1) A wide range of technological innovations in agriculture like genetic improvement of varieties, fertilizer technology, adaptive microbial technology, pesticides, farm machinery, agronomic and management practices have been achieved through research programs to understand their implications in enhancing crop productivity. It has been reported that 1 kg of nutrient fertilizer produces 8 kg of grain.

2) Floods entail different stressful conditions to plants, mainly depending on water depth and its duration. Soil waterlogging damages most crops, with the exception of rice, which like other wetland species thrives when plants are not completely submerged. In view of the changing climate, flooding has become frequent in many lowlands and cultivated areas every year and causes a lot of damage to human beings including losses in crop yields and food stuffs.

3) Soils are the uppermost part of the earth’s crust, formed mainly by the weathering of rocks, formation of humus and material transfer. They vary in terms of origin, appearance, characteristics and production capacity. Soil fertility is the ability of a soil to deliver nutrients needed for the optimum growth of a specified crop. Soil fertility is one of the most important factors in crop production.

4) Variations in annual rainfall, average temperature, global increase of atmospheric CO2, and fluctuations in sea levels are some of the major manifestations of climate change, which negatively impact crop yields . Temperature and rainfall changes are expected to significantly have negative impact on wide range of agricultural activities for the next few decades.

5) Drought refers to a situation in which the amount of available water through rainfall and/or irrigation is insufficient to meet the evapotranspiration needs of the crop . Climate change is driven by changes in water availability, and in water demand for agriculture and other competing sectors. Drought also results in abnormal metabolism that may reduce plant growth, and/or cause the death of entire plant. Drought has different effects at different stages of plant growth with the most sensitive growth stage being flowering period.