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Module 1

**Agriculture 4.0:
Equipping young NEETs
advanced digital and green skills**

Introduction to Agriculture 4.0



Agriculture 4.0: Harnessing Technology for Smart Farming

Agriculture 4.0 is the fourth industrial revolution of agriculture, which uses digital technologies to increase efficiency and sustainability in the agricultural industry. It is a combination of traditional farming practices and modern technology to create a more efficient and sustainable agricultural system.

Smart Agriculture, Intelligent Agriculture, Digital Farming, or Digital Agriculture: Exploring CEMA's Vision for Agriculture 4.0



AGRICULTURE 4.0 IS REFERRED TO AS 'SMART AGRICULTURE', 'INTELLIGENT AGRICULTURE', 'DIGITAL FARMING', OR 'DIGITAL AGRICULTURE' (SPONCHIONI ET AL., 2019)

This term is used to describe the use of technology and data to improve agricultural production



IT CAN ALSO BE DESCRIBED AS 'SMART FARMING'

This term is used to describe the use of technology and data to improve agricultural production



THE EUROPEAN AGRICULTURAL MACHINERY ASSOCIATION (CEMA) IS A KEY PROPONENT OF THIS CONCEPT

CEMA is an organization that promotes the use of technology in agriculture

AGRICULTURE 4.0, ALSO KNOWN AS 'SMART AGRICULTURE', 'INTELLIGENT AGRICULTURE', 'DIGITAL FARMING', OR 'DIGITAL AGRICULTURE' (SPONCHIONI ET AL., 2019), IS A CONCEPT THAT IS BEING PROMOTED BY THE EUROPEAN AGRICULTURAL MACHINERY ASSOCIATION (CEMA) TO IMPROVE AGRICULTURAL PRODUCTION THROUGH THE USE OF TECHNOLOGY AND DATA.

Target Areas for Agriculture 4.0



ENLARGE FOOD PRODUCTIVITY

The need for additional food resources is evident and necessitates prompt action.



REDUCE ANY FOOD WASTE



EQUAL AND RATIONAL SPREAD ON A WORLDWIDE SCALE

Agriculture can be expanded in suitable locations and the water resources needed to maintain land cultivation can be reduced by looking for lands to cultivate or transforming arid areas, with additional financial incentives.



REDUCE THE COST OF FARMING

- 4% reduction in water resources,
- 4% growth in crop production,
- and 7% decrease in fertilizers usage



ACCLIMATIZE TO GLOBAL WARMING



TIME-SAVING OF FARMING

The Evolution of Agriculture: From Agriculture 1.0 to Agriculture 4.0



● PRE-19TH CENTURY

Agriculture 1.0 reflects conventional methods relying on human physical strength and animal support. Simple forms of tools were used in farming occupations alongside serious manual labor forcing productivity to remain at a low level.

● 19TH CENTURY

Engines using steam have been improved and used in all aspects of life including agriculture.

● EARLY 20TH CENTURY

Agriculture 2.0 era, machines were developed and operated manually by people. Introduction of chemicals and fertilizers which obviously grew the productivity and effectiveness of agriculture occupation to a greater extent.

● LATE 20TH CENTURY

Agriculture 3.0 comes into sight since computers and electronic devices take over every aspect of daily life. Advanced software and machine learning systems (robotics) provide the opportunity for an effective and less time-consuming farming procedure.

● 21ST CENTURY

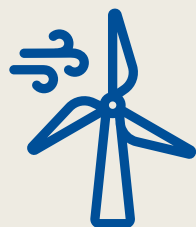
Agriculture 4.0 revolution based on the latest technologies such as IoT (Internet of Things), Artificial Intelligence and Robotics, Big Data, Blockchains, Scout drones, Cloud Computing, etc. These applications have managed to maximize the performance of farming procedures to a notable extent.



Harnessing Technology to Achieve a Greener World Through Agriculture

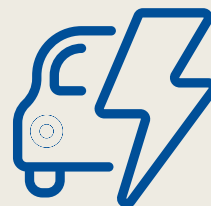
Technology and agriculture have come together to create a greener world. By using advanced technology, farmers are able to reduce their environmental impact and increase their crop yields.

Using Renewable Resources to 'Act Green' - A New Frontier for Farmers



FARMERS ARE TURNING TO RENEWABLE RESOURCES

such as wind, solar, hydro and biomass to maximize cultivation effectiveness



ACTING GREEN

by using renewable resources to reduce environmental impact



INCREASED EFFICIENCY

by using renewable resources to increase crop yields

BY UTILIZING RENEWABLE RESOURCES, FARMERS ARE ABLE TO ACT GREEN WHILE INCREASING EFFICIENCY AND MAXIMIZING CULTIVATION EFFECTIVENESS.



Achieving Climate Neutrality: The European Green Deal's 2030 and 2050 Goals



The Benefits of Smart Farming in Spreading Essential Knowledge and Information



FARMING EXPERTISE AND INNOVATIVE SERVICES CAN HAVE A SIGNIFICANT IMPACT ON SPREADING ESSENTIAL KNOWLEDGE AND INFORMATION FOR SMART FARMING.

Rising opportunities are the base for ongoing learning, generating vital knowledge and creating new job openings.



FLEXIBLE TRAINING PROGRAMS COULD BE INCORPORATED INTO SCHOOL CURRICULA.

Introducing digital learning from an early stage.



SMART FARMING CAN HELP TO IMPROVE FOOD SECURITY.

It can also help to reduce environmental impact and increase economic growth.

SMART FARMING IS AN IMPORTANT TOOL FOR IMPROVING FOOD SECURITY, REDUCING ENVIRONMENTAL IMPACT, AND INCREASING ECONOMIC GROWTH. FLEXIBLE TRAINING PROGRAMS AND INNOVATIVE SERVICES CAN HELP TO SPREAD ESSENTIAL KNOWLEDGE AND INFORMATION, CREATING NEW JOB OPENINGS AND ONGOING LEARNING OPPORTUNITIES.



Developing Life-long Learning Skills for Professional Farmers



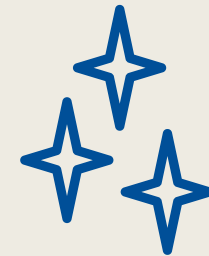
ADAPTABILITY

Adaptability is essential to keep up with the continuous changes in the agriculture sector.



DEAL WITH UNCERTAINTIES

Farmers must be able to handle risks and uncertainties that come with digitalization.



BEING PROACTIVE

Farmers must be proactive and experiment through the process of problem-solving.

LIFE-LONG LEARNING IS ESSENTIAL FOR FARMERS TO STAY AHEAD OF THE CURVE AND BE SUCCESSFUL IN THE EVER-CHANGING AGRICULTURE SECTOR.

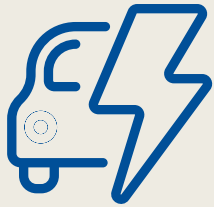


The Impact of Agriculture 4.0: Leveraging Sustainable Strategies and Digitalization for Maximum Results

Agriculture is an essential part of our lives, providing us with food and other resources. In order to ensure sustainable agricultural practices, farmers are now combining digitalization with sustainable strategies to maximize crop production while reducing environmental impacts.



Agriculture 4.0: European Initiatives Towards Sustainable Practices



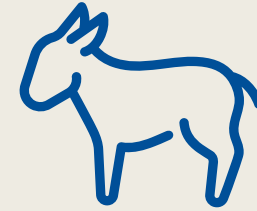
EU INITIATIVES FOR SUSTAINABLE PRACTICES

Including the goal of being climate neutral by
2050



EUROPEAN PROJECTS FOR TRAINING AND RAISING AWARENESS

Highlighting the skills needed to keep up with
the digitalized framework



AGRICULTURE 4.0

Drawing global interest and affecting every
aspect of human life as a primary sector

AGRICULTURE 4.0 IS A GLOBAL PHENOMENON THAT IS REVOLUTIONIZING THE WAY WE THINK ABOUT FOOD PRODUCTION, SUSTAINABILITY, AND DIGITALIZATION. THE EU IS TAKING STEPS TO ENSURE THAT ITS CITIZENS ARE PREPARED FOR THIS NEW ERA OF AGRICULTURE.



A Look At Digital Skills & Technologies Used, Challenges, and Future Practices

Thank you for taking the time to learn about digital skills and technologies. In the upcoming modules, we will explore the challenges and future practices of this field.



Hey, there!



Let's work together.

"Together we stand, divided we fall. Come on now people, let's get on the ball and work together."

CANNED HEAT, 1962

Find out more on DG VET website...



Let's chat about it!

