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Manmade Problems in Indian Agriculture and Their Solutions: A Review

Mandeep Singh[1], Sarabjit Singh Aulakh[1], Avtar Singh Bimbraw[1]

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ABSTRACT

Indian agriculture is suffered with a number of problems for enhancing the productivity of grain crops to protect the food security by increasing the food production in India's green revolution to get self-sufficiency during 1970s leaving something for widespread scarcity of food. To secure the food self sufficiency caused so many problems despite the improved technologies, so there is need to address all the factors, which affecting on the Indian agriculture. Agriculture, with its allied sectors, is the largest source of livelihoods in India. Keeping in view the above, therefore tried to discuss the major problems in Indian agriculture in this article. The information related to the problems of agriculture were collected from internet and also taken from the previous work of different researchers in 2020 at Krishi Vigyan Kendra, Gurdaspur with the objectives to address the threats caused by agricultural intensification. Several problems as land holding, intensive cropping and excessive use of chemical, excessive irrigation, inadequate seed replacement and inadequate mechanization impact on soil productivity and caused degraded land. Other factors like lack of proper transport in rural areas, minimum support price, poor credit facility concern the economic conditions of the farmers and impact on Indian agriculture and also influence directly or indirectly on the food security of the country. As per the objectives the influence of agricultural intensification on productivity and production of food grains factors discussed all the factors with their solution in this article for the benefits of all the concerned.

Key words: Irrigation, Landholding, Marketing, Mechanization, Seed replacement, Soil degradation.

In India, 58% of the total population, the agriculture is the primary source of livelihood. Growth in gross value added (GVA) in agriculture and allied sectors stood at 4% in 2020 (Anonymous, 2020). Indian food and grocery market is the world's sixth largest, with retail contributing 70% of the sales. The Indian food processing industry accounts for 32% of the country's total food market, one of the largest industries in India and is ranked fifth in terms of production, consumption, export and expected growth (Anonymous, 2020a and Anonymous, 2020b).

India has 1.27 billion populations, is the world's second most populous country. It is the seventh largest country in the world with an area of 3.288 million sq km. India is the world's largest producer of milk, pulses and juteand ranks as the second largest producer of rice, wheat, sugarcane, groundnut, vegetables, fruit and cotton. It is also one of the leading producers of spices, fish, poultry and livestock and plantation crops. Worth $ 2.1 trillion, India is the world's third largest economy after the US and China. Climate of India varies from humid and dry tropical in the south to temperate alpine in the northern reaches and having only 2.4% of the world's land area (Anonymous, 2020).

Agriculture is the largest source of livelihoods in India. 70 percent of its rural households still depend primarily on agriculture for their livelihood, with 82% of farmers being small and marginal. India is the largest producer of milk, jute and pulses, with world's second-largest cattle population 190 million in 2012 (Pathak, 2020). It is the second-largest producer of rice, wheat, sugarcane, cotton and groundnuts, as well as the second-largest fruit and vegetable producer, accounting for 10.9 and 8.6% of the world fruit and vegetable production, respectively (Anonymous, 2020a). While achieving food sufficiency in production, India still accounts for a quarter of the world's hungry people and home to over 190 million undernourished people. Incidence of poverty is now pegged at nearly 30%. As per the Global Nutrition Report (2016), India ranks 114th out of 132 countries on under-5 stunting and 120th out of 130 countries on under-5 wasting and 170th out of 185 countries on prevalence of anemia. Anemia continues to affect 50% of women including pregnant women and 60% of children in the country (Anonymous, 2020).

While agriculture in India has achieved grain self-sufficiency but the production is, resource intensive, cereal centric and regionally biased. The resource intensive ways of Indian agriculture has raised serious sustainability issues too. Increasing stress on water resources of the country would definitely need realignment and rethinking of policies. Desertification and land degradation also pose major threats to agriculture in the country. The social aspects around agriculture have also been witnessing changing trends.

[1]Krishi Vigyan Kendra, Punjab Agricultural University, Gurdaspur-143 521, Ludhiana, Punjab, India.

Corresponding Author: Mandeep Singh, Krishi Vigyan Kendra, Punjab Agricultural University, Gurdaspur-143 521, Ludhiana, Punjab, India. Email: mandeepsingh283@yahoo.com

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The increased feminization of agriculture is mainly because of increasing rural-urban migration by men, rise of women-headed households and growth in the production of cash crops, which are labour intensive in nature. Women perform significant tasks both in farm as well as non-farm activities and their participation in the sector is increasing and adds a dual burden of domestic responsibilities (Anonymous, 2020b). India also needs to improve its management of agricultural practices on multiple fronts. Improvements in agriculture performance has weak linkage in improving nutrition, the agriculture sector can still improve nutrition through multiple ways: increasing incomes of farming households, diversifying production of crops, empowering women, strengthening agricultural diversity and productivity and designing careful price and subsidy policies that should encourage the production and consumption of nutrient rich crops. Diversification of agricultural livelihoods through agri-allied sectors such as animal husbandry, forestry and fisheries has enhanced livelihood opportunities, strengthened resilience and led to considerable increase in labour force participation in the sector (Anonymous, 2020). There is need to do work on climate change, farm mechanization, nano-technology and remote sensing *etc.* The substantial increase in the productivity of grain crops to achieve the self sufficiency in India's Green Revolution during 1970s leaving something for widespread scarcity of food. To secure the food security caused so many problems despite the improved technologies and agricultural intensification therefore, this review article presented.

Methodology

Agriculture, with its allied sectors, is the largest source of livelihoods in India. 70 per cent of its rural households still depend primarily on agriculture for their livelihood, with 82 percent of farmers being small and marginal. Keeping in view the above, therefore tried to discuss the major problems in Indian agriculture in this article. The information related to the problems of agriculture were collected from internet and also taken from the previous work of different researchers in 2020 at Krishi Vigyan Kendra, Gurdaspur. So, there is need to publish the type of material to aware the farmers, researchers, extension workers and policy makers to protect the Indian agriculture from the various threats, which impact the directly or indirectly on the food security of the country.

Indian agriculture is suffered with a number of problems, which have been discussed here below:

Small, fragmented and disorganized land-holdings

In India, the farming land was of 60.45% of the total land area in 2015 (World Bank Report, 2019). The net sown area of 141.2 million hectares (m ha) and total crop area of 195 mha in 2019. The land is divided into economically nonviable small and disorganized holdings. The average land holding of the Indian farmland shrank by over 6% from 2010-11 to 2015-16 (1.08 ha), which would further reduce due to family division. In highly populated and intensive farming states like Kerala, West Bengal, Bihar, Tripura, Sikkim, Jammu and Kashmir and eastern part of Uttar Pradesh, the average land holding is less than one ha and in some areas even 0.5 ha. The land holding above the national average in Punjab, Haryana, Maharashtra, Gujarat, Karnataka and Madhya Pradesh have the high acreage of net sown area. The marginal holdings increased from 62.9 to 68.5% while small holdings (1-2 ha) reduced from 18.9 to 17.7% during 2000-01 to 2015-16, respectively. Large land holdings of more than 4 ha reduced from 6.5 to 4.3% during the same period (All India Report on Agriculture Census 2015-16). However, marginal and small farmer's operating area enhanced from 38.9 to 47.4%, whereas large land holdings reduced from 37.2 to 20% in 2000-01 to 2015-16.

The national average marginal and small holdings are about 0.24 and 1.42 ha during 2017, respectively. However, marginal holdings varied from 0.14 to 0.63 ha in Kerala and Punjab, respectively. The small and marginal holdings was recorded to be 86.21% of the total land holdings in 2017-18, however, there was increase in total number of operational holdings in this period (Krishnan, 2018). Expressing concern over the sustainability of small farms, Agriculture Minister Radha Mohan Singh on 13 Feb. 2016 said 91% of the total farm holding would belong to small and marginal farmers by 2030. The continuously declining farm size also gives rise to concerns on the very sustainability of the small farm, Singh said. According to the Agriculture Census, the total number of operational holding in India numbered 138.35 million with an average size of 1.15 ha. Of the total holdings, 85% are in marginal and small farm categories of less than two hectares, Singh said.

The above problem has the only solution of consolidation of holdings, but this plan is found ineffective (Sengupta, 2006). Although the legislation of land holdings consolidation should be followed in all the states, but it was implemented in few states as Punjab, Haryana and in some parts of Uttar Pradesh, which was done about 45 million holdings till 1990-91 in Punjab, Haryana and western Uttar Pradesh.This problem can also be addressed with cooperative farming by pooling of cultivation resources and sharing of profits among the farmers (Sengupta, 2006).

Replacement and economic viability of seeds

Quality and healthy seed is a critical and basic input for increasing the production and productivity of agricultural crops in various agro-climatic zones. The improved seed contribute to increase the productivity of about 20-25% (Anonymous, 2015). Quality seed helps to increase the efficacy of other essential inputs such as fertilizers, pesticides and irrigation, which could result in higher production of agricultural crops. Unfortunately, the prices of improved seeds are very high and hence are not purchased by most of the small and marginal farmers.

National Seeds Corporation, State Farmers Corporation of India, thirteen State Seed Corporations, besides other organization are Indian Council of Agriculture Research,

International of Maize Wheat Research Centre, Association of Official Seed Certifying Agencies, International Institute of Tropical Agriculture, Pioneer Hi Bred International, European Seed Association, World Vegetable Centre, Pannar Seed Pry Ltd., Kenya Seed Company, Department Agriculture Co-operation Indian and state agricultural universities *etc*. have been involved in solve the seed supple problem and production of healthy and quality seed of various crops. In 1966-67, the high yielding variety programme (HYVP) was launched as a major thrust plan to enhance the productivity of agricultural food crops in India (Sisodia, 1968). In the past, the seed industry in India had achieved the notable growth and has contributed immensely enhancing the agricultural production. The seed industry not only provides adequate amount of improved and healthy seeds but also produce various varieties suitable for different agro-climatic regions of India. The National Seed Policy planned to provide the sufficient amount of improved quality seed at proper time and place at reasonable prices to the farmers to achieve the goals of food and nutritional security of India. Production of Breeder, foundation and certified seeds production and distribution has grown up at the considerable level in the country (Subhramani, 2011).

Seed replacement

Seed replacement ratio denotes to the quantity of improved and healthy seed required for the crops cultivation to the farmers. The desirable seed replacement is essential to achieve the higher productivity and the rate should be 100% for hybrids, 25% for self pollinated crops and 35% for cross pollinated crops. In India, there is great demand and supply gap, therefore, Indian food security is under threat due to poor seed replacement ratio. In south India, seed replacement in rice is high in view of shortage of labour, which is about 95% (Sangeeta and Sidhu, 2009 and Tan *et al.,* 2005).

As per Government Statistics, the seed replacement rate in paddy was 82% in Andhra Pradesh and 67% in Tamil Nadu up to 2008. In case of maize, it was also higher since the use of hybrids. The hybrids preference is enhanced in paddy, which is the reason for increased seed replacement. At the National level, the seed replacement rate of paddy was 25.87% in 2008 (Tan *et al*., 2005) and it was enhanced up to 33.08% in 2019 (Ministry of Agriculture and Farmers Welfare, Nov. 2019). However, it was also increased in maize 50%, jowar 26%, bajra at 63% and sunflower 43%. But it was reduced considerably in wheat at 25% (Tan *et al*., 2005).

Economic variability of seed

The adoption of system of rice intensification (SRI) in Andhra Pradesh and Tamil Nadu is helping in enhancing the seed replacement. Earlier the recommendation of seed use was 30 kg/acre but with SRI method only 5 kg/acre (Tan *et al*., 2005). There is need to enhance the seed replacement with certified seed up to 100% level and economic variability by using modern techniques to increase the productivity and profitability of farmers. It is observed that quality seeds were not easily available to farmers, which was one of the important reasons behind low seed replacement rate. Therefore, it is more important to provide quality seed to farmers in time (Kakoty and Barman, 2015).

Replenishing the soils with nutrients

The cultivation of crops on Indian soils since thousands of years is continuing without replenishing the soils, which leads the deterioration and depletion of soils and thereby resulting in low productivity of crops (Tilman *et al.,* 2001). This was a major problem, which is to be solved with the balanced nutrient use in the form of manures and fertilizers. it will nourish the soils well to get the higher crop yields. It was estimated that the fertilizers could enhance the growth to about 70% in agricultural production. Thus the higher fertilizers use is a critical and crucial input as barometer of successful farming. Here are great difficulties in supply the adequate quantity of manures and fertilizers in different parts of India due to the restricted availability of these inputs. The farmyard manure is a good source to replenish the soils but as such its use is very limited. The prices of chemical fertilizers are high so not easy to purchase by the poor farmers.

It is observed that organic manures are beneficial for improving the quality of soils. There is huge quantity of compost available from rural (650 mt) and urban (160 mt) areas that is not all being utilized. Utilization of this could solve the dual problem of disposal of waste and supply as manure to the soil.

The government has provided high incentive for the use of chemical fertilizers (Anonymous, 2015). After Independence that government has taken the initiative to change the attitude of farmers for fertilizers use tremendously.

Effect on soil and plant system

The continuous use of chemical fertilizers on soil depletes the required nutrients thereby resulting in production of poor quality food, low in protein, minerals and vitamins. Fertilizer application may also deteriorate the soil and plant system with the accumulation of heavy metals (Chandini *et al.,* 2019). Thus, continuous use of fertilizers can cause water, soil and air pollution. It may also disrupt the pH balance of the soil and environment. The purpose of using fertilizers is to enhance the quality of soil for vigorous growth of plants and yielding produce that contains balanced nutrient content.

In the atmosphere nitrogen is present in the form of nitrous oxide, which acts as power plants for the use of high nitrogen fertilizer. The top soil becomes acidic with the use of chemical fertilizers, which lowers the soil pH (Lin *et al.,* 2019).

Effect on water

Chemical fertilizers may leach into the rivers and other water bodies and harm organisms in them. The groundwater contamination is the important issue due to the continuous use of chemical fertilizers. Nitrates have an accumulative influence and are released from the nitrogen fertilizers. Nitrates are water soluble and hence could move easily in the soil and remain for decades in groundwater (Bhaduri, 2019).

Effect on humans

The fertilizers are absorbed by the plants from the soil, which enter in the food chain. The disturbance of kidneys, lungs, liver and cancer depends upon the quantity of fertilizer use and it happened due to toxic metals present in the fertilizers. Crops remove the nutrients from the soil, deteriorating the soil and the environment (Giles, 2005 and Tilman *et al.,* 2001). Excessive use of fertilizers disturbed the entire ecosystem. Fertilizers are highly soluble in water hence they leach down into groundwater without fully utilizing the plant (Raisangam, 2017). Judicious use of fertilizer in combination with organic inputs, use a fertilizer with slow-release granules and apply the strictly recommended amount of fertilizer.

There is about one third loss of the total agricultural production due to pests, pathogens and weeds. These losses from crops are checked with use of biocides as pesticides, herbicides and weedicides. The consumption of these biocides increased to save the crops from the different insects-pest and diseases. However, there is excessive use of these chemical biocides and that is causing environmental pollution to a great extent (Scenhir, 2016).

Irrigation sources and irrigated areas

Irrigation is very important input to exploit the maximum potential of crop productivity (Dhawan, 2017). India has 48.7% of irrigated areas of the total cultivated area. About 50% farming population is dependent on monsoon irrigation and there is also of low productivity due to partial drought. India has 140.13 mha total cultivated areas; out of this 68.38 and 71.74 mha is net irrigated and un-irrigated area, respectively. The Pradhan Mantri Krishi Sinchayee Yojana was launched in 2015-16, under this scheme, small and marginal farmers have to pay the 55% of the total cost of micro-irrigation system but other farmers 45% of the unit cost to bring the more crops under the scheme (Anonymous, 2017).

India has the world's largest tube well irrigation system on an area of 39 m ha that is 67% of total irrigation area followed by China with 19 m ha and USA with 17 m ha. Since 2001-02 to 2014-15 net irrigation area increased 20%, which is an alarming situation of massive extraction of underground water (Gulati *et al.,* 2019). It also reported that 41% of the net irrigated area got water from tube wells in 2001-02, tube well irrigation increased to 46% in 2014-15. Interestingly, during the same period, irrigation with canal systems reduced to 24% from 27 and well irrigation decreased to 17% from 21. At the same time, there was an increase in groundwater schemes, but substantial reduction in surface water schemes across India. However, increase in other sources of irrigation from 8 to 11% while a minor reduction from 4 to 3% was observed in tank irrigation.

India has the second rank as irrigated country in the world after China but has only 48.8% of the cultivated area under irrigation (Jitendra, 2019). Irrigation is the important input of cultivation in a monsoon area of India, where rainfall is erratic and unreliable by which could not be successfully bring sustainable agriculture till 50% of cultivated area under irrigation. The progress in the agriculture is appreciable in the states like Punjab, Haryana and western part of Uttar Pradesh have 50% more farming area under irrigation.

The use of excessive canal irrigation in states like Punjab and Haryana, which cause ill effects like salinity, alkalinity and water logging (Shah *et al.,* 2013). Similar situation was occurred in the rice areas like Punjab, Haryana and Uttar Pradesh, where ground water pumping was done at faster rate, which resulted in deletion of groundwater table. The excessive irrigation and intensive agriculture was increasing the level of sub-soil water, which creates the situations like water-logging, soil salinity, alkalinity, environmental deterioration and resulting of waste lands.

Lack of mechanization

In Northern parts of India, mechanization level in agriculture (Sahni *et al.,* 2018) is very high, which is about 40-45% with states like Punjab, Haryana and UP but it is negligible in north-eastern states. In this part, the agricultural operations are done with wooden plough and sickle instead of conventional tools and implements.

The percentage of small and marginal farmers is high. therefore, they are using no or little machines for the operations like cultural and transporting crops. So, it results low yields per capita labour force due to the more use of labour. Therefore, to check the labour wastage and make the farming more convenient and efficient, need to adopt the mechanization for agricultural operations. Mechanization is a crucial input for enhancing the productivity of farm with timely and efficient operations, which encourage the multiple cropping at the farm. The share of mechanization increased from 40 to 84% from 1971 to 2003-04, respectively. This was happened due to the more involvement of tractor, power tiller and combine harvesters, irrigation pumps and other power operated machines in agriculture. The Indian agricultural equipment market was worth INR 857 Billion in 2018. The market is further projected to reach a value of INR 1,245 Billion by 2023, growing at a CAGR of 6.3% during 2018-2023 (Anonymoys, 2018). Fast adoption of agricultural machinery in India is rapidly changing the farming scene across the country (Anonymoys, 2017). There is needed to make the great efforts to adopt the farm mechanization by the farmers for agricultural operations timely, efficiently and precisely to enhance the farm workers productivity (Anonymoys, 2020c). Mechanization is one of the crucial inputs of crop production. Therefore, there is need to adopt the farm mechanization at the maximum level to improve the production efficiency, sustainability of production and enhance the cropping intensity.

Soil erosion or degradation

Large amount of fertile soil erosion occurred by wind and water, which has great effect on agricultural production. Soil erosion has also influence on farming lands, forest lands, construction sites, road and transport, mines, glacier and coastal area (Bhattacharyya *et al.,* 2015). This area must

be amended properly for restoration its original fertility. India has the total geographical area is 328.73 m ha and 264.5 mha is under farming, forestry, pasture and grassland (Bhattacharyya *et al.,* 2015). Soil degradation is occurring 147 m ha including water erosion at 94 m ha, acidification at 16 m ha, flooding at 14 m ha, wind erosion at 9 m ha, salinity at 6 m ha and combination of factors at 7 m ha (Bhattacharyya *et al.,* 2015). This is major problem for agricultural production because India has human population 18% of the world and livestock population 15%, has area only 2.4% of the world. In the subtropical areas, this is one of the great problems of nutrient depletion from the agricultural land. In India, nearly 74 mt of major nutrients is lost due to erosion annually. The country loses about 0.8 mt N,1.8 mt P and 26.3 mt K every year. There is needed to reclaim the degraded soils for increasing the farming areas and also to enhance the productivity of degraded soils (Bhattacharyya *et al.,* 2015).

Agricultural marketing infrastructure

In India, 61.5% population of the 1300 million populations survives on agriculture. Agriculture is the most important sector of Indian Economy. Indian agriculture sector accounts for 18% of India's gross domestic product and provides employment to 50% of the countries workforce. At present, Agricultural marketing in rural area in bad conditions in India (Bissa and Vyas, 2014). Lacks of sound marketing facilities for the disposal of farm produce by the farmers depend upon local traders and middlemen at throw-away price. Most of the small and marginal farmers are forced to cover immediate needs or debts to rapid sale of their produce and producers do not derive similar benefits. Similarly, the farmers of small villages sale their produce to the money lender from whom they usually borrow money (Anonymous, 2017a).

The government introduced the regulate markets to save the farmers from the middle men by the system of competitive purchase to check the malpractices. This system of market to provide the accurate weight by the use of standard weights, suitable machinery to solve the disputes thereby save the farmers from exploitation and receive minimum support prices. Services of this marketing also take care moving of produce from the field to users and also include the planning, organizing, directing and handling of produce to satisfy producers, middlemen and users. There is need the efficient marketing system so the producers can sale their produce at a fixed price. The marketing system should have the services related to grading of produce, selling, procurement, transporting and storage.

Inadequate scientific storage

In rural areas storage facilities are still absent or inadequate after independence (Chaturvedhi and Anil 2015). In such situations the farmers are compelling for sale of their produce after harvesting immediately at the available low market prices. Such rapid sale of produce is impact the income of the farmers. The 9.3% losses occur after harvest of which 6.6% happened due to poor storage facilities has been estimated by the Parse Committee. Therefore, there is very essential of scientific storage to check such losses and to improve the income of farmers and to get the food grains at low prices by consumers.

In India at present, there is total storage capacity of 91 million metric tons (MMT) of agri warehousing including the storage quantities of state agencies about 41% of the total capacity and remaining divided into farmers, cooperating societies and private agencies (Bhartendu, 2015). Whereas, the government agencies utilize 66% (60 MMT) of total storage capacity that also have 23 MMT hired capacity. The public sectors agencies have utilized the state storage capacity of 37 MMT. The average buffer stock of food grains of 25 MMT and peak of 32 MMT in July every year. A rationalization of warehousing capacity in favour of well-located hubs is pushing demand, too. According the consultancy projects, there should be 344 million sq ft of warehousing storage in India by 2022, more than double the current capacity of 169 million sq ftand triple the capacity that existed in 2015. It is also essential to develop proper storage facilities in rural areas so that farmers can wait for better price for their products in the market (Anonymous, 2019).

Inadequate transport infrastructure

There is lack of fast and cost effective mode of transportation (Gadkari, 2019), which is one of main problems in Indian agriculture. There are thousands of villages, which are lack of facilities of metalled roads and markets. The roads in rural areas are kachha roads, which are unable to use in the rainy seasons. The bullock cart is a mean of transportation. Under such conditions the producers are failed to sell their agricultural products to the nearby grain market and are compelled to sell it at low price in the village. There is need to link the each and every village with concrete road, which is a big work and needed huge money for completion of this work. For the transport of horticultural produce, there is the main source of Indian Railways. About 97.4% of the produce is transported by roads but 1.9% of the fruits and vegetables are transported by rail. If transport services are uncommon, costly and poor in quality then farmers will be in loss for selling their produce.

Lack of capital input

Capital is an important input for the agriculture and it is also considered as industry like other industries, which is crucial input needed for the modern techniques and technologies to enhance the agricultural production but farmers are always, suffers due to lack of capital for this industry as compared to other industries (Chaudhuri *et al.,* 2010). The money lenders, traders and commission agents are the money providers to the farmers at higher rate of interest and not purchase their produce at reasonable price. In 1950-51, the money lender share was 68.6% and it was reduced to 43% of the total credit of the farmers in 2001 (Qazi, 2017). This shows that the money lender is the single contributor of rural credit. Now days, there is considerable change in providing the rural credit at low interest rate and easy terms by some agencies like Central and State Cooperative Banks,

Commercial Banks, Cooperative and Government Credit Agencies. The credit to agriculture, trade, transport and industry creates work on the farms, in the factories, in commercial houses and on roads, railways, ships, *etc.* There is the lack of capital, which is responsible for unemployment, or under-employment in developing countries including India.

CONCLUSION

Small and disorganized holding is effect the management and productivity of farming. There is need the consolidation of holdings for mechanization throughout India. Improved seed is crucial input for the increase of productivity (20-25%) by increasing seed replacement in all crops by using the modern techniques for planting of crops. The depletion of nutrients, which are main causes of low crop productivity. The small and marginal farmers are poor so they are unable to purchase fertilizer for use. There is required to provide the subsidy on fertilizer or to give the loan on low rate of interest to increase the consumption of fertilizers. But avoid the excessive use of fertilizers that is also affects the crop productivity, soil deterioration, contamination of irrigation and drinking water. It is essential to increase the irrigated area by improving the irrigation resources and need to enhance area under micro irrigation techniques for judicious use of irrigation. Mechanization is one of the crucial inputs of crop production. Therefore, there is need to enhance the farm mechanization to improve the production efficiency, sustainability of production and enhance the cropping intensity. There is needed of various purposes like planning reclamation programs, rational land use planning, for bringing additional areas into cultivation and also to improve productivity levels in degraded lands. Lacks of sound marketing facilities, so, there is required efficient agricultural marketing system to sale the products at minimum support price). The post-harvest losses at 9.3% of which 6.6% happened due to poor storage facilities. Therefore, there is very essential of scientific storage to check such losses and to improve the income of farmers and to get the food grains at low prices by consumers. There is lack of cheap and efficient mode of transportation, which is one of major problems in Indian agriculture. Agriculture is an important industry and like all other industries it also requires capital. Like all sectors, agriculture too depends upon attracting investment for rapid growth.

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