



2019年第12期总179期

农牧业信息化专题

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1. 一种基于酶电化学阻抗测量的新型生物传感技术
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▶ 前沿资讯

1 . Sony launches solution for crop management (索尼推出农作物管理解决方案)

简介: 索尼公司推出了无人机智能农业解决方案,通过捕获、收集和分析田间数据,实现日常作物的管理和监测。与传统的网络化方法不同,索尼智能农业解决方案无需网络连接即可实现现场操作。采用传感器融合和快速拼接技术,由新研制的无人机多光谱传感单元和快速场分析图像分析软件组成。**双传感器摄像装置。**多光谱传感单元携带双传感器摄像机单元和精确的地理定位传感单元。它可以安装在无人机上,在一次飞行中捕获归一化差异植被指数(NDVI)和RGB图像。**使用快速场分析器生成地图。**在飞行过程中,这种传感器通过索尼的算法和实时处理器获取高度精确的地理位置、高度和姿态信息,同时将地理数据与捕捉到的每张照片同步。这允许用户通过仅使用地理定位数据拼接捕获的数据来使用快速场分析器生成地图。**完全离线的环境。**根据索尼公司的说法,它需要较少的重叠图像,因此,它提高了单次飞行的效率,覆盖范围更广,使无人机能够收集300-400幅图像,最大覆盖范围为160英亩。所有流程都是在完全离线的环境中进行的,不使用耗时的云处理,使用户可以在现场得到准确的分析结果并立即采取行动。**先正达的实地调查项目。**在发展过程中,索尼与行业伙伴开展了多项实地调研项目,牢牢把握市场问题和需求,其中包括与先正达的合作。先正达选择索尼的智能农业解决方案作为其综合数字农业服务的一部分。这两家公司紧密合作,为终端用户提供索尼智能农业解决方案和先正达卫星成像软件,并保证两者之间的兼容性。新的智能农业解决方案计划于2019年春季在美国和加拿大推出。

来源: FUTURE FARMING

发布日期: 2019-03-18

全文链接:

<http://agri.ckcest.cn/file1/M00/06/61/Csgk0FyS9FOAJonjAAKZUES2tnY554.pdf>

2 .Veris launches tillage and planter mounted soil sensors (Veris发布安装土壤传感器的耕作和播种机)

简介: Veris Technologies introduces a real-time sensor suite that measures 4 soil features while planting or tilling. The iScan+ by Veris Technologies optimises implement adjustments. It also warns against yield robbing mistakes with real-time insight into changing soil conditions, while providing high-resolution soil mapping for long term precision ag zones.

Infield adjustment features are underutilized. “Manufacturers are giving growers more options to adjust implements to improve equipment operation and crop performance,” said Eric Lund, president of Veris Technologies. “Without high quality soil information these infield adjustment features are underutilised and can be erroneous.” **The iScan+ platform deploys 4 sensing modules adapted from Veris’ line of soil sensors:** (1) **Moisture:** Moisture affects seed germination, emergence, root-inhibiting compaction, and overall seedbed quality. The iScan+ gives growers immediate feedback as moisture changes across the field. With that information, planters and tillage tools have the information needed to optimise adjustments for varying moisture conditions. (2) **Temperature:** Even when a planter drops seed into ideal moisture and a smooth seedbed, low soil temperature can cause

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damage during this crucial time. According to Veris, a key benefit of the iScan+ is its ability to inform planting decisions even before the planter hits a field by mounting to the seedbed preparation tool. When attached to a planter it has the flexibility to measure temperature and moisture above and below the current seed drop. (3) **CEC**: Wet clay soil compacts differently than wet silt soil. That's why Veris has combined the moisture sensor module with soil cation exchange capacity (CEC) readings. This fused data feed can help avoid stunted plants caused by sidewall and seedbed compaction. Veris soil CEC readings are gathered by measuring the electrical conductivity (EC) of the soil. Because the electrical current travels 2 feet into the rooting zone, these readings provide soil depth and water-holding capacity information that has significant implications on management decisions. (4) **Organic Matter (OM)**: Veris OM makes it possible to manage each yield environment accurately, whether creating variable rate seeding prescriptions, guiding fertility sampling or improving nitrogen management. The robust but small module that houses the Infrared and Red light sensors is designed to resist breakage and mud sticking to the optical window. **In-cab visualization**. A real-time display and Bluetooth connection provides growers in-cab visualisation. The data stream is adaptable to meet implement control needs and the output files are compatible with all farm software tools. According to Veris, with a simple install and small module components, this technology can be utilised on multiple implements. Additional flexibility is provided by the optional cart which can pull the iScan independent of a field operation. It can also be configured to map mid-season in growing crops.

来源: FUTURE FARMING

发布日期: 2019-03-13

全文链接:

http://agri.ckcest.cn/file1/M00/06/61/Csgk0FyS882AJG6pAAfF8Jw_z20937.pdf

➤ 学术文献

1. 智慧农业发展现状及战略目标研究

简介: 随着现代信息技术在农业领域的广泛应用,以智慧农业为表现形态的农业智能革命已经到来。智慧农业是农业信息化发展从数字化到网络化再到智能化的高级阶段,对农业发展具有里程碑意义,已成为世界现代农业发展趋势。本文分析了日本、欧盟、英国、加拿大、美国等国家和地区政府针对智慧农业发展相继出台的政策、措施和发展规划;并分析了中国农业1.0到4.0的发展历程和近年来智慧农业的发展现状。围绕发展过程中存在的各种问题和需求,阐述了突破智慧农业核心技术、实现农业“机器替代人力”、“电脑替代人脑”、“自主技术替代进口”的三大转变,提高农业生产智能化和经营网络化水平,加快信息化服务普及,降低应用成本,为农民提供用得上、用得起、用得好的个性化精准信息服务,大幅度提高农业生产效率、效能、效益,引领现代农业发展的战略目标,并提出了8个重点任务建议和推动智慧农业发展的5项政策建议。

来源: 智慧农业

发布日期: 2019-02-22

全文链接:

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<http://agri.ckcest.cn/file1/M00/06/61/Csgk0FyQx76AenBNAAbB-f4qAyQ576.pdf>

2. “互联网+”现代农业国内外应用现状与发展趋势

简介:“互联网+”为农业现代化建设提供了新路径、新方法,是我国现代农业发展的重要切入点和落脚点。本文在总结国内外“互联网+”现代农业发展的政策和产业布局战略基础上,分析了美国规模化农场物联网应用、德国精准农业智能装备、日本轻便型智能农机具精细化生产、澳大利亚高效生态农业等发达国家“互联网+”现代农业的发展特征,以及我国在大田种植、设施农业、水产养殖、畜禽养殖、种业等方面的应用情况,并提出了未来“互联网+”现代农业在生物信息学、人工智能、无人机植保以及智能互联产品研发与应用方面的发展趋势。

来源: 中国工程科学

发布日期:2018-04-15

全文链接:

<http://agri.ckcest.cn/file1/M00/06/61/Csgk0FyQxziAOIWdAAvGmZyEWks626.pdf>

➤ 相关专利

1 Novel Biosensing Technology Based on Enzymatic Electrochemical Impedance Measurement (一种基于酶电化学阻抗测量的新型生物传感技术)

简介: A method for quantifying a substance, which method includes the steps of : introducing a sample containing a measurement target substance to a biosensor comprising an enzyme electrode comprising an electrode and an oxidoreductase placed on the electrode in a state where direct electron transfer with the electrode occurs, and a counter electrode; applying an AC voltage to the enzyme electrode to carry out impedance measurement; and calculating the substance concentration based on an index obtained by the impedance measurement; is provided. **专利类型:** 发明专利; **专利状态:** 转让; **申请日期:** 2018-08-24; **发布日期:** 2019-02-28; **申请号:** US16111585; **公开号:** US20190064100A1; **申请来源:** 申请人直接申请 (数据来自Incopat数据库)。

来源: 美国专利局

发布日期:2019-02-28

全文链接:

http://agri.ckcest.cn/file1/M00/06/60/Csgk0FyJuPeAWte_ABOYYKvZE2c010.pdf

2 . SENSOR AND SENSOR ARRAY (传感器和传感器阵列)

简介: Provided is an impedance sensor that can detect, stably and with good accuracy, the quantity and properties of a minute biological material. An impedance sensor (1) comprises : a measurement electrode pair (30) which is formed in a certain wiring layer in a multi-layer wiring circuit substrate; and one or a plurality of dielectrophoretic electrodes (31) which are formed in a

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wiring layer below said certain wiring layer. 专利类型：发明专利；专利状态：专利申请尚未授权；申请日期：2018-06-04；发布日期：2019-01-24；申请号：WOJP18021396；公开号：W02019017094A1；申请来源：申请人直接申请（数据来自Incopat数据库）。

来源：世界知识产权组织

发布日期：2019-01-24

全文链接：

<http://agri.ckcest.cn/file1/M00/06/61/Csgk0FyQx1aAYsvWABkkCNFQUyk229.pdf>