



Co-funded by
the European Union



2024-1-TRO1-KA210-ADU-000253544

INCREASING AGRICULTURAL LITERACY SKILLS OF ADULTS WITHIN THE SCOPE OF CIRCULAR ECONOMY



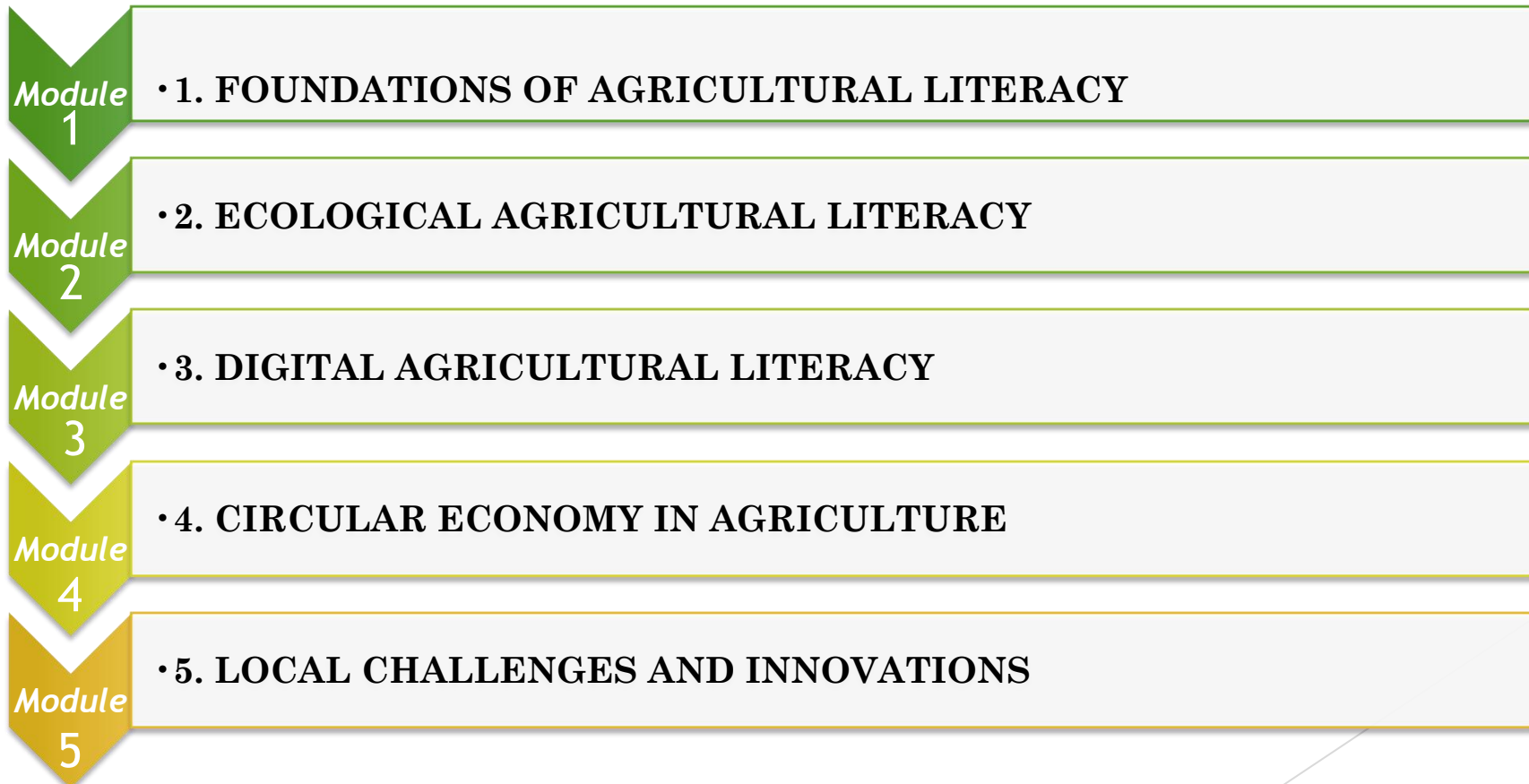
Co-funded by
the European Union

"The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

WORK PACKAGE 2

CURRICULUM DEVELOPMENT AND TRAINING MATERIALS

AGRICULTURAL LITERACY CURRICULUM



Agricultural literacy is a compentece that covers many such as land use, plant and animal production, water resources management, climate change, agricultural technologies.

➤ **Individuals should**

- have knowledge about agriculture and food production processes (soil, water, seed, animal husbandry, etc.),
- understand the environmental, economic and social impacts of agricultural activities,
- understand, evaluate and make decisions about agriculture-food relationship and sustainable agriculture methods,



Importance of Agricultural Literacy for Adults

1. Becoming Informed and Responsible Consumers

➡ Adults are often decision-makers in the family and through agricultural literacy:

- They prefer healthy, local and seasonal products,
- They reduce food waste,
- They are aware of issues such as label reading and food safety.



Importance of Agricultural Literacy for Adults

2. Rural Development and Productivity

➡ For adults working in the agricultural sector:



- To be open to new agricultural techniques,
- To adopt sustainable agricultural practices,
- It provides advantages such as increasing productivity and protecting natural resources.

Importance of Agricultural Literacy for Adults

3. Environmental Responsibility

- Agricultural knowledge is required to develop conscious behaviours on issues such as combating climate change and sustainable use of natural resources. This awareness of adult individuals is also transferred to children.
- To be open to new agricultural techniques,
- To adopt sustainable agricultural practices,
- It provides advantages such as increasing productivity and protecting natural resources.

Challenges in Modern Agriculture

- Soil erosion and yield loss,
- Water and soil pollution
- Biodiversity loss
- Climate change
- Water scarcity
- Soil salination and inefficiency due to wrong irrigation methods



CIRCULAR ECONOMY



Circular economy, instead of the traditional (linear) economy based on the "take-use-dispose" model;

- To minimise waste in production and consumption processes,
- Re-use resources as much as possible,
- It is a sustainable economic model that aims to keep products, materials and natural resources in the loop.

CIRCULAR ECONOMY

In this system:

- Waste is converted into raw materials,
- Products are repaired, reused, recycled,
- Dependence on natural resources is reduced and the environment is protected.



Why is circular economy important for adults and agricultural workers?

When adults have knowledge about circular economy:

- Natural resources are protected.
- With the sustainable use of resources such as water, energy and soil, a more livable environment is provided for future generations.
- Waste is prevented.
- Environmental pollution and greenhouse gas emissions are reduced by recycling agricultural and domestic wastes.
- Becoming more economically resilient, more conscious production and consumption.
- Input costs are reduced, while factors such as soil health and water use are optimised.

What Are Sustainable Agricultural Systems?

➤ Sustainable agriculture refers to economically viable and socially just production methods that protect natural resources without harming the environment.

➤ Objectives:

- Protecting soil, water and air
- To ensure that the farmer can sustain his livelihood
- To produce healthy and safe food
- To leave resources for future generations to farm

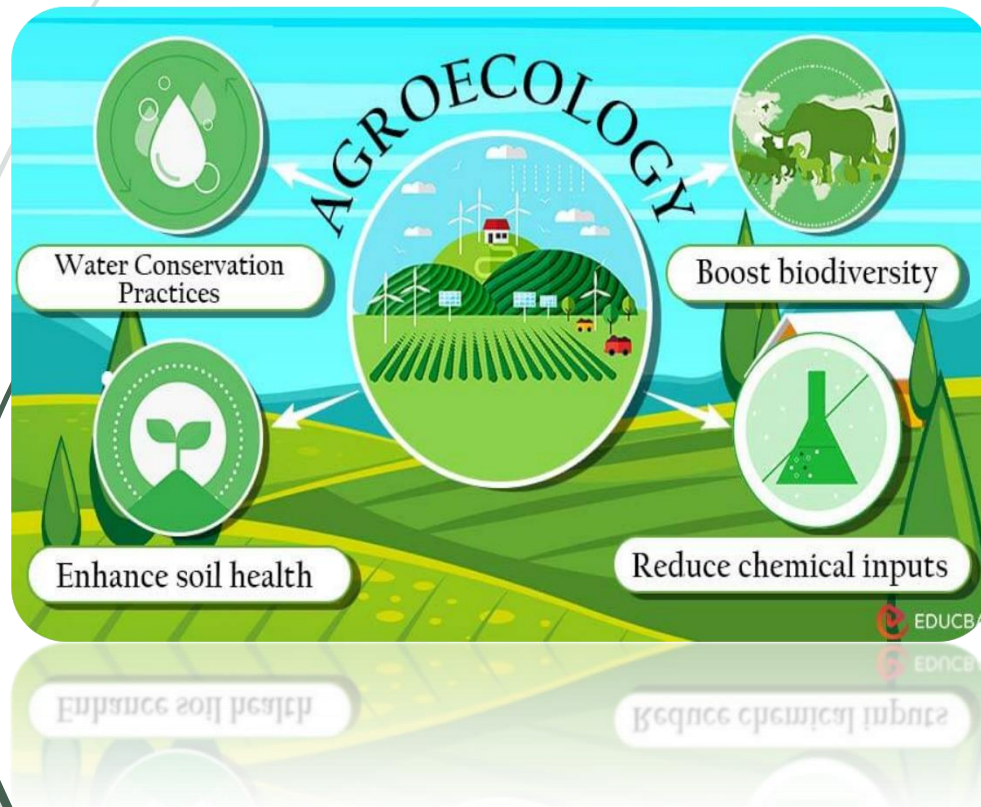
➤ Features:

- Conserves natural resources
- Reduces the use of chemicals
- Promotes diversity
- Strengthens social and economic resilience



What Is Agroecology?

- Agroecology comes from the combination of the words "agriculture" (agro) and "ecology". It is an approach that advises farming in harmony with the functioning of nature (ecosystems).



Basic Principles of Agroecology:

- Diversity
- Recycling
- Soil health
- Energy efficiency
- Local knowledge and participation
- Resilience

What Is Composting?

(Natural Fertiliser from Organic Waste)

- Composting is the decomposition of kitchen, garden and field waste (such as leaves, stems, vegetable scraps, fruit peels, animal manure) into natural fertiliser.

What does it do?

- Improves the structure and fertility of the soil.
- Reduces the need for chemical fertiliser.
- Prevents waste from going to waste by utilising waste.
- Helps plants grow healthier.



What Is Composting?

(Natural Fertiliser From Organic Waste)

How to do it? (basic steps)



- Combine green waste (fruit and vegetable waste, fresh grass) and brown waste (dry leaves, stems, cardboard).
- Keep slightly moist and mix at regular intervals.
- In 6-12 weeks you should have dark-coloured compost that smells like earth.
- **Note:** Wastes such as meat, fat, plastic, bone should not be put in the compost.

What Is Biodiversity? (Richness Of Lives)

- Biodiversity is the variety and number of all living species (plants, animals, insects, microorganisms) in a region.

Why Is It Important For Agriculture?



- Different insects, birds and earthworms aerate the soil and fight pests naturally.
- Different plant species use the different layers of the soil to create balance.
- Resistance to pests and diseases increases.
- Resistant production against climate change is ensured.

What Is Smart Water Use?

(Water Conservation And Efficient Irrigation)

- Smart water use is a method of using water consciously, measured and efficiently. It aims to provide the most benefit with the least amount of water.



Examples of smart water use in agriculture:

- ***Drip irrigation:*** Gives water directly to the root of the plant, prevents wastage.
- ***Sprinkling:*** It is an efficient form of irrigation, especially for large areas.
- ***Timed irrigation:*** Early morning or evening irrigation reduces evaporation.
- ***Rainwater harvesting:*** Water from roofs or fields is collected and reused.
- ***Irrigation by measuring soil moisture:*** Water is used as needed.

What Is Organic Certification?

- Organic certification is the official certification that a farmer or producer has grown his products in accordance with nature and human health without using chemical pesticides, artificial fertilisers, hormones and GMOs.

Why is it necessary?

- Ensures consumer confidence
- Mandatory for selling products in organic markets
- Products can be sold at a higher price
- A controlled and sustainable production system is introduced



What Is Smart Agriculture?

- Smart Agriculture is a modern production method that increases efficiency in agriculture, reduces costs and uses natural resources more efficiently by using technology.

Thanks to these systems:

- We better understand what plants need.
- We reduce unnecessary water, fertiliser and pesticide use.
- We save time and labour.



IoT - Internet Of Things (Application In Agriculture)

- IoT stands for 'Internet of Things'. It is the automatic data collection and operation of devices (e.g. a sensor, irrigation system, weather station) connected to each other via the internet.

What Is Precision Agriculture?

- Precision agriculture is a method of making applications in the right place at the right time according to the needs of the plant by monitoring each point of the field separately.

PRECISION AGRICULTURE



How does it work?

- The field is mapped (with data such as yield, humidity, pH).
- It is determined which area is less fertile and which requires more water.
- Fertiliser, pesticides and water are applied only where they are needed.

Drones (Unmanned Aerial Vehicles)

MODULE

3

- ➡ A drone is a small aircraft that is flown by remote control. It can be equipped with cameras, sprayers or sensors.
 - It shoots the field from above and shows the condition of the plants.
 - Locations of diseases and pests are detected.
 - Precise spraying and fertilisation (only where diseased).



What does it provide?

- Saves time.
- Reduces the need for manpower.
- Gives the opportunity to observe every area of the field.

What Are Digital Marketplace And E-Commerce?

Digital Marketplace:

- These are virtual areas where different sellers exhibit their products over the Internet and consumers examine and purchase the products. It is just like a village market, but in a digital environment.

E-Commerce:

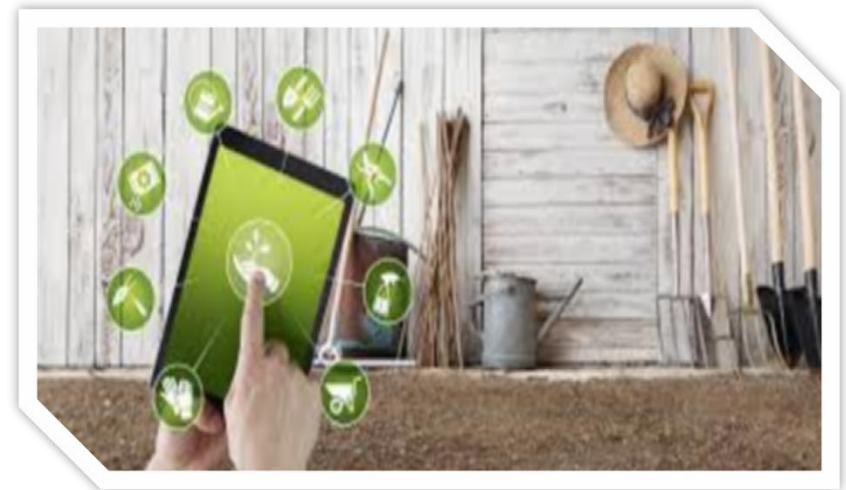
- It is the sale, payment and delivery of a product or service over the internet. The exchange between the producer and the customer takes place over the internet.

Thanks to digital marketplaces:

- Agricultural workers can offer their products to wider markets.
- They can earn more income by communicating directly with the consumer.
- Save time, labour and costs by using technology.

Reliable and easy-to-use mobile application recommendations:

- Plant app
- Agro planet
- Outgrow
- Fieldmargin
- Agrivi
- AgriWeather / AgroSense
- Climate FieldView™
- Meteobot



What Is Circular Economy?

- It is an economic model in which resources are used more efficiently, waste is minimised and products, materials and resources are kept in the system for as long as possible.

Basic Principles of Circular Economy:

1. Prevent waste and pollution from design
2. Use, repair and reuse products and materials for as long as possible
3. Tending towards renewable resources



With a simple example:

- ***Linear Economy:*** Tree is cut down → table is made → table is broken → table is thrown away.
- ***Circular Economy:*** Recycled wood is used instead of wood → table is made → table is repaired when broken → parts are reused in other products → waste is minimised.

What Is Closed Loop Farming Systems?

MODULE

4

- The closed-loop system is a sustainable agricultural model in which the wastes generated within the farm are used again in production, giving minimum waste to the outside. The waste generated in the farm turns back into a need of the farm. Nothing is wasted.

System Element	Circular Use Example
Animal manure	Composted and used as fertiliser in the field.
Plant waste	Composted into fertiliser or used as animal feed.
Food processing waste	Whey → animal feed or fertiliser.
Irrigation water	Rainwater is collected and reused for irrigation.
Biogas plant	Manure → biogas → electricity & heating → pulp becomes fertiliser.

The Aim of Circular Agriculture;

- Protecting natural resources
- Reducing agricultural waste
- Reducing the cost of the producer
- Slowing climate change



Difficulty	Description
Disorganisation and small scale of lands	Difficult to work with tractors and machines; production efficiency is low.
Agricultural labour force is decreasing	Young people migrate to big cities, old farmers continue agriculture.
Poor rural roads	The product reaches the market late, transport costs increase.
Limited water resources	Yield decreases in areas where irrigated agriculture cannot be practised.
Damage by wild animals in forest villages	Pigs and bears damage fields.
Drought and irregular rainfall	Water shortage especially in summer affects production.
Soil erosion and loss of organic matter	Improper cultivation and soil loss on sloping lands are common.
Harsh winters and late frost risk	Frost damage can occur in early flowering crops.
Risk of disease in some tree species	Tree diseases have increased with climate change.

Local Agricultural Challenges in the Black Sea Region of Turkey where Kastamonu and Çorum provinces are located

Farmers' Markets (Direct Sales Market)

- These are places where farmers sell their own products directly to consumers without any intermediaries.

Why are Farmers' Markets Important?

- Products are fresher and more reliable.
- The farmer earns more because no commission is given to the intermediary.
- The consumer can also buy cheaper products.
- It contributes to the local economy.



Agrotourism (Rural Tourism)

- It is the opening of farms or villages to tourists to both promote agriculture and generate income. The tourist both sees nature and experiences farm life.

Cooperatives

- These are solidarity organisations where farmers, agricultural workers or producers come together and produce together, sell their products together or meet their needs at more affordable prices.



THANK YOU
FOR BEING A PART OF THIS PROJECT

