Broadbalk experiment

May 12, 2021

In news: It is the **world's longest running farm study.**

About the experiment-

- The field in **Hertfordshire county of southern England** has been under continuous scientific experiments for the past 178 years.
- Scientists have been sowing wheat on the field, named Broadbalk, every year **since 1843** to understand how to use fertilisers to improve crop yield.
- The research was **started by agricultural scientist John Bennet Lawes and chemist Joseph Henry Gilbert** under the Rothamsted Research institution.
- The **aim** of the experiment is to test the effects of different organic and inorganic fertilisers on soil fertility and study the optimum nutrition requirements to improve crop yield.
- The land was divided into **19 strips of wheat field,** each 300 metres long and 6 m wide.
- To test the benefits of different combinations, some strips received inorganic fertilisers, some organic and some others a combination of both.
- One strip was left received neither of these.
- After 175 years of study, the scientists have found that yields from the section where wheat was grown with a two-year break, were higher than from sections where wheat was grown continuously.
- The use of organic manure had increased the soil organic matter content on some plots.
- The highest average yield was in wheat treated with **N6 fertiliser**, grown in both continuous and rotational manner.

There is **little benefit for farmers using fertilizers with**

such high levels of nitrogen.

Indian scenario-

- Long-term fertiliser experiments have been carried out at 17 Indian Council of Agricultural Research (ICAR) centres since 1970 to study changes in soil quality, crop productivity and sustainability.
- These experiments have shown that it is not possible to sustain productivity without external supply of nutrients.
- The research has led to the development of **integrated plant nutrient supply and management strategies**.
- These lead to improving soil fertility, enhancing and sustaining productivity of intensive cropping systems.