



2023年第6期总381期

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2023年2月6日

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## ➤ 政策法规

### 1 . An agricultural policy dialogue between Germany and the African Union (德国与非洲联盟的农业政策对话)

简介: Intensive cooperation is to result in an improved framework for sustainable, resilient and climate-friendly agriculture sector in the countries of Africa. On the occasion of the Global Forum for Food and Agriculture (GFFA) in Berlin/Germany in January 2023, the German Federal Minister of Food and Agriculture, Cem Özdemir, and Commissioner for Agriculture, Rural Development, Blue Economy and Sustainable Environment of the African Union (AU), Josefa Sacko, have signed a declaration of intent in order to cooperate closely on key issues of food systems transformation in future. For this purpose, the German Federal Minister of Food and Agriculture (BMEL) is initiating an “Agricultural Policy Dialogue” with the AU, the first of its kind on the African continent. The aim of this Agricultural Policy Dialogue is to make agriculture and food systems in Africa crisis-resilient and more climate-friendly. It is to contribute to supporting the political framework for a common African climate policy for the agriculture and food sector.

来源: rural 21

发布日期: 2023-01-30

全文链接:

<http://agri.ckcest.cn/file1/M00/03/4A/Csgk0YgygQ0AJ97uAAsd1-POpLg835.pdf>

## ➤ 前沿资讯

### 1 . The Rise of Virtual Farmers Markets (虚拟农贸市场的兴起)

简介: When Eat Local Sudbury Co-op closed back in 2018, Chantal Lewington and a group of fellow Ontario farmers gathered to discuss their options for getting products to the community. It was a worrying situation; the co-op was an important community outlet for their produce. Lewington owned and operated Dalew Farms with her husband Dave and their children in Lavigne, Ontario. They had already begun selling online, direct-to-consumer. “In-person sales were taking too much away from our family time, and then we just had no privacy at home,” says Lewington. The Eat Local Co-op was one of the final storefronts to which Lewington still sold, and now that would no longer be an option. The farmers weren’t sure how to move forward—until they took a look at Lewington’s website.

来源: modern farmer

发布日期: 2023-01-31

全文链接:

<http://agri.ckcest.cn/file1/M00/03/4A/Csgk0YgyfU2AAjftAKiP19NNDbU000.pdf>

## ➤ 学术文献

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## 1 . Energy and food security implications of transitioning synthetic nitrogen fertilizers to net-zero emissions (合成氮肥向净零排放过渡的能源和粮食安全影响)

简介: By synthetically producing nitrogen fertilizers from ammonia (NH<sub>3</sub>), the HaberBosch process has been feeding humanity for more than one hundred years. However, current NH<sub>3</sub> production relies on fossil fuels, and is energy and carbon intensive. This commits humanity to emissions levels not compatible with climate goals and commits agricultural production to fossil fuels dependency. Here, we quantify food and energy implications of transitioning nitrogen fertilizers to net-zero CO<sub>2</sub> emissions. We find that 1.07 billion people are fed from food produced from imported nitrogen fertilizers. An additional 710 million people are fed from imported natural gas feedstocks used for fertilizers production, meaning that 1.78 billion people per year are fed from imports of either fertilizers or natural gas. These findings highlight the reliance of global food production on trading and fossil fuels, hence its vulnerability to supply and energy shocks. However, alternative routes to achieve net-zero emissions in NH<sub>3</sub> production exist, which are based on carbon capture and storage, electrification, and biomass. These routes comply with climate targets while mitigating the risks associated with food security. Yet, they require more land, energy, and water than business-as-usual production, exacerbating land and water scarcity and the use of limited natural resources. Transitioning fertilizers to net-zero emissions can contribute to climate and food security goals, although water, land, and energy trade-offs should be considered.

来源: rural 21

发布日期:2022-12-19

全文链接:

<http://agri.ckcest.cn/file1/M00/10/1C/Csgk0GPbzqiAQ4pAABb5B8MYI3M349.pdf>

### ➤ 相关成果

## 1 . Producing fertiliser without carbon emissions (生产无碳排放的肥料)

简介: Researchers at ETH Zurich and the Carnegie Institution for Science have shown how nitrogen fertiliser could be produced more sustainably. This is necessary not only to protect the climate, but also to reduce dependence on imported natural gas and to increase food security. Intensive agriculture is possible only if the soil is fertilised with nitrogen, phosphorus and potassium. While phosphorus and potassium can be mined as salts, nitrogen fertiliser has to be obtained laboriously from nitrogen in the air and from hydrogen. And the production of hydrogen is extremely energy-intensive, currently requiring large quantities of natural gas or, as in China, coal. Paolo Gabrielli, Senior Scientist at the Laboratory of Reliability and Risk Engineering at ETH Zurich in Switzerland, has collaborated with Lorenzo Rosa, Principal Investigator at the Carnegie Institution for Science in Stanford/USA, to investigate various carbon-neutral production methods for nitrogen fertiliser. In a study published in the journal Environmental Research Letters, the two

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researchers conclude that a transition in nitrogen production is possible and that such a transition may also increase food security. However, alternative production methods have both advantages and disadvantages. The two researchers examined three alternatives:

来源: rural 21

发布日期:2023-01-27

全文链接:

<http://agri.ckcest.cn/file1/M00/03/4A/Csgk0Ygyg6yATxtgAA20b2GD5xs151.pdf>

## ► 科研项目

### 1 . How Solar-Powered Refrigerators Could Cool Down Climate Change (太阳能冰箱如何为气候变化降温)

简介: Investing in efficient, climate-friendly cold chain systems can simultaneously reduce food loss and climate change. Food loss and waste are major problems around the world. When food is tossed aside or allowed to spoil, it makes economies less productive and leaves people hungry. It also harms Earth's climate by generating methane, a potent greenhouse gas. Food loss and waste accounts for 4% of global greenhouse gas emissions. If food waste were a country, it would be the third-largest emitter in the world, ahead of India and behind only China and the U.S.

来源: modern farmer

发布日期:2023-01-21

全文链接:

[http://agri.ckcest.cn/file1/M00/10/1C/Csgk0GPbyzuAG\\_zjAIGs8IDx5SI070.pdf](http://agri.ckcest.cn/file1/M00/10/1C/Csgk0GPbyzuAG_zjAIGs8IDx5SI070.pdf)