
UNIT 15 AGRICULTURE, PRODUCTIVITY AND FARMERS' WELFARE

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15.0 OBJECTIVES

After reading this unit, you will be able to:

- 1 make an assessment of the level of productivity in Indian agriculture;
- 1 suggest how to improve the level of productivity in Indian agriculture;
- 1 identify the different issues related to agricultural reforms;
- 1 explain the significance and relevance of land reforms in the present stage of economic development in India;
- 1 elaborate the concept of organic farming and contract farming;
- 1 enumerate the issues relating to futures trading in agricultural products;
- 1 examine the rationale for subsidies;

- 1 appraise the state for agricultural insurance; and
- 1 assess the advantages and disadvantages of globalisation.

15.1 INTRODUCTION

Notwithstanding a significant increase in agricultural output brought about by improvements in productivity (as reviewed in units 13 and 14 before), productivity levels in Indian agriculture continue to be relatively low as compared to the potential in terms of yield per hectare. In the present unit, we deal with the reasons behind low productivity in Indian agriculture and examine the different areas of reforms that would have a bearing on increasing productivity like size of holdings, land reforms, organic/contract farming, futures trading, subsidies, crop insurance, trade, etc.

15.2 PRODUCTIVITY IN INDIAN AGRICULTURE

We have reviewed in the earlier units of the present block (units 13 and 14) the trends in agricultural production in India. One unmistakable conclusion that emerges is that the productivity of agriculture is relatively low in India compared to other countries. This situation continues to obtain, notwithstanding marked improvements that have taken place during the last few decades.

Quantitative Evidence

There are three simple ways of examining the trends in the productivity levels of Indian Agriculture.

One, an easy yardstick is to make use of data relating to yield per hectare of major crops. The relevant data are summarised in Table 15.1. The data brings out that the yield per hectare of principal crops in India is very low - as low as 1/2 to 1/5 - as compared to yield in some other countries. In absolute terms, lower yield per hectare implies lesser total output, sometimes even with higher land area under cultivation.

Table 15.1 : Yield Per hectare

(Kg/hectare)

| Crop | Potential of Indian HYV | India's Yield (actual) | World's Largest Producer | | World's Most Productive | |
|-------|-------------------------|------------------------|--------------------------|-------|-------------------------|--------|
| | | | Country | Yield | Country | Yield |
| Rice | 4,000-5,810 | 3,191 | China | 5,807 | Australia | 8,813 |
| Wheat | 6,000-6,800 | 2,671 | China | 3,295 | Ireland | 7,556 |
| Jowar | 3,000-4,200 | 1,196 | US | 3,704 | Italy | 5,949 |
| Maize | 6,000-8,000 | 1,841 | US | 4,505 | Holland | 25,000 |

Source: CMIE

Two, agricultural productivity is much less than the potential, as can be seen from Table 15.1 itself. With so much sun light round, India can grow at least two crops in a year with low technology, and three to four crops with higher investment and better technology. The available evidence shows that crop production, given the available technology, is far below the optimum. There is still a lot of scope for increasing production by following multiple cropping and through proper use of improved agricultural technology. There is a wide gap between the average yields obtained under national demonstration projects and the existing crop yields obtained under identical conditions in various states. It suggests an under performance.

Three, quantitative evidence of low productivity can also be found by placing India's rank in world in respect of: (i) area, (ii) production, and (iii) yield of major crops, as shown in Table 15.2 below:

Table 15.2: Indian's Global Rank in Major Agricultural Crops

| Crop | Rank | | |
|---------------|------|------------|-------|
| | Area | Production | Yield |
| Rice (Paddy) | 1 | 2 | 52 |
| Wheat | 1 | 2 | 38 |
| Coarse Grains | 3 | 4 | 125 |
| Pulses | 1 | 1 | 138 |
| Oilseeds | 2 | 5 | 147 |
| Cotton | 1 | 4 | 77 |
| Jute | 1 | 1 | 13 |
| Tea | 2 | 1 | 13 |
| Coffee | 7 | 7 | 14 |
| Sugarcane | 2 | 2 | 31 |

Source: Indian Agricultural Statistics, 2007.

The data in Table 15.2 are averages over a period as per recent data available. The data shows that there is a serious mismatch between India's rank in terms of area and production of a crop on the one hand and yield on the other. This is suggestive of low productivity in Indian agriculture. For example, India is the largest producer of pulses in the world, but it ranks miserably low at 138 in terms of yield. The same picture, more or less, obtains when we look at other crops.

That the productivity levels are low in agriculture can also be seen in terms of the following:

- i) About 58 percent of the labour force in agriculture produce only 18 percent of the GDP.

- ii) Net income per hectare in the northern zone is only Rs. 95, in the central zone Rs. 76 and in the southern zone Rs. 110.
- iii) The proportion of costs to gross returns per hectare in the northern zone is 78.5%, in the central zone 82.5% and in the southern zone 75.3%.

Read another way, deficiency means opportunities. The low productivity undoubtedly speaks of the vast potential of growth that exists for India to explore in future, but at the same time it needs a proper diagnosis; something lies at the root that hinders the growth of agricultural productivity in India.

Causes of Low Productivity

The various causes that are responsible for low productivity in agriculture can be grouped as follows:

I Demographic Factors

With demographic growth rates being what they are, an increasing addition to the labour force could be expected to be absorbed in the industrial sector of the economy. But the rate of growth in the industrial sector has been far from adequate. Consequently, the increasing population has fallen back on land for its livelihood, with the result that the mounting pressure has bred a number of evils like: (i) fragmentation and subdivision of holdings; (ii) supply of improved practices and services always falling short of requirements, (iii) conditions of unemployment and disguised unemployment, etc.

II Technological Factors

Under this, the following may be counted:

- i) Inadequate availability and high costs of modern inputs.
- ii) The irrigated component of total cropped area and the progress achieved in intensive cultivation of land are still at very modest levels.
- iii) Slower diffusion of agricultural technology to the farmers, especially marginal and small farmers.
- iv) Inadequate and poor post-harvest technology.
- v) Pollution has stifled growth in the country's rice harvest, depriving the staple crop of the rain and cool night-time temperatures that it needs to flourish.
- vi) Reduced research in Agriculture, for identification of HYVs in different crop.

III Institutional Factors

Among the more important causes responsible for low productivity in agriculture are the institutional and structural arrangements that exist in India. One needs to be reminded here that East Asia's success stems partly from the policies adopted and partly from the institutional mechanisms created to implement them.

Some of the institutional and structural weaknesses from which Indian agriculture suffers can be identified as follows:

- i) In the immediate post-independence period, the zamindari system was abolished. The new system that has taken its place has proved no better. Absentee landlordism still prevails; large rents are still extracted; there is no security of tenure, etc. These are all manifestations of semi-feudal production relations.
- ii) Agrarian structure is not supported by any sound infrastructure.
- iii) There has been inadequacy of agricultural support programmes.
- iv) Agricultural sector is devoid of entrepreneurship capabilities.
- v) Deficiency of investment in this sector is another problem. The rate of capital formation in this sector has been declining.
- vi) Decline in Public investment in agricultural infrastructure is also very significant in the recent years.

IV Weaknesses in Policy Perceptions

Owing to a number of economic and political compulsions, the Indian strategy for agricultural growth remained preoccupied with the goal of achieving quick increases in food-grains production by concentrating the resources and efforts on the relatively better-endowed areas and strata of cultivators. A consequence of the approach has been the less-than-optimum allocation of the critically scarce inputs like water and fertilisers across crops and group of farmers.

Check Your Progress 1

1. Advance arguments to prove that the productivity levels in Indian agriculture are relatively low.

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2. Briefly account for low levels of productivity in Indian agriculture.

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3. Identify the important institutional weaknesses in the agricultural sector of India.

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15.3 MEASURES TO INCREASE AGRICULTURAL PRODUCTIVITY

What are the various measures that can be taken to improve the agricultural productivity in India? In this section we will discuss the various issues arising out of such measures.

I Institutional Reforms

Institutional arrangements cover such measures as better agrarian relations introduced through land reforms, proper arrangements for adequate financing, and regulating the distribution of agricultural products, etc. While policies for strengthening the institutional structure for development of agriculture have been adopted and are in place, the key to their success lies in effective implementation - an aspect on which more concerted attention, than hitherto, needs to be given.

Another aspect of institutional reform is the need to improve the efficiency of delivery systems in rural development by empowering the institutions elected by the people. This would require devolution of functions, transfer of necessary resources and empowering the functionaries in discharging their administrative responsibilities.

II Technological Improvements

Technological improvements in agriculture can be classified into two broad kinds: biological and mechanical.

a) **Biological innovations** usually refer to factors that raise land productivity and are, therefore, generally land-saving. Better seeds and use of fertilisers in right doses at right time are useful instances.

b) **Mechanical innovations** usually mean the use of more machinery

like tractors that are labour-saving. In order to expedite these improvements, policies need to be so framed as to encourage and promote their adoption by designing suitable policies.

III Improving the Returns to Farmers

For this purpose both (a) price measures, and (b) non-price measures need to be adopted.

a) **Price measures** would include:

- i) Raising procurement and support prices so as to improve the terms of trade of agriculture.
- ii) In regard to the dry land and hilly areas, where only one crop can be grown - usually millets – the prices should be so fixed that the market forces would increase their demand generating more income for the growers.

b) The non-price methods include:

- i) Stabilising the returns from agriculture, especially in rain fed areas, by an effective crop insurance scheme;
- ii) Reducing the number of farmers per unit of output by promoting non-farm economic activities;
- iii) Providing the farmers direct access to market so that they can claim a share of the traders' profit;
- iv) Reducing costs by the implementation of less expensive technologies especially in rain fed agriculture;
- v) Promoting industry-agriculture linkages through contract farming;
- vi) Pooling land creating larger farms rendering benefit by economies of scale; likewise, pooling of capital making it possible to invest in items of advanced technology;
- vii) Lifting controls on free movement, stock limits, futures trading etc.; and
- viii) Improving farm productivity by an approach where agri-business is operated like an industry. In this, industry itself has to take initiative and arrange for the delivery of necessary inputs.

IV Producer Incentives for Stimulating Growth

The case for producer incentives for stimulating agricultural growth and adoption of new technology has been well argued in the literature on agricultural development. Such incentives as price supports, input subsidies, subsidised institutional credit, food subsidies, etc. are suggested for both stimulating growth and achieving certain welfare objectives like regional and social equity.

In short, **agricultural productivity is a function of a large number of determinants**. An effective policy requires a holistic approach in which the various factors outlined above are integrated with a view to achieve the desired objective.

In the subsequent section we will focus on a few important issues relating to agricultural reforms.

15.4 ISSUES RELATED TO AGRICULTURAL REFORMS

A few issues identified in current debate relating to agricultural reforms are: (i) size of holdings and land reforms, (ii) organic and contract farming, (iii) futures trading in agricultural commodities, (iv) subsidies in agriculture, (v) crop insurance, and (vi) trade in agriculture.

15.4.1 Size of Holding and Land Reforms

Size of holding has significant bearing on agricultural productivity. Although small holdings (holdings of less than 2 hectares) have certain advantages, the principles of economies of scale tend to make the large holdings more advantageous. Specifically, the arguments made in favour of the large holdings are the following.

- 1 Large farms can make use of mechanisation in a big way. Undoubtedly, small farms can also make use of machinery, but the per acre capital cost would be prohibitive for small farmers to afford the same.
- 1 Large farmers can afford more initial capital and better access to the credit market. This applies as much to the market inputs as for the non-market ones.
- 1 Small farms are constrained by the fact that their risk-bearing ability is limited preventing them from adopting innovations.
- 1 Large farms can increase the intensity of cultivation of their land by applying those inputs which matter most under the new technology like fertilisers, insecticides, hired labour and machinery.

The above factors influence the cost of production per unit of output in favour of larger farms defined as holding larger than 2 hectares. Farmers in the 4-6 hectare size category who have used the new varieties of fertilisers, seeds, etc. have been found to be the most efficient in terms of cost of production. This is seen even in cases where least farm equipment with animal ploughing methods are adopted. However, where alongside these inputs, better farm equipments have also been adopted, larger size farms have required lower cost of production.

The argument made above in favour of large farms does not mean that the small farm thesis has not received the attention of researchers and

policy planners. In fact, a series of studies, based on farm management surveys have claimed that there is an inverse relationship between the farm size and yield. Recognised as the **small farm hypothesis**, these studies have supported the contention that 'larger the farm size, smaller is the quantity produced per unit of land'. The reasons attributed to this contention have included: (i) greater reliance on highly motivated family labour; (ii) practice of multi-cropping in smaller farms giving the benefit of cropping intensity as opposed to extensive cultivation with the negative effects of non-organic farming (e.g. less nutrients in the agricultural produce, weed infestation due to more 'empty niche space', etc.) in case of large farms; (iii) practice of inter-cropping using the empty niche space; (iv) better management due to lower employment of non-family or hired labour; etc. Thus, in a country like India where the majority of farmers are small and marginal farmers, the need is to adopt suitable land reform measures to protect the interest of this large segment. What has been the experience in this direction and what corrections are further needed therein to meet the specific requirement of our agrarian economy is the subject matter of our next sub-section viz. the land reforms.

Land Reforms

Indian farming is dominated by marginal (i.e. holdings of less than 1 hectare) and small (i.e. holding size between 1 hectare and 2 hectares) holdings. They constitute more than 60 percent of the total number of holdings in the country. They, however, cover only about 36 percent of the gross land area under cultivation. The farming system is further afflicted by evils like fragmentation and sub-division of holdings.

In view of this, land reforms programme has remained one of the major policies for rural development ever since the inception of the planning process in India. The major objectives of land reforms in India have been:

1. Restructuring of agrarian relations to achieve egalitarian social structure.
2. Elimination of exploitation in land relations.
3. Actualisation of the goal of 'land to the tiller'.
4. Improvement of socio-economic conditions of the rural poor by widening their land base.
5. Increasing agricultural production and productivity.
6. Facilitating land base development of the rural poor.
7. Infusion of a greater measure of inequality in local institutions.

For the fulfilment of these objectives, the major steps adopted under the land reforms programme are:

1. Abolition of intermediaries.
2. Regulation of landlord-tenant relationship by fixing fair rents, conferring security of tenure on tenants subject to the landlord's right to resume limited area for personal cultivation, bringing tenants into direct relationship with the state in respect of areas which the landlord is not entitled to possess and gradual conferment of ownership rights on the tenants.
3. Redistribution of land by placing ceiling on future acquisition and existing holdings and acquiring surplus areas above the ceilings, resettlement of landless agricultural workers and increasing the size of uneconomic holdings.
4. Consolidation of scattered holdings into compact blocks and prevention of subdivision and fragmentation of holdings below an economic size.
5. Updating and computerisation of land records.

Recognising that the access to land remains a key element of the antipoverty strategy in rural areas, the programme of action for land reforms included, in addition, the following:

- i) preventing alienation of tribal lands;
- ii) providing access on a group basis to the poor on wastelands and common property resources;
- iii) permitting the leasing-in and leasing-out of land within the ceiling limits;
- iv) according preference to women in the distribution of surplus land and legal provisions for protecting their rights on land.

It may be emphasised that the principles on which the scheme of land reforms is based do not involve adjustments between the interests of different sections of society which depend on land, but are a part of a wider socio-economic outlook which has to be applied in some measure to every part of the economy.

Implementation and Relevance of Land Reforms Today

Although land reforms as an instrument of economic policy were conceived very early in the post-independence period and pursued vigorously during the first one and a half decade of economic planning, these were side-tracked subsequently, largely on account of the introduction and spread of new technology. However, the new agricultural technology demonstrated in clear terms its inability to break through the barriers of rural poverty and unemployment.

In the wake of the limitations of Green Revolution observed in the field (viz. it remained confined to a few pockets, small number of crops and

selected farming groups) the decade of the 1980s witnessed considerable experimentation with the strategy of 'direct attack' on poverty. The direct attack emphasised on the provision of minimum needs, employment generation and integrated rural development programmes. The direct attack on poverty was conceived as a complementary approach to stepped-up growth. The two together were expected to help the process of '*trickle down*' to gain in speed, spread and thrust.

However, the outcome of direct attack strategy has been far too modest as an approach to poverty eradication. This has happened despite the acceleration in growth in the 1980s along with substantial expansion in agricultural output. In particular, the core groups of the poor like landless labourers have obtained minimal enduring benefits from both growth and anti-poverty programmes. There is now increasing awareness that attempts to integrate growth with poverty eradication remained largely ineffective owing to the absence of adequate structural reforms and improved access for the rural poor to agricultural and common lands.

Ground Realities Necessitating a New Look at Land Reforms

Three factors which can be identified in this respect are:

1. Growth in the green revolution areas is now levelling off. It is also realised that it is being achieved at a high and increasing cost vis-a-vis scarce inputs like irrigation and fertilisers. Growth in dry land agriculture and in the potentially rich eastern parts of the country needs a combination of both technical and reformist strategies. The point is that, unlike in the immediate post-independence years, the need for land reforms is now even more pressing - since sustained growth depends on it - and this requires the strengthening of the political will for reforms to make it more effective.
2. There have been two favourable fall-outs from the extensive implementation of poverty alleviation programmes:
 - i) The personnel associated in the development have been under fairly severe pressure to establish contact with the poor to assess their needs;
 - ii) The rural poor are now in a better position and mood to demand more enduring benefits from the government than the mere adhoc relief provided during periods of distress. In this sense, poverty-alleviation programmes can be regarded as instilling a 'conscientising' influence on both the development personnel and the poor;
 - iii) There is a subtle difference between the absentee-cum-non-cultivating owners on the one hand and the present dominant rural groups on the other in the nature of resistance they put up to land reforms. The former are rent-collectors whose resistance to reforms began to weaken only when they moved out of villages in

search of new economic opportunities in towns. The latter group, on the other hand, consists of profit-earners who may be expected to respond more readily and positively to new growth opportunities in the rural agricultural sector. If there are policies to ensure that the new opportunities are adequately labour-absorbing and bring a measure of affluence within the reach of even households with modest land-holdings, the feasibility of effective ceiling and tenancy legislation might show a marked improvement.

Check Your Progress 2

1. What do you understand by institutional reforms?

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2. Suggest price measures to improve the returns to farmers.

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3. Suggest non-price measures to bring about improvement in returns to farmers.

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4. Outline how bigger farms have better productivity than smaller farms.

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5. State in brief the objectives of land reforms programme in India.

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6. Bring out the need for land reforms in the present state of development in India.

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15.4.2 Organic Farming

The Green Revolution was brought about by the use of chemical fertilisers and pesticides. Over the period, three major problems came to be associated with the use of fertilisers.

One, the environmental costs of increasing fertiliser use are proving immense i.e. soil is getting degraded fast.

Two, the effectiveness of the use of fertilisers is on the decline i.e. increasingly more and more fertilisers have to be used to get the same level of output. As a result, the average cost of production in agriculture is on the rise.

Three, heavy imports of fertilisers impose a huge burden on our balance of trade.

In view of these problems, the use of an alternative system of farming, called organic farming, is being advocated.

Meaning and Purpose

Organic farming is a way of farming which excludes the use of chemical fertilisers, insecticides, etc. It is primarily based on the principles of use of natural organic inputs and biological plant protection measures. The purpose of organic farming is not to go back to primitive form of agriculture, but to blend modern scientific technologies with the indigenous knowledge and skills using the vast potential of various kinds of residues and water. This will help: (i) achieve sustainability of natural resources on the one hand, and (ii) exploit the growing global market for organic food on the other.

Progress

India has comparative advantage over many other countries because of the vast cultivated area which has remained free of contamination from chemicals. Also, it is spread over distinctly varying agro-climatic conditions. For example, large areas in north-east region, northern hills and rain fed regions with low or nil use of agro-chemicals can be instantly converted to organic farming.

In order to promote organic farming, the government has launched a new

programme, called **National Project on Organic Farming**. The programme is being implemented in the areas where use of agro-chemicals is very low, those which fall in agro-export zones, and in urban hinterland area. The main components of the programme are as follows:

- i) Putting in place a system of certification of organic produce;
- ii) Financial support for setting up commercial production units for the promotion and extension of organic farming like: fruits and vegetables, waste compost, bio-fertilisers, hatcheries for vermiculture, etc.

Standards are being developed for organic farming. Regulatory mechanism for export purposes is also being developed.

15.4.3 Contract Farming

Contract farming is viewed as an important tool to increase private corporate involvement in agro-processing. In this system, companies engaged in processing/marketing of agricultural products enter into contract with the farmers. They provide the farmers with the inputs and buy back the product at a later date at a rate specified in advance.

Contract farming has invited some criticisms. For instance, the Indian farmer had been attuned to traditional agricultural practices which provide security and stability to a small and marginal farmer. With contract farming, this degree of independence is lost, rendering him sensitive to market forces.

Policy Initiatives

In order to promote contract farming some important policy initiatives taken in recent years are briefly stated below:

- i) The Agricultural Produce Marketing Committee Act forces farmers to sell only at mandis, ostensibly to protect them from exploitative traders. But this defeats the motivation behind contract farming. In order to rectify this situation, six states have repealed their versions of the APMC Act, and six others have drafted new legislation.
- ii) India for long had been plagued by a maze of different food laws, some of which were self-contradictory. The Central Government has now instituted a new integrated food law replacing the old ones.
- iii) The Government Proposes to legislate a Warehousing Receipts Act, which will make warehousing receipts negotiable instruments qualified for bank financing. As a result, the farmers would be in a position to borrow against their stocks reflected in warehousing receipts. This along with the futures trading (see section 15.4.4.) can modernise

agricultural trading just as stock market reforms have modernised the capital market.

- iv) In order to curb hoarding, the Essential Commodities Act has long placed limits on commodity stocks restricting large-scale capital investment. To rectify this situation, the list of essential commodities has been cut from 30 to 15.
- v) Tax laws and incentives are being liberalised to encourage private investment.
- vi) Banks are keen to get into rural business. Cheap credit from banks and cooperatives can facilitate agri-business like horticulture.

These efforts are being supplemented further by private corporate sector. Corporate sector has chipped in by setting up networks to give practical shape to the concept of ‘precision farming’. These networks provide remote-sensing technology, which is used to analyse soil, gather information about crop health, pest attacks and the insurance coverage of various crops; run crop clinics where agronomists access information using geographic information system (GIS) techniques; advice farmers on crop-related matters, and the type of area and nutrients to be used; set-up soil testing laboratories; and operate experimental farms where scientists conduct agricultural R&D.

Notwithstanding these initiatives, corporate farming is still facing many hurdles. Some of these are:

One, the legal and administrative system makes enforcement of contract difficult.

Two, Banks have never been able to seize the mortgaged land of defaulting farmers.

Three, Indian infrastructure is grossly poor with rural electricity, in particular, being totally unreliable.

Four, cold chains for keeping vegetables fresh repeatedly break-down.

Check Your Progress 3

1. Identify the problems arising out of the use of fertilisers.

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2. What is organic farming? Why is it being promoted?

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3. What is contract farming? State the policy initiatives taken to promote contract farming in recent years.

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15.4.4 Futures Trading

There is a considerable time gap between the time of initial investment and the receipt of returns from the final farm produce. As a consequence, a farmer is highly vulnerable to price fluctuations as planning is done at the time of sowing based on the then prevailing prices.

Likewise, purchasers of agricultural commodities for use as inputs in production must make judgements on their availability and cost at different points of time during the year. To guard against price volatility and uncertainty in availability, sellers and buyers often enter into forward contracts. These contracts specify the quantity, quality and price of the commodity they would deliver for sale or acquire for purchase at a pre-decided date in the future.

'Futures contracts' are, thus, standardised contracts to buy or sell a quantity of a standard quality of a commodity. These are traded in exchanges, through brokers, with no need for the buyer and seller to meet and negotiate. An important feature is that a contract need not be settled by actual delivery. It can be matched by an offsetting contract taken by the buyer or seller, and the two can be squared at any point at some gain or loss. To avoid paying margins, traders can buy an option to offer or acquire a contract at some specified future date. If the option is not exercised, because price movements are contrary to expectation, the loss is restricted to the premium paid to hold the option and the transaction costs of acquiring it.

Role of Futures Market

Futures trading has an important role in bringing about improvements in agricultural production system.

One, futures markets enable the farmers to deliver the crop at a specified price at some future date. The clearing houses of the commodity exchanges guarantee the performance of these contracts. A farmer, who is uncertain about the prices of his produce, can cover his risk by selling a futures contract sometime before the harvest day.

Two, the futures prices are readily available for the farmers as the commodity exchanges disseminate prices on a continuous basis through various channels. If the price available in the futures market is not profitable to the farmer, he can change his cropping plan at the beginning of production itself.

Three, the futures market provides a perfect collateral for the lenders to advance larger loans on easier terms to the farmers thereby ensuring a minimum-risk business for both the lender and the farmer.

Four, futures market provides a convenient mechanism through which a farmer who wants to speculate on commodity but does not have the storage capacity can increase his speculative ability. He can 'buy a position' while the crop is growing by buying a futures contract, and at the time of harvesting, can sell his crop in the cash market simultaneously squaring off his position in the futures market. This way he can gain from any price increase in both the spot as well as the futures market at the time of harvesting.

Five, commodity exchanges assist the producers and consumers in a fair price discovery and enable them to hedge their price risk. The prices disseminated by these exchanges are highly reliable and acceptable to both the business community and the farmers as they are discovered by discounting all information available at that point of time.

Six, the quality and delivery standards imposed by the exchanges in their products act as bench-marks and increase quality consciousness among farmers.

Progress

Indian commodity futures market has had a long and chequered history. Until 2003, the futures contract was being traded only at regional exchanges that specialised in one or a few commodities. In 2003, the government mandated the setting up of nation-wide online commodity exchanges and allowed futures trading in a wide gamut of commodities.

There are four national level commodity exchanges, namely, the Multi Commodity Exchange (MCX), National Commodities and Derivatives Exchange of India (NCDEX), National Multi Commodity Exchange (NMCE) and the National Board of Trade (NBOT). The first three exchanges trade in all the permitted commodities, while NBOT trades only in soyabean. The Forwards Markets Commission (FMC) currently regulates the commodities futures market.

15.4.5 Subsidies in Agriculture

Subsidy can be defined as a payment for the provision of goods or services at a price which is less than the cost of production. This payment could be made directly to the users or to the producers of the services.

In actual practice, the large bulk of these payments goes to producers and intermediaries rather than the final consumers. These are provided both through the budgetary provisions and through the pricing policies of public sector activities.

Subsidies are different from transfer payments which are straight income supplements to the poor and the vulnerable. Subsidies are the converse of indirect taxes and are specific to goods and services. And, in some cases, they could reflect positive externalities.

Governments, the world over, take recourse to subsidies. The common Agricultural Policy in the European Union leading to 'lakes of wine and mountains of beef and butter' as The Economist once derisively described the situation, is an extreme - and living - example of how subsidies once given can enslave a group of several nations. America, and Japan, are not any far behind.

Subsidies in India have a long history. Subsidy on land revenue in case of natural calamities and loans to farmers on concessional terms have been a traditional feature of the Indian revenue system. In free India, subsidies were introduced in 1947 when the relief and rehabilitation finance for refugee settlement was heavily subsidised. Since then, subsidies have covered a wide spectrum of Indian economy.

Kinds of Agricultural Subsidies in India

The main forms of agricultural subsidies in India can be identified as follows:

- 1. Food Subsidy:** It is the difference between the price at which the food corporation of India (FCI) procures food-grains from farmers, and the price at which the FCI sells (issue price) either to traders or to the Public Distribution System (PDS) with the added cost borne by FCI for storage and distribution of the food-grain. The subsidy ensures a reasonably high price to farmers (Procurement Price) and a reasonably low price to consumers (issue price) and a reliable food supply (through PDS).
- 2. Fertiliser Subsidy:** It is the difference between price paid to manufacturers of fertilisers (domestic or foreign) and price received from farmers. This subsidy ensures cheap inputs to farmers, reasonable returns to manufacturers, and stability in availability and price of fertilisers (to farmers).
- 3. Power Subsidy:** It is the difference between the cost of generating and distributing electricity to farmers (by state electricity boards) and the price paid (or the cost incurred) by the SEBs. This acts as an incentive to farmers to invest in pump sets, bore wells, etc.
- 4. Irrigation Subsidy:** It is the difference between the operating and the maintenance cost of irrigation infrastructure in the state and irrigation charges recovered from the farmers.

5. Credit Subsidy: It is the difference between interest charged to farmers and actual cost of credit to banks, plus other costs such as write-off on bad loans.

Rationale for Subsidies

The rationale of subsidising agricultural inputs is to be traced to the role that these subsidies play in stimulating development of any country through increased agricultural production, employment and investment. However, there are arguments advanced on both sides.

Arguments For: The principal arguments in support of subsidies are as follows:

- i) Products of subsidised inputs sell at lower prices. If the subsidies were to be withdrawn, the prices of the products would rise as their production cost would go up. But their higher prices would affect their sale. Reduced application of inputs in cultivation would lower agricultural production, particularly food production, and compel the country to import food products.
- ii) The subsidisation of inputs and credit has influenced and continues to influence the acceptance of the new technology.
- iii) Input subsidisation also avoids raising food (and raw material) prices, thus avoiding the plausible adverse effect on poor (and the industrial sector). This has come to be known as '*cheap-input-cheap-output policy*'.
- iv) Value-added by subsidised inputs far exceeds the cost of subsidy.

Arguments Against: The principal arguments against subsidies are as follows:

- i) Fertiliser and irrigation subsidies have widened regional disparities to some extent.
- ii) The maximum benefit of subsidisation of inputs is reaped only by large farmers, who possess the capacity to buy inputs at higher prices.
- iii) Input subsidies tax the budgetary capacity of the government. Fiscal imbalance paves the way for macroeconomic imbalances creating inflation, lowering growth and create inability to finance imports. Growth, in order to be sustainable, has to be efficient and subsidies of the kind the Indian agriculture is used to, make for enormous wastage of power, water, fertiliser and pesticides.
- iv) Heavy fiscal burden of subsidy on inputs is also responsible for stagnation, if not decline, in public investment.
- v) Where the prices of inputs do not reflect their scarcity value, there is very little incentive for farmers to adopt methods which could make more efficient use of scarce resources.

To sum up, input subsidy should be seen as a short-term programme designed to meet specific objectives and should be phased out with development. The sequencing of reforms must start with liberalising the output markets, opening them to exports and thereafter involving farmers in carrying out reforms in input markets - particularly for non-tradable inputs like canal water, electricity and rural credit. It is only through such a comprehensive package of reforms that the accelerated and sustainable growth of Indian agriculture can be facilitated. You will study more on agricultural subsidies in the context of globalisation in units 20 and 22 later.

15.4.6 Crop Insurance

Climatic variability caused by erratic rainfall pattern, and increase in the severity of droughts, floods and cyclones and rising temperatures, have been the causes of uncertainty and risk resulting in huge losses in agricultural production and the livestock population in India.

Insurance schemes have been designed and implemented seeking to protect farmers from uncertainties and risks. Three of the more important schemes under this are:

National Agricultural Insurance Scheme (NAIS), 1999

The NAIS was launched in June, 1999. The main objective of the scheme is to protect the farmers against crop losses suffered on account of natural calamities, such as drought, flood, hailstorm, cyclone, fire, pests and diseases.

The main features of the scheme are as follows:

- i) The scheme covers all farmers including those growing commercial and horticultural crops.
- ii) There is no restriction on the sum insured and all crops including coarse cereals, pulses and oilseeds are covered. In addition, three cash crops - sugarcane, cotton and potato - have also been brought under the scheme.
- iii) The scheme is available to non-loanee farmers on an optional basis, but is compulsory for loanee farmers. It covers all crops for which yield data is available and is available regardless of the size of the holding.

The scheme is being implemented by the Agricultural Insurance Corporation.

Farm Income Insurance Scheme (FIIS) 2004

A pilot project of the FIIS was inaugurated in January, 2004. The scheme covers all farmers - loanee farmers on compulsory basis, and non-loanee

farmers on voluntary basis. The scheme provides comprehensive risk insurance against loss in farm income in a notified area arising out of adverse fluctuations in yield due to natural perils or adverse fluctuation of market prices as measured against minimum support price or both.

Weather-Based Crop Insurance Scheme (WBCIS)

The WBCIS has been implemented in the selected districts of Karnataka on a pilot basis. It provides insurance protection to farmers against adverse incidence such as deficit and excess rainfall, which impact adversely the crop production.

15.4.7 Trade in Agriculture

Globalisation is the keyword of new economic policy. With World Trade Organisation replacing GATT, exports of agricultural goods have come in for attention lately. Since the global agricultural trade is moulded and exploited by the major players, it is being brought under an international discipline. The following two features included in the accord are important to note:

- i) Reduction in aggregate measure of domestic support; and
- ii) Tariffication of import barriers and their reduction.

Besides providing a level playing field, trade in agriculture is bound to open up new avenues for developing countries like India to push up their exports.

Advantages and Disadvantages of Globalisation

Opening up of agricultural trade should now be seen as a major opportunity for raising the overall growth rate by exploiting India's comparative advantage in agriculture, for improving the efficiency of resource use in agriculture, and for technologically upgrading the rural sector.

On the flip side, however, it may be argued that liberalisation needs more attention. Both unilateral liberalisation, which India may pursue as a part of its ongoing economic reforms, and multilateral liberalisation, which India may be obliged to pursue as a member of the WTO, are going to have their costs. In this connection, following three issues need a serious consideration:

- i) Volatility of prices in the international markets,
- ii) Trend of prices, and
- iii) International trade market structure.

These factors considerably influence the realisation of gains to exporting countries of agricultural commodities. Proper knowledge of these factors

and intelligent response of a country lead to enhancement of its gain from the trade. On the other hand, lack of knowledge or improper response may lead to loss of exploitation of international market situation. As said before, you will be studying more on these issues in units 20 and 22 later.

Check Your Progress 4

1. What is 'futures trading' in agricultural products?

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2. State the role of 'futures trading' in promoting agricultural productivity.

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3. Mention the different kinds of subsidies available in the agricultural sector.

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4. What are the salient features of principal crop insurance schemes presently in operation in India?

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15.5 LET US SUM UP

Indian agriculture made significant progress after adoption of the new agricultural strategy, as is evidenced in large increases in agricultural production. Most of the increase in agricultural output could be attributed to improvements in agricultural productivity. However, notwithstanding these increases, agricultural productivity continues to be relatively low, both in comparison to (i) what obtains internationally and (ii) the yield potential demonstrated on farms. Low productivity, in a way, represents

an untapped resource. If we can successfully raise productivity levels there are immense possibilities of growth in agriculture. The unit has discussed a few important issues having a bearing on agricultural productivity in India.

15.6 KEY WORDS

Biological Innovations : refer to those measures that improve agricultural productivity and are therefore 'land-saving'.

Mechanical Innovations : refer to introduction of new machinery and tools in cultivation.

Price Measures : are measures which aim at keeping the prices of agricultural products at a high level in order to provide incentives to farmers to produce more.

Non-Price Measures : are measures, other than price measures, that are designed to assure better income to farmers.

Fragmentation of Holdings : Refers to scattered pieces of holdings owned by a household.

Consolidation of Holdings : a process by which the scattered pieces of holdings are pooled together to form a single large holding.

Empty niche space : bare ground between rows of crops inviting weed infestation.

15.7 SOME USEFUL BOOKS

Dhingra, Ishwar C., 2007, *The Indian Economy: Environment and Policy*, Sultan Chand, New Delhi.

Rao, Hanumanta, 2007, *Agriculture, Food Security, Poverty and Unemployment*, OUP, New Delhi.

Ray Shavan (ed.), 2007, *Handbook of Agriculture in India*, OUP, New Delhi.

Bhalla, G.S., 2007, *Indian Agriculture Since Independence*, NBT, New Delhi.

15.8 ANSWERS OR HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

1. See Section 15.2 and answer.
2. See Section 15.2 and answer.
3. See Section 15.2 and answer.

Check Your Progress 2

1. See Section 15.3 (I) and answer.
2. See Section 15.3 (III) (a) and answer.
3. See Section 15.3 (III) (b) and answer.
4. See Section 15.4.1 and answer.
5. See Section 15.4.1 and answer.
6. See Section 15.4.1 and answer.

Check Your Progress 3

1. See Section 15.4.2 and answer.
2. See Section 15.4.2 and answer.
3. See Section 15.4.3 and answer.

Check Your Progress 4

1. See Section 15.4.4 and answer.
2. See Section 15.4.4 and answer.
3. See Section 15.4.5 and answer.
4. See Section 15.4.6 and answer.