



2023年第32期总407期

农牧业信息化专题

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▶ 前沿资讯

1 . TMS TreeScout, a tractor-mounted sensor for precision orchard management (TMS TreeScout, 一种安装在拖拉机上的精确果园管理传感器)

简介: Aurea Imaging, a crop intelligence provider for fruit growers, announced the launch of TMS TreeScout®, a fully integrated tractor-mounted sensor for precision orchard management. Powered by AI and 3D computer vision, TMS (Tractor Mounted Sensor) TreeScout helps farmers with tasks including tree scanning, blossom mapping and vigor scoring of trees. The market is challenging for fruit growers and orchards. Orchard owners must adapt to lower prices, budget for higher costs, navigate labor issues and respond to pressures to reduce their environmental impact. AI-powered TMS TreeScout is a high-precision farming solution that gives fruit growers complete control over data collection, analysis and execution without the need of external services or third parties to help manage it. TreeScout works seamlessly with all major root pruners, sprayers and data platforms, enabling farmers to give each tree what it requires to thrive, while also saving on water, fertilizer and labor expenses.

How TMS TreeScout

WorksMounted on the grower's tractor, TreeScout contains a high-definition 3D computer vision system and edge computing processing capacity that integrates with existing RTK-GPS equipment. The TMS TreeScout scans the trees in high definition while driving through the orchard, spraying, spreading or mowing, and then collects and uploads data to the cloud. Once the data is analyzed, farmers receive prescription maps with insights on individual trees, which enables growers to provide every tree with tailored care. "We are on a mission to unlock the potential of every fruit tree," said Bert Rijk, CEO and founder of Aurea Imaging. "The TMS TreeScout ensures farmers finally have a precision orchard solution that gives them control of their orchards to maximize profits.

Born out of the experience

The TMS TreeScout was born out of the experience. Aurea Imaging founder Rijk grew up on a farm in the Netherlands and saw firsthand the problems farms had collecting actionable data to help their business. Most of the data collected was about entire farms, which offered farmers few avenues to improve since customized treatment is necessary for every tree. TreeScout addresses these challenges and helps farmers produce more food while also protecting the environment.

来源: Future Farming;

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全文链接:

<http://agri.ckcest.cn/file1/M00/10/2F/Csgk0GTKDoGABoJRAAbWF5fUiLw371.pdf>

2 . German study identifies two field robots perfect for potato cultivation (德国一项研究确定了两种适合马铃薯种植的田间机器人)

简介: 德国最近的一项研究揭示了欧洲市场上用于马铃薯种植的最佳田间机器人;

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Robotti LR和Robotti 150 D。该研究评估了大约35种不同的现场机器人，基于它们对植物发育要求的遵从性，特别关注几何尺寸。结果表明，Robotti LR和Robotti 150 D两款田间机器人非常适合马铃薯种植，能满足最低要求，并提供额外的可选功能。

马铃薯机器人要求

马铃薯种植涉及具体的种植步骤，包括留茬种植、施肥、基本耕作、苗床准备和种植、植物养护和收获。该研究确定了适用于马铃薯田的AFRs的最低要求。这些要求主要涉及机器人的几何方面，考虑到山脊结构和马铃薯植物的习性。基本要求包括轨道宽度为0.75米或其倍数，离地间隙在0.35米至0.8米之间。

马铃薯集约种植需要无人机器人

马铃薯种植一直是一个劳动密集型和高要求的过程，但田间机器人的出现为自动化和提高精度提供了新的机会。德国的这项研究由莱布尼茨农业技术研究所和柏林理工大学的一组研究人员进行，旨在确定满足马铃薯发育阶段特定要求的田间机器人系统，同时确保最佳性能。

超过35个Ag机器人

2022年的研究对欧洲野外机器人进行了广泛的互联网研究，考虑了商用系统、处于测试阶段的机器人和原型。共鉴定出35台ag机器人，其中17台已上市，4台处于测试阶段，14台处于开发阶段。由于目前的贸易限制，分析的重点是欧洲市场。

综合方法帮助Robotti

Robotti LR和Robotti 150 D田间机器人不仅满足马铃薯生产的最低要求，还提供了额外的功能。配备合适的运载工具，它们可以自动驾驶，执行喷洒任务，并进行机械除草。此外，它们还可以监测植物健康，促进病虫害的适应性控制，并优化施肥。这种综合方法有可能大大减少农民的工作量，提高效率，并将化肥和农药的使用量减少25%。

来源: Future Farming;

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全文链接:

<http://agri.ckcest.cn/file1/M00/03/5D/Csgk0Ykgwt0AfM2PAAVjqdVTm14857.pdf>

➤ 相关专利

1 . Remote piloted aerial system (RPAS) for plant performance and growth measurement (用于植物性状和生长测量的遥控航空系统)

简介: The process of agriculture involves perpetual supervision of the environmental conditions and the growth of the plant. Specially in mountain area, there is several challenges face like small farmland, Reachability of farming equipment, monitoring issues etc. Manually it is difficult to perform all these functions simultaneously in hilly areas. The quick fix to vanquish the problems faced during perpetual supervision of the environmental conditions and the growth monitoring of plants is to employ a Remote Piloted Aerial System (RPAS), which could help the farmers to avoid tedious tasks. Notably when the area under cultivation is more then, the task of monitoring becomes even more laborious. The usage of RPAS is handy in diagnosing the problems in the plant growth beforehand. In this work, we try to resolved all issues of farmers during farming like from soil quality identification to suggest right time to crop ripped.

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来源：印度专利局；

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<http://agri.ckcest.cn/file1/M00/10/2F/Csgk0GTKDF6AW1d3AC98hqvmC3Q496.pdf>

2. 固态土壤传感器

简介：一种固态土壤养分传感器包括用于插入到土壤中的传感器叶片，该传感器叶片包括电绝缘基板。所述传感器还包括设置在基板上的第一电极和第二电极，每个电极包括：朝向插入到土壤中的传感器叶片的端部定位的感测区域，以及远离传感器叶片的端部并电连接到感测区域的接触区域以用于与电极形成电连接。所述传感器还包括在感测区域和接触区域之间的在第一电极和第二电极中的每一个上方的电绝缘；在第一电极的感测区域上方的参比膜；和在第二电极的感测区域上方的养分感测膜；其中第一电极和第二电极的感测区域在传感器叶片上相距小于10mm；并且参比膜和养分感测膜各自包括一层或多层的溶剂浇铸聚合物。

来源：国家知识产权局；

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全文链接:

<http://agri.ckcest.cn/file1/M00/03/5D/Csgk0Ykgw0iAQELAADROxRvJB00981.pdf>

3 Soil samplers for monitoring soil conditions (用于监测土壤状况的土壤采样器)

简介：A soil sampler attachable to a vehicle for agricultural uses includes a collector configured to collect a soil sample from a field as the vehicle advances across the field. The soil sampler further includes a preprocessor connected to the collector and configured to receive the soil sample from the collector and to preprocess the soil sample to dilute the soil sample. The soil sampler also includes a sensor connected to the preprocessor and configured to determine a concentration of at least one analyte in the soil sample. The soil sampler further includes a disposer connected to the sensor and configured to dispose the soil sample after the sensor determines the concentration of the at least one analyte in the soil sample.

来源：世界知识产权组织；

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全文链接:

<http://agri.ckcest.cn/file1/M00/10/2F/Csgk0GTKDaGAAVDLAFxjJYjTSs0088.pdf>

4. 营养液软测量方法、装置、电子设备及存储介质

简介：本发明提供一种营养液软测量方法、装置、电子设备及存储介质，所述方法包括：将营养液的目标溶液参数的数值输入至径向基函数神经网络软测量模型，获取所述径向基函数神经网络软测量模型输出的所述营养液的钾离子浓度；所述目标溶液参数包括铵根离子浓度、pH值和全固态钾离子选择性电极的电位；所述径向基函数神经网络软测量模型是利用所述目标溶液参数的样本及对应的钾离子浓度标签进行训练得到的。本发明

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可以对输入的营养液目标溶液参数的数值进行对应钾离子浓度的预测,实现了全固态钾离子选择性电极对营养液的软测量,可以有效提高营养液中钾离子浓度测量的准确性。

来源: 国家知识产权局;

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