

# 21AGRO203 FARMING SYSTEMS AND SUSTAINABLE AGRICULTURE

Hours Per Week :

L	T	P	C
1	-	-	1

Total Hours :

L	T	P
15	-	-

## COURSE DESCRIPTION AND OBJECTIVES:

This course facilitates the students to learn and understand the basic concepts of farming systems and provide knowledge about the emerging systems such as organic farming and modern agriculture

## COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes
1	Gain knowledge about different cropping and farming systems and the principles and practices those are important for their effective functioning and management
2	Knowledge on modern and organic farming practices and practicing sustainable agriculture
3	Learn how to provide maximum possible return and profitability with conservation of natural resources
4	Ensure optimum utilization and conservation of available resources

## SKILLS:

- ✓ *Plan to diversified Agricultural ecosystem*
- ✓ *Practice different Farming systems and mixed farming*
- ✓ *Optimum usage of natural resources*



Source :

<https://ucanr.edu/sites/calagjournal/archive/?image=img5404p26.jpg>

**ACTIVITIES:**

- o Prepare layout for different farming systems
- o Calculate economics of different farming systems
- o Visit the fields practicing rice-fish integration, rice-horticulture-agricultural
- o Identify breeds of livestock animals

**UNIT - 1**

**Introduction:** Concept, definition and types of farming systems; advantages and limitations – suitability; factors determining farming system-biophysical and socio-economic, Farming systems – system and systems approach - determinants of farming system – cropping systems (navadhanya concept) and related terminology - Intercropping, mono-cropping, sole cropping, sequential cropping, relay cropping, crop based farming systems: lowland rice based, mixed farming and agroforestry

**UNIT - 2**

**Allied Enterprises:** Significance of integrating crop and livestock enterprises – components and maintenance- dairying and sheep and goat rearing – breeds – housing– feed and fodder requirements – biogas plant. poultry farming – breeds – housing –feed and fodder requirements – apiculture – species and management. sericulture – moriculture and silkworm rearing – agro-forestry systems suitable for dryland farming

**UNIT - 3**

**Modern Agriculture:** Tools for determining production and efficiencies in different farming and cropping systems. Adverse effects of modern agriculture - sustainable agriculture –definition –concept – goals – elements. Problems related to soil, water and environment - adaptation and mitigation strategies - indicators of sustainability

**UNIT - 4**

**Sustainable Agriculture:** Conservation agriculture Concept – need - management of natural resources land, water and vegetation. Techniques for sustainability - Low External Input Agriculture (LEIA) and Low External Inputs for Sustainable Agriculture (LEISA) and HEIA (High External Input Agriculture), Sustainable Development Goals

**UNIT - 5**

**Integrated Farming System:** Historical background, objectives and characteristics advantages. Site specific development of IFS models for different agro climatic zones of India and A.P. Resource use efficiency – optimization of resource use by different methods in an IFS (Annapurna model). Resource cycling - flow of energy in different farming systems. Visit of IFS model in different agro-climatic zones of nearby states University/ institutes and farmers field

**REFERENCES:**

1. Arun K. Sharma. 2006. A hand book of organic farming - Agrobios (India) Jodhpur
2. Jayanthi C, Devasenapathy P and Vinnila, C. 2008. Farming systems principles and practice. Satish serial publishing house, Delhi
3. Panda.S.C. 2011. Cropping and farming systems. Agrobios (India) Jodhpur.
4. Ruthenburg, H. 1980. Farming systems in the tropics. Oxford university press.