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Chapter - 21

Green Revolution

Nilofer, Divya Srivastava, Mayank Srivastava, Sujit Kumar and N. A. Khan

Green revolution

Green Revolution refers to a series of research, development, and technology transfer initiatives, occurring between the 1940s and the late 1970s, that increased agriculture production around the world, beginning most markedly in the late 1960s. The initiatives, led by Norman Borlaug, the "Father of the Green Revolution" credited with saving over a billion people from starvation, involved the development of high-yielding varieties of cereal grains, expansion of irrigation infrastructure, modernization of management techniques, distribution of hybridized seeds, synthetic fertilizers, and pesticides to farmers.

The term "Green Revolution" was first used in 1968 by former United States Agency for International Development (USAID) director William Gaud, who noted the spread of the new technologies and said, "These and other developments in the field of agriculture contain the makings of a new revolution. It is not a violent Red Revolution like that of the Soviets, nor is it a White Revolution like that of the Shah of Iran. I call it the Green Revolution."

The agricultural development that began in Mexico by Norman Borlaug in 1943 (based on Nazareno Strampelli's studies) had been judged as a success and the Rockefeller Foundation sought to spread it to other nations. The Office of Special Studies in Mexico became an informal international research institution in 1959, and in 1963 it formally became CIMMYT, The International Maize and Wheat Improvement Center.

In 1961 India was on the brink of mass famine. Borlaug was invited to India by the adviser to the Indian minister of agriculture M. S. Swaminathan. Despite bureaucratic hurdles imposed by India's grain monopolies, the Ford Foundation and Indian government collaborated to import wheat seed from CIMMYT. Punjab was selected by the Indian government to be the first site to try the new crops because of its reliable water supply and a history of agricultural success. India began its own Green Revolution program of plant

Chapter - 27

Multiple Factor Hypothesis

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Chapter - 27

Multiple Factor Hypothesis

Nilofer, Divya Srivastava, Sujit Kumar and Anand Mohan Choudhary

Multiple Factor

Mendel's Laws of inheritance determine the inheritance of qualitative features. These are distinct characteristics that produce two extremes in the flower colour (purple or white), seed form (round or wrinkled), and seed colour, for example (yellow or green). There isn't a phenotypic in between. Discontinuous variation describes variations in qualitative traits.

However, some other significant characteristics of domesticated animals and cultivated plants, such as the production of eggs, milk, or meat by animals, among others, do not fall into two distinct categories and all gradations appear between the two extremes (for instance, between the colour of red and white wheat grain and the colour of black and white skin in humans). Quantitative characters are what these characters are known as. Continuous variation is the name for variation in quantitative traits.

These numerical features exhibit continual variation. Because the traits are so continuously variable and don't appear to separate out in the offspring of hybrids, Mendel's method of analysis is difficult to use.

H. Nilsson-Ehle, a Swedish botanist, and E.N. East, an American scientist, tackled the issue of the inheritance of quantitative character in 1908. (1910, 1916). These researchers demonstrated that this apparent "blending inheritance" may be explained by supposing that continuously changing traits are caused by the combined or cumulative action of numerous genes, each of which has a minor influence on the same trait. These genes are referred to as polygenes, cumulative genes, or additive genes.

A cumulative gene is one that, when combined with another gene that is identical or similar, changes the level of expression of a quantitative characteristic. In other words, multiple genes (= polygenes) control a quantitative characteristic at the same time, and the effect or action of these genes is cumulative or additive in nature. The multiple-factor hypothesis is yet another name for this. Multiple-factors are gene pairs that interact with one

Chapter - 12

Quantitative Inheritance

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