

Gene Editing

1. Gene Editing can have major impact on Indian agriculture through rapid development of crop varieties with diverse desirable traits. Analyse
Gene Editing refers to using biological scissors to target the specific gene that has to be modified by precise and sharpening tool, thereby removing / adding additional proteins with the existing structure to suit the modern issues / problem for solutions.

Gene Editing in Agriculture:

1. Useful to produce different crop varieties with desirable traits for the benefit of mankind.
2. Crop improvement and adaptation are primary reasons for adopting of molecular scissor.

Improves productivity:

1. Indian population is 130 crore and its increasing demand for staple crops
2. IARI involves in producing short term and high produce variety to satisfy the domestic consumption needs in future.
(e.g) TR and genetic wheat variety.

Climate change adaptation crops:

1. Reduced rainfall, drought and adverse climatic change due to anthropogenic activities
2. Necessity for genetic modified crops to withstand arid conditions in future.

Improved nutrition Crops:

1. India requires bio-fortified nutrition crop
2. Genetic modified nutrition crops is the need of hour as cheap source for several diet

Concerns and Challenges:

1. Requires genetic approval to satisfy Indian climate conditions, where India lacks R&D.
2. Spread of new diseases due to modification
3. Destroy of traditional crops varieties
4. Monopoly by industries (e.g) BT-Cotton-USA

Future Concerns:

1. Less fertilizer, quick return and pest resistant crop has to be given quick approval
2. BT-Soya bean \Rightarrow R&D required to improve domestic production of oil & exporting.
3. More R&D towards non-cash crops like BT-Brinjal and pulses to suit local several poverty.