Agronomy: Definition, meaning and scope
Agronomy – Definition and Meaning

• **Agronomy** is derived from a Greek word ‘agros’ meaning ‘field’ and ‘nomos’ meaning ‘management’. Principles of agronomy deal with scientific facts in relations to environment in which crop are produced.

Definition of Agronomy

1. It is defined as an agricultural science deals with principles and practices of crop production and field management.
2. Agronomy is branch of agricultural science, which deals with principles, & practices of soil, water & crop management.
3. It is branch of agricultural science that deals with methods which provide favorable environment to the crop for higher productivity.
Scope of Agronomy

• Identification of proper season for cultivation of wide range of crops is needed which could be made possible only by Agronomy science.
• Proper methods of cultivation are needed to reduce the cost of cultivation and maximize the yield and economic returns.
• Availability and application of chemical fertilizers has necessitated the generation of knowledge to reduce the ill-effects due to excess application and yield losses due to the unscientific manner of application.
• Availability of herbicides for control of weeds has led to development for a vast knowledge about selectivity, time & method of its application.
• Water management practices play greater role in present day crisis of water demand and Agronomy science answer to the questions ‘how much to apply?’ and ‘when to apply?’.

• Intensive cropping is the need of the day and proper time and space intensification not only increase the production but also reduces the environmental hazards.

• New technology to overcome the effect of moisture stress under dry land condition is explored by Agronomy and future agriculture is depends on dry land agriculture.

• Packages of practices to explore full potential of new varieties of crops are the most important aspects in crop production which could be made possible only by Agronomy science.
• Keeping farm implements in good shape and utilizing efficient manner to nullify the present day labour crisis is further broadening the scope of agronomy.
• Maintaining the ecological balance through efficient management of crops, livestock and their feedings in a rational manner is possible only by knowing agronomic principles.
• Care and disposal of farm and animal products like milk and eggs and proper maintenance of accounts of all transactions concerning farm business is governing principles of agronomy.
Relation of agronomy to other sciences

Agronomy is a main branch of Agriculture. It is synthesis of several disciplines like soil science, Agricultural chemistry, crop physiology, plant ecology, biochemistry and economics.

- The Soil Science helps the agronomist to thoroughly understand the soil physical, chemical and biological properties to effect modification of the soil environment.
- The Agricultural Chemistry help the agronomist to understand the chemical composition and changes involved in the production, protection, and use of crops and livestock.
- The crop physiology helps to understand the basic life process of crops to understand functioning of each parts of plant to determine their input requirement like nutrients etc.
• The plant ecology helps us to understand the associated environment in which the crops grown like the influence of weather (Temperature, Rainfall etc).
• The biochemistry shows the way in which biochemical process takes place in crops which helps to understand critical requirements to favourably activate this process.
• The economics paves the way for profit and loss analysis in farming.
Role of Agronomist

Agronomist is a scientist who is dealing with the study of problems of crop production and adopting/recommending practices of better field crop production and soil management to get high yield and income.

- Agronomist aims at obtaining maximum production at minimum cost by exploiting the knowledge of the basic and applied sciences for higher crop production.
- In a broader sense, agronomist is concerned with production of food and fibre to meet the needs of growing population.
- He develops efficient and economic field preparation method for sowing crops in different season. (Flat bed, Ridges and furrows)
- Selection of suitable crop and varieties to suit varied seasons and soils. Eg. Red soil - groundnut, Black soil - cotton, Sandy soil – tuberous crops, Saline soil – Finger millet (Ragi). In Kharif if water is sufficient go for rice and water is not sufficient go for maize, sorghum.
• Evolves efficient method of cultivation (whether broadcasting, nursery and transplantation or dibbling, etc.) provides better crop establishment and maintain required population.

• He has to identify various types of nutrients required by crops including time and method of application. E.g. – Quantity of NPK

• Agronomist must select a better weed management practice. Either through mechanical or physical (by human work) or chemical (herbicides or weedicides)

• Selection of proper irrigation method, irrigation scheduling i.e. irrigation timing and quantity based on the crops to be irrigated, whether to irrigate continuously or stop in between and how much water to be supplied are computed by agronomy science so as to achieve maximum water use efficiency.