

《中国农业发展战略研究》专题快报

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【动态资讯】

1. Soil's history: A solution to soluble phosphorus?

【EurekaAlert!】 The Food and Agriculture Organization of the United Nations estimates that around 45 million tons of phosphorus fertilizers will be used around the world in 2018. Much will be applied to soils that also received phosphorus fertilizers in past years. According to a new study, much of that could be unnecessary. "Previous application of phosphorus fertilizers increases the effectiveness of subsequent applications," says Jim Barrow, lead author of the study. Barrow is a scientist at the University of Western Australia. He says better understanding soil phosphorus dynamics can have many benefits. It could lead to more judicious use of phosphorus fertilizers. "At a world level, phosphorus is a limited resource. We need to use it wisely." At a local level, excessive use of phosphorus fertilizers can pollute water. And at the farm level, purchasing phosphorus fertilizers is a major expense for farmers. "If farmers use only as much as is required, it will help the environment," Barrow states. "It will also save them money."

链接:

https://www.eurekaalert.org/pub_releases/2018-11/aso-a-sha111318.php

2. RUDN scientist: Tibetan soil enrichment with nitrogen and phosphorus leads to carbon loss

【EurekaAlert!】 A RUDN soil scientist studied the soils of the Qinghai-Tibet Plateau and found out that a simultaneous increase of nitrogen and phosphorus levels reduces the volume of organic carbon in the soil. The work will help reconsider the use of fertilizers in agriculture. The article was published in the Science of the Total Environment journal.

Organic carbon moves in an endless natural cycle: it is stored in the bodies of plants and animals, returns to the soil after their death in the form of different organic compounds. Then microorganisms decompose them to CO₂ which reaches the atmosphere and then becomes a part of living organisms again. If the level of carbon in the soil drops down, it leads to the accumulation of CO₂ in the atmosphere resulting in a greenhouse effect and a number of negative consequences for plants, animals, and peoples. Therefore, it is important to monitor carbon levels in agricultural soils.

链接:

https://www.eurekaalert.org/pub_releases/2018-11/ru-rst111918.php

3. A Review of Vietnam's Recent Agricultural Policies

【AgroNews】 Appropriate and motivational policies have activated potential advantages of Vietnamese agriculture. This significantly contributes to the development of the national economy since Doi Moi, particularly to the agricultural and rural sector. Vietnam's agricultural growth has been relatively high and stable since Doi Moi (with an average growth rate of approximately 3.3% per annum). This growth not only meets the demand for food supply and raw materials in the domestic industry and service development but also contributes to the export market (about 50% of agricultural-forestry-aquatic products were produced for export in recent 5 years). Agriculture is the only sector that experiences trade surplus, which reached over US\$ 8 billion in 2017. With abundant supply and extensive international integration, Vietnam's agriculture has been closely linked to changes in the world market.

链接: <http://news.agropages.com/News/NewsDetail---28250.htm>

4. Heavy metal contamination in China's cropland called increasingly serious

【AgroNews】 Recently, a report from an inspection team of the Standing Committee of the National People's Congress of China reveals 2.6% medium and serious contaminated soil, 11% slight contaminated soil, 2.9% medium and serious contaminated cultivated land, with contamination still spreading in some regions. The baseline, distribution and area of contaminated cultivated land are not known, which has resulted in difficulties in safe use, management and remediation of contaminated cultivated land. Further, the report says that half of the industrial parks in China rely on municipal waste water for treatment of industrial waste water, and polluting production has existed in no small number of industrial

parks. This is having a serious impact on nearby farm lands. The agricultural nonpoint pollution and soil contamination in waste water irrigation areas has become very serious, as well. A latest study shows that heavy metal contamination in China's major food grain production regions has been on the rise over the last 20 years, as the contamination rate increased from 7.16% to 21.49%, which is a 14% increase. The contaminants mainly include Cd, Ni, Cu, Zn and Hg, the heavy metal contamination in southern major food grain production regions remains more serious than in northern China.

链接:

<http://news.agropages.com/News/NewsDetail---28241.htm>

5. Brazil exported 57 times more soybeans to China than U.S. in Sept.

【AgroNews】 The trade dispute between the United States and China is having a dramatic impact on where China sources its imported soybeans. During the month of September, China imported 28% more soybeans from Brazil compared to September of 2017. In September, China imported 7.59 million tons of soybeans from Brazil compared to 5.49 million tons in September of 2017. During the month, 95% of China's soybean imports came from Brazil compared to 73% last year. In contrast, China greatly reduced their soybean imports from the United States during September. China only imported 132,248 tons of soybeans from the United States during September compared to last September when they imported 937,000 tons. Sometimes these numbers are hard to put into proportion, so here is a different way to look at these September numbers. During September, China imported 57 times more soybeans from Brazil compared to the United States. If we would assume that an average vessel holds 60,000 tons of soybeans, during the month of September, China imported 126 vessels of soybeans from Brazil compared to 2 vessels from the United States. Generally, China imports the majority of its soybeans from the U.S. during the fourth quarter, but that is not likely to happen this year.

链接:

<http://news.agropages.com/News/NewsDetail---28305.htm>

6. 吉林梨树：秸秆变“棉被”黑土获重生

【中国农业信息网】对于吉林产粮大县梨树县的农民来说，玉米秸秆曾经让他们很头疼。烧掉，污染环境；不烧，堆在地里影响来年种地。2007年，梨树县从中国科学院沈阳应用生态研究所引进并试验示范玉米秸秆全覆盖免耕栽培技术。逐步完善并推广以来，这

项技术不仅帮农民解决了秸秆处理难题，也让一度越来越薄的黑土层重获新生。从2013年起，卢伟在梨树县农业技术推广总站的帮助下，开始尝试使用玉米秸秆全覆盖免耕栽培技术。收割机在收获玉米的同时，把秸秆进行半粉碎并留在原地，“棉被”便做好了。之后，再由秸秆集行机清理出第二年要播种的条带，为“棉被”画上条状花纹。等到第二年夏天，随着玉米成长成熟，这层“棉被”逐渐腐烂变成了有机质，融入土地。有了这层“棉被”的保护，土壤中的水分得以保持，效果相当于每年增加一场50毫米降雨。今年春天，当地遭遇了严重春旱，但在这层“棉被”的保护下，冬季积累的水分不易蒸发，出苗并没受到影响，肥料在秸秆覆盖之下也不易流失。这几年，尽管天气情况不稳定，但玉米产量一直稳中有升。不仅保水、保肥、改善土质，秸秆全覆盖免耕栽培技术也让梨树的黑土地摆脱了越来越薄的命运。采用新技术耕种后，土壤里的有机质以每年0.1%的速度递增。用这种技术，化肥用量减少20%左右，再加上省去了整理土地、清理秸秆等费用，一公顷的成本至少比以前降低1500元左右。吉林省为采用秸秆全覆盖免耕栽培技术的农民提供了每公顷375元的专项资金补贴，明年补贴标准还会提高。从2007年开始试验示范，到如今推广面积超过200万亩，秸秆全覆盖免耕栽培技术的“根系”越来越发达。

链接:

http://www.farmer.com.cn/jjpd/nz/nzdt/201811/t20181109_1415820.htm

7. 林果残枝变废为宝多途径利用

【中华人民共和国农业农村部】记者从市农机试验鉴定推广站获悉，该站通过整合技术资源，实现了林果残枝有机肥加工、栽培基质加工、景观覆盖物加工等多途径利用，并探索建立了市场化运行模式，为北京乃至全国林果残枝综合利用，提供了可借鉴的典型模板。据统计，去年北京市林果种植面积为123.1万亩，其中标准化果园面积约5万亩。因自然脱落、人工修剪等原因，常规果园每年产生的残枝废弃物约0.2吨/亩，标准化果园约0.1吨/亩，全市每年可产生的林果残枝总量约为24万多吨。同时，随着新一轮平原造林工作的开展，残枝总量势必不断增加。为此，结合本市林果生产实际情况，市农机试验鉴定推广站近年来以机械化为手段，陆续引进应用可移动式树枝粉碎机、树枝快速粉碎发酵一体机、树枝粉碎染色一体机、专用抓取设备等一系列先进设备，实现了林果残枝收集拉运和处理加工全程机械化，极大地提高了残枝综合利用机械化水平。同时，以“机器换人”的方式提高了效率、降低了成本，推动了全市林果残枝综合利用的产业化发展。在技术示范推广的同时，依托社会化经营服务组织，完成了林果残枝等农业废弃物的回收利用，政府部门通过购买服务、设备配套、产品补贴等形式精准扶持产业发展。目前，已在全市建立了“区域化集中处理”和“区块化社会化处理”两大运行模式。顺义区采用“园区、种植户+农机合作社+有机肥加工厂”模式，生产者负责秸秆、蔬菜废弃物、

畜禽粪便等农业废弃物的供应，农机合作社负责运输，有机肥加工企业加工成有机肥。通过政府购买服务的形式，提高各方积极性，既增加三方的收入，又实现了种养加的循环农业发展。一个年产4万吨的有机肥加工点，可年处理废弃物4万吨，相当于1.3万亩设施蔬菜所产生的废弃物。

链接:

http://www.moa.gov.cn/xw/qg/201811/t20181113_6162865.htm

8. 四川：农膜回收减危害 南充田野换新颜

【中华人民共和国农业农村部】去年以来，由南市农技站牵头开展的农膜科学使用及回收利用工作，通过大力推进农膜科学使用，强力促进农膜回收利用，尽力防治农膜残留污染，有效减轻了农膜危害，明显修复了农业生态。一、措施到位。一是加强行政推动。二是加强示范建设。三是加强检查督促。四是加强信息报送。二、成效明显。一是农膜使用有效减量。今年以来全市共推广“早三熟”改制“新两熟”生态养护种植模式15万亩，种植绿肥3万亩，应用水稻集中育秧41万亩，实现农膜覆盖面积降低到126.73万亩，使用量减少至1.18万吨，较上年减少0.02万吨。二是农膜推广科学合理。严禁农业项目采购厚度小于0.01毫米、耐候期小于12个月的农膜，全市0.01毫米以上农膜使用率达到81.7%，推广科学覆膜技术57.6万亩，应用覆膜替代技术28.7万亩。三是农膜回收逐步强化。全市现已成功引进农膜回收企业4个，建立完善农膜回收网点1841个，回收利用农膜0.92万吨，较上年增加0.01万吨，回收利用率提高1%，达到78%，其中旧膜重复利用近3000吨，再生利用近1000吨，垃圾处理约5000吨。三、机制形成。一是形成示范机制。二是形成意识机制。三是形成长效机制。制定了《南充市农膜回收利用十三五规划》，对农膜回收利用下个五年计划目标任务、工作举措、组织保障等工作做了详尽的规划和安排。力争南充市每年将废旧农膜回收利用率提高2个百分点，到2020年全市废旧农膜回收利用率达到81%。

链接:

http://www.moa.gov.cn/xw/qg/201811/t20181115_6163106.htm

9. 农业农村部副部长张桃林在全国果菜茶绿色发展暨化肥农药减量增效经验交流会上提出力争2020年化肥农药使用量实现负增长加快推进果菜茶产业转型升级绿色发展

【中华人民共和国农业农村部】11月1日，农业农村部在广西南宁召开全国果菜茶绿色发展暨化肥农药减量增效经验交流会，总结果菜茶绿色发展经验，分析当前面临的新形势，研究部署持续推进果菜茶绿色发展和化肥农药减量增效的重点工作。农业农村部副部长张桃林出席会议并讲话。会议指出，要坚定农业绿色发展不动摇，以化肥农药减量

增效为抓手，以布局优化、品质提升、产业融合为重点，加强政策引导，强化创新驱动，狠抓措施落实，加快推进果菜茶产业转型升级，助力乡村振兴。会议要求，进一步明确果菜茶绿色发展和化肥农药减量增效的思路目标。在发展思路上，坚持绿色发展理念，构建现代果菜茶产业体系、生产体系和经营体系，加快走出一条产出高效、产品安全、资源节约、环境友好的现代果菜茶产业发展之路。在发展目标上，在稳定果菜茶面积、提高产品质量效益、提高产业竞争力、提高产业绿色发展能力的同时，力争到2020年化肥农药使用量实现负增长。会议强调，要加快推进果菜茶有机肥替代化肥，提高化肥利用效率。加快推广绿色防控综合技术模式，打造高水平专业化统防统治服务队伍。加快研发和推广应用环保型农药制剂和高效药械，提高农药利用率。加快集成绿色高质高效技术模式，推进按标生产，严格质量监管，增加绿色优质果菜茶产品供给。加快打造一批高标准生产基地，创响一批档次高影响力强的知名品牌，延长产业链、提升价值链。

链接:

http://www.moa.gov.cn/xw/zwdt/201811/t20181102_6162197.htm

10. 全国残膜污染综合治理技术现场会在新疆举行

【中华人民共和国农业农村部】日前，农业农村部联合中国工程院、科技部在新疆维吾尔自治区阿拉尔市召开全国残膜污染综合治理技术现场会，探索交流农田残膜污染防治技术与经验，进一步推动农膜回收行动。会议研究讨论了我国残膜污染治理情况及关键技术研究进展，强调要进一步强化技术创新，提升农田残膜污染治理技术和装备化水平，持续推进我国农田残膜污染治理工作。会议指出，残膜回收机具是保障地膜回收利用的重要手段，各级农业农村部门要强化成果转化推广，加强联合协作，推动熟化技术产品落地，形成系统性的农膜回收利用解决方案，为治理农田“白色污染”插上科技的翅膀。会议期间，代表们还观摩了板式秸秆粉碎地膜回收联合作业机、秸秆还田残膜回收联合作业机、链齿耙式耕层残膜回收机等作业情况，一些机具当季地膜回收率可达85%以上。

链接:

http://www.moa.gov.cn/xw/zwdt/201811/t20181114_6163086.htm

【文献速递】

1. Global assessment of water challenges under uncertainty in water scarcity projections

作者: P. Greve, T. Kahil, J. Mochizuki, et al.

文献源: Nature Sustainability, 2018

摘要: Water scarcity, a critical environmental issue worldwide, has primarily been driven by a significant increase in water extractions during the last century. In the coming decades,

climate and societal changes are projected to further exacerbate water scarcity in many regions worldwide. Today, a major issue for the ongoing policy debate is to identify interventions able to address water scarcity challenges in the presence of large uncertainties. Here, we take a probabilistic approach to assess global water scarcity projections following feasible combinations of shared socio-economic pathways and representative concentration pathways for the first half of the twenty-first century. We identify—alongside trends in median water scarcity—changes in the uncertainty range of anticipated water scarcity conditions. Our results show that median water scarcity and the associated range of uncertainty are generally increasing worldwide, including many major river basins. On the basis of these results, we develop a general decision-making framework to enhance policymaking by identifying four representative clusters of specific water policy challenges and needs.

链接:

http://agri.ckcest.cn/file1/M00/02/9D/Csgk0FvzpBKAN7DeAHzdSZI_1H0956.pdf

2. Farming with crops and rocks to address global climate, food and soil security

作者: David J. Beerling, Jonathan R. Leake, Stephen P. Long, et al.

文献源: Nature Plants,2018

摘要: The magnitude of future climate change could be moderated by immediately reducing the amount of CO₂ entering the atmosphere as a result of energy generation and by adopting strategies that actively remove CO₂ from it. Biogeochemical improvement of soils by adding crushed, fast-reacting silicate rocks to croplands is one such CO₂-removal strategy. This approach has the potential to improve crop production, increase protection from pests and diseases, and restore soil fertility and structure. Managed croplands worldwide are already equipped for frequent rock dust additions to soils, making rapid adoption at scale feasible, and the potential benefits could generate financial incentives for widespread adoption in the agricultural sector. However, there are still obstacles to be surmounted. Audited field-scale assessments of the efficacy of CO₂ capture are urgently required together with detailed environmental monitoring. A cost-effective way to meet the rock requirements for CO₂ removal must be found, possibly involving the recycling of silicate waste materials. Finally, issues of public perception, trust and acceptance must also be addressed.

链接:

<http://agri.ckcest.cn/file1/M00/02/9D/Csgk0Fvzo06AbMpsABzxrFcf1UM489.pdf>

3. Addressing agricultural nitrogen losses in a changing climate

作者: Timothy M. Bowles; Shady S. Atallah; Eleanor E. Campbell, et al.

文献源: Nature Sustainability,2018

摘要: Losses of nitrogen from agriculture are a major threat to environmental and human health at local, regional and global scales. Emerging evidence shows that climate change and intensive agricultural management will interact to increase the harmful effects and undermine current mitigation efforts. Identifying effective mitigation strategies and supporting policies requires an integrated understanding of the processes underlying potential agricultural nitrogen responses to climate change. In this Review, we describe these processes, propose a set of multi-scale principles to guide research and policy for decreasing nitrogen losses in the future, and describe the economic factors that could constrain or enable their implementation.

链接:

<http://agri.ckcest.cn/file1/M00/02/9D/Csgk0FvzojuAWxxUAGymmJDfAc564.pdf>

4. Towards a greener Common Agricultural Policy?

作者: Alberto Navarro; José Vicente López-Bao

文献源: Nature Ecology & Evolution,2018

摘要: The Common Agricultural Policy (CAP) is among the most important and expensive sectoral policies within the European Union (EU), accounting for 37.5% of the European budget in the period 2014—2020 (€362.8 billion, ca. €100 per citizen per year). The CAP is directly implemented on ca. 40% of the European landscape. The importance of this policy for the future of the EU is reflected in the last budget released by the European Commission, in which the CAP budget will be cut by less than 5% for the period 2021—2027, and it will be built around direct payments and rural development funding. Updating the CAP must reflect the environmental challenges that Europe faces in the twenty-first century, without overlooking necessary support for new generations of farmers and small farms, as well as strengthening rural development. This will entail a profound transformation.

链接:

http://agri.ckcest.cn/file1/M00/02/9D/Csgk0Fvze_SAZ-jOAA-ESSMsswc032.pdf

5. The challenge of feeding the world while conserving half the planet

作者: Zia Mehrabi; Erle C. Ellis; Navin Ramankutty

文献源: Nature Sustainability,2018

摘要: Amid widespread concerns about biodiversity loss, a single clear conservation message is engaging leading conservationists: the proposal to give half the surface of the Earth back to nature. Depending on the landscape conservation strategy, we find that, globally, 15-31% of cropland, 10-45% of pasture land, 23-25% of non-food calories and 3-29% of food calories from crops could be lost if half of Earth's terrestrial ecoregions were given back to nature.

链接:

<http://agri.ckcest.cn/file1/M00/02/9D/Csgk0FvzesiAecuOABDDpQsL5B0030.pdf>

6. Trade-Of Analysis to Determine Environmental Flows in a Highly Regulated Watershed

作者: Aiping Pang; Chunhui Li; Tao Sun, et al.

文献源: Scientific Reports,2018

摘要: In this study, we proposed an approach to recommend environmental flows in highly regulated areas, considering the multiple time scales of hydrological processes and water requirements. Water resources were seasonally allocated to the agricultural sector using a benefit-maximizing model, based on water deficiency at different crop growth stages. The economic feedback was evaluated after securing different levels of initial environmental flows. The final environmental flows were recommended to maintain a balance between the ecosystem and irrigation water needs. A case study was applied in the Baiyangdian watershed, China. The results show that a benefit-maximizing model can reduce the total economic losses to the maximum potential, which contributes to alleviating water use conflicts between agriculture and the ecosystem. However, the environmental flows cannot be maintained without the sacrifice of production losses, except for in extremely wet years. Average environmental flows could be secured at around 3.1 , 4.3 and $5.4 \times 10^8 \text{ m}^3$ in dry, average, and wet years, respectively, with less than 10% production loss. Additional water transfer projects, as well as economic compensation strategies, are suggested to meet both ecosystem and agricultural needs. The planned economic compensation during 2010—2015 was 16.3×10^8 Yuan, giving priority to securing environmental flows, and accounting for 7% of the total agricultural output value. The suggested amount of water resource transferred by the South-to-North Transfer Projects was $19 \times 10^8 \text{ m}^3$, which is enough to alleviate water

use conflicts between different stakeholders in dry years. This study provided a method to protect ecosystems in a more sustainable way.

链接:

http://agri.ckcest.cn/file1/M00/02/9D/Csgk0FvzeeSAV_EUAB2TFkYckvU425.pdf

7. Economic shifts in agricultural production and trade due to climate change

作者: Luciana L. Porfirio; David Newth; John J. Finnigan, et al.

文献源: Palgrave Communications,2018

摘要: In addition to expanding agricultural land area and intensifying crop yields, increasing the global trade of agricultural products is one mechanism that humanity has adopted to meet the nutritional demands of a growing population. However, climate change will affect the distribution of agricultural production and, therefore, food supply and global markets. Here we quantify the structural changes in the global agricultural trade network under the two contrasting greenhouse gas emissions scenarios by coupling seven Global Gridded Crop Models and five Earth System Models to a global dynamic economic model. Our results suggest that global trade patterns of agricultural commodities may be significantly different from today's reality with or without carbon mitigation. More specifically, the agricultural trade network becomes more centralised under the high CO₂ emissions scenario, with a few regions dominating the markets. Under the carbon mitigation scenario, the trade network is more distributed and more regions are involved as either importers or exporters. Theoretically, the more distributed the structure of a network, the less vulnerable the system is to climatic or institutional shocks. Mitigating CO₂ emissions has the co-benefit of creating a more stable agricultural trade system that may be better able to reduce food insecurity.

链接:

<http://agri.ckcest.cn/file1/M00/02/9D/Csgk0FvzdxyAOolxABWWYH2N06s641.pdf>

8. Evaluation of hyperspectral LiDAR for monitoring rice leaf nitrogen by comparison with multispectral LiDAR and passive spectrometer

作者: Jia Sun; Shuo Shi; WeiGong, et al.

文献源: Scientific Reports,2018

摘要: Fast and nondestructive assessment of leaf nitrogen concentration (LNC) is critical for crop growth diagnosis and nitrogen management guidance. In the last decade, multispectral LiDAR (MSL) systems have promoted developments in the earth and ecological sciences

with the additional spectral information. With more wavelengths than MSL, the hyperspectral LiDAR (HSL) system provides greater possibilities for remote sensing crop physiological conditions. This study compared the performance of ASD FieldSpec Pro FR, MSL, and HSL for estimating rice (*Oryza sativa*) LNC. Spectral reflectance and biochemical composition were determined in rice leaves of different cultivars (Yongyou 4949 and Yangliangyou 6) throughout two growing seasons (2014—2015). Results demonstrated that HSL provided the best indicator for predicting rice LNC, yielding a coefficient of determination (R^2) of 0.74 and a root mean square error of 2.80mg/g with a support vector machine, similar to the performance of ASD ($R^2=0.73$). Estimation of rice LNC could be significantly improved with the finer spectral resolution of HSL compared with MSL ($R^2=0.56$).

链接:

<http://agri.ckcest.cn/file1/M00/02/9D/Csgk0FvzdiOaQw6mABJUdT1FQTW686.pdf>

9. Rapid Crop Cover Mapping for the Conterminous United States

作者: Devendra Dahal; Bruce Wylie; Danny Howard

文献源: Scientific Reports,2018

摘要: Timely crop cover maps with sufficient resolution are important components to various environmental planning and research applications. Through the modification and use of a previously developed crop classification model (CCM), which was originally developed to generate historical annual crop cover maps, we hypothesized that such crop cover maps could be generated rapidly during the growing season. Through a process of incrementally removing weekly and monthly independent variables from the CCM and implementing a 'two model mapping' approach, we found it viable to generate conterminous United States-wide rapid crop cover maps at a resolution of 250m for the current year by the month of September. In this approach, we divided the CCM model into one 'crop type model' to handle the classification of nine specific crops and a second, binary model to classify the presence or absence of 'other' crops. Under the two model mapping approach, the training errors were 0.8% and 1.5% for the crop type and binary model, respectively, while test errors were 5.5% and 6.4%, respectively. With spatial mapping accuracies for annual maps reaching upwards of 70%, this approach demonstrated a strong potential for generating rapid crop cover maps by the 1st of September.

链接:

<http://agri.ckcest.cn/file1/M00/02/9D/Csgk0FvzdLSAAAt4cAD9dm-jEm84927.pdf>

10. Monitoring paddy productivity in North Korea employing geostationary satellite images integrated with GRAMI-rice model

作者: Jong-minYeom; Seungtaek Jeong; Gwanyong Jeong, et al.

文献源: Scientific Reports,2018

摘要: To meet the growing demands of staple crops with a strategy to develop amicable strategic measures that support efficient North Korean relief policies, it is a desirable task to accurately simulate the yield of paddy (*Oryza sativa*), an important Asian food commodity. We aim to address this with a grid-based crop simulation model integrated with satellite imagery that enables us to monitor the crop productivity of North Korea. Vegetation Indices (VIs), solar insolation, and air temperature data are thus obtained from the Communication Ocean and Meteorological Satellite (COMS), including the reanalysis data of the Korea Local Analysis and Prediction System (KLAPS). Paddy productivities for North Korea are projected based on the bidirectional reflectance distribution function-adjusted VIs and the solar insolation using the grid GRAMI-rice model. The model is calibrated on a 500-m grid paddy field in Cheorwon, and the model simulation performance accuracy is verified for Cheorwon and Paju, located at the borders of North Korea using four years of data from 2011 to 2014. Our results show that the paddy yields are reproduced reasonably accurately within a statistically significant range of accuracy, in comparison with observation data in Cheorwon ($p=0.183$), Paju ($p=0.075$), and NK ($p=0.101$) according to a statistical t-test procedure. We advocate that incorporating a crop model with satellite images for crop yield simulations can be utilised as a reliable estimation technique for the monitoring of crop productivity, particularly in unapproachable, data-sparse regions not only in North Korea, but globally, where estimations of paddy productivity can assist in planning of agricultural activities that support regionally amicable food security strategies.

链接:

http://agri.ckcest.cn/file1/M00/02/9D/Csgk0FvzdAmAUi4GAEBcVbp_iiU038.pdf

【研究报告】

1. Agriculture in the UK Seminar 27 June 2016

发布源: GOV.UK

发布时间: 2018-05-31

摘要: This annual publication provides an overview of agriculture in the UK, fulfilling the requirement that Ministers publish an annual report on matters relating to price support for agricultural produce. The information is used widely by the Department for Environment,

Food and Rural Affairs (Defra) and other stakeholders to support policy development. It contains an extensive range of data including farm incomes, land use, livestock numbers, prices, production of key commodities (e.g. wheat, milk, vegetables), overseas trade, organic farming and the environment.

链接:

http://agri.ckcest.cn/file1/M00/02/9D/Csgk0FvzqbyASf_tAFKj2yLsclk209.pdf

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