

# AGRICULTURAL SCIENCE

# JUREB SYLEABUS



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# SYLLABUS FOR SCI - J151 AGRICULTURAL SCIENCE

SKRECOURSES AGRONONN AND -CROPPERODUCTION ANDMALSCIENCE AND PRODUCTION

SECOND SEMESTER COURSES AGROW WILDLIFE, AQUACULTURE AND AGRO-FORESTRY AGROW AGRICULTURAL ECONOMICS AND AGRICULTURAL EXTENSION

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(SUMDE)

## **GENERALOBJECTIVES**

At the end of the series of courses, candidates should be able to:

- 1. enumerate the advanced principles of scientific agriculture;
- enumerate the advanced principles is a state how agricultural knowledge can be utilized to identify and state how agricultural problems: 2.
- 3. demonstrate sound and effective agricultural practices
- 4. list the positive attributes required towards the conservation of natural resources and their use for sustainable development; and
- acquire a suitable foundation for the study of agriculture or related 5. courses at tertiary level and for professional courses which require students to have knowledge of agriculture on admission.

To achieve the aims and objectives of the curriculum, the following approaches are recommended:

- Theory and practical must go hand in hand in the teaching and 1. learning of the subject. Emphasis must be placed on equipping candidates with skills and concepts
- 2. Agriculture is a subject related to the environment of most schools. and is part of life experience of most candidates, hence the teaching and learning of the subject should take full advantage of the resources of candidates and the environment.

FIRST SEMES'	<b>FER COURSES</b>	
AGR 001: A C	GRONOMYAND ROPPRODUCTION	(3 UNI <mark>T</mark> S)
	NIMAL SCIENCE ND PRODUCTION	(3 UNITS)
SECOND SEMI	ESTER COURSES	

### AGR 003: WILDLIFE, AQUACULTURE ANDAGRO-FORESTRY AGR 004: AGRICULTURAL ECONOMICS AND AGRICULTURAL EXTENSION

(3 UNITS)

(3 UNITS)

# COURSE DESCRIPTION

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# AGR 001: Agronomy And Crop Production

# specific Objectives

(3 Units)

Spectral of this course, candidates should be able to:

- define soil and explain weathering processes;
- 1.
- discuss the significance of soil texture, structure and soil pH; explain the source of negative charges on clay, humus and 2. 3. colloids:
- emphasize the significance of Cation Exchange Capacity (CEC) 4.
- and Anion Exchange Capacity (AEC);
- describe the structural exchanges that occur after fertilization 5. leading to the development of seed and fruit;
- 6. discuss factors that affect water and nutrient uptake and explain the mechanism of water uptake(osmosis) and nutrient uptake (active transport);
- 7. explain the factors affecting photosynthesis, including carbon (IV) oxide compensation point (C3 and C4 systems);
- 8. identify and classify common farm weeds and use of farm equipment;
- 9. discuss the importance of horticulture in Nigeria;
- 10. define and classify seeds;
- 11. discuss the uses and maintenance of seeds; and
- 12. manage seedling nurseries in relation to thinning, hardening, root pruning, pests and disease control.

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Course Content UPLOADED BY WWW.READNIGERIANETWORK.COM

TOPIC S	SUB-TOPICS	DETAILS
1. Agronomy and	Soil Physical Properties	Soil formation, composition and soil physical pro
Crop Production		and soil physical properties
1		
	1 월 11일 19월 1일 1일 1일 1일 1일 1일 1일 1	e.g. soil texture, soil structure soil capillarity, etc.
	Charles and and the	
1. 1. 1. 10 L. 10	Soil Chemical Properties	Soil acidity and alkalinity;
	a spin or a gastropid -	ourses and check on
		Correcting soil acidity.
	Soil Fertility	Soil macro elements (N, P, K
		etc.) and micro nutrients $(M, P, K)$
forth Salara		B, Zn, etc.).
	in the second	Nitrogen Cycle.
n netry was kalen safe	digo med a lestino varancia	Organic matter composition
Stand Reality	k n bao wakuman ing	and importance to agriculture
		Soil improvement through the
an hair sa bù	den alberta han et en er e	application of Organic
1 off		fertilizers.
and a	Soil and Water	Definition, methods and
	Conservation	importance of soil
	a second	conservation.
		Methods of controlling soil
		erosion (biological, mechanica
and a shine to be		and cultural).
an - Shinnan ar S		Methods of water conservation (dams, harvesting from roofs,
	A RECEIPTION OF BUILDING ST	water weirs, mulching).
C	Irrigation	Types of irrigation systems
A CARLER AN		(surface, overhead and
		underground systems).
		Importance of irrigation to
A CONTRACTOR		agricultural production in
		Nigeria.

Plant Growth and	Study of the cell and its
Development	contents.
with the state	Cell division and enlargements
	leading to growth (mitosis).
	Meiosis, pollen structure,
	pollen formation and ovule
201	development.
	Seed dormancy,
	pre-germination treatment,
$f_{i} = f_{i} = f_{i} f_{i} $	viability test, control and seed
[ \$ 200 ·	germination experiments.
Water and Nutrient Uptake	Mechanism of water uptake
	(Osmosis/Diffusion) and
거한 1 목과 20 <sup>86</sup> - 1일은 1961년	nutrient uptake, (Active
e de la constante de la constant	transport system).
1	
Photosynthesis and	Meaning and importance of
Respiration	photosynthesis, factors
the state and the	affecting photosynthesis e.g.
	carbon (IV) oxide, compensa-
Mark Auditoria Calate	tion point.
1.17237) - Sela, 21712016 (1.1.17202) - 2.2.2	Relationship between
uphana pprojectale en en compositiones en el	respiration and photosynthesis.
e Contract	Structure and synthesis of ATP
A set of the set of	and role of ATP as the energy
	currency in all living
	organisms.
	Identification and
Principles of Crop	
Protection	classification of common
	weeds, methods of weed
	control.
	Identification and classifica-
$2$ $\vee$	tion of common pests and
	diseases.
Cold Manager .	Control methods of pests and
and the relation of the	diseases.
Principles of Horticultural	Definition of horticulture.
and Ornamental Crop	Importance of horticulture and
Production	ornamental crop production in
demonstration burners & has ters	Nigeria. Classification of
	Horticultural plant including
entra de la companya	the study of one ornamental
ek ferrens hannand, i	plant (rose or hibiscus) under
at Breach Length	the following headings:
	Origin, Methods of
the state of the s	Oligin, Methods of

	UPLO	ADED BY WWW.READNIGERIANETWO	Management Practices p.	
1		e de la companya de la	Management Practices, Pests and Diseases, Factors	
		inter a la companya de la companya d	and Diagona Practices, Peril	
1211	r, cost of a low of	Contractor De la contractor	and Diseases, Factors	
	error, or) der the	the state of	Affecting Shelf Life, Post.	
		e dan Bultan	Harvest Handling and	
			Marketing.	
		Principles of Crop	Growth and study of	
	instituti industi	Production	horticultural crops (mango or	$\cup$
- 10	see bar lean oo ta		Orange, Amuraninus en	
	and gran we have	Market and the second sec	cereal crops (maize rice)	
1	estern retroite in		legumes (cowpea souther)	
	a Denostemp and tetra carate		under the following heading	
	genorang kanange og utiden)		Origin, Adaptation, Planting,	
	···· · · · · · · · · · · · · · · · · ·		Management, Pests and	
		provide bearlead	Diseases, Post-Harvest	
	dina se <b>lactore</b> Alle en <b>an</b> t see the		Handling and Marketing.	
	अन्त्र अन्त्र अन्त्र करता. अन्त्र अन्त्र अन्त्र	en de la contra de la	Vegetative propagation	
			methods (budding, grafting,	
	approvision	1. 1. 1. N	layering, marcotting, &	
- 1.2	and the set of the set		cutting).	
4.1	A gu saidh a b	Farm Mechanization and	Definition of Farm	
, s	pun av ar all.		Mechanization, Advantages	
		Engineering	and Disadvantages of Farm	
		of Grop	Mechanization, Operational	
	nomine to s	Cienta Di	Principles of the two and four	
	1.02 1.1	<ul> <li>Sub29W</li> <li>Sub29W</li> </ul>	Stroke Cycle Engines,	
		N (17) A	Properties and Use of Fuel and	
	beck cramme	a la rob	Lubricants, Transmission	
		enan be	Systems, Electrical Systems of	
t	notheds of protection	r Irothoù -	Systems, Electrical Systems of	
	Provident Sec.	and the formation of the second	Petrol and Diesel Engines,	
	nonormana a su antes a su a	(Rengel) (01) X855201	Tillage Implements (ploughs,	
Jul All		C300-300 0.	ridgers, harrows).	
14		Animal Power and Animal	Types of draught animals	
7.	gerbaloni ubliq i m	Drawn Implement	(Bull, donkey, horse).	
-	or ope ormenenti or opeicher (aussicher opeicher)		Animal drawn implements	
	e va ante-cus) anac		(Mouldboard plough, harrow,	
	lothods of		& planter).	

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AGR 002: Animal Science And Production V.READNIGERIANETWORK.COM

### (3 Units)

# Specific Objectives

At the end of this course, candidates should be able to:

- classify livestock feed in terms of energy, fats and protein they give;
- 2. describe the structure of carbohydrates, protein, lipids, nucleic acids and include functions of vitamins and minerals;
- 3. calculate conception, calving, farrowing, kidding and mortality
- rates; 4. explain the following terms as used in animal breeding and
- genetics (gene, locus, chromosome, genotype, phenotype, dominance, recessive, epistasis, heterozygous, homozygous, variation and heritability);
- 5. carry out a survey on locally available breeds of livestock to ascertain adaptability to diseases and parasites;
- 6. identify and classify important parasites and diseases of farm AGR 10 & Wildiffert quacua animals: and 111
- 7. identify appropriate methods of processing, storing and marketing animal products. Specific Objectives

2. Animal Science and	Animal Nutrition	Classes of livestock feed
Production	prestry and wildlife.	(roughages, succulents,
i toge stance of wildlife	, social and ecologica	concentrates). Calculation of feed
	(2)	digestibility. Theoryph
ition technik (ass:	rrvesting and preserv	Ration formulation.
	Reproductive Systems	Urinogenital systems of farm animals.
	istration in the season	Infertility in Farm Animals
	r, environment and ec	
magnicode gaiques	nvesting wildlife e.g	female farm animals.

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	Mendelian Laws of Heredity.
Caller I to 1	Inbreeding and
	Crossbreeding: Advantages
	and a starting cs.
Animal Health	Identification and
and the second se	Classification of Important
	Falasites and Diseases of
off carbon states is also a state to the second states and the	Farm Animals.
Lons of the material the real that the	Economic Importance of
entering in anti-section a spectra and spectral spectra	Diseases and Parasites of
	Farm Animals.
	Pests and Disease
ansighti eéré fan inn ni best au mirr	Transmission and Control
Animal Products	Processing, Storage and
mans, hormory and have been and	Marketing of fish, meat,
	egg, milk, etc.

## AGR 003: Wildlife, Aquaculture And Agro-forestry (

### (3 Units)

### **Specific Objectives**

At the end of this course, candidates should be able to:

- 1. define forestry, agro forestry and wildlife;
- 2. explain the economic, social and ecological importance of wildlife, aquaculture and forests;
- 3. demonstrate timber harvesting and preservation techniques;
- 4. explain the principles of agro forestry, identify and enumerate types of timber tree species in Nigerian forests;
- 5. discuss fishery growth, environment and economy; and

6. describe methods of harvesting wildlife e.g. trapping, shooting, and netting.

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Wildlife, Aquaculture and Agro-Forestry	Importance of Forestry and Wildlife to the Nigerian Economy. Principles of Agro- Forestry	<ul> <li>wildlife and forests.</li> <li>Definition, principles and types of agroforestry.</li> <li>Concept of forest, forestry and silviculture.</li> <li>Definition and practice of agroforestry.</li> <li>Systems of agroforestry (e.g. Agrosilvipastoralism, Agrosilviaquaculture, Agrosilviapiculture, Agrosilviheliculture, etc.,).</li> <li>The need for conserving our forests (sources of useful medicinal herbs, dyes, fibres, game animals which energize our rural economy).</li> <li>Definition of climate</li> </ul>
Property and produced and	1 0000	
terrent in our first and	Change	change.
		Causes, Mitigation and
		Adaptation to Climate
		Change.
The Bullermore		Effects of Climate Change
A sum her zum kalanten		on Agriculture.
and the second second second	Wildlife and Forest	Meaning of Wildlife.
Contraction of the second	Conservation	Wildlife Conservation
	,	

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	Sof
Forest and Wildlife in	
Nigeria.	
Selective exploitation	
Forest regulation	
Afforestation, Regene	eratia
i aung ya system.	
Enrichment planting	etc
Deforestation and Meaning of Deforestation	ation
Desertification and Desertification •	
Causes of Deforestati	On and
Deseruncation	
Effects of Deforestati	On and
Desertification.	
Ounzation of Forest Shelter for wildlife, so	01117005
of cooking fuel, raw	
materials for induct	25 A a
plywood.	Ū
Marketing of Forest Types of Forest Products	lcts
and examples.	
Industry statistics of the second sec	and
exportation of the for	est
Droducts	•50
Aquaculture, Environment and Types of fish ponds and	nd
methoda of f. 1	-14
Economy Economy construction.	
Importance of fish	
production to Nigeria	n
economy.	-
Fish culture, fish	
processing, fish	
preservation, toxicolo	gv.
availability of market	s.
Laws and regulations	on
fishing.	<b>U</b>

AGR 004: Agricultural Economics/Extension (3 units)

Specific Objectives Specific end of this course, candidates should be able to:

- At the end of agricultural Economics and explain the principles of supply and demand of agricultural products; 2. define farm management;
- 2. define the and discuss land tenure systems and their implications on Agriculture in Nigeria;
- 4. identify and discuss risks and uncertainties in Agriculture;
- 5. calculate and illustrate price break- even point and discuss decision making processes to determine profitability and sustainability of a crop/animal enterprise;
- 6. define marketing and explain perfect and imperfect competition in marketing; scottorms
- 7. identify and explain problems of marketing agricultural products and government intervention;
- 8. discuss the principles of extension, role of extension agents, methods of dissemination of improved technology;
- 9. discuss the advantages and disadvantages of agricultural mechanization:
- 10. select draught animals and calculate the draught force requirement of mouldboard ploughs, calculate angles of attack of mouldboard plough and the angle of inclination;
- 11. describe methods of water conservation e.g. dams, harvesting water from roofs, water weirs and conservation tillage practices;
- <sup>12</sup>. identify farm equipment, functionality and maintenance (tractor, harrow, plough, ridger, sprayer, etc.); and
- <sup>13</sup>. discuss functional requirements of farm structures, animal housing structures and crop storage structures.

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Problems of marketing

agricultural produce:

Ramo, Talui Insulatisvoi. opplicative at reality synthesis

4. Agricultural Economics	Principles of BY WWW.READNIGERIANETWORK.	Definition
and Extension	Agricultural Economics	Definition of Agricultural
	- iBrioditarai Economics	
	al faller and the second	
1 18 5 1 M	d blue i sol hibur i	agricultural product
(pddns je soldround ou:	united as a united with the second	demand and supply curves,
	stanling form	
	213P	
a their implications on	s empressions bar	Suppry. Law OI alminich
		returns, principles of
n Asriculture:	i epitritetsonu bne es	economies of scale in
int and discuss decision	the second and and and and and and and and and a	agriculture and opportunity
and the second		COSIS.
Contraction of a second second	Principles of	Definition of Agricultural
IST PERSON IN PROPERTY AND	Agricultural Extension	Extension.
uben/set competition n	in more too too too too too too	Functions and principles of
		Agricultural Extension.
gricultural products and	ាំដែលទេ ព្រោះសារប្រុ	Agricultural Extension
	and a second	methods.
e of extension agents.	on independent of	Problems of effective
. Zgalon	tion of argmond tech	extension programmes in Nigeria.
stages of agricultura	Farm Management.	Land tenure systems in
		Nigeria and their
white force requirement	s and enloying they	implications to agriculture.
Autof mouldhean	dis a deviate applies	Business objectives in
	an a	farming, risks and uncertainties in agriculture,
den a stimmer	auer conservation	budgeting in farming
and a service of the		business.
	Marketing of	Definition of agricultural
TOTAL STRUCTURE S	Agricultural Produce	marketing, characteristics of
	Part ( mombled sta	perfect and imperfect of
Kastana tang tang tang tang tang tang tang	te transmis of terms	competition. International trade
	sourcease sources	agreements and their impact.
	· '	on marketing.
		Problems of marketing
		agricultural produce.
		Government intervention progammes in agriculture
		(support prices and
		subsidies).

READ

RECOMMENDED TEXTS

- Anthony Youdeowell, P.O. C Ezeinna; "Introduction to Tropical Agriculture" Longman Publishers.
- Jean Pagot; "Animal Production in the Tropics". Macmillan Publishing Company.
- R.P. Rice et al. "Fruit and Vegetable production in Warm Climates Macmillan Publishing Company. 3.
- N.C. Brady; "The Nature and Properties of Soils". Macmilla Publishing Company.
- 5. R.G.S Bidwell; "Plant Physiology". Macmillan Publishing Company.
- 6. David Coleman and Trevor Young. "Principles of Agricultural
- Economics"

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7. David T. Johnson; "Business of Farming". ELBS Macmillan.