



2022年第35期总356期

农业与资源环境信息工程专题

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▶ 前沿资讯

1 . Probing sustainable agromet services and outcomes on agriculture in Laos (探索老挝可持续农业服务和农业成果)

简介: Climate change is here to stay, and so is its impact on the agricultural sector. Studies show that consequences of 1 degree C rise in the global temperatures can affect the crop yield in some countries. Crop revenue can drop as much as 90% in 2100, which will drastically affect small-scale farmers in the near future. Moreover, climate change will weaken farm production in developing countries and regions. To adapt to these changes, localized climate services for agriculture are paving the way to help farmers access the information and tools they need for better agricultural production. A new case study explores how these climate services have been applied to agriculture in Laos. As part of the DeRISK Southeast Asia project, Alliance of Bioversity and CIAT researchers examined the use of a top-down, multidisciplinary platform based on information and communication technology (ICT) for agrometeorological (agromet) services to facilitate institutional coordination and make sure the project is sustainable. DeRISK linked up with the Strengthening Agro-climatic Monitoring and Information Systems, or SAMIS, project of the Food and Agriculture Organization (FAO), that focuses on building the adaptive capacity of Laos by 'combining the agricultural and meteorological sectors for the development of critical agrometeorological services,' to scale this project out to stakeholders. The Laos Climate Services for Agriculture (LaCSA) operates under DeRISK and SAMIS and is used to systematically engage the relevant institutional partners in the co-creation of agromet services. It also demonstrates how ICT can play a critical role in creating the essential two-way connection between the meteorological and agricultural sectors, where local government officials and farmers can benefit.

来源: EurekAlert

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全文链接: <http://agri.ckcest.cn/file1/M00/10/OE/Csgk0GMQbwSAS1QFAALzvz0Gsn0437.pdf>

2 . Specialty and standard coffee beans can be sorted using multispectral imaging and artificial intelligence (可以使用多光谱成像和人工智能对特色和标准咖啡豆进行分类)

简介: The process of selecting specialty coffee beans entails three kinds of inspection. Two are physical and involve samples of raw and roast coffee. The third is sensory and involves tasting the drink. Certification is provided by the Specialty Coffee Association of America (SCAA). In accordance with SCAA guidelines, coffee quality is measured on a decimal scale from zero to 100. A specialty coffee must score 80 or more. The grower sends a sample of raw beans to three cuppers (tasters), who roast and make coffee from each batch, again in compliance with SCAA standards, before issuing a report. However, Brazilian scientists at the University of São Paulo's Center for Nuclear Energy in Agriculture (CENA-USP), collaborating with colleagues at Luiz de Queiroz College of Agriculture (ESALQ-USP) and the Computer Center at the Federal University of Pernambuco (UFPE), have developed a coffee bean selection method based on multispectral imaging and machine learning. The method does not require roasting and can be performed in real time during

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the production process. It avoids possible human error, although it relies on expensive equipment. An article about the new method has recently been published in Computers and Electronics in Agriculture.

来源: EurekAlert

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全文链接: <http://agri.ckcest.cn/file1/M00/03/3C/Csgk0YdnHraAaJeLAAIErR8Y0YU902.pdf>

科技报告

1 . 2022 Global report on food crises: Joint analysis for better decisions (2022 年全球粮食危机报告: 联合分析以做出更好的决策)

简介: Founded by the European Union, FAO and WFP at the 2016 World Humanitarian Summit, the Global Network Against Food Crises is an alliance of humanitarian and development actors working together to prevent, prepare for, and respond to food crises and support the Sustainable Development Goal to End Hunger (SDG 2). It seeks to reduce vulnerabilities associated with acute hunger; achieve food security and improved nutrition; and promote sustainable agriculture and food systems, using a '3x3 approach.' This involves working at the global, regional and national levels to support partnerships within existing structures and to improve advocacy, decision-making, policy and programming along the following three dimensions:

- Dimension 1 | Understanding food crisesThe work within this dimension aims to build greater consensus and promote evidence-based food security and nutrition analyses and reporting in order to strengthen the collection, quality and coverage of the food security and nutrition data and analysis, and inform decision-making and action. This will be achieved through the contribution to the Global Report on Food Crises, a unique 'global public good' under the coordination and leadership of the Food Security Information Network (FSIN), as well as the coordination, synthesis, and publication of technical analyses, including forward-looking analyses of food crises.
- Dimension 2 | Leveraging strategic investments in food security, nutrition and agricultureThe work within this dimension aims to advocate for 'fit for purpose' financing that draws on the full range of resource flows (public and private, international and domestic) to better prepare for, prevent and respond to food crises. It seeks to improve coherence between humanitarian, development and peace actions (the HDP 'nexus') to build resilience to shocks and promote longer-term self-reliance. Activities include a strong focus on supporting capacity strengthening of country-level actors and institutions, as well as strengthening coordination at the regional level to ensure that investments are focused on the right place, at the right time.
- Dimension 3 | Going beyond foodThe work within this dimension aims to foster political uptake and coordination across clusters/sectors to address the underlying multi-dimensional drivers of food crises including environmental, political, economic, societal and security risk factors. It seeks to improve understanding and promote linkages between the different dimensions of fragility through knowledge sharing, advocacy and integrated policy responses.

来源: IFPRI

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2 . Report on monitoring schemes and data collection on biodiversity for food and agriculture in Eastern Europe and Central Asia (关于东欧和中亚粮食和农业生物多样性监测计划和数据收集的报告)

简介: Biodiversity protection encompasses key aspects directly related to the sustainability of our food systems: BFA provides a diverse and heterogenous biological basis for diverse and resilient production systems, for the pollination of cultures, for increased diversity of food, and is strongly linked to local and indigenous knowledge on local crops and breeds acknowledged as cultural heritage.

This study examines the existence of data collection, monitoring systems, and conservation initiatives as well as legislation and policies related to biodiversity for food and agriculture in the three following regions: (1) Central Asia, (2) the South Caucasus countries, Turkey, Belarus and Ukraine and (3) the Western Balkan countries and the Republic of Moldova.

From this study, it appears that none of the three studied regions currently have any solid monitoring schemes for agricultural biodiversity, nor do they have a strong legal framework for protecting farmers' rights to seeds that would allow them, amongst other things, to maintain biodiversity. Conservation actions, policies, and legislation generally concern wild biodiversity conservation (through habitat protection) and crop genetic resources conservation but rarely address biodiversity for food and agriculture or wild biodiversity loss caused by food systems.

The three regional reports conducted in the framework of this study reported a general lack of capacities and a particularly low level of involvement of farmers and other food producers in monitoring, data collection, and conservation activities. The combination of these two major observations leads us to the conclusion that the governance of BFA should be transformed to put food producers at the centre of biodiversity monitoring and conservation, in dialogue with scientists and institutional actors. Their specific expertise must be acknowledged and valued in the efforts of preserving the biodiversity that they cultivate and sustain.

Beyond this needed shift in the governance of monitoring activities, we highlight the necessity of a regional articulation of monitoring efforts and a specific focus on local threatened varieties and breeds (beyond habitat conservation), while very comprehensively considering BFA and wild biodiversity impacted by food systems.

Regarding biodiversity protection, we recommend in addition to farmer-centered data collection and monitoring system implementation addressing the root causes of biodiversity loss, adopting a systematic approach in legislations, policies, and actions while supporting agroecology, and fulfilling international instruments that guarantee the rights of producers to grow and raise local varieties and breeds.

While drivers of biodiversity loss are well known, the legislative framework and subsequent policies are still not adequately addressing these issues.

The report on monitoring schemes and data collection on biodiversity for food and agriculture in Eastern Europe and Central Asia examines the existence of data collection, monitoring systems, and conservation initiatives as well as legislation and policies related to BFA in the following three regions: Central Asia; the South Caucasus countries, Turkey, Belarus and Ukraine; and the Western

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Balkan countries and the Republic of Moldova.

The report brings light to the strong need to improve conservation and use of BFA in the region, including the establishment of solid monitoring schemes and a strong legal framework for its protection. Effective BFA conservation is directly linked to SDGs achievement and can play an important role in promoting zero hunger (SDG 2), life below water (SDG 14), and life on land (SDG 15).

来源: FAO

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科技图书

1 . Remote sensing and machine learning for food crop production data in Africa post-COVID-19 (非洲后疫情时代粮食作物生产数据的遥感与机器学习)

简介: 在新冠肺炎 (SARS-CoV-2, 或严重急性呼吸综合征冠状病毒2) 疫情传播期间, 世界正在经历前所未有的健康危机。虽然该流行病在非洲大陆的严重程度似乎低于其他地理区域 (2021全球变化数据实验室报道), 但其经济影响明显更为显著。新冠肺炎正在颠覆生计, 破坏商业和政府资产负债表, 并有可能逆转撒哈拉以南非洲未来几年的发展成果和增长前景 (IFC 2020)。世界银行预测, 撒哈拉以南的非洲将在2020年陷入衰退, 仅在2020年, 新冠肺炎就将使该地区的产出损失370亿至790亿美元。作为收入和就业的重要来源的非正规部门将受到最严重的打击。

来源: IFPRI

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