中国工程科技知识中心
China Knowledge Centre for Engineering Sciences and Technology

# 《农业水土资源监控研究》专题快报

2020年第12期（总第25期）

中国工程科技知识中心农业分中心

中国农业科学院农业信息研究所　　2020年6月20日

## 【动态资讯】

**1．唤醒沉睡的土地 四川省广元市利州区复耕撂荒土地助力脱贫攻坚**

**【中国县域经济报】**“农户委托代耕代种代收”、“业主代耕代种代收”、“ 新型经营主体代耕代种代收”，让偏远掉零高山区撂荒土地再次迸发出勃勃生机；“集体经济组织（股份经济合作联合社）+特色产业+农户”，让城郊河谷走廊地带绿满粮田、果蔬飘香……连日来，四川省广元市利州区瞄准农村土地撂荒突出问题，制定行之有效的措施，将撂荒土地复耕作为决战脱贫攻坚“三大行动”之一来抓，切实提高土地利用效率，向荒地要效益，不断增加群众收入，助力脱贫攻坚。

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uHoOAVnv3AApOHPyj52w085.pdf

**2．生态环境部发布生态环境监测规划纲要（2020-2035年）**

**【全国能源信息平台】**生态环境监测是生态环境保护的基础，是生态文明建设的重要支撑。党的十八大以来，党中央、国务院高度重视生态环境监测工作，将生态环境监测纳入生态文明改革大局统筹推进，取得了前所未有的显著成效。为深入贯彻落实习近平生态文明思想，科学谋划生态环境监测事业发展，切实提高生态环境监测现代化能力水平，有力支撑生态文明和美丽中国建设，按照立足“十四五”、面向2035年的总体考虑，制定本纲要。

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uHfuACfAmABkX9VO_gDA758.pdf

**3．全球粮农治理框架下的中国粮食安全**

**【学习时报】**一个国家的粮食安全问题，既受其经济社会发展环境的影响，也受其资源

禀赋的约束。40多年的改革开放，我国社会主义现代化建设取得了举世瞩目的成就，社会主要矛盾由“人民日益增长的物质文化需要同落后的社会生产之间的矛盾”转变为“人民日益增长的美好生活需要和不平衡不充分的发展之间的矛盾”。随着人们对美好生活需要的不断增长，迫切需要统筹利用国内国际两个市场、两种资源，以有效调剂和补充国内粮食供给，缓解国内农业资源环境压力。因此，在保证国家粮食安全前提下，积极参与全球粮农治理，这是我国现阶段面临复杂国际环境所应坚持的农业发展方向

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uHY2AP-H2AA0w7atzzeA565.pdf

**4．纳米膜智能堆肥促粪污还田利用**

**【中国农网】**畜禽养殖污染是当前社会关注的焦点问题。国家鼓励根据不同区域的资源和环境特点，选择经济适用的处理模式。对于不同养殖品种、不同养殖规模的养殖场，如何选择适用于自身的畜禽粪污处理模式仍是很多养殖场面临的难题。针对这一问题，记者专访了中国农业大学微生物学博士、高级农艺师，中国农业科学院农业环境与可持续发展研究所博士后、中农创达（北京）环保科技有限公司总经理马瑞强，为我们分析各种畜禽粪污处理模式的优劣，并着重介绍纳米膜智能堆肥技术是如何运行的。

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uIWOAdT-wABECI4BYXfU885.pdf

**5．为全球生态治理贡献“中国智慧”**

**【中国经济网】**6月17日，第25个世界防治荒漠化与干旱日纪念大会暨荒漠化防治国际研讨会在内蒙古呼和浩特市举行。联合国防治荒漠化公约组织选择在此召开会议，别有深意。25年来，国际社会在公约框架下为解决荒漠化问题进行了不懈努力，取得了重要进展。在此基础上，《联合国2030年可持续发展议程》确定了到2030年实现全球土地退化零增长的目标。然而，全球荒漠化仍以每年7万平方公里的增幅扩张，全球超过25%的土地出现荒漠化与退化，有100多个国家和地区、15亿人口长年饱受沙害之苦。土地荒漠化直接危及全球粮食安全和生态安全，加剧饥饿与贫困，对地区及世界和平与稳定构成严重威胁。

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uIQWAGi97ABOgNck-ca8708.pdf

**6．我国荒漠化和沙化土地面积连续三个监测期保持“双减少”**

**【人民日报】**6月17日是第二十六个世界防治荒漠化和干旱日。“十三五”以来，我国荒

漠化防治成效显著，全国累计完成防沙治沙任务880万公顷，占“十三五”规划治理任务的88%。党的十八大以来，党中央高度重视荒漠化防治，采取一系列行之有效的举措，荒漠化扩展趋势得到初步遏制。毛乌素沙地南缘。陕西榆林市定边县城东北30多公里处的狼窝沙，成片的樟子松已吐出新芽，与30多年来栽下的杨树、沙柳等乔灌木一起，铺满了一道道沙梁。很难想象，这里曾是一片不毛之地。毛乌素沙地一半分布在榆林境内，经过一代代治沙人的努力，榆林让860万亩流沙披上绿装，狼窝沙也发生了巨大变化。截至目前，榆林沙化土地治理率已达93.2%。荒漠生态稳定向好，“沙上屋顶”“沙埋农田”的现象基本消失。“精准治沙，关键是要量水而行、以水定绿、林水平衡”。防沙治沙进入“啃硬骨头”阶段，“十四五”期间计划治理850万公顷

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uII-AfC7xABAuk2xO3P4945.pdf

**7．农业农村部、生态环境部联合印发通知 深入推进畜禽粪污还田利用和养殖污染监管**

**【农业农村部新闻办公室】**近日，农业农村部办公厅、生态环境部办公厅联合印发《关于进一步明确畜禽粪污还田利用要求强化养殖污染监管的通知》，明确畜禽粪污还田利用标准，要求加强事中事后监管，完善粪肥管理制度，加快构建种养结合、农牧循环的可持续发展新格局。

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uHTeAQMExAAYqQ3fPZMQ745.pdf

**8．FAO Director-General calls for new approach to stop soil loss on World Day to Combat Desertification and Drought 2020**

**【FOOD and Agriculture Organization of the United Nations】**17 June 2020, Rome - A new approach is needed to combat soil degradation, desertification and drought if we are to meet the growing demand for food to feed the world's population, the Director-General of the Food and Agriculture Organization of the United Nations, QU Dongyu, said today.The Director-General was speaking at RECSOIL: Recarbonization of global soils , a virtual event convened by FAO on the World Day to Combat Desertification and Drought. The theme of this year's international day is "Food.Feed.Fibre. Sustainable consumption and production".

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uGyOAbttcAALcjI2Y9Uw006.pdf

**9．夏粮丰收已成定局 预计小麦亩产平均提高4公斤**

**【农业农村部新闻办公室】**截至6月15日，全国夏粮收获已到九成。据农业农村部农情调度和专家实地调查分析，今年夏粮面积稳定、单产提高，丰收已成定局。 据统计，今年夏粮面积4亿亩，基本保持稳定。夏粮的主体是小麦。据专家田间调查，小麦产量构成“三因素”中，亩穗数增加较多，穗粒数基本持平，千粒重接近去年最好水平，丰收有了好基础。 农业农村部部长韩长赋表示，今年小麦收成好，有三个提高：一是单产提高，预计亩产平均可以提高4公斤。二是品质提高，籽粒饱满，一二等麦明显增多。三是专用麦比例提高，强筋弱筋小麦占比比上年提高了2.8个百分点。

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uHNeAdcepAAYqSoOm60A680.pdf

**10．农机田间秀绝技 未来农业尽可期 2020年智能农机装备田间日活动顺利举办**

**【中国农网】**2020年智能农机装备田间日的活动由农业农村部农机试验鉴定总站、农机推广总站6月11日在河北赵县举办。汇集了国内农机化前沿科研推广成果，共有13个集成模式、23家农机企业、70多台套机具和众多智能装备进行了现场作业演示。近年来，随着富民产业的发展，蔬菜、薯类等经济作物的生产机械化技术与装备研发推广力度不断加大。此次田间日活动就现场演示了经作机械化耕整地、叶菜类蔬菜种植、大蒜播种和收获等新型智能农机具。

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uIeyAIKWoABVM20Y5tTo974.pdf

**11．Global food markets still brace for uncertainty in 2020/21 because of COVID-19 says FAO**

**【FOOD and Agriculture Organization of the United Nations】**11 June 2020, Rome - Food markets will face many more months of uncertainty due to COVID-19, but the agri-food sector is likely to show more resilience to the pandemic crisis than other sectors, according to a new report released today by the Food and Agriculture Organization of the United Nations (FAO).The Food Outlook report provides the first forecasts for production and market trends in 2020-2021 for the world's most traded food commodities - cereals, oilcrops, meat, dairy, fish and sugar

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uG8OAHi4sAANiTUwrz78989.pdf

**12．FAO Cereal Supply and Demand Brief**

【**FOOD and Agriculture Organization of the United Nations**】Global cereal production, utilization, stocks and trade all set to rise to new records in 2020/21.In spite of uncertainties posed by the pandemic, FAO's first forecasts for the 2020/21 season point to a comfortable cereal supply and demand situation. Early prospects point to global cereal production in 2020 surpassing the previous year's record by 2.6 percent. Based on conditions of crops already in the ground, planting expectations for those still to be sown, and assuming normal weather for the remainder of the season, world cereal output is forecast at 2 780 million tonnes (including rice in milled equivalent), nearly 70 million tonnes higher than in 2019, setting a new record high. Maize would account for the bulk of the predicted increase, with an expected expansion of 64.5 million tonnes to a record level of 1 207 million tonnes, boosted by record harvests in the United States of America (USA), Canada and Ukraine, and near-record harvests in Brazil and Argentina. Similarly, rice production is seen reaching an all-time high of 508.7 million tonnes in 2020, exceeding the 2019 reduced level by 1.6 percent. More normal weather and attractive prices are anticipated to underpin rice output recoveries primarily in China, the Lao People's Democratic Republic, Pakistan, Thailand and the USA, as well as continued production growth in India. By contrast, global production of wheat in 2020 is forecast to decline from the previous year's good level, largely on likely downturns in the European Union (EU), Ukraine and the USA more than offsetting expected production increases in the Russian Federation and Australia.

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uHG-AZmVsAASYhKs2LKE777.pdf

## 【文献速递】

**1 .Sustainable food system policies need to address environmental pressures and impacts: The example of water use and water stress**

文献源：Science of The Total Environment,2020-08-15

摘要：Sustainable food systems are high on the political and research agendas. One of the three pillars of sustainability is environmental sustainability. We argue that, when defining related policies, such as policies under the European Green Deal, both environmental pressures and impacts carry important and complementary information and should be used in combination. Although the environmental focus of a sustainable food system is to have a positive or neutral impact on the natural environment, addressing pressures is necessary to achieve this goal. We show this by means of the pressure water use (or water footprint) and its related impact water stress, by means of different arguments: 1) Water use and water

stress are only weakly correlated; 2) water use can be evaluated towards a benchmark, addressing resource efficiency; 3) water use is used for resource allocation assessments within or between economic sectors; 4) water amounts are needed to set fair share amounts for citizens, regions, countries or on a global level 5) the pressure water use requires less data, whereas water stress assessments have more uncertainty and 6) both provide strong communication tools to citizens, including for food packaging labelling. As a result, we present a water quantity sustainability scheme, that addresses both water use and water stress, and can be used in support of food system policies, including food package labelling.

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uKCSANzhgABtMDDZEvBU022.pdf

**2．Does environmental data increase the accuracy of land use and land cover classification?**

文献源：International Journal of Applied Earth Observation and Geoinformation,2020-06-20

摘要：Optical image classification converts spectral data into thematic information from the spectral signature of each object in the image. However, spectral separability is influenced by intrinsic characteristics of the targets, as well as the characteristics of the images used. The classification process will present more reliable results when aspects associated with natural environments (climate, soil, relief, water, etc.) and anthropic environments (roads, constructions, urban area) begin to be considered, as they determine and guide land use and land cover (LULC). The objectives of this study are to evaluate the integration of environmental variables with spectral variables and the performance of the Random Forest algorithm in the classification of Landsat-8 OLI images, of a watershed in the Eastern Amazon, Brazil. The classification process used 96 predictive variables, involving spectral, geological, pedological, climatic and topographic data and Euclidean distances. The selection of variables to construct the predictive models was divided into two approaches: (i) data set containing only spectral variables, and (ii) set of environmental variables added to the spectral data. The variables were selected through nonlinear correlation analysis, with the Randomized Dependence Coefficient and the Recursive Feature Elimination (RFE) method, using the Random Forest classifier algorithm. The spectral variables NDVI, bands 2, 4, 5, 6 and 7 of the dry season and band 4 of the rainy season were selected in both approaches (i and ii). The Euclidean distance from the urban area, Arenosol soil class, annual

precipitation, precipitation in February and precipitation of the wettest quarter were the variables selected from the auxiliary data set. This study showed that the addition of environmental data to the spectral data reduces the limitation of the latter, regarding the discrimination of the different classes of LULC, in addition to improving the accuracy of the classification. The addition of soil classes to spectral variables provided a reduction in errors for vegetation classification (Evergreen Forest and Cerrado Sensu Stricto), as it was able to inform about nutrient availability and water storage capacity. The study demonstrates that the addition of environmental variables to the spectral variables can be an alternative to improve monitoring in areas of ecotone in Neotropical regions.

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uKM2AAFZ3ACOXXxcjNoc123.pdf

**3．The hidden land use cost of upscaling cover crops**

文献源：Communications Biology,2020-06-20

摘要：Cover cropping is considered a cornerstone practice in sustainable agriculture; however, little attention has been paid to the cover crop production supply chain. In this Perspective, we estimate land use requirements to supply the United States maize production area with cover crop seed, finding that across 18 cover crops, on average 3.8% (median 2.0%) of current production area would be required, with the popular cover crops rye and hairy vetch requiring as much as 4.5% and 11.9%, respectively. The latter land requirement is comparable to the annual amount of maize grain lost to disease in the U.S. We highlight avenues for reducing these high land use costs.

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uJwmAHvcOAAy-vAF-9ow363.pdf

**4．积极应对疫情影响 扛稳国家粮食安全重任**

文献源：求是,2020-06-16

摘要：“越是面对风险挑战，越要稳住农业，越要确保粮食和重要副食品安全。”习近平总书记针对疫情影响多次强调粮食安全的极端重要性，深刻指出：“这次新冠肺炎疫情如此严重，但我国社会始终保持稳定，粮食和重要农副产品稳定供给功不可没。”4月17日召开的中共中央政治局会议，提出了包括“保粮食能源安全”在内的“六保”要求，作为确保完成决战决胜脱贫攻坚目标任务、全面建成小康社会的重要举措。5月23日，习近平总书记在看望参加政协会议的经济界委员时特别强调，“手中有粮、心中不慌在任何

时候都是真理”，并对强化“米袋子”省长负责制考核，加强粮食市场价格监测和监管等提出明确要求。这些重要指示和部署，统揽粮食安全保障各环节，具有很强的针对性和指导性，为做好当前及今后的粮食安全保障工作提供了根本遵循。

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uJciAYno8AAWVHWiaNnQ479.pdf

**5．乡村振兴视域下农村土地利用利益相关者分析**

文献源：自然资源学报,2020-05-20

摘要: 乡村振兴的实施使得农村土地利用与管理面临更多的挑战。应用利益相关者分析、博弈均衡分析和实证案例分析,探讨乡村振兴视域下土地利用各利益相关者的关系演变。研究结果显示：（1）1949年至今,农村地区土地利用利益相关者主体数量增加,博弈关系呈现复杂化、多样化和多向化;（2）乡村振兴时期主要有六种博弈关系,并探讨了案例村实施下山脱贫、发展乡村旅游、新型经营主体进驻、城市居民促进农村发展四种博弈决策过程;（3）乡村振兴视域下,农村地区发展应关注基础设施配套、土地利用效率与生态环境协调、农户生计可持续性等问题。乡村振兴中应注重实现土地利用各利益相关者的最优均衡,降低各方风险,保护生态环境并寻求多方利益平衡。

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uw8yAHAB6ADw3WKWE6BI182.pdf

## 【研究报告】

**1．New series of Policy and Field Guides to improve water productivity and water use efficiency in small-scale agriculture**

发布源：FOOD and Agriculture Organization of the United Nations

发布时间：2020-06-01

摘要：Enhancing the productivity and efficiency of agricultural water is key to increase food production and respond to the growing food demand, while at the same time preserving healthy and sustainable ecosystems. Even more so in drought- and desertification-prone areas, whereby agricultural production is negatively affected by climate change, erratic rainfall patterns and increasing water scarcity.The improvement of agricultural water management, however, can only be achieved through synergetic plans of action and effective choices by all stakeholders. National policy strategies and improved farming practices are both essential to overcome challenges posed by drought and desertification and to change public attitudes in order to “produce more with less”.

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uItKABmCIAAIpiIMqPwM094.pdf

## 【行业报告】

**1．2019中国农业经济发展报告及展望**

发布源：经济日报

发布时间：2020-06-19

摘要：2019年，党中央、国务院坚持农业农村优先发展总方针，各地各部门以实施乡村振兴战略为总抓手，对标全面建成小康社会的目标扎实推进“三农”工作。这一年，我国农业总体增长态势良好，农民生活水平持续改善，内外部市场运行环境总体平稳，农业现代化向纵深发展。

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uJLOARtznABCILDWohmI865.pdf

**2．中国农科院发布《中国农业绿色发展报告2019》**

发布源：中国农业科学院

发布时间：2020-06-06

摘要：报告以客观、权威的数据为支撑，系统反映了2018-2019年我国农业绿色发展的总体水平、重大行动和重要进展。基于农业绿色发展的核心要义和现有数据基础，首次构建了农业绿色发展指标体系及绿色发展指数模型，并对全国及第一批国家农业绿色发展先行区进行了试评价，定量明晰了农业绿色发展的现状水平与短板制约。

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uI8eAJbXaAA_f1-159uU352.pdf

**3．中国农科院发布《中国农业产业发展报告2020》**

发布源：中国农业科学院

发布时间：2020-06-03

摘要：6月3日，中国农业科学院和国际食物政策研究所（IFPRI）在京联合举办2020中国和全球农业政策论坛暨《中国农业产业发展报告》和《全球粮食政策报告》发布会。梅旭荣发布了《中国农业产业发展报告2020》。该报告在2019年的基础上，剖析了国内外宏观经济与农业产业形势，从全要素生产率、国际贸易、生产成本等3个视角评估了中国农业产业竞争力，并直击热点主题，全面分析了新冠肺炎疫情对中国农业和农民收入的影响。中国农业大学讲席教授、国际食物政策研究所原所长樊胜根发布了《2020全球

粮食政策报告》。报告呼吁全球建立更有抗逆能力、更适应气候变化、更健康的、具有包容性的食物系统。

**链接:**

http://agri.ckcest.cn/file1/M00/00/FC/Csgk0V7uJESAbYd6AAw0QchfZ3c318.pdf

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