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

《智慧农业发展战略研究》专题快报

2022年第9期（总第48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　　2022年5月4日

【动态资讯】

1．潍坊诸城：跑出烟叶全程机械化的“加速度”

【农民日报】近年来，潍坊诸城市烟草专卖局（分公司）将大力发展烟叶全程机械化作为解决烟叶生产难题、推动烟叶高质量发展的重要抓手，结合烟区实际，生产机械研发与专业服务实施并重，跑出了全程机械化的“加速度”，为稳烟区、稳烟田、稳烟农提供了有力支撑。“因地制宜”开展多元研发。今年，诸城烟区的春耕、起垄等环节的作业机械都安装了北斗导航自动驾驶系统，机械能够在该系统的控制下自动完成行进、对行和避障等操作，机械田间作业的效率和精准程度得到大幅度提升。“搭建平台”实施高效服务。当下诸城烟区正处烟田起垄的大忙时节，有80亩烟田需要尽快完成起垄的贾悦镇西洛庄村烟农鞠永才并没有为还没联系到作业机械而着急。

链接:

http://agri.ckcest.cn/file1/M00/10/02/Csgk0GJzeB6AJyGmAAtPuIhC4lw084.pdf

2．湖北加快打造农业产业化领军“航母”

【农民日报】日前，湖北省农业产业化工作现场推进会在宜昌市召开，与会代表走进宜昌市夷陵区三峡畜牧产业园、翠林农牧宜昌国家现代柑橘产业园等园区观摩，钢架林立，现代化厂房正在火热施工中。近年来，夷陵区坚决落实省市关于推进农业产业链高质量发展的决策部署，将连续5年、每年安排5000万元财政预算，协同撬动社会资本投入，聚焦粮油蔬菜、柑橘、茶叶、畜牧、中药材产业链，创建全国三产融合发展先行区。夷陵区是湖北持续发力抓好农业产业化工作的缩影。近年来，湖北省委、省政府高度重视农业产业化建设，建立了以省委书记、省长为召集人的联席会议制度，为十大重点农业产业链各安排一名省级领导领衔挂帅，各市州县积极响应，农业产业化成势见效。2021年，湖北全省规模以上农产品加工业产值达1.22万亿元，成为全省第一大产业，为全省

经济疫情之后重振提供了强力支撑。

链接:

http://agri.ckcest.cn/file1/M00/03/30/Csgk0YbKG3WAQV2AAEPIS0bYUTo009.pdf

3．新疆麦盖提县：新技术为棉田穿上环保“新衣裳”

【农民日报】眼下正值新疆棉花春耕春播时节，在麦盖提县，为了解决农田残膜污染，一项新技术正在田间地头悄然推开，“高强度地膜”的大面积使用，正在给棉田穿上“环保新衣裳”。据农业农村部农膜污染防控重点实验室、中国农业科学院农业环境与可持续发展研究所出具的试验示范报告，2021年新型高强度地膜，使用6个月后残膜回收率达90％以上，比传统地膜回收率提高30％；每亩综合成本降低50元；棉花单产增加6.5％-10.4％，经济收入增加14.8％-22.8％。目前，为了提高地膜强度，有效治理白色污染，农业农村部、财政部联合发文要求今年在全国推广5000万亩15微米的加厚高强度地膜，其中新疆推广面积超过1000万亩。而这种新型10微米“高堡膜”，是一件无需加厚即可达到高强度易回收的“环保新衣裳”，将为新疆有效治理白色污染提供更节能环保的方案。

链接:

http://agri.ckcest.cn/file1/M00/10/02/Csgk0GJzdWCAOilbAClv0uw4LcE284.pdf

4．河南：科技赋能促麦田春管

【农民日报】时下，中原大地正值麦田管理的关键时期，河南省各地积极组织农技人员深入田间地头开展指导，各地农民也迅速投入到田间生产管理中，全力推动冬小麦促弱转壮，确保夏粮稳产丰收。河南省农业农村厅最新的农情调度数据显示，全省一、二类苗占比88.5％，与常年基本持平，三类苗953万亩，比冬前1900万亩减少近1000万亩；受灾严重的新乡、鹤壁等豫北地区一、二类苗占比76.8％，较冬前提高25.5个百分点。

链接:

http://agri.ckcest.cn/file1/M00/03/30/Csgk0YbKI_CASoE4AClv0o8AZm4948.pdf

5．宁夏：多种方式强化种质资源保护

【农民日报】中共中央总书记、国家主席、中央军委主席、中央财经委员会主任习近平4月26日主持召开中央财经委员会第十一次会议，研究全面加强基础设施建设问题，研究党的十九大以来中央财经委员会会议决策部署落实情况。习近平强调，基础设施是经济社会发展的重要支撑，要统筹发展和安全，优化基础设施布局、结构、功能和发展模式，构建现代化基础设施体系，为全面建设社会主义现代化国家打下坚实基础；中央财经委员会是党中央领导经济工作的重要制度安排，各地区各部门要准确领会中央财经委

员会决策部署精神，共同推动决策部署落实落好。

链接:

http://agri.ckcest.cn/file1/M00/03/30/Csgk0YbKJ8CARzYHABkeJVXhqiQ287.pdf

【文献速递】

1．Enhancement of soil physical properties and soil water retention with biochar-based soil amendments

文献源：ScienceDirect,2022-05-05

摘要：The soil physical properties are deteriorating due to changing rainfall patterns and intensities, as well as climate change-induced temperature fluctuations. Pot experiments were carried out to examine the impacts of synthesized soil amendments on soil water retention and plant growth. Soil amendments (biochar, polyacrylamide (PAM), and moringa) were used at different rates (0 (control), 2.1, 4.2, and 8.3 g kg^{-1}) to improve the physical properties of the soil. As a result of soil amendment application, it was found that the mean weight diameter of soil aggregate increased by 188% during the 8.3 g kg−1 treatment, forming stable soil particles. Soil water retention improved by up to 128.9% during the 8.3 g kg^{-1} treatment, and it was analyzed that it was due to the high surface area of biochar, porosity, and high molecular weight of PAM. Pellet treatment increased all plant growth parameters (height, stem diameter, leaf number, and fresh and dry weight) for both beans and maize. The dry weight of beans (C3 plant) and maize (C4 plant) increased by 92.9 and 146.4%, respectively in an 8.3 g kg^{-1} pot. The soil physical condition was stabilized by the high carbon content of biochar and the improvement of soil coagulation between PAM and moringa. This had a positive effect on the C4 plant. The findings of this study indicate that if the soil amendments are properly mixed and applied based, they will improve soil stability and plant productivity.

链接:

http://agri.ckcest.cn/file1/M00/03/30/Csgk0YbKPryAVkYbABF9Rkxp1fc674.pdf

2．Nutrient status of integrated rice-crayfish system impacts the microbial nitrogen-transformation processes in paddy fields and rice yields

文献源：ScienceDirect,2022-05-05

摘要：Increasing rice yield is essential for alleviating global food crisis. High soil nutrient level guarantees high rice yields in conventional rice monoculture (RM) systems, but

excessive unconsumed nutrients act as pollutants and can even threaten rice growth. The integrated rice-crayfish (IRC) system aims to transfer the excess nutrients from crayfish to paddy fields to improve the comprehensive utilization rate of nutrients and create additional profits, while the responding characteristics of IRC microbial communities in paddy fields and rice yields to the nutrient status remain unclear. Considering the crucial roles of microbiomes in promoting nutrient cycling for crop absorption in rice production progresses, the composition and functional characteristics of soil microbial communities from six IRC farms with variant nutrient statuses in the Yangtze River Delta were surveyed in this study. Compared with RM systems, IRC systems with appropriately improved ($p < 0.05$) soil quality created favorable nutrient (FN) status accompanied by 15% rice yields increase, while IRC systems with extremely high nutrients (HN) status ($p < 0.01$) accompanied by 14% rice yields reduction. Soil microbial diversity and network complexity were maintained in FN-IRC systems, but declined in HN-IRC systems, with the Shannon index significantly decreased by 9.2% and network density decreased from 0.135 (in RM) to 0.062. In the FN-IRC systems, the keystone taxa identified by co-occurrence networks displayed inextricably positive correlations with soil nitrification potential (calculated by normalization of amoA gene abundance) and rice yields. While in HN-IRC systems, the large loss of keystone taxa might limit soil nitrogen fixation potential (calculated by normalization of nifH gene abundance), and further rice yields. Our study indicates that soil nutrient management in IRC systems claim attention, and the improvement of nitrogen metabolism is the key to realize agricultural cleaner production.

链接:

http://agri.ckcest.cn/file1/M00/03/30/Csgk0YbKNm6Ae1CVAB-05AM0v48001.pdf

3．基于EMD与K-means的ILSTM模型在池塘溶解氧预测中的应用

文献源：华中农业大学学报(自然科学版),2022-05-05

摘要：为提高池塘溶氧量预测精度并改善预测结果滞后的情况，本研究提出基于经验模态分解（empirical mode decomposition,EMD）与K-means聚类的改进长短期记忆神经网络（improved long short-time memory,ILSTM）模型。利用皮尔森相关性分析与主成分分析结合的方法对原始数据进行特征提取，对溶氧量进行EMD分解，将选出的环境参数与溶氧量各分量一起生成样本集，并对其进行k-means聚类。针对同类中不同分解分量建立相应ILSTM预测模型，并用网格搜索、五折交叉验证与早停法进行超参数选取。对未来1 h池塘溶氧量进行预测，并与LSTM、ILSTM、LSTM-SVR、EMD-LSTM、EMD-ILSTM模

型进行对比试验。结果显示，ILSTM与LSTM模型相比，RMSE、MAE与MAPE分别下降了50.46%、63.20%与68.96%，证明ILSTM模型能缓解传统LSTM模型预测的滞后情况。EMD-ILSTM模型与ILSTM模型相比，RMSE、MAE与MAPE分别下降了53.22%、46.74%与38.19%，证明EMD算法能提高预测精度。EMD-KILSTM模型的RMSE、MAE、MAPE分别为0.109 9 mg/L、0.074 9 mg/L、9.3278%，与EMD-ILSTM模型相比，分别下降了4.35%、7.42%与8.09%，证明K-means聚类能提高预测精度，并且EMD-KILSTM模型是对比模型中预测效果最好的模型。以上结果表明，EMD-KILSTM模型能从时间尺度与历史环境类别两个方面深度分析溶氧量的特征，拥有更高的预测精度与更好的泛化能力。

链接:

http://agri.ckcest.cn/file1/M00/03/30/Csgk0YbKNLCAOQoDABVVnw25aVQ941.pdf

4．肉鸡玉米蛋白粉有效能值的测定及净能预测模型的构建

文献源：动物营养学报,2022-04-29

摘要：本试验通过间接测热法结合套算法测定爱拔益加（AA）肉鸡对不同玉米蛋白粉原料的有效能值并建立基于理化指标的净能预测方程。选取24日龄体重为（1 150±30）g的AA肉鸡60只，随机分为5个组（1个玉米-豆粕型基础饲粮组和4个玉米蛋白粉替代比例为20%的试验饲粮组），每组6个重复，每个重复2只鸡。试验期为7 d，其中预试期3 d,27日龄时转入呼吸测热室适应1 d,28日龄开始3 d正试期。结果表明:1) 28～31日龄肉鸡对4种玉米蛋白粉原料的表观代谢能（AME）分别为17.61、19.22、18.56和18.28 MJ/kg DM，净能（NE）分别为9.64、10.29、7.59和11.71 MJ/kg DM,NE/AME分别为55.38%、53.49%、41.18%和64.39%。2)玉米蛋白粉原料NE预测方程为NE=14.575-5.99×粗纤维+2.716×粗灰分（R~2=0.988,P <0.01）; NE预测值平均值为9.80 MJ/kg DM，实测平均值为9.81 MJ/kg DM，平均差值为0.01 MJ/kg DM，相对标准偏差为0.07%。由此可见，本试验NE预测值与实测值接近，且变异性小，构建的肉鸡NE预测方程准确性较好。

链接:

http://agri.ckcest.cn/file1/M00/10/02/Csgk0GJzhEuAAhv5AAp2RCP_Jrk618.pdf

5．陕北黄土高原水蚀沟谷多维度侵蚀特征量化研究

文献源：地理科学进展,2022-04-28

摘要：沟谷地是黄土高原地貌形态特征变化最明显的区域，其发育对整个黄土高原地貌发育具有重要的控制性作用。论文基于5 m分辨率的DEM数据，在陕北黄土高原遴选包含15种地貌类型的42个样区，以沟谷密度、水平逼近度与切割深度作为纵向、横向与垂向3个维度的代表因子，分析了沟谷的多维发育进程、特征、空间分异及影响因素。研

究结果显示：陕北黄土高原南北方向上沟谷发育呈现由溯源侵蚀主导转向横向溯源侵蚀主导、溯源下切侵蚀主导到横向溯源侵蚀主导，54.8%的样区各维度对整体发育进程的影响程度相近，且86.4%处于陕北黄土高原中部地区，即中部地区多维度发育均衡，南北两端以溯源侵蚀与横向侵蚀为主。结合面积—高程积分分析发现沟谷发育可划分为3个阶段：发育初期以溯源侵蚀为主，带动下切侵蚀伴有横向侵蚀；发育中期以溯源侵蚀为主，伴有持续性横向侵蚀与较强下切侵蚀；发育晚期以横向侵蚀为主，伴有一定程度的溯源侵蚀与轻微下切侵蚀。黄土厚度对沟谷系统垂向下切侵蚀的影响最大（Cv=0.164），土地利用类型对沟谷系统横向侵蚀的影响较大（Cv=0.0681），林地对于维护各个维度的抗侵蚀能力最强，生长茂密的草地和灌木林及作物次之,生长稀疏的牧草和作物较差。

链接:

http://agri.ckcest.cn/file1/M00/10/02/Csgk0GJzgcmAIHj1AFwsmIbywGk168.pdf

6．Metabolomics reveals the mechanism of tetracycline biodegradation by a Sphingobacterium mizutaii S121

文献源：ScienceDirect,2022-04-14

摘要：Contamination by tetracycline residues has adverse influences on the environment and is considered a pressing issue. Biodegradation is regarded as a promising way to treat tetracycline residues in the environment. Here, strain Sphingobacterium mizutaii S121, which could degrade 20 mg/L tetracycline completely within 5 days, was isolated from contaminated soil. The characteristics of tetracycline degradation by strain S121 were investigated under various culture conditions. Response surface methodology was used to predict the maximum tetracycline degradation ratio, which can be obtained under the following conditions: 31.36 ◦C, pH of 7.15, and inoculum volume of 5.5% (v/v). Furthermore, extracellular tetracycline biodegradation products and intracellular metabolic pathways of S121 were detected by ultraperformance liquid chromatography-quadrupole-time-of-flightmass spectrometry (UPLC-Q-TOF-MS) and UHPLC-quadrupole electrospray (QE)-MS, respectively. The results identified eight possible degradation products, and three putative degradation pathways were proposed. In addition, exposure to tetracycline produced significant influences on metabolic pathways such as pyrimidine, purine, taurine and hypotaurine metabolism and lysine degradation. Consequently, the intracellular metabolic pathway response of S121 in the presence of tetracycline was proposed. These findings are presented for the first time, which will

facilitate a comprehensive understanding of the mechanism of tetracycline degradation. Moreover, strain S121 can be a promising bacterium for tetracycline bioremediation.

链接:

http://agri.ckcest.cn/file1/M00/03/30/Csgk0YbKOmGANihSADLIjyG-oLk676.pdf

7．连续小波变换的土壤有机质含量高光谱估测

文献源：光谱学与光谱分析,2022-04-07

摘要：土壤有机质含量的高光谱估测可快速、准确监测土壤肥力，对现代化农业生产进行精准施肥提供科学依据。以新疆渭干河-库车河三角洲绿洲耕层土壤为研究对象，对采集的98个土壤样品的原始光谱反射率R分别进行传统倒数对数lg（1/R）、一阶微分R′和倒数对数一阶微分[lg（1/R）]′数学变换，以及基于小波母函数Bior1.3不同尺度分解的连续小波变换（CWT）,并与实测土壤有机质含量进行相关分析，从而筛选出各类变换下与土壤有机质含量密切相关的特征波段和小波系数（$p<0.01$）。分别以原始光谱反射率（R）以及不同变换处理下的特征波段反射率和敏感小波系数作为自变量，土壤有机质含量作为因变量，采用偏最小二乘回归和支持向量机回归方法构建土壤有机质含量的估测模型。结果表明：（1）各类光谱变换方法有效提升光谱与土壤有机质含量之间的敏感性，其中经CWT变换后的土壤光谱反射率与有机质含量的相关性得到显著提高，相关系数由0.39提高到0.54（$p<0.01$）。（2）传统的[lg（1/R）]′变换构建的支持向量机回归模型，其决定系数（R~2）高于lg（1/R）和R′变换构建的模型，说明倒数对数一阶微分变换可有助于提高估测模型的精度，且支持向量机回归模型的精度和稳定性高于偏最小二乘回归模型。（3）经过CWT分解后，以原始光谱反射率在不同尺度上的敏感小波系数作为自变量建立的模型，估测精度和稳定性均有明显的提高，构建的R-CWT-2~3-SVMR模型的决定系数（R^2）为0.84,均方根误差（RMSE）为1.48,相对分析误差（RPD）等于2.11,模型精度达到最高并拥有极好的预测能力。高光谱数据经多种变换处理后可有效去除白噪声，而连续小波变换处理比传统的数学变换方法更适合于挖掘土壤有效信息，实现光谱信号的近似特征和细节特征的有效分离，建立的反演模型可更加精准估测土壤有机质含量。

链接:

http://agri.ckcest.cn/file1/M00/10/02/Csgk0GJzgySAHgZZADI9Rv41n0o242.pdf

8．Food cold chain management improvement: A conjoint analysis on COVID-19 and food cold chain systems

文献源：ScienceDirect ,2022-03-02

摘要： Cold chains are effective in maintaining food quality and reducing food losses, especially for long-distance international food commerce. Several recent reports have demonstrated that frozen foods are serving as carriers of SARS-CoV-2 and transmitting the virus from one place to another without any human-to-human contact. This finding highlights significant difficulties facing efforts to control the spread of COVID-19 and reveal a transmission mechanism that may have substantially worsened the global pandemic. Traditional food cold chain management practices do not include specific procedures related to SARS-CoV-2-related environmental control and information warnings; therefore, such procedures are urgently needed to allow food to be safely transported without transmitting SARS-CoV-2. In this study, a conjoint analysis of COVID-19 and food cold chain systems was performed, and the results of this analysis were used to develop an improved food cold chain management system utilizing internet of things (IoT) and blockchain technology. First, 45 COVID-19-related food cold chain incidents in China, primarily involving frozen meat and frozen aquatic products, were summarized. Critical food cold chain control points related to COVID-19 were analyzed, including temperature and cold chain requirements. A conceptual system structure to improve food cold chain management, including information sensing, chain linking and credible tracing, was proposed. Finally, a prototype system, which consisted of cold chain environment monitoring equipment, a cold chain blockchain platform, and a food chain management system, was developed. The system includes: 1) a defining characteristic of the newly developed food cold chain system presented here is the use of IoT technology to enhance real-time environmental information sensing capacity; 2) a hybrid data storage mechanism consisting of off-chain and on-chain systems was applied to enhance data security, and smart contracts were used to establish warning levels for food cold chain incidents; and 3) a hypothetical food cold chain failure scenario demonstration in which information collection, intelligent decision making, and cold chain tracing were integrated and automatically generated for decision-making. By integrating existing technologies and approaches, our study provides a novel solution to improve traditional food cold chain management and thus meet the challenges associated with the COVID-19 pandemic. Although our system has been shown to be effective, subsequent studies are still required to develop precise risk evaluation models for SARs-CoV-2 in food cold chains and more precisely control the entire process. By ensuring food safety and reliable traceability, our system could also contribute to the formulation of appropriate mechanisms for international cooperation and minimize the effect of the COVID-19 pandemic on international food commerce.

链接:

http://agri.ckcest.cn/file1/M00/03/30/Csgk0YbKOyCAWa9KAF6kFb0WZlE769.pdf

【会议论文】

1．Optimized High Performance Deep Neural Network for Crop Recommendation

发布源：IEEE

发布时间：2022-05-02

摘要： Crop productivity is most important in the agriculture sector and is impacted by various climate and chemical factors. A huge number of losses bear by farmers just because of these two factors. The climate factors are unpredictable, and human has no control over them but the chemical factor can be controlled by automated techniques. Several solutions have been proposed by research to address such issues. But this paper is concerned to address the issue of crop recommendation based on chemical and climate conditions. In this paper, a grey wolf optimization-based deep learning approach is proposed to suggest better crops based on chemical and climate conditions. This paper considers different chemical factors such as ph, nitrogen, phosphorus and potassium and various climate factors such as rainfall, temperature, and humidity to suggest crops to farmers. The complete approach is laid down in different folds: Firstly, the high-performance Convolution neural network is used to extract important features and classify them and afterward, the grey wolf optimization is used to optimize the feature to suggest a better crop based on different factors.

链接:

http://agri.ckcest.cn/file1/M00/03/30/Csgk0YbKK8yAO6yCAAjWmaWovDE096.pdf

2．DeepTrac: Applying Artificial Intelligence in Plant Disease Detection

发布源：IEEE

发布时间：2022-05-02

摘要：Small community local farmers face many unique issues in farming such as irrigating uneven farming lands, measuring soil water level, plant health monitoring, everyday trips to inspect for weed and pests, high cost and low-quality products, and many more. Most critical and challenging problem in farming is the early detection of plant diseases. In this research, an AI-Deep learning based automated plant disease detection method using FPN with Faster R-CNN architecture is proposed. In this work, we evaluated our proposed

method on disease detection with main outcome measure of Intersection over Union (IoU) ratio (ratio of overlap between predicted and annotated bounding boxes), precision (ratio of true predictions to total predictions), recall (ratio of true predictions to annotated bounding boxes) and disease spread direction. Our method is experimented on Bacterial Spot detection in bell-pepper plant leaf images obtained from the PlantVillage dataset. The proposed model achieved average precision 100% and average recall 99.7% for an IoU ratio of 0.5; mean average precision was 99.5% and mean average recall was 99.1% for an IoU of 0.5-0.95. We then evaluated our DeepTrac module using video data which is then plot the disease spread directions to understand the pattern of bacterial spot spread in bell-pepper leaf. Our future work may include the application of our AI method to detect plant diseases on the drone-obtained plant images.

链接:

http://agri.ckcest.cn/file1/M00/10/02/Csgk0GJzenWAVj3oABtYuNbYwNk463.pdf

3．Role of ICT & Fintech in Indian Agriculture

发布源：IEEE

发布时间：2022-05-02

摘要：In emerging economies and rural areas, low levels of e-literacy and digital skills, weak technological infrastructure, high costs of technology, weak regulatory framework, and limited access to services are the primary challenges in the digitalization process of Agriculture. As a result, data analytics (DA), the Internet of Things (IoT), and Fintech enhance operational efficiency and productivity within the agriculture sector. The existing IoT technologies integrate radio frequency identification, cloud computing, and end-consumer applications for future developments. Big data, IoT, and Fintech are essential technologies used for good-sized statistics and assist agricultural practitioners in recognizing farming practices and making specific decisions. Objectives: The aim is to focus on Fintech and IoT in agriculture, which features records of creation strategies, accessibility of era, accessibility of gadgets, and software gear. Many farmers witness demanding situations to access the marketplace, credit, and quality farm inputs to improve their crop yield. So, access to digital technology provides significant benefits to smallholder farmers and different rural businesses to tap into workforce talent access support services, build a strategic partnership, which include training, finance, and legal services.

链接:

http://agri.ckcest.cn/file1/M00/03/30/Csgk0YbKKpaAYYAaAA7zr5qRtV4728.pdf

4．Visual Modeling Analysis of the Influence of Young Generation in Helping Rural Revitalization in the Era of Big Data and Cloud Computing

发布源：IEEE

发布时间：2022-04-27

摘 要： The report of the 19th National Congress of the Communist Party of China put forward the strategy of rural revitalization, which is of great significance to solving the "three rural" problems and accelerating the modernization of "three rural". The widespread application of emerging technologies such as big data and the Internet of Things in agriculture and rural areas has injected new impetus into rural economic development. This paper studies the application of big data and cloud computing technology in youth to help rural revitalization, and combines JavaWeb and Mongodb to visualize the resource database, human endowment database, natural resource database, and agricultural and rural data resource sharing platform to improve agricultural and rural data resources. , to solve the problems of rural industrial development, help the overall revitalization of rural industries, and increase the efficiency by 7.3%.

链接:

http://agri.ckcest.cn/file1/M00/03/30/Csgk0YbKMEeAGYuAAASvo-H4WUc963.pdf

5．Survey on IoT based E-Farming Technology Enabled Farming

发布源：IEEE

发布时间：2022-04-27

摘要： By making everything smart and intelligent, the Internet of Things (IoT) technology has revolutionized every element of everyday life for the average individual. The Internet of Things (IoT) is a network of self-configuring devices. The rise of IoT-based Intelligent E-Farming devices is quietly but surely altering the face of agriculture production, not only by improving it but also by making it more costeffective and reducing waste. Humans are responsible for maintaining the current agricultural system. The robotassisted agriculture system will make farmer's labor easier. In order to minimize substantial losses in agriculture, several sensors are employed to detect variables such as soil moisture and contribute to the farm's production. The goal of this study is to offer an Internet of Things-based E-Farming System that will help farmers acquire real-time data (temperature, soil moisture) for

effective environmental monitoring, allowing them to increase overall production and product quality. The robot also performs various tasks in this project, including digging soil, precise seeding, and water sprinkling. Irrigation is controlled via a soil monitoring system. The automated technology has shown to be quite beneficial in terms of crop monitoring and reducing manual labor. The robot created in this venture performs digging, seed planting and water showering, permitting ranchers in farming field to decrease the natural effect, increment accuracy and effectiveness, and oversee individual plants in original ways. About Machine-The entire arrangement of the robot works with the battery and it is checked by portable application. The fundamental casing is made for the robot with four wheels associated and the back tires are associated with engine. One finish of the robot outline is fitted with the cultivator which is driven by DC engine and the plan is made to dig the soil. And Funnel is utilized to the compost and seeds, it moves through the channel by bored opening on the saft to the digged soil. Sprayer is fitted to splash water on the opposite end.

链接:

http://agri.ckcest.cn/file1/M00/10/02/Csgk0GJzfaKAIqv1ABXoZwb9atQ386.pdf

6．Technology Assessment Using Satellite Big Data Analytics for India's Agri-Insurance Sector

发布源：IEEE

发布时间：2022-04-27

摘要：Over half of India's employment is attached to the agriculture sector and their survival is dependent on the performance of farms. The uncertainty in the performance of farms due to weather fluctuations and other risks is tackled by providing insurance cover. However, policymakers' choice of administrative measures for estimating crop loss has resulted in inaccurate data collection, opened vulnerability to the politicization of the process, and created bottlenecks to operate at scale. These problems have led to skewed timelines for data collation, lack of confidence in the data produced by the agri-insurance providers, and caused long-drawn delays in settling claims made by farmers. In this article, we present a case study on the assessment of using satellite big data as a technology deployed in Northern India to solve the aforementioned problems between the stakeholders in the agri-insurance claim settlement process. Satellite big data based analytics provides an independent data source and decision-making platform for the agri-insurers to conduct an assessment for calculating the indemnity payments. The results

showcase how transparency brought in by the satellite big data analytics curbs the plausible exploitation of the claim settlement process and leads to increased efficiency and efficacy in settling farmer claims.

链接:

http://agri.ckcest.cn/file1/M00/10/02/Csgk0GJzfNGAIGNMAGWtlVxTmW8419.pdf

【相关专利】

1．一种基于农业物联网的农业监管平台

发布源：中国专利

发布时间：2022-04-26

摘要：本发明公开了一种基于农业物联网的农业监管平台,涉及农业物联网技术领域,包括环境采集模块、数据传输模块、物联网控制中心、服务器、移动终端和园区监管中心,所述物联网控制中心包括物联网控制芯片、GPS定位模块、通讯模块、数据处理模块和控制反馈模块,所述环境采集模块通过信号线与数据传输模块相连接,所述数据传输模块通过信号线与物联网控制芯片相连接,所述物联网控制芯片分别通过信号线与GPS定位模块、通讯模块、数据处理模块和控制反馈模块相连接,所述通讯模块通过信号线与服务器相连接,所述服务器分别通过信号线与移动终端和园区监管中心相连接。本发明提高了大棚内农作物的生产效率。

链接:

http://agri.ckcest.cn/file1/M00/10/02/Csgk0GJzkFWAGltBAAf1r8H0aIg351.pdf

2．多源农业数据的共享管理系统及方法

发布源：中国专利

发布时间：2022-04-26

摘要：本发明公开了多源农业数据的共享管理系统及方法,属于农业数据管理技术领域,要解决的技术问题为如何实现多源农业数据的共享管理。包括：用户管理模块,用于支持用户基于用户基本信息进行注册,并基于用户登录信息进行登录；数据录入模块,用于支持用户录入农业数据；数据采集模块,获取数据采集终端采集的农业数据；第三方数据接口,从第三方获取农业数据；权限管理模块,用于配置用户角色以及角色权限；数据预处理模块,用于对获取的农业数据进行数据清洗以及标准化处理；数据分析模块,用于对预处理后农业数据进行分析；数据共享接口,用于输出用于共享的预处理后农业数据以及分析结果；数据库,用于存储。

链接:

http://agri.ckcest.cn/file1/M00/03/30/Csgk0YbKQFSASlGdAAqYg9JLfto921.pdf

3．一种代替地膜的农业废弃物基质可降解覆盖板的制备方法

发布源：中国专利

发布时间：2022-04-22

摘要：本发明公开了多源农业数据的采集管理系统及方法,属于农业数据管理技术领域,要解决的技术问题为如何实现多源农业数据的采集管理。包括：数据传输模块,所述数据传输模块包括第一数据传输模块、第二数据传输模块；数据采集模块,用于获取各个数据采集终端采集的农业数据；数据导入模块,用于通过数据导入界面导入农业数据；数据采集接口,所述数据采集接口用于与第三方交互,用于获取农业数据；数据预处理模块,用于对获取的农业数据进行统一格式化处理,并进行数据清洗；数据挖掘模块,用于对预处理后农业数据进行数据挖掘；数据库,用于存储；数据管理模块,用于对农业数据、预处理后农业数据以及有效农业信息进行汇总分析,并进行图形处理,通过数据管理界面展示所述农业数据、预处理后农业数据以及有效农业信息,并用于通过第二数据传输模块将所述农业数据、预处理后农业数据以及有效农业信息上传云平台。

链接:

http://agri.ckcest.cn/file1/M00/03/30/Csgk0YbKQh6AI50nAAoNFTasjF8304.pdf

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