least in part, the increase in the prevalence of coeliac disease," said Josep Peñuelas.

The ecologist's interest in a health issue can be better understood as a global change, that is leading us to a change in global health. "As ecologists, we are dedicated to global ecology, and we are interested in working with all organisms, not only with bacteria, plants, arthropods or birds, but also with humans," he argues.

A fertilising element and an essential grain

The demand and application of nitrogen fertilisers in crops around the world has increased substantially. Data provided at the last International Conference of the Nitrogen Initiative indicates that global nitrogen fertiliser consumption increased by 33% between 2000 and 2013. FAOSTAT data from 2014 to 2018, indicates that frequent use of this element to improve yield of the

Latest News	Most Read
Trimble and AGCO enter into JV to benefit farmers across the globe	
SolAgra partners with University of Delaware for Agrivoltaics research	
FAO hosts first-ever global conference on sustainable livestock transformation	
Nature's Miracle and PowerGrow sign MoU to boost agricultural revolution	
New study deep dives into renewable and affordable microgrid using agricultural biogas	
Experts from Lallemand present new study at Pig Research Summit 2023	
Antares: Revolutionising the future of farm management	

land is common throughout the world, but with regional differences: ranging from high to low, in East Asia, South Asia, Latin America and the Caribbean, Eastern Europe and Central Asia, Sub-Saharan Africa, North America, Asia Western, North Africa and Oceania, and decreases by 1.5% in Western Europe.

Wheat is currently the most widely planted crop and continues to be the most important food grain for humans. If on one hand, the direct consumption of foods derived from wheat has decreased in some countries (such as the US); on the other, the flour used as an additive causes a net increase in the annual per capita intake of this cereal. This means that humans have increased the net gluten consumption per person, from 4.1 kg in 1970 to 5.4 kg in 2000. The crops of this essential cereal in our diet, now occupy an area of 217 million hectares throughout the world.

Eating gluten can trigger various intolerances and allergic diseases, among which celiac disease is the most widespread among humans. Its average prevalence in the general population of Europe, and the US, is approximately 1% (in the US it went from 0.2 to 1% in just 25 years). However, there are some regional differences: the prevalence of celiac disease is between 2% to 3% in Finland and Sweden, and 0.2% in Germany.

Science is still cautious in indicating the causes, as they are largely related to the environmental components, such as the changes in the quantity and quality of ingested gluten, infant feeding patterns, spectrum of intestinal infections and colonisation by intestinal microbiota.

Share

Annual Buyers' Guide

Far Eastern Agriculture

Featured Suppliers [CLICK HERE](#)

HIGH QUALITY AGRICULTURE MACHINERY FROM FINLAND




Greenmaster
LIGHT SEED DRILL



KIVI-PEKKA
STONE PICKER

Far Eastern Agriculture

Enhancing aquafeed sustainability with insects



Crop: Aquafeed
Product: Insects
Feeds: All types of aquaculture
Landscape: Farming, aquaculture, aquaculture

Agricultural Buyer's Guide 2023

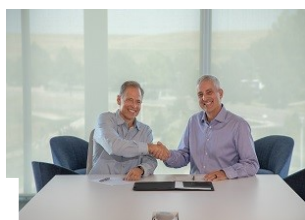
DIGITAL MAGAZINE

SUBSCRIBE

MAGAZINE ARCHIVE

CONTACT US

LATEST NEWS IN FERTILIZERS & PESTICIDES



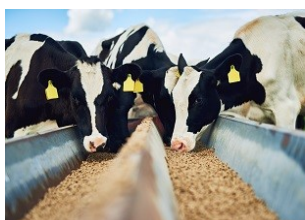
Trimble and AGCO enter into JV to benefit...

Trimble on 28 September, announced a definitive agreement to form a joint venture (JV) with AGCO to better serve farmers with factory fit and aftermarket applications in the mixed fleet...



SolAgra partners with University of Delaware...

SolAgra has recently contracted with the University of Delaware (UDel) for two agrivoltaic solar arrays that will be built at UDel's Newark and Georgetown campuses



FAO hosts first-ever global conference on Sustainable Livestock Transformation...

The first-ever Global Conference on Sustainable Livestock Transformation hosted by the FAO took place on 25 September in Rome, Italy

OTHER RELATED ARTICLES - FERTILIZERS & PESTICIDES



Collaboration takes sustainable shrimp farming...

One of the world's top five shrimp producers, Grupo Almar recently announced a joint multi-year partnership with nutrition, health, and beauty innovators, DSM-Firmenich, committing to measure and improve the company's...



Novus debuts new Scale Up programme for broilers...

Novus International on 28 August debuted a new Scale Up programme focused on improving meat production and carcass quality through sustainably driven intelligent nutrition, thereby enhancing the financial success of broiler...



Terra Drone acquires Avirtech and expands its services...

Terra Drone Corporation, a leading drone and Urban Air Mobility (UAM) technology provider, through its acquisition of Southeast Asia's leading agricultural drone spraying and mapping service startup, Avirtech, is branching...

Other Magazines

- African Farming

Site Map

- About Us

Crops

- Agriculture

Contact Us



- African Review
- Communications Africa
- Elite Living Africa
- HSS Review Middle East
- Oil Review Africa
- Oil Review Middle East
- Technical Review Middle East
- Travel Bulletin

- Advertise
- Contact Us
- Event Listings
- Latest News
- Magazine Archive
- Privacy Policy
- Subscribe
- Terms of Use

- Fertilizers & Pesticides
- Food & Commodity
- Processing & Storage

Livestock

- Cattle
- PIG
- Poultry

Alain Charles Publishing
University House,
11-13 Lower Grosvenor Place,
London, SW1W 0EX, UK
T: +44 20 7834 7676
F: +44 20 7973 0076
W: www.alaincharles.com



Copyright © 2022 Alain Charles Publishing Ltd.

