



AgriTech Solutions: Innovating VET for Sustainable Agriculture
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List of identified available literature and materials on precision agriculture

Engaged teachers: Stefanovski Saso, Milosheva Zaklina, Jovanova Kristina, Doncheva Milica, Nikolov Efremcho, Slavkovic Sonja

Location: Kumanovo, Sveti Nikole, Skopje, Strumica, Kavadarci

R.b.	Title	Short description
1	"Precision agriculture—a worldwide overview" Year: 2002 Authors: Zhang, N., Wang, M., & Wang, N. Computers and Electronics in Agriculture, 36(2–3), 113–132 https://www.sciencedirect.com/science/article/pii/S0168169902000513	One of the most cited review papers on precision agriculture. Explains basic concepts, technologies (GPS, sensors, variable fertilization), and global spread.
2	"Precision agriculture and food security" Year: 2010 Authors: Gebbers, R., & Adamchuk, VI Science, 327(5967), 828–831 https://www.science.org/doi/10.1126/science.1183899	A paper published in the journal Science examines the benefits of precision agriculture for global food security, as well as its impact on efficiency and sustainability.
3	"Twenty five years of remote sensing in precision agriculture" Year: 2013 Author: Mulla, DJ Biosystems Engineering, 114(4), 358–371 https://www.sciencedirect.com/science/article/abs/pii/S1537511013001202	This paper provides a retrospective look at the role of remote sensing (satellites, drones) in the development of precision agriculture and identifies the remaining challenges.
4	"Digital technologies in agriculture and rural areas: Status report" Year: 2019 Publisher: FAO https://www.fao.org/3/ca4887en/ca4887en.pdf	FAO report assessing the status of digitalization in agriculture, with a focus on countries under development. Also includes a section on precision agriculture and IoT technologies.
5	"Precision Agriculture Technology for Crop Farming" Year: 2016 Author: Qin Zhang Publisher: CRC Press https://www.crcpress.com/Precision-Agriculture-Technology-for-Crop-Farming/Zhang/p/book/9781498702263	A book that provides a practical guide to application of technologies in precision agriculture – GPS, variable management, yield mapping, sensors and mechanization.
6	"Smart Farming Technologies for Sustainable Agricultural Development" Year: 2020 Editors: Allam Hamdan, Alaa Hussein, Kamel Rouibah Publisher: IGI Global https://www.igi-global.com/book/smart-farming-technologies-sustainable-agricultural/240776	An academic book that covers a wide range of smart technologies – IoT, artificial intelligence, automation and their application in agriculture.
7	"Digitalization in Agriculture: Market Assessment Report (North Macedonia)"	Regional report analyzing the level of digitalization in



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	Year: 2021 Publisher: USAID North Macedonia https://pdf.usaid.gov/pdf_docs/PA00XQEV.pdf	agriculture in North Macedonia. Contains studies on application of sensors, digital platforms and the potential for precision agriculture.
8	"Smart Farming Opportunities in the Western Balkans" Year: 2022 Publisher: GIZ https://www.giz.de/en/downloads/giz2022-smart-farming-western-balkans.pdf	A regional report from GIZ identifying potentials, challenges and recommendations for the development of smart and precision agriculture in the Balkans.
9	"EIP-AGRI Focus Group: Digital tools for sustainable nutrient management" Year: 2021 Publisher: European Commission (EIP-AGRI) https://ec.europa.eu/eip/agriculture/sites/default/files/eip-agri_fg_digital_tools_for_sustainable_nutrient_management_final_report_2021_en.pdf	EU report analyzing digital and precise tools for fertilization, soil and resource management. It can be applied in precision agriculture.
10	"Handbook of Precision Agriculture: Principles and Applications" Year: 2006 (but still a reference source) Editor: Ancha Srinivasan Publisher: Food Products Press (Taylor & Francis Group) https://www.taylorfrancis.com/books/mono/10.1201/9781420009671/handbook-precision-agriculture-ancha-srinivasan	A comprehensive handbook for researchers and practitioners. It includes all aspects of precision agriculture – software, hardware, economic effects, and management practices.
11	National Research Council. 1997. <i>Precision Agriculture in the 21st Century: Geospatial and Information Technologies in Crop Management</i> . Washington, DC: The National Academies Press. https://doi.org/10.17226/5491 . ISBNs: Paperback: 978-0-309-46616-5 Hardcover: 978-0-309-05893-3 DOI: https://doi.org/10.17226/5491	Precision Agriculture in the 21st Century provides an overview of specific technologies and practices under the umbrella of precision agriculture, exploring the full implications of their adoption by farmers and agricultural managers. Discusses how precision agriculture can dramatically impact irrigation decision-making, crop selection, and of crops, pest management, environmental issues, as well as prices and market conditions. Geographic dimensions — on-farm, regional, national — are also considered. of precision agriculture and considers how quickly and widely the agricultural community can be expected to adopt new information technologies. It also highlights the uncertainties and





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		The exciting possibilities of this approach to agriculture can be used by policymakers, regulators, scientists, farmers, educators, students, learners and suppliers in the agricultural industry.
12	Book: <i>Precision Agriculture Technology for Crop Farming</i> Author: By Qin Zhang Edition 1st Edition Released: 2015 eBook Published October 15, 2015 DOI https://doi.org/10.1201/b19336 eBook ISBN 9780429159688 https://www.taylorfrancis.com/books/oa-edit/10.1201/b19336/precision-agriculture-technology-crop-farming-qin-zhang	This book offers an overview of the development of precision agriculture technology, a presentation of the state-of-the-art followed with achievements and the future needs of the entire the precise agriculture. represent different styles of precision farming technologies suitable for large-scale mechanized agriculture; highly automated based production on community; and fully mechanized agricultural practices that are often found in newly established The Book economic regions. emphasizes the introduction of basic technical characteristics on sensor technologies, data processing and interpretation, crop modeling and theory of on control on production, intelligent machines and field robots for precision agriculture production.
13	Book: <i>Precision Agriculture Basics</i> Authors: D. Kent Shannon, David E. Clay, and Newell R. Kitchen Co-authors: Sharon A. Clay, BW French and FM Mathew. ISBN 978-0-89118-367-9 Date of issue: 5-2018 Publisher: American Society of Agronomy, Crop Science Society of America, and the Soil Science Society of America https://openprairie.sdstate.edu/plant_book/5	The authors address the growing popularity and availability of precision equipment, the accessibility for farmers, and more. how and producers. With proper to application, precision agriculture management can improve the profitability and sustainability of production. Using a multidisciplinary approach, readers learn to make on-farm decisions based on the latest insights agricultural crop and tools in science, engineering, and geostatistics. data





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		Fundamentals of precision agriculture also includes an impressive video glossary with interviews with agronomists at their work and in the field. Fundamentals of precision agriculture is aimed at students, counselors for crops, farmers, workers, teachers, students and practitioners interested in the application of site-specific agricultural management. The book covers sensor approaches in precision agriculture and aims to bring together the "state of the art" of the
14	• Book: Sensing Approaches for Precision Agriculture • Authors: Ruth Kerry, Alexandre Escolà • <u>Progress in Precision Agriculture</u> • DOI https://doi.org/10.1007/978-3-030-78431-7 • Publisher: Springer Cham • eBook Packages <u>Biomedical and Life Sciences, Biomedical and Life Sciences (R0)</u> • Hardcover ISBN978-3-030-78430-0 Published: 24 November 2021 • Softcover ISBN978-3-030-78433-1 Published: 25 November 2022 • eBook ISBN978-3-030-78431-7 Published: 23 November 2021 • Series ISSN2511-2260 • Series E-ISSN2511-2279	most popular sensor techniques and the current state of research on the application of Sensors in precision agriculture. Provides a broad overview of the use of sensors in agriculture and a coherent introduction for new professionals and scientists- researchers. Readers introduce to potential applications of various sensors, how to use them properly and their limitations for use in PN. Chapters on specific topics and case studies provide depth enabling implementation of the methods by users. A general introduction to sensing techniques in PN is followed by Chapters 2–9 which cover the most important specific sensing techniques, and Chapters 10–13 include mini-case studies, each showing advanced applied to different sensing methods. Finally, there is an epilogue about what kind of development we expect in sensors and data analysis.
15	Book: Precision Agriculture: Modelling Authors: Davide Cammarano, Frits K. van Evert, Corné Kempenaar DOI https://doi.org/10.1007/978-3-031-15258-0 Publisher: Springer Cham	This book describes the use of monitoring models crops and soils in precision agriculture and how they are used to support farmers' decisions. It begins with an overview of precision





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	Hardcover ISBN 978-3-031-15257-3 Issued: 04 January 2023 Softcover ISBN 978-3-031-15260-3 Issued: 05 January 2024 eBook ISBN 978-3-031-15258-0 Issued: 03 January 2023 Series ISSN 2511-2260 1. Series E-ISSN 2511-2279	agriculture since the early days of yield monitoring in the 1980s the 1990s to the present day, with an emphasis on the role of models. It continues with descriptions of the different types of models and the possibilities for their application in precision agriculture. It concludes with a chapter on socio-economic factors and barriers to the adoption of precision agriculture. The individual chapters focus on technologies for the main processes in precision agriculture: the use of water, nitrogen and other inputs, as well as weeds, pests and diseases. The final section contains a series of short chapters, each describing a commercial, model-based service that is currently available to farmers.
16	Book: Precision Agriculture in Field Horticulture Subtitle: The Potential for Agri-technology to Facilitate Innovation and Promote Value in Outdoor Fruit and Vegetable Production Authors: Paul Newell Price, Lizzie Sagoo, Roger Robson-Williams DOI https://doi.org/10.1007/978-3-031-96534-0 Publisher: Springer Cham Hardcover ISBN 978-3-031-96533-3 Published: 01 September 2025 Softcover ISBN 978-3-031-96536-4 Due: 15 September 2026 eBook ISBN 978-3-031-96534-0 Published: 31 August 2025 Series ISSN 2511-2260 Series E-ISSN 2511-2279	This book provides an overview of the role of precision agriculture in the production of field horticultural crops. It also shows how science and engineering are redefining the role of precision agriculture in our fields, orchards, and vineyards. The book offers an overview of the current state of the profession, case studies of real-world applications of agro-technology, and a comprehensive overview of the state of the art in the field. on horticulture and perspectives based on evidence about likely future developments. It addresses challenges, limitations and potential of technologies for precision agriculture production, harvesting and processing post-harvest sorted in of various annual and perennial crops. Providing fresh produce presents unique challenges and opportunities that lend themselves to the application of agro-horticultural technology to address issues of high labor costs





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		to food safety and traceability. In fact, the opportunities offered by automation are driving a complete redesign of food production. certain field horticultural cultures.
17	Title: Physical Methods in Agriculture Subtitle: Approach to Precision and Quality Authors: Jijí Blahovec, Miroslav Kutílek DOI https://doi.org/10.1007/978-1-4615-0085-8 Publisher: Springer New York, NY eBook Packages Springer Book Archive Copyright Information Springer Science+Business Media New York 2002 Hardcover ISBN 978-0-306-47430-9 Published: 31 January 2003 eBook ISBN 978-1-4615-0085-8 Published: 06 December 2012	The first attempts to use physical methods in agriculture can be found in the nineteenth century as a necessary part of farm and food machinery. There were mechanics, electrical sciences and physical chemistry which were the first physical disciplines used in agriculture and the food industry. At the same time, research into the physical properties of soils, which started for have become one of the main topics of soil science research. The twentieth century was a century of research into the physical properties of agromaterials. The physical properties of on agromaterials were studied, for example, in the USA, where ASAE played a major role (1907), and in the Soviet Union, where a separate Institute of Agrophysics was established (1932). The activities of ASAE expanded in the 1960s and 1970s. The 1960s, especially with the role of the group of Mohsenin and his followers. At that time, the Institute of Agrophysics at the Polish Academy of Sciences in Lublin was established and conferences on physical methods in agriculture began. ublin and began to organize conferences on physical methods in agriculture. The participants of the last conference - "Physical Methods in on Agriculture - Approach to Precision and Quality", held on August 27-30, 2001, prepared basis for this book.
18	Precision agriculture '13 Author John V. Stafford	Precision farming is now "mainstream" in agriculture and plays a key role in measuring





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	DOI https://doi.org/10.3920/978-90-8686-778-3 Publisher: Wageningen Academic Publishers Wageningen eBook ISBN 978-90-8686-778-3 Issued: 04 September 2013	industry with aspects of the environment, market forces, requirements for quality, traceability, vehicle guidance and crop management. Research continues to be reported necessary and should and disseminated to a wide audience. This book contains peer-reviewed papers presented at the 9th European Conference on Precision Agriculture, held in Lleida, Spain. The papers reflect the wide range of disciplines that influence agriculture: precision technology, agricultural science, agronomy, science, information technology, decision support, remote sensing and others. The wide range of research topics will be reported on soil a valuable resource for researchers, advisors, teachers and agricultural professionals and long after the conference ended.
19	Precision Agriculture y99 Paperback – 1 Jun. 1999 Publisher: Wiley–Blackwell ISBN-10: 1841270423 ISBN-13: 978-1841270425	Precision farming practices in agricultural and Horticultural crops are a high-profile topic in the agricultural industry worldwide. She acknowledges spatial variation within fields in the soil, crops and environmental factors. Its direction is to direct the intake of resources to the fields according to locally determined needs. The subsequent optimized and/or reduced use of resources such as agrochemicals and fertilizers leads to a reduced ecological footprint and improved farmer performance. However, the concept is technology-driven, with interpretation of spatial variation and the yields for necessary understanding on of soil science, the science of the crops and agronomy of





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		specific site are much less developed. Much research is currently underway to provide a solid scientific basis for the concept and his implementation of in precision agriculture. These Proceedings of the Second European Conference on Precision Agricultural Production, published on behalf of the Chemical Industry Society, London, include more than 90 papers assessed by two scientific reviewers. They offer a unique source of information on researchers and experts in agriculture and plant sciences.
20	An edition of Precision Livestock Farming Applications (2015) Precision Livestock Farming Applications Making Sense of Sensors to Support Farm Management by Ilan Halachmi "Precision Animal Husbandry Applications: Sensors to Support Farm Management" Open Library OL48217016M ISBN 139789086862689	This book focuses on using advanced measurement tools and techniques for decision-making at the level of farm. The book serves as an introduction to precision farming from a European and American perspective. It also includes papers that review early detection technologies lameness in animals. The book explores the precise how livestock breeding can benefit farmers and examines its applications in the genetics and health of cattle, calves and sheep. In addition, it covers topics such as automatic detection of changes in animal health in poultry, pigs and cows, milk quality and content sensors and their practical applications. The book ends with a section that includes questions and answers on this topic, along with a concluding discussion.
21	Handbook of Precision Agriculture: Principles and Applications Haworth Press https://www.iges.or.jp/en/pub/handbook-precision-agriculture-principles-and/en?utm_source=chatgpt.com	Helps in the application of technologies, applicability models, economic and environmental aspects
22	The Precision-Farming Guide for Agriculturists, Morgan & Ess, John Deere Publications (2017, 4th edition, ISBN 0-86691-435-8)	Covers GPS steering, yield monitoring, software and mechanical applications, great for gain an international perspective.





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23	Precision Agricultural Aviation Application Technology , author Yubin Lan (2025)	focused on new technologies in aviation applications in precision agriculture, such as drones, remote video retrieval and RTK positioning. Subjects: Agricultural Engineering Contributor: Antonio Comparetti
24	Agricultural Engineering Contributor: Antonio Comparetti https://www.researchgate.net/publication/387662689_Fundamentals_of_Precision_Agriculture	Precision agriculture or precision farming is the targeted application of crop inputs according to locally determined crop needs. Therefore, it is a georeferenced application of investments in crops, the rates of which should be those required by the crop. The most important information on the topic being described is: overview; brief history of precision agriculture; theoretical foundations of precision agriculture; precision agriculture cycle; georeferenced measurement of parameters in the field; analysis and interpretation of georeferenced data for mapping parameters in the field; application of investments in crops with spatially variable rate; precision farming instruments; current scenario of precision farming; current Precision viticulture scenario; Global Navigation Satellite Systems (GNSS) and differential correction technique; proximal soil sensors and the parameters of the crops in the field; remote sensing from unmanned aerial vehicles (UAVs) and satellites; devices for setting up and controlling the application of crop inputs with a spatially variable rate; systems for assisted guidance of agricultural machines; perspectives of precision agriculture. environmental protection parameters of crops and soil within the field of spatial variability in





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		within the field input data for crops GNSS proximal sensors remote sensing devices for setting up and controlling GIS systems for guiding agricultural machinery.
25	Precision Agriculture Techniques and Tools, In book: Agronomy Vistas: Emerging Trends in Crop Management (pp.22-43) Publisher: Stella International Publication Authors: Pavithra Govindaraj Sakthivel Sivakumar Kalaimathi Vellaiyadevan Adhisankaran Kandasamy https://www.researchgate.net/publication/380426089_Precision_Agriculture_Techniques_and_Tools	Precision agriculture is a data-driven management approach that requires the collection, processing, and analysis of agricultural data at individual, temporal, and spatial levels to ensure accuracy and precision. It is integrated to improve resource use efficiency, increase productivity, improve quality, increase profitability, and ensure sustainable operations. Precision agriculture uses technologies such as GPS, GIS, sensors, and variable-rate applications to effectively manage resources, ensuring that input data are carefully measured and applied for increased yields compared to traditional methods. The approach emphasizes the execution of the right thing, in the right place, at the right time and following the correct protocols. Various tools and techniques, such as GPS, GIS, sensor technology, network soil sampling and nutrient expert systems substances, contribute to the success of precision agriculture. These technologies enable site-specific nutrient management, real-time nitrogen management, yield monitoring and analysis vegetation indices. The integration of big data, machine vision, IoT, artificial intelligence and blockchain further enhances precision agriculture. The analysis





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		of big data enables forecasting and decision making in real time. On the other hand, machine vision provides opportunities for non-destructive monitoring. IoT and artificial intelligence, including machine and deep learning, contribute to guidance systems, high-throughput phenotyping, and intelligent robots in agriculture. Blockchain technology addresses the challenges faced by the current data sharing infrastructure and improves trust in the supply chain. Precision agriculture is a modern and sustainable management strategy that uses advanced technologies to optimize agricultural practices.
26	Precision Agriculture: Technologies And Application In book: Agronomy Vistas: Emerging Trends in Crop Science (pp.44-58) Publisher: Stella International Publication Authors: Saniga, Gangadhar Krishnappa, Sushma https://www.researchgate.net/publication/382995543_Precision_Agriculture_Technologies_And_Application	Precision agriculture combines advanced technologies such as GIS, GPS and RS to enable farmers to effectively manage field variability, optimizing cost-benefit ratios compared to traditional methods. Site-specific management allows for reduction of investments, and at the same time maximizing results, attracting farmers due to its efficiency and sustainability. In addition, with minimizing inputs, precision agriculture reduces the runoff of fertilizers and pesticides, thus improving environmental conditions in agricultural ecosystems. The development of easy-to-use decision support systems that integrate GIS, GPS and RS technologies is of essential to facilitate adoption and use among





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		farmers. In addition, a robust training and technology transfer program is necessary to accelerate the introduction of precision agriculture in the agricultural sector. Therefore, it is essential to understand the technologies and applications of precision agriculture. This ensures that farmers possess the necessary knowledge and skills to effectively implement and integrate precision agriculture practices into their operations, ultimately leading to increased productivity and sustainability.
27	Precision Agriculture: Using technologies to Boost Crop Farming Authors: Subhash Mandloi, Jyoti Bangre https://www.researchgate.net/publication/363839420_Precision_Agriculture_Using_technologies_to_Boost_Crop_Farming	Precision agriculture, also known as precision farming, is a systematic approach to crop management that generally uses information technology (IT) and satellite technology to identify, assess, and manage the spatial and temporal variability of agronomic parameters (e.g., soil, pests or diseases, fertigation, etc.) within a field by applying appropriate amount of input funds in appropriate time to achieve optimal productivity and profitability, while reducing environmental impact. It is decided that inputs (such as fertilizers, irrigation and pesticides) are applied in the right amount, at the right time and in the right place. This is generally referred to as "Site-Specific Management Strategies" (SSMS).
28	Precision Agriculture: Technology and Economic Perspectives, edited by Soren Marcus Pedersen and Kim Martin Lind, published by Springer in 2017	This title offers a structured and economically oriented analysis of precision agriculture, with concrete examples and an introduction through all the





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		aspects of technology and management.
29	Precision Farming by Premjit Sharma (ed. Gene-Tech Books, 2007)	A book that discusses technology, GIS, economics, and The implications of precision agriculture. A practical guide
30	Handbook of Precision Agriculture: Principles and Applications, edited by Ancha Srinivasan	with examples and principles underlying precision agriculture.
31	"Precision Agriculture Technology for Crop Farming" – Qin Zhang (2015)	Covers the technologies driving precision agriculture – GPS, sensors, automation, data and their application in plant breeding production.
32	"The Precision-Farming Guide for Agriculturists" – John Deere Publishing	A practical guide from a leader in the agribusiness industry, with explanations of precision fertilization, variable zone management, and agro data collection.
33	"Precision Agriculture for Sustainability and Environmental Protection" – Margaret Oliver et al. (2013)	Focus on how precision agriculture can help reduce costs, fertilizer and pesticide use, and improve of the ecosystem.
34	FAO e-learning course – "Introduction to Precision Agriculture"	Free online course from FAO which covers basic concepts, use of digital technologies and application in various agricultural systems.
35	"GIS Applications in Agriculture – Volume Two: Invasive Species, Pests and Diseases" – Francis Pierce & David Clay	A book that shows how geographic information systems are used for monitoring and control of pests in precision agriculture.
36	"Smart Farming Technologies for Sustainable Agriculture Development" – IGI Global (2020)	Academic compilation on using IoT, drones, satellites imagery and machine learning in agriculture
37	"Variable Rate Technology (VRT) in Precision Agriculture" – USDA Fact Sheet	A brief guide from the US Department of Agriculture on variable application technology for fertilizers and crop protection products funds.
38	"Precision Agriculture in the Republic of North Macedonia" – National Report / MAFWE (2022)	Analysis of the situation, availability of technologies and recommendations for the development of smart agriculture in Macedonia.





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39	"Remote Sensing for Agriculture" – NASA Applied Remote Sensing Training (ARSET)	Satellite usage training moisture monitoring data, vegetation, crop stress and resource optimization
40	"Data-Driven Agriculture: The Future of Farming" – World Bank Report (2021)	Global report on the use of Big Data, algorithms and digital tools for real-time agricultural decisions.
41	Precision farming: what it is and why to invest in it him https://agrotim.mk/shto-e-precizno-zemjodelstvo-i-zoshto-da-se-investira-vo-nego/	The primary goal of precision agriculture (PA) is to strive for profitability, efficiency, and sustainability on the farm. High-tech terms like drones, robots, sensors, geomapping and big data come up when discussing precision. Not only are these concepts misunderstood and complex, but they all come with frequent great prices. All of this complexity and expense has led to a relatively slow adoption of many precision farming practices on farms across the United States. However, in recent years, big and small producers have begun to exploit the potential of PA. The goal of agriculture has
42	Precision farming https://agrojunikom.com.mk/precizno-zemjodelstvo/	always been to be able to produce as many crops as possible in the shortest possible time and at the lowest cost. For this reason, modern technology is increasingly being used to be able to optimize all the variables used in agriculture. In a way that we can better control all the variables that affect crops and their growth. So we can help produce more. Among this technology we find the use of satellites, remote sensing, drones. They are able to monitor crops, map the soil containing large amounts of amount of information. That is





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		recorded by GIS software and long and similar. There are many productive sectors who are dedicated to the new technologies. We are talking about sectors such as the food industry, the automotive industry. In those and other sectors medicine, where technology revolutionizes the system. In this case, It tries to improve performance, to improve products and their quality, save costs, and reduce emissions. It can be said that precision agriculture is a type of agriculture that uses information and communication technologies to manage agricultural crops. Thanks to this use of technologies, it is possible to obtain high situational accuracy of agricultural crops. On this one in In this way, it is possible to optimize the use of resources. So it will be save costs and dose with great precision when applying inputs such as water, fertilizers and phytosanitary, among others.
43	Precision farming indoors https://www.opticlimatfarm.com/mk/a-news-precision-farming-indoor-solutions-for-accurate-plant-nutrition-and-management	Indoor precision farming, with its focus on precision plant nutrition and management is transforming the way crops are grown. The ability to create controlled environments, optimizing resource utilization and remote monitoring of plant health allows farmers to reached unprecedented levels of productivity and sustainability. As technology continues to develop, precision agriculture will become increasingly accessible, opening up





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		the path to a more efficient and resilient agricultural industry.
44	Precision Agriculture – Drone Services https://agfutura.com/mk/precizno-zemjodelstvo-dronski-uslu/	One of AgFutura Technologies' main services in precision agriculture is drone imaging, specifically NDVI analysis of a specific crop. The benefits of using this type of imagery in agricultural production are numerous, including: - Increasing yield with improved production processes - Efficiency in identifying ad hoc problems - Increasing health awareness of plants - More frequent monitoring of production
45	Precision Agriculture Handbook http://www.1000knigi.mon.gov.mk	Precision Agriculture Handbook with more literature and books on precision agriculture
46	New agricultural technologies in modern and precision agriculture https://mazz.mk/moderno-zemjodelstvo/novi-zemjodelski-tehnologii-vo-sovremenoto-zemjodelstvo/	New agricultural technologies in the modern and precise agriculture Innovation is more important in modern agriculture than ever before. The industry as The whole is facing enormous challenges, from rising supply costs, labor shortages, and changing consumer preferences. consumers for transparency and sustainability. There is increasing recognition from agricultural corporations that solutions are needed to address these challenges. In the last 10 years, agricultural technology has seen tremendous growth in investments, with \$6.7 billion invested in the last 5 years and \$1.9 billion in the last year alone. Major technological innovations in the space have focused on areas such as closed vertical farming,





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		automation and robotics, livestock technology, modern greenhouse practices, precision agriculture, artificial intelligence and blockchain technology.
47	Beginnings for the implementation of precision agriculture – How to create zones in a field? https://mojafarma.mk/	Getting Started with Precision Agriculture Implementation – How to Create Zones in a Field?
48	Apply Precision Agriculture: A Complete Skills Guide https://rolecatcher-com.webpkgcache.com/doc/-/s/rolecatcher.com/mk/skills/hard-skills/working-with-machinery-and-specialised-equipment/operating-mobile-plant/apply-precision-farming/	A complete guide to precision farming skills
49	Precision treatment with a drone https://avifly.mk/	Precision treatment with a drone – AVIFLY
50	Digitalization creates a need for agricultural engineers who master new technologies https://inovativnost.mk/2024/08/23/digitalizaczijata-kreira-potreba-za-zemjodelski-inzheneri-koi-gi-vladeat-novite-tehnologii/	Digitalization creates a need for agricultural engineers who master new technologies
51	What is PRECISION AGRICULTURE and why invest in it? https://agrotim.mk/shto-e-precizno-zemjodelstvo-i-zoshto-da-se-investira-vo-nego/	An article explaining the primary goal of precision agriculture, the advantages from precisely agriculture and why invest in it.
52	Precision farming: indoor solutions space for accurate plant nutrition and management https://www.opticlimatfarm.com/mk/a-news-precision-farming-indoor-solutions-for-accurate-plant-nutrition-and-management	Examples for precisely closed system production and its advantages and disadvantages sides.



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