

Agriculture: The need to increase farmers' knowledge

Aslam Memon | Published March 20, 2023



Climate change is a global challenge and a threat to food security. Agriculture is expected to produce food for the world's population, estimated to reach 9.1 billion in 2050 and more than 10bn by the end of the century. Weather patterns/climate is one of the main factors influencing the productivity of agriculture.

According to researchers, to improve the productivity and stability of smallholder agricultural production in the wake of climate change, agricultural systems must be transformed. Significant effects of this change have already been seen on water resources, human health, and food security.

Rising temperatures, changes in precipitation, floods and famines affect crop production and negatively affect land and water resources. Fluctuations in climatic factors such as rainfall and temperature and elevated level of carbon dioxide have increased the frequencies of climatic disasters like floods, droughts and cyclones all over the Indian subcontinent.

Improved irrigation facilities, highly genetically modified seeds, and increased usage of fertilisers and pesticides have restricted negative trends. But, the imbalance in the use of fertilisers and pesticides is also responsible for declining soil fertility.

*Financial incentives to
purchase climate-smart
inputs and capacity-building
programmes could help
increase profitability,
productivity and food security*

Climate-smart agriculture (CSA) refers to farming methods that tackle both the problems of climate change and global food security. It is becoming an increasingly crucial concept to ensure future food security and sustainability as the global climate becomes more hostile to conventional agricultural practices.

The Food and Agriculture Organisation (FAO) has encouraged a sustainable agricultural production system due to the social, environmental, and economic issues caused by climate change and traditional agriculture.

According to FAO, CSA practises are viewed as a way to improve resilience while slowing down environmental degradation. Consequently, its adoption will boost yield, enhance resource use efficiency, increase agricultural income, and mitigate the adverse effects of climate change on its production.

CSA includes cutting back on chemical inputs, improving soil fertility, and managing water resources better. Crop diversification, changes in the cropping pattern and planting dates are other farming techniques that can lower the risk of crop loss due to climate change.

The National Agriculture Extension Policy encourages farmers to adopt CSA practices such as water harvesting, efficient irrigation systems, improved crop varieties, and agroforestry. It also promotes the use of climate-smart farm inputs such as organic fertilisers and soil amendments.

Additionally, CSA focuses on enhancing the resistance of crops to extreme weather events. This includes the use of drought-resistant varieties, mulch or cover crops to prevent soil erosion, terracing and other soil conservation

techniques. Farmers can also practise conservation agriculture, which reduces the amount of tilling and maintains a biological mulch cover on the soil.

Precision farming and remote sensing are two examples of cutting-edge technologies that climate-smart agriculture encourages farmers to adopt. While remote sensing can be used to monitor crop health and lower the risk of crop losses because of changes in weather patterns, precision farming helps farmers apply inputs like fertiliser and irrigation water more efficiently.

The policy implication is that promoting and scaling up the adoption of CSA practices can help farmers raise their incomes by improving agricultural productivity and profitability. The Pakistan Agricultural Research Council studied farmers' knowledge and the intensity of their adoption of CSA practices.

According to this research, most farmers were only moderately knowledgeable about the various indicators of climate-smart agriculture. The overall knowledge level showed that the sampled farmers knew more about crop rotation and varieties but less about pesticide application precautionary measures, crops recommended fertiliser application per acre and laser leveller.

The sampled farmers had the lowest knowledge level in early maturity (short duration) crop varieties, integrated pest management techniques, wheat on ridges/seed beds, heat and drought tolerant varieties, and organic farming. These results indicate a significant knowledge gap and low practice of CSA, in spite of the positive outlook to climate-smart practices attributed to the collapse of extension services over the years.

Insufficient understanding of climate-smart practices, limited access to weather and climate information, low financial capacity, and a lacklustre policy framework were the main barriers to adopting these practices.

In general, the government is moving in the right direction to support CSA in the country. Nevertheless, there is still a need to raise knowledge among farmers. Using modern technology to connect with farmers and conduct targeted communication efforts can accomplish this.

The government should also focus on providing technical assistance and access to finance to farmers so they can adopt CSA practices. This could include providing financial incentives to farmers to purchase climate-smart inputs and equipment and providing training and capacity-building programmes.

By promoting CSA in Pakistan, farmers can improve their productivity and profitability while adapting to the effects of climate change. This will be essential for ensuring food security in the country and for building the resilience of its agricultural sector.

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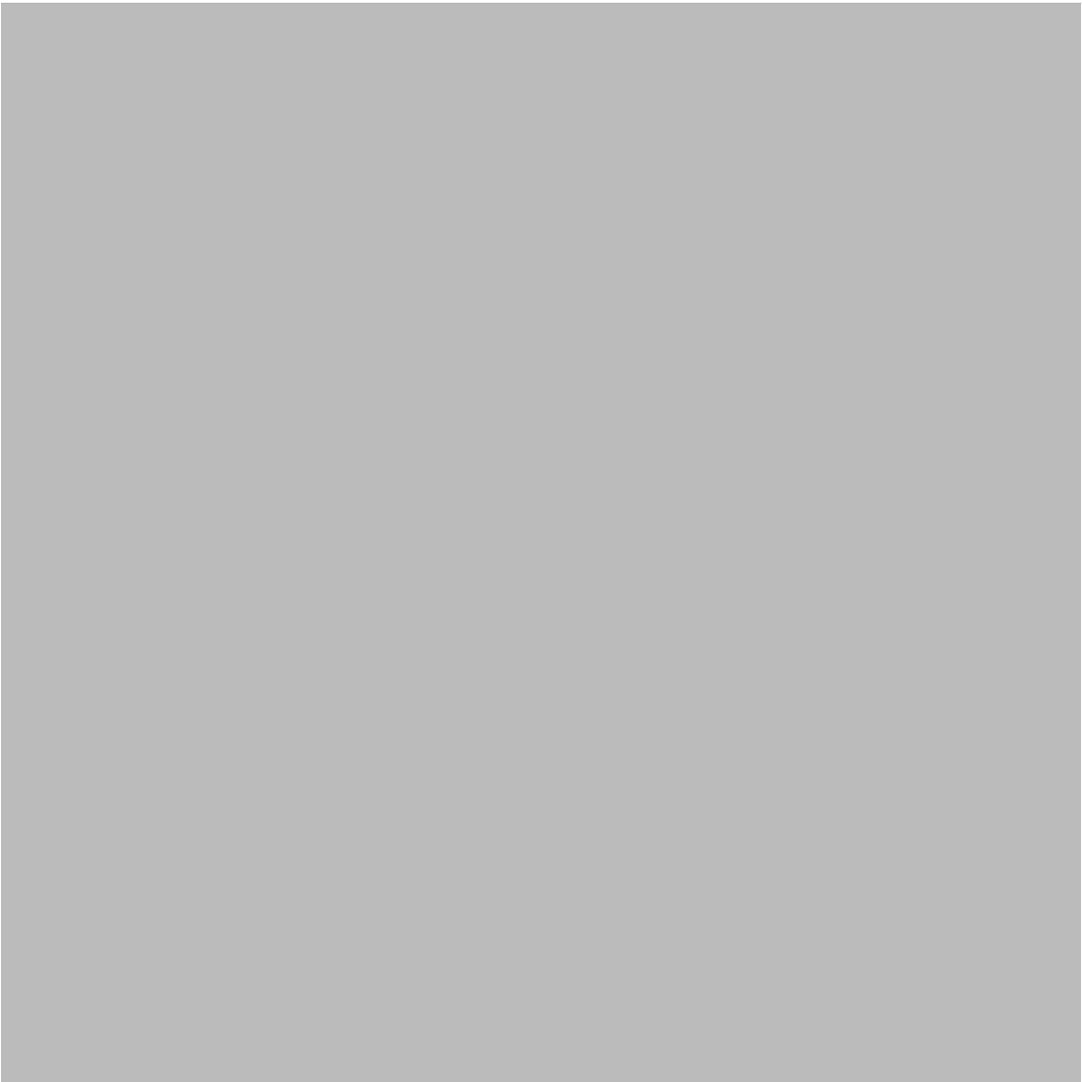
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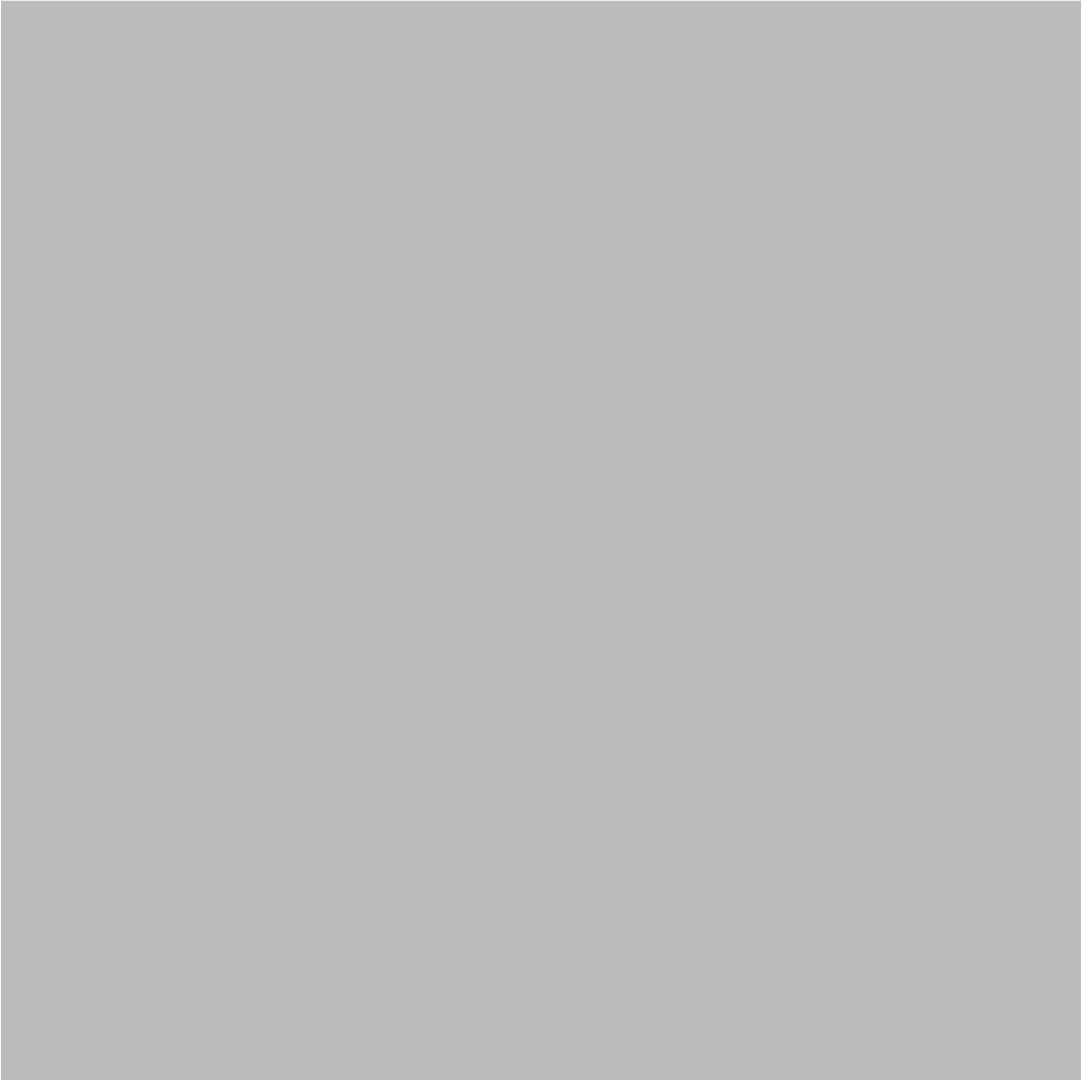


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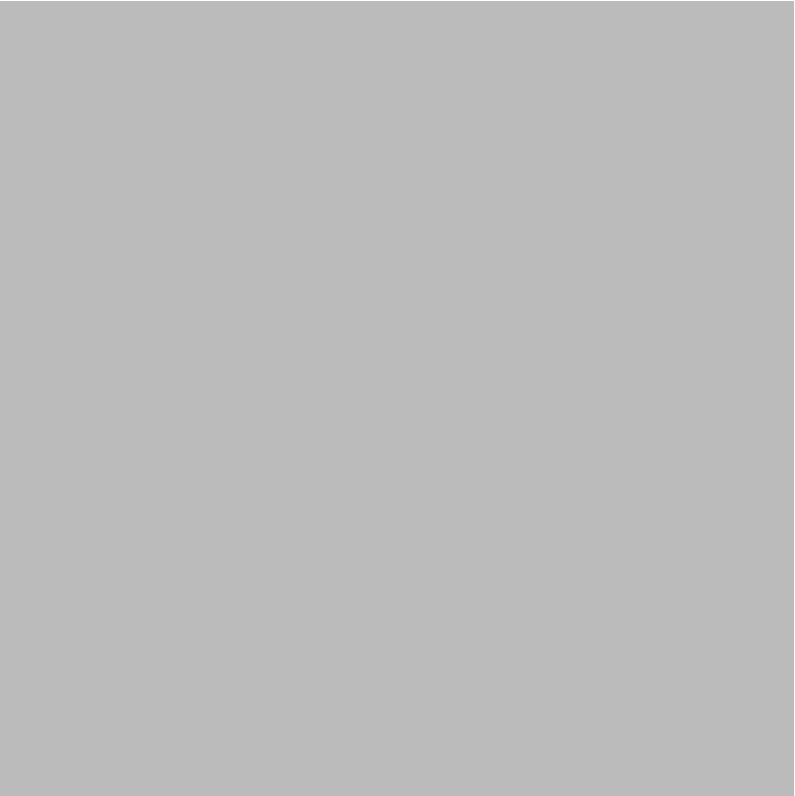
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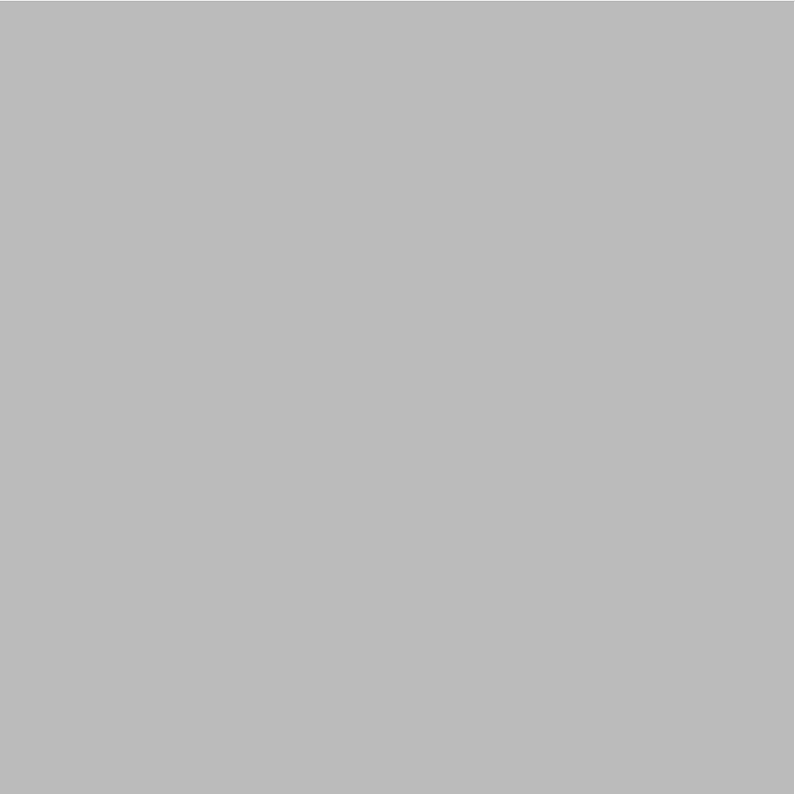




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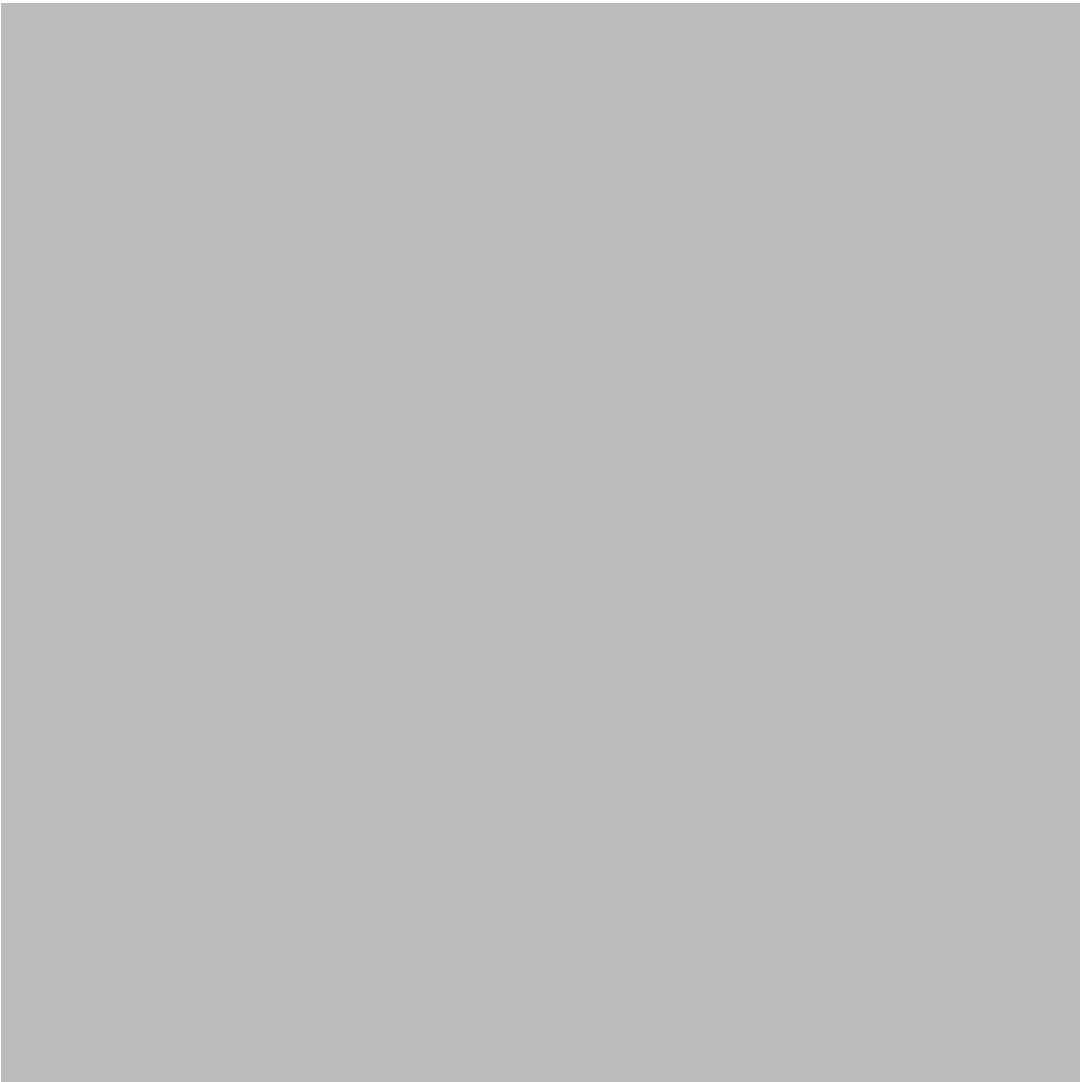


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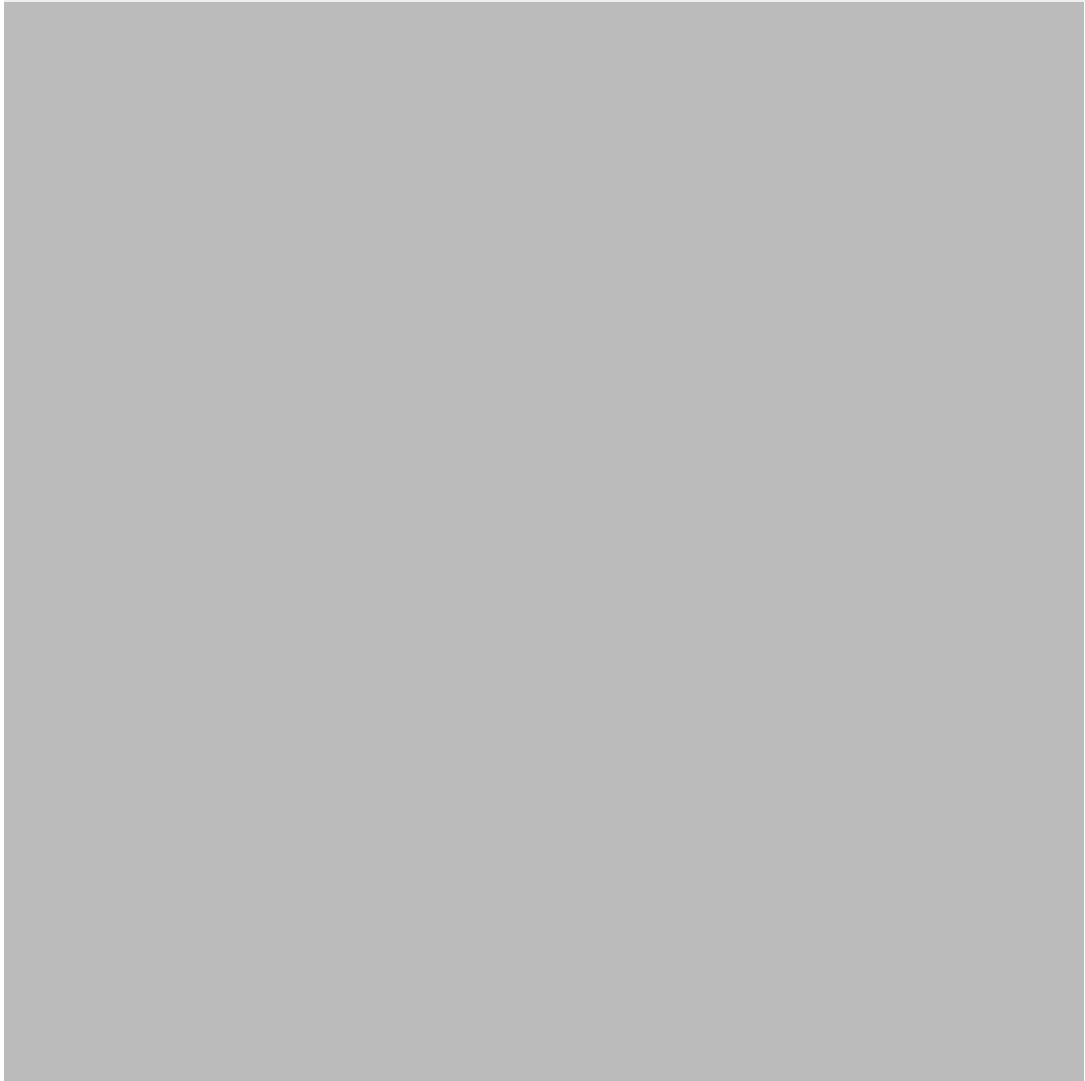




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