Green Revolution

"Green" word signifies "crop" and "Revolution" word signifies "spurt" (Push or substancely increase in production.)

Green Revolution simply implies "A Spurt in crop Production"

It started in India in 1967-1968. In this duration the production of food grains had increased nearly 25%.

- **Two principle Parameters of Green Revolution:**

→ A substantial rise in foodgrain production sustainable over a fairly long period of time.

→ Changes in Technology and farm management practices

- **There are two phases of Green Revolution:**

- **Phase: 1** (Mid 60's and mid 70's)

In this phase of time, Green revolution mainly focused on the production of two crops which are Rice and Wheat. And this revolution took place in Punjab, Haryana, Tamil Nadu.

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- **Phase: 2** (Mid 70's and mid 80's)

In this phase of time, Green revolution focused on the production of the most the crops such as

Bajra, Sugarcane, cotton etc.
It covers different states of the country.

- **Positive Impact of Green Revolution in India :**

i) A Spurt in Crop Productivity.

Period	Productivity (Wheat)
(Before Revolution) 1951	663 kg per hectare
(After Revolution) 2010-2011	2,938 kg per hectare

Various crops were produced in a large quantity after the green revolution

ii) A substantial Rise in Acreage (Area under cultivation)

The adoption of "High yielding variety seeds" had reduced the time lag between sowing and harvesting of crops and the use of Pesicides, fertiliser, insecticide had also increased the production. That is why the area of cultivation also increased and more and more people started to involve in it. and the farmers had motivated to indulge in the cultivation. by the adoption of Green Revolution.

iii). A perceptable shift from subsistence farming to commercial farming :-

Before Green Revolution only the subsistence farming took place. It means "production only take place in order to fulfill the requirement of the family"

But after the Green Revolution ; the commercial farming started to be take place. It means production started to be happen not only for the consumption but also for the commercial purpose. Therefore ; Survival farming has been changed into commercial farming for selling the crops into the markets. And this started to generate a handsome market surplus. This leads to increase the revenue generation of the agriculture.

iv). **Change in Farmer's Outlook :-**

Green revolution has change the prospective of the farmers because farmers started to sell their crops in the market and they started to earn profits or revenues.

v). **Self-sufficiency in food Grain Production :-**

Increase in crop production has been so substan-cial and India has started to maintain the "Buffer stock" of food grains to use during the period of emergency it means in the period of shortage of supply of food grains or during the less pro-duction of crops.

Introduction :

A great disaster occured in Bengal in 1943. during the period of Second world war (1939-45). Second world war caused a huge food disaster that was known by the name of "Bengal Famine". Around 4 million people died of hunger due to shortenge of foods. After the independce in 1947; India was still suffering from the major problem of food scarcity. There was a need of a huge amount of food in order to fulfill the requirements of the people or in order to prevent the people from going in the gulf of starvation.

Therefore,

In 1966; Green Revolution started in the county. Green Revolution refers to the adoption of new agricultural strategies, modern technology, machines, fertilizers, Pesticides, Insecticides, HYV seeds etc. for the huge rise in the food productivity. Since, India was suffering from the problem of hunger that is why; to solve this major problem "M.S Swaminathan" (adviser of ministery of agriculture) suggested agriculture minister to import High field variety of seeds from Mexico for increasing the production of food crops.

In 1961, India was on the brink of mass famine. "Norman Borlaug" was invited to India by the adviser to the Indian minister of agriculture "C. Subramaniam". And after that 18000 tonnes of HYV seeds were imported by the Indian govt. And Punjab was the first state where HYV seeds were grown due to availability of adequate

water and enrich soil.

So, By the starting of Green Revolution in India; a veritable revolution is taking place in our country. Initially, the new technology was tried in 1960-61 as a pilot project in seven district and was called Intensive Agricultural District Programme (IADP). Later, the High-Yielding Varieties Programme (HYVP) was also added and the strategy was extended to cover the entire country. This strategy has been called by various names: "Modern Agricultural Technology", "Seed-fertiliser-water technology" or simply Green Revolution.

The new varieties of seeds are of a short-term duration and consequently, instead of growing one crop, two crops and sometimes, even three crops are grown. The farmers of Punjab, Haryana, Delhi, Rajasthan and western UP were started to be the part of this revolution by growing new Mexican varieties like Lerma Rojo, Sonara-64, Kalyan and P.V. 18.

⇒ Achievements of the New Agricultural Strategy:-

i) Boost to the production of cereals:

The major achievement of green revolution is to boost the production of major cereals such as wheat and rice. And these two cereals are mostly consumed by the people of the country. Green revolution did not cover coarse cereals like maize, jowar, barley,

ragi and minor millets. Green revolution did not cover pulses.

Progress in Foodgrain Production (million tonnes)

	1960-61	1990-91	2008-09
Rice	35	75	99
Wheat	11	55	78
Coarse cereals	23	32	41
Total Pulses	13	14	14

ii). Increase in the production of Commercial crops:

Green revolution also cause the improvement in the production of commercial crops or cash crops such as sugarcane, cotton, jute, oilseeds and Potatoes. Initially, it did not increase the production of these crops but the significant improvement took place after "1973-1974."

Progress in Cash crop Production (million tonnes)

	1960-61	1990-91	2008-09
Oilseeds	7	19	28
Sugarcane	110	254	289
Cotton	6	10	23
Jute	4	8	10
Potato	3	15	N.A

iii). **Increase in Employment:**

Green revolution generated employment opportunities into diverse activities which created as a result of multiple cropping and mechanization of farming. It helped to stimulate non-farm economy that generated newer employment in various services such as milling, marketing, warehousing etc.

iv). **Food grain Price Stability:**

The adoption of new agricultural technology has led to the increased production and marketable surplus of crops especially food grains that have resulted into Price-stability of food items.

v). **Strengthening of forward and backward linkages with industry:**

The increase in agriculture production has strengthened the forward linkage of agricultural sector with industry in the sense of supplying inputs to the industry. The backward linkage with the industry has also received a boost as agricultural modernization created larger demand for inputs produced by industry.

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➡ **Problems of Green Revolution:**

The new agriculture strategy has resulted into

Notes increased productivity and returns for farmers. This has resulted in decline in rural poverty to an extent. However, the revolution resulted into increased income, wide interpersonal and regional inequality and inequitable asset distribution.

- The major problems associated with green revolution are as follows :

1). Increase in personal inequalities in rural areas :

The income inequality between rich and poor increases due to :

(a). The small farmers lagged behind the larger farmer as small farmers had to depend upon traditional production method. Since the rich farmers were already better equipped, the green revolution accentuate the income inequalities b/w rich and poor.

(b). Green revolution resulted into lower product price and higher input prices which also encouraged landlords to increase rents of force tenants to evict the land.

(c). The mechanization pushed down the wages of and employment opportunities for unskilled labour in rural areas thereby further widening the income disparities.

2). Increased Regional Disparities:

Green revolution spread only in irrigated and high-potential rain fed areas. The villages or regions without the access of sufficient water were left out that widened the regional disparities between adopters and non-adopters.

The states like Punjab, Haryana, Western UP etc having good irrigation and other infrastructure facilities were able to derive the benefits of green revolution and achieve faster economic development while other states have recorded slow growth in agriculture production.

3). Environmental Damage:

Excessive and inappropriate use of fertilizers and pesticides has polluted waterway, killed beneficial insects and wild life. It has caused over-use of soil and rapidly depleted its nutrients. The rampant irrigation practices have led to eventually soil degradation. And also loss of biodiversity of farmers. These problems arised due to absence of training to use modern technology and vast illiteracy leading to excessive use of chemicals were

4). Indian agriculture is still a gamble in the monsoon:

Despite of adoption of HYV seeds; agriculture is still a gamble for the farmers due to uncertainties

of monsoon. When we see the data of food production from the period of 1970 to 2009 then we find that the production of foodgrains sometimes goes up and sometimes goes down due to monsoon. So, the green revolution does not truely effect the production of foodgrains.

Production of foodgrains in India

Year	Production (million tonnes)
1970-71	108
1990-91	176
2002-03	174 → Production falled due to monsoon.
2006-07	216
2008-09	230

5). Problems of labour displacement :

Uma K. Srivastava, Robert W. Crown and Earl O. Heady have examined the effects of two types of technological innovations introduced under the Green Revolution.

i) Biological : The term "biological innovation" refers to the changes in the inputs that increase the productivity of land such as HYV seeds,

use of fertilizers, pesticides.

ii). Mechanical : The term "mechanical innovation" refers to the introduction of new appliances which displace of Human or bullock labours.

Thus, Biological innovation is "labour absorbing" while Mechanical innovatio is "labour saving".

Therefore, Green revolution also caused the problem of unemployment for the small labours in the different states of the country.

For instance :- It was analysed that 55% of the total labour displaced was expected to be caused by tractors and pumpsets and 37% by threshers and reapers.

Note :→ Norman Borlaug (American agronomist & humanitarian) received Nobel Peace Prize in 1970.

→ "Green Revolution" was used for the first time in 1968 by US Agency for International Development (USAID) director William Gaud.