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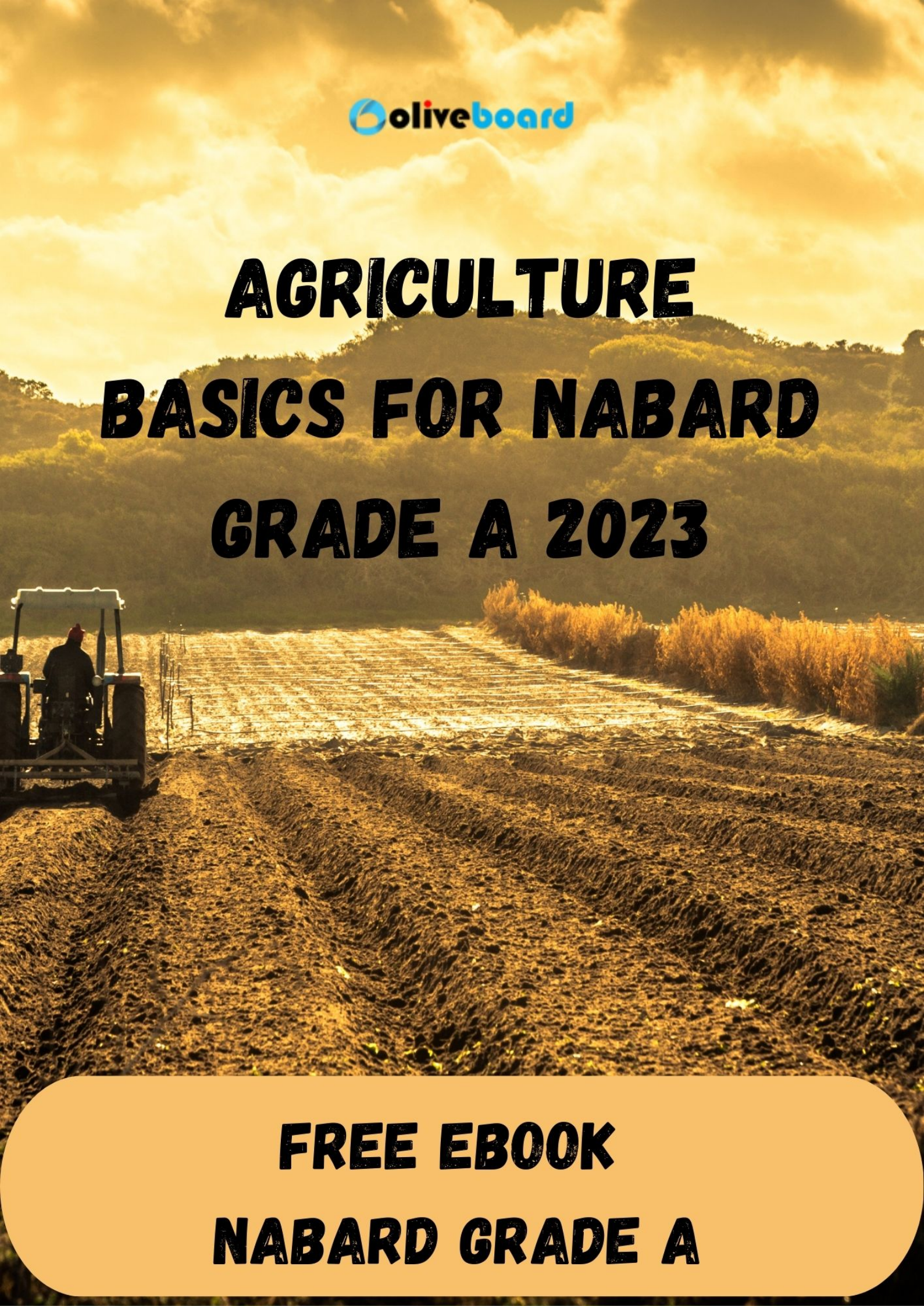
AGRICULTURE BASICS FOR NABARD GRADE A 2023



FREE EBOOK

NABARD GRADE A

Agriculture Basics for NABARD Grade A 2023

Agriculture is the backbone of the Indian economy and plays a vital role in the country's socio-economic development. Aspirants preparing for the NABARD Grade A Exam must have a good understanding of the basics of agriculture. Here are the key points to grasp:

Agriculture

Agriculture refers to the science and art of cultivating plants, raising animals, and other activities related to the production of food, fiber, and other products used to sustain and enhance human life. Agriculture involves the entire process of farming, from preparing the land and planting crops to nurturing them, harvesting the produce, and eventually utilizing or selling the products.

Farming

Farming is growing crops or keeping animals by the people for food and raw materials. Farming is a part of agriculture.

Difference between Agriculture & Farming

The difference between agriculture and farming is that agriculture is the art or science of cultivating the ground, including the harvesting of crops, and the rearing and management of livestock; tillage; husbandry; farming while farming is the business of cultivating land, raising stocks etc.

List of Agricultural Revolutions in India

Check out the complete list of agricultural revolutions in India in the table below:

Agricultural Revolutions in India		
Revolution	**Products/Aim**	**Father of the Revolution**
Evergreen Revolution	Integration of ecological principles in technology development	M S Swaminathan
Protein Revolution	Higher Production (Technology-driven 2nd Green revolution)	Coined by Narendra Modi and Arun Jaitely
Yellow Revolution	Oilseed Production (Especially Mustard and Sunflower)	Sam Pitroda

Agriculture Basics for NABARD Grade A 2023

Black Revolution	Petroleum products	–
Blue Revolution	Fish Production	Dr Arun Krishnan
Brown Revolution	Leather / Cocoa / Non-Conventional Products	–
Golden Fiber Revolution	Jute Production	–
Golden Revolution	Fruits / Honey Production / Horticulture Development	Nirpakh Tutej
Grey Revolution	Fertilizers	–
Pink Revolution	Onion Production / Pharmaceuticals / Prawn Production	Durgesh Patel
Silver Revolution	Egg Production / Poultry Production	Indira Gandhi (Mother of the Revolution)
Silver Fiber Revolution	Cotton	–
Red Revolution	Meat Production / Tomato Production	Vishal Tewari
Round Revolution	Potato	–
Green Revolution	Food Grains	M.S. Swaminathan
White Revolution	Milk Production	Verghese Kurien

Agriculture Basics for NABARD Grade A 2023

Branches of Agriculture

1. Agronomy: Branch of agri. science & tech. of using plants & producing food, fuel, fibre & land reclamation.	2. Horticulture: Science & art of development, production, marketing & use of intensively cultivated food & ornamental plants.
3. Plant Breeding: Application of genetic principles to produce plants that are more useful to humans.	4. Soil Science: Study of soil as a natural resource on the surface of Earth.
5. Agrometeorology: Study of weather & climate information to enhance or expand agricultural crops	6. Agricultural Biotechnology: Involves the use of scientific tools to modify living organisms.
7. Agricultural Engineering: Application of knowledge & principles of engineering for finding solutions to problems in the agriculture field to increase productivity.	8. Agri. Extension: Behavioural science following continuous, persuasive, & discriminative educational processes.
9. Agri. Economics: Applied field of economics concerned with study of human behaviour as a relationship b/w production & distribution of food & fibre.	10. Plant Pathology: Deals with the cause of disease, disorder in the plants, & mgmt. of plant disease.
11. Agri. Entomology: Deals with the study of agriculturally important insects & pests.	12. Agroforestry: Deals with land use mgmt. systems of growing shrubs, trees around, or among crops & pastureland.
13. Agri Microbiology: Deals with microbes associated with crop plants & animal diseases.	14. Forestry: Deals with large scale cultivation of perennial trees for supplying wood, timber, rubber etc.
15. Dairy Farming: Deals with the long-term availability of & production of milk.	16. Poultry: Deals with rearing birds kept for meeting the food demand.
17. Apiculture/Beekeeping: Rearing/maintenance of honeybee colonies, for the purpose of getting honey & bee products.	18. Animal Husbandry: Maintenance of various types of livestock for direct energy (work), milk & meat.
19. Fishery Science: Deals with marine & inland fishes including shrimps & prawns.	

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Classification of Crops

Category-1: Based on Season 1. Kharif Crops: Grown during June-July to Sep-Oct; Rice, Maize, Castor, Groundnut etc. 2. Rabi Crops: Grown during Oct-Nov to Jan-Feb; Wheat, Barley, Mustard, Oats, Potato etc. 3. Summer Crops: Grown during Feb-March to May-June; Black & Green gram, Sesame, Crow pea etc.	**Category-2: Based on Climatic Conditions** 1. Tropical Crops: Coconut, Sugarcane etc. 2. Subtropical Crops: Rice, Cotton etc. 3. Temperate Crops: Wheat, Barley etc. 4. Polar Crops: All pines, Pasture grass etc.
Category-3: Based on Ontogeny (Life Cycle) 1. Annual Crops 2. Biennial Crops 3. Perennial Crops	**Category-4: Based on Economic Use (Agronomic)** 1. Cereals 2. Millets 3. Pulses

Types Of Farming in India:

Here are all the different types of farming practiced in India:

» Subsistence Farming

- This is one of the most popular farming techniques seen in various parts of the country.
- The farmer along with his family cultivates grains for family consumption or for sale in the local market.
- The entire family works on the farm and most of the agricultural work is done manually here.
- Landholdings are small and fragmented.
- Cultivation techniques are primitive, simple and there is a total absence of modern equipments like tractors and farm inputs like chemical fertilizers, insecticides, and pesticides.
- Traditional methods of farming are followed by the farmers in their small farms.
- Since facilities like electricity and irrigation are generally not available to the poor

Agriculture Basics for NABARD Grade A 2023

farmers, they do not use fertilizers and a high-yielding variety of seeds in their fields to the extent they should do.
- In this farming, farmers mostly cultivate cereals along with oilseeds, pulses, vegetables, and sugarcane.

» Shifting Agriculture

- In this type of agriculture, a piece of forest land is cleared by felling trees and burning trunks and branches.
- After the land is cleared, crops are grown for two to three years, and then the land is abandoned as the soil loses its fertility.
- The farmers then move to new areas and the process is repeated. • It is practiced mainly by tribals living in the forest.
- The commonly grown crops are dry paddy, maize, millets, and vegetables in this type of farming.
- But since it causes extensive soil erosion, governments have tried to discourage this practice of cultivation by tribals.
- This practice is known by different names in different regions of India. For example, it is called Jhum in Assam, Ponam in Kerala, Podu in AP and Odisha, Bewar, masha, penda, and bera in MP.

» Intensive Farming

- Intensive farming aims at maximum possible production on the limited farms with all efforts possible under the circumstances.
- Intensive farming is capable of raising more than one crop in a year.
- Huge capital and human labour are employed in every hectare of land.
- In areas where irrigation facilities are available, the farmers use fertilizers and pesticides on a large scale to bring their land under a high-yielding variety of seeds.
- It is also known as industrial agriculture. It involves higher use of inputs such as capital and labor per unit land area. This is where it differs from traditional agriculture where the inputs per unit of land are lower.
- Intensive Farming records high production per unit of land.

» Extensive Farming

- It is the modern system of farming done on large farmlands. When a large patch of land is used for cultivation then we call it extensive farming.
- It is also known as mechanical farming due to the extensive use of machines. • In Extensive farming, only one crop is raised per year.
- Employment of labour and capital per hectare of land is comparatively less.
- It is practiced in sparsely populated areas like the USA, Canada, Russia, and Australia. • India does not practice extensive cultivation.
- Total production may be high due to the larger area but per unit production is low.

» Plantation Farming

- It is a form of industrialized agriculture, single-crop farming involving large monocultures such as rubber, tea, coffee, cocoa, spices, coconut, and fruit crops like apples, grapes, oranges, etc.
- This type of agriculture involves the growing and processing a single cash crop purely meant for sale.
- It is capital intensive and demands good managerial ability, technical know-how,

Agriculture Basics for NABARD Grade A 2023

sophisticated machinery, fertilizers, irrigation, and transport facilities.

- Plantation agriculture is export-oriented agriculture. Most of the crops grown in plantation agriculture have a life cycle of more than two years.
- Plantation agriculture is confined within tropical areas, i.e., both sides of the equator. Plantations exist on every continent possessing a tropical climate.
- In India, it is practiced in Kerala, Karnataka, Assam, and Maharashtra.

» Mixed Farming

- Mixed farming is a type of farming that involves both the growing of crops as well as the raising of livestock.
- Cultivation of crops along with rearing animals for meat or milk is called Mixed Farming. For example, the same farm may grow cereal crops, and keep cattle, sheep, pigs, or poultry.
- Farmers engaged in mixed farming are economically better off than others.
- All classifications are based on the nature and purpose of farming. It may overlap. For example, Banana is a plantation type of farming. It can also be classified as commercial farming.

» Dry Land Farming

- It is a method of farming in semi-arid areas without the aid of irrigation, using drought resistant crops, and conserving moisture.
- In this type of farming, moisture is maintained by raising the special types of crops. • Gramjowar, bajra and peas are such crops that need less water.
- This is practiced in dry areas of the country such as western, north-western India, and central India.
- Dryland agriculture is important for the economy as most of the coarse grain crops, pulses, oilseeds, and raw cotton are grown on these lands. Dryland areas receive rainfall between 500 and 1200 mm.

» Wetland Farming

- This type of farming depends mainly on rains that is why it is practiced in high rainfall and well-irrigated areas.
- In this type of farming rice, jute and sugarcane are grown.
- This farming is prevalent in the north, north-eastern India, and on the slopes of the Western Ghats.

Cropping Systems

The term cropping system refers to the crops, crop sequences and management techniques used on a particular agricultural field over a period of years. It includes all spatial and temporal aspects of managing an agricultural system. Historically, cropping systems have been designed to maximise yield, but modern agriculture is increasingly concerned with promoting environmental sustainability in cropping systems.

» Monocropping

- Monocropping is when the field is used to grow only one crop season after season.
- For example, planting wheat year after year in the same field.

Agriculture Basics for NABARD Grade A 2023

- Disadvantages: It is difficult to maintain cover on the soil; it encourages pests, diseases and weeds; and it can reduce the soil fertility and damage the soil structure.

» Crop Rotation

- Crop Rotation means changing the type of crops grown in the field each season or each year (or changing from crops to fallow).
- For example, planting wheat one year and beans the next year.
- Crop rotation is a key principle of agriculture conservation because it improves the soil structure and fertility, and because it helps control weeds, pests and diseases.

» Sequential Cropping

- Sequential Cropping involves growing two crops in the same field, one after the other in the same year.
- For example, planting maize in the long rains, then beans during the short rains. • In some places, the rainy season is long enough to grow two crops: either two main crops, or one main crop followed by a cover crop.
- Growing two crops may also be possible if there are two rainy seasons, or if there is enough moisture left in the soil to grow a second crop.

» Intercropping:

- Intercropping means growing two or more crops in the same field at the same time.
- For example, planting alternating rows of wheat and beans or growing a cover crop in between the cereal rows.

» Mixed Intercropping

- Distribution of the seeds of both the crops and dibbling the seeds without any row arrangement. This process is called mixed intercropping.
- It is easy to do but makes weeding, fertilization and harvesting difficult.
- Individual plants may compete with each other because they are too close together.
- Planting the main crop in rows and then spreading the seeds of the intercrop (such as a cover crop).

» Row Intercropping

- Planting both the main crop and the intercrop in rows. This is called row intercropping.
- The rows make weeding and harvesting easier than with mixed intercropping.

» Stir Cropping

- Stir Cropping involves planting broad strips of several crops in the field. Each strip is 3–9 m wide. On slopes, the strips can be laid out along the contour to prevent erosion. The next year, the farmer can rotate crops by planting each strip with a different crop.
- For example, Planting alternating strips of maize, soybean and finger millet.

  Advantages:

  - It produces a variety of crops, the legume improves the soil fertility, and rotation helps reduce pest and weed problems.
  - The residues from one strip can be used as soil cover for neighbouring strips.
  - At the same time, strip cropping avoids some of the disadvantages of intercropping: managing the single crop within the strip is easy, and competition between the crops is reduced.

Agriculture Basics for NABARD Grade A 2023

» Relay Cropping

- Relay Cropping the process of growing one crop, then planting another crop (usually a cover crop) in the same field before harvesting the first.
- This helps avoid competition between the main crop and the intercrop.
- It also uses the field for a longer time since the cover crop usually continues to grow after the main crop is harvested.
- For example, planting maize, then sowing beans between the maize rows four weeks later.

Cropping System vs Farming System

Cropping System	Farming System
Cropping patterns used on a farm and their interaction with farm resources, other farm enterprises and the available technology which determines their make-up is called cropping system.	Farming systems represent integration of farm enterprises such as cropping systems, animal husbandry, fisheries, etc., for optimal utilisation of resources leading to remunerative farming.
It includes monocropping, multiple cropping, intercropping etc.	It includes dairy, piggery, crops etc.
There is no recycling of crop residues.	Farming system follows crop residue recycling.
Cropping system mitigates adverse effects of aberrant weather.	Farming system does not mitigate adverse effects of aberrant weather.
Examples: Rice based cropping system, wheat based cropping system, oilseed based cropping system, and sugarcane based cropping system.	Examples: Wet land-based farming system; dry land-based farming system, garden land farming system.
Some indices are available to evaluate the cropping system.	There are no special indices to evaluate the farming system.

Agriculture Basics for NABARD Grade A 2023