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Food Production and Post Harvest Losses of Food Grains in India

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ABSTRACT
The prevention of food wasted is enough o resolves hunger crises hunger crises. Food is the primary need to sustains the of human being life. Although, many techniques are engages to increase to food production and prevents of hunger and malnutrition of population. Presently, we produce sufficient agriculture food production, by using irrigation, pesticides, chemical fertilizer and high yielding variety. But these, are not seem to meet the enough food demands of present and future population. To encounter the hunger and secure food and nutritional security to need increasing the production and productivity, by using limited resources in sustainable manner and ensure the security of natural resources. The increasing productivity is the obvious choice to supply of food to increasing population. The other alternate way to provided food of available and increased population, the maximum efficiency use of every unit of resources including preventing pre and post harvest losses from insect-pests and diseases, proper and scientific storage of agriculture produces. Because post harvest losses about 30 % of the crops due to this reason. One third of total foods production annual wasted due to lack of proper infrastructure unscientific handling. The total food lost, wasted in each year in the more than which would be solving the four times hunger crises of population. In the present review article focused on production and losses of agricultural produces.

INTRODUCTION:

"If there is anything we are serious about, it is neither religion nor earning but food"

Food security is defined as economic access to food along with food production and food availability. With 1,270,272,105 (1.27 billion) people that is Current Population of India, is the second most populous country in the world, (According to the final census released former Home Minister Sushil kumar Shinde). The population of India on 1 March 2011 was 1,210,193,422. India added 181.5 million to its population since 2001, slightly lower than the population of Brazil. India with 2.4% of the world's surface area accounts for 17.5% of its population. The figures shows that India represents almost 17.31% of the world's population, which means one out of six people on this planet, live in India. With the population growth rate at 1.58%, India is predicted to have more than 1.53 billion people by the end of 2030.

According to **Alexandratos and Bruinsma (2012),** food supplies would need to increase by 60% (estimated at 2005 food production levels) in order to meet the food demand in 2050. The scientist and planner are focused only increased food production, not on protection of post harvest food losses. Increasing productivity of agricultural products is critical for ensuring food security, but this may not be sufficient for providing food for increasing population. To sustainably achieve the goals of food security, food availability needs to be also increased through reductions in the post-harvest process at farm, retail and consumer levels. Present data shown that the past three decades, significant focus and resources have been allocated to increase food production. For example, 95% of the research investments during the past 30 years were reported to have focused on increasing productivity and only 5% directed towards reducing losses **(Kader 2005; Kader and Roller 2004; WFLO 2010).**

The importance of human resources as the engines powering national development and gave high priority to improvement of the health and nutritional status of the population. Article 47 of the Constitution of India states that, "the State shall regard raising the level of nutrition and standard of living of its people and improvement in public health among its primary duties" **(Planning Commission of India)**. In 1950s India the

second most populous country in the world, was not self sufficient in food grain production and had to import wheat. The continued high fertility [birth rate of 40.8 and total fertility rate (TFR) of 6] and relatively lower mortality [crude death rate (CDR) of 25.1]. But after the green revolution India self sufficiency in food production and to achieved meet the needs of the growing population last four decades and the threat of famine has been eliminated **(Prema Ramchandran, 2012).** As Per the 2010 FAO world agriculture statistics, India is the world's largest producer of many fresh fruits and vegetables, milk, major spices, select fresh meats, select fibrous crops such as jute, several staples such as millets and castor oil seed. India ranked within the world five largest producers of over 80% of agricultural produce items, including many cash crops such as coffee and cotton, in 2010. India is also one of the world's five largest producers of livestock and poultry meat, with one of the fastest growth rates, as of 2011.

PROJECTED POPULATION OF INDIA

The population of the Republic of India is expected to continue its high growth rates due to the high birth rates in comparison to the death rates. The birth rates range from 21.3 births per 1000 people to about 12.8 births per 1000 people. However, the death rates only range from about 7.8 deaths per 1000 people to about 9.5 deaths per 1000 people. Despite the projected population growth, the net migration remain will remain negative throughout the next 37 years.

The principal problem is that many people in India do not have sufficient land to grow, or income to purchase, enough food. In 1985, India produced nearly 500 kilo grams per head of cereals and root crops, the primary sources of food. Average per capita availability of food for direct human consumption in India, after allowing for waste, animal-feed and non-food uses, improved to 2,770 kcal /person /day in 2005/2007. Thus, in principle, there is sufficient global aggregate food consumption for nearly everyone to be well-fed. Yet this has not happened: some 2.3 billion people live with under 2,500 kcal and some 0.5 billion with less than 2,000 kcal, while at the other extreme some 1.9 billion are consuming more than 3,000 kcal. Despite these recent accomplishments, agriculture in India has the potential for major productivity and total output gains, because crop yields in India are still just 30% to 60% of the best sustainable crop yields achievable in the farms of developed as well as other developing countries. Additionally, losses after harvest due to poor infrastructure and un-organized retail cause India to experience some of the highest food losses in the world. Producing more food also presents environmental challenges. Currently, agriculture contributes nearly a quarter of global greenhouse gas emissions, uses 37% of landmass, excluding Antarctica, and accounts for 70% of all freshwater withdrawn from rivers, lakes and aquifers.

For the get to the bottom of this problem we have only two alternatives for increasing food grain (i) increased total cultivated land (ii) increasing food production and prevent post harvest loses. In the first point we are going enlighten because except to increased total cultivated agricultural land its shrinking due to it converted in to building, rail ways, roads and other infrastructure (although some states it increased and total irrigated land increased, saline and alkaline land decreased as per behalf of data we can say that agricultural land may increased but total agricultural land decreased). The land serves as storage for water and nutrients required for plants and other living micro-macro-organisms. The demand for food, energy and other human requirements depends upon the preservation and improvement of the productivity of land. But land resources are limited. The increasing human and animal population has reduced the availability of land over the decades. The per capita availability of land has declined from 0.89 hectare in 1951 to 0.37 hectare in 1991 and is projected to slide down to 0.20 hectare in 2035. As far as agricultural land is concerned the per capita availability of land has declined from 0.48 hectare in 1951 to 0.16 hectare in 1991 and is likely to decline further to 0.08 hectare in 2035. This decline in per capita land availability in the country is mostly on account of rising population. Out of 328.7 million hectare of geographical area of India, about 141 million hectares is Net Cultivated Area. Out of this, about 57 million hectare (40%) is irrigated and the remaining 85 million ha. (60%) is rain fed. It includes water erosion 93.68 million ha. wind erosion 9.48 million h water logging/flooding 14.30 million ha., salinity/alkalinity 5.94 million ha., soil acidity 16.04 million ha. and complex problem 7.38 million ha. The food production in India increased from 51 million tonnes in 1950's to more than 190 million tonnes in 1990's.

The significant growth of agriculture has been at the cost of decline in soil quality and risk of soil degradation **(Abrol and Sehgal, 1992).** Out of 329 M ha total geographical area of India, 142 M ha is arable, some of this area is undergoing deterioration in soil quality because of misuse or mismanagement of this resource. About 57 per cent of soils are under different kinds and degrees of degradation **(Sehgal and Abrol, 1994).** Soils are degraded much below their optimum potential due to erosion, salinity, alkalinity, water logging, shifting cultivation, sand dune formation, shallow depth, low availability of nutrients seasonal flooding, industrial and sewage effluents etc. **(Sehgal *et al.,* 1987).** Further, it has been estimated that nearly 50 per cent of the canal irrigated area is suffering from salinization and/or alkalization due to inadequate drainage.

Second option which make stuffiest food for present and prospect population is to increased

productivity of food production in quantity and quality aspect because not only need food for to fill the stomach and to satisfy need of hunger but it also complete with balance diet that may provides nutrients for human being. The world continues to face a challenge to feed its people sustainably **(FAO, 2009; Pelletier and Tyedmers, 2010; Tilman *et al.,* 2001);** globally around one billion people are malnourished (e.g. Naylor, 2011). According to World Health Organization in every year the total 6.6 billion thousand child and pregnant lady died by lack of proper nutrient problems. In case of production more food grain we put on a reasonable level after Green revolution. In the 1950s our total food production in 50 million tons (mt) which attain 255.36 million tons in 2011-12. Green revolution is our biggest success which resulted in an increased food production from 800 million tones to more than 2.2 billion tones between 1961 and 2000. Indian council of agricultural research (ICAR) with 99 institutes, 65 agricultures universities and 631 KVKs spread across the country constitutes on of the largest national agricultural research systems in the world. But in Indian agriculture is still technology deficit as for as world agriculture is concerned. Yields per ha of food grains, fruit and vegetables in Indian condition are bellowing global average. Something which is totally unacceptable in the current scenario is that India has 42.56 (metric) m ha of harvested area under rice as compared to 30.11 m ha in China, but the productivity is higher in China with 6.54 tons/ ha against 3.38 tons/ha in India. Even with less area Nigeria (4.7 m ha) recorded higher yield of sorghum (1.01tons/ha) as compared to India (7.8 m ha with productivity 0.86 tons/ha). The white yield in India is 2.83 tons/ ha from 29.0 m ha as against 3.11 tons/ha from only 19.3 m ha in USA. The yield of millets is almost similar (1.19 to 1.10 tons/ha) between India and Nigeria but area is pretty high in India compared to Nigeria (3.7 m ha) **(The Hindu 2012)**.

A limited production inspires inflation and the number of people going to bed hungry would increases. This is not good for India as we are constantly making our presence in many hunger indices. India is ranked 66th on the 2008 Global Hunger Index of 88 countries, as per International food Policy Research Institute (IFPRI). The report of the UN World Food Program is also quite unflattering. More than 27 per cent of the of the world's undernourished population lives in India, of whom 43 per cent children (under five years) are underweight. The figure is higher than the global average of 25 per cent and even beats sub- Saharan Africa's figure of 28 per cent. Nearly 50 per cent of child deaths in India occur due to malnutrition. In India levels of food consumption are low. In terms of energy value, it is estimated that at little more than 2,000 calories a day Grains provide the bulk of the calories. In India Grains and Pulses are the basic foods. In case of food and grain production self-sufficiency is the prime goal of development plans for agriculture. Toward the end of the First Five Year Plan (April 1951-March 1956) this goal appeared to have been reached. But production since then has failed to cover requirements swelled not only by the rapid increase in population also by the increase in per capita demand as economic development brought rising incomes. Presently, we stand a presumed placed and growing power of world. India ranks 8th among the world's industrial countries and is second to Japan in Asia. However, India's economy is primarily agricultural and will continue to be so in the foreseeable future. Agricultural production normally contributes close to 50 percent to the country's national income, industry 20 percent, and services 30 percent. Any significant transfer of underemployed rural labor to industry will take years to accomplish. But it's dishonorable for us that after growing an adequate amount of food production we not provide sufficient food for population. The agricultural resources and the technology needed to feed growing populations are available. Much has been achieved over the past few decades. Agriculture does not lack resources; it lacks policies to ensure that the food is produced where it is needed and in a manner that sustains the livelihoods of the rural poor. He can meet this challenge by building on our achievements and devising new strategies for sustaining food and livelihood security.

REASONS OF FOOD LOSSES

- **Agricultural losses**
- **Processing losses**
- **Consumption waste**

POSTHARVEST LOSSES:

The **considerable** qualitative and quantitative food loss along with the supply chain, from the time of harvest till its consumption **(Hodges, Buzby and Bennett, 2011),** Decreased weight or volume measured as quantitative losses, or reduced nutrient value and unwanted changes to taste, color, texture, or cosmetic features of food considered as *qualitative* losses (**Buzby and Hyman, 2012).** Quantitative food the reduction in weight of edible grain due to spillage, consumption by incidence of insect-pest, mites, rodents and birds, or from handling and physical changes in temperature, moisture content and qualitative losses occur due to, physical changes or chemical changes in fat, carbohydrates and protein, and contamination by mycotoxins, pesticide residues and dead bodies**. (FAO, 1980).** But after all the calamities which we produces may be sufficient if we protect them from post harvest levels, on an average, 15-30 % of the country's food gets damaged on its way from the farm to the fork. The loss accounts for the Rs. 80,000 corer every year which is sufficient for free meals to below

poverty line (BPL) population in the country. Of the total food loss, the food grain loss accounts for 10 % of the total production. According a report published by Ministry of Food and Civil Supplies, Government of India, it is recently estimate by that the total preventable post-harvest losses of food grains at 10 per cent of the total production which are about 20 Mt, which is equivalent to the total food grains produce by the Australia annually. The loss in absolute terms amounts to 23-24 million tons which in value terms comes to 35-40 thousand corer rupees for food grain alone. The other crops like oil seeds (3 million tons at the rate of 10 % loss and Rs. 6,000 crore in terms of value) and horticultural crops (60-80 million tone at the rate of 30-40 % loss and Rs. 40,000 crore in terms in value) are dealt under oil seed mission and National Horticulture mission respectively.

DISTRIBUTION WASTE:

Food grains worth Rs. 35000-40000 crore are damaged every year due to lack of storage facility and poor management in the country. According to a **World Bank study (1999),** that 7-10 per cent from farm to market level and 4-5 per cent at market and distribution levels losses in India every year. Food grain loss stored by the **FCI and Central Ware Housing Corporation (CWC)** has also risen in recent past. Storage of food grain occurs at three points in the country.

- **1).** At the farm level mostly by the farmers in bags, in rooms and in open heaps. Some farmers store grains in structures.
- **2).** At collection point mostly by whole sellers and retailers. They mostly store grain in bags, open heaps in rooms or underground stores. Both the groups do not give much importance to air tightness of the structures and other sanitation aspects.
- **3).** At terminal point like FCI and state agencies, the food grain is stored in large bulks. These agencies use big go downs/ silos for bulk storage. Most of the structures used at these points lack needed requirements to protect food grain loss due to rats, insects, diseases and moisture.

As per survey by the task force constituted by the planning commission, there was a gap of 35 million tones storage space in the country. Mountains of grains stored in the open, covered under plastic sheets rot because of poor food management system, lack of suitable infrastructures and inefficiency of agencies responsible for safe storage of food grains. One fourth of India's grain stock is stored in open under tarpaulin.

CONCLUSION:

India is the second largest producer of food grains after the green revolution; we produced sufficient food products, but presently are not provided sufficient food and nutrition for growing population. Despite the huge production the per capita availability is low in India because of the population and high losses of food product during processing. The production food grains and agricultural products is not only the enough to provided nutritional food security of growing population. India has the dubious distinction of being the top of the chart for malnutrition children. Food and Agricultural organization estimated that more than 225 million undernourished people resent in India, which constitute about 21 % of the national population. Because most of the agricultural is loses or wastage due to unscientific handling, lack of storage facility and infrastructure. So the conclude is that, if secure food wastage and post harvest losses, than the present production is enough to provided food and nutrition population.

"Food is a central activity of mankind and one of the single most significant trademarks of a culture"

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