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# GROWTH OF AGRICULTURE SECTOR IN INDIA: A CASE STUDY

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***Abstract***
*The Agriculture Sector occupies centre stage in Indian economy embodying three thrust areas as (1) to promote inclusive growth, (2) to enhance rural income, and (3) to sustain food security. It accounts for nearly 14% of GDP, about13%ofexportsandsupportshalf of the country's population as its principal source of income (58% of workforce). As per Census 2011, the total number of agricultural cultivators and agricultural laborers increased from 234.1 million in 2001 to 263.o million in 2011. The share of agri-exports in total exports increased from 12.81% in 2011-12 to 13.08% ( Rs 231,992 Cr) in 2012-13, a record level. With the growth of Indian economy the share of Agriculture in GDP has declined over the years and even today productivity of some agricultural products is lower compared to countries like USA & China. The growth in Indian agricultural sector has had its moments of glory, nonetheless.*

***Green Revolution*** *(Pioneering work by agriculture scientists and the efforts of farmers, popularly known as the "Green Revolution', had helped achieve a breakthrough in the agriculture sector in the 1960) has been the major success story of free India. The nation that was frequently plagued by famines and chronic food shortage before green revolution today faces surplus. From a food grain production around 55 million tons at the time of independence, we now boost of production of about 260 million tons of food grain (2012-13). Unlike developed nations, agriculture still remains the backbone of our country. The main objectives of this paper Growth of Agriculture sector in India a study.*

***Key Words: Agriculture, Sector, Production, Growth, Productivity, Economy.***

## Introduction Growth Trends in Agriculture

Indian agriculture has witnessed wide variations in growth performance during a span of six decades after independence. The variability was particularly pronounced due to the subsistence nature of farming in India and the sector's heavy dependence on monsoon and other climatic parameters. In the initial years after the inception of planned development, it was the green revolution technologies that fired up growth in the sector for nearly three decades.

The impact of green revolution tapered off gradually towards the later years of the last century. Economic reforms initiated in early nineties had a significant impact on agricultural sector, primarily due to the opening up of economy to external competition, liberalization of trade and deregulation of input and other sub-sectors. (to overcome difficulties in identifying structural break so seculars acceleration etc due to inter year fluctuations and to capture the effects of major changes in technologies and policies on the sector in various phases, an analysis based on decadal trend growth rates was carried out [1] .The GDP-Agriculture series (1950-51 to 2010-11) was first smoothened by taking 2- year moving averages to remove the effects of abrupt weather variations and other shocks. Further, trend growth rates were estimated by fitting semi-log trend to the smoothened data) .

**Five distinct phases of growth were identified**

*(i)* Phase-I:Pre-green revolution Period(1950-51to1967-68)
*(ii)* Phase-II:Early green revolution period(1968-69to1985-86)
*(iii)* Phase-III:Period of wider dissemination(1986-87to1996-97)
*(iv)* Phase-IV:Post- Reform Period(1997-98to2005-06)

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The pre-green revolution period (1950-51 to 1967-68) was characterized by steep decline in growth in GDP agriculture, with decadal growth rates found to plummet sharply from 2.78 per cent to 1.06 per cent between the period 1950-51 and 1967-68. The green revolution was kick-started from the year 1966 and the effects of adoption of superior technology and institutional reforms were found to manifest from 1968-69 onwards. The subsequent period is classified as early green revolution period and a visible reversal of growth in GDP agriculture was observed. The decadal growth rate reached near 3 per cent by the decade ending with 1985-86. The period of wider dissemination of technology was characterized by sustained growth in the sector for over a decade peaking at the year 1996-97. The deceleration of growth was started from 1997-98 onwards and a clear indication of slumping of the agricultural sector was visibletilltheyear2005-06.

This slump is widely perceived as an outcome of substantial diversion of resources away from agriculture to other sectors of the economy. However, a significant recovery of growth was observed in the last few years that has pushed the decadal growth rates above 3 per cent. In nutshell, the growth series reflects sharp deceleration of the agricultural sector in the post-reforms period and an unambiguous turnaround in the last five years, which also happens to be the 11th five year plan period.

**TrendGrowthratesinGDPofvarioussub-sectorsinIndiaat1999-00prices, 1950-50 to 2010-11 (Per cent/year)**

| Phase | All sectors | Agriculture and allied | Agriculture | Non- Agriculture |
|---|---|---|---|---|
| **Pre-GreenRevolution** | *3.71* | *2.00* | *1.97* | *5.42* |
| **Green Revolution** | *3.72* | *2.38* | *2.63* | *4.62* |
| **PeriodofWider Dissemination** | *5.52* | *3.57* | *3.58* | *6.40* |
| **Post-Reforms** | *6.01* | *2.08* | *2.04* | *7.23* |
| **Recovery** | *8.24* | *2.62* | *2.55* | *9.47* |

(Different studies have categroized thephases of growth slightlydifferentlye.g. another study by Elumalai Kannan and Sujata Sundaram, Institute for Social & Economic Change (ISEC) titled "Analysis of Trends in India'sAgricultural Growth " Working paper 276 categorizes the phases as : **early green revolution** (1967-68 to 1979-80), **mature green revolution** (1980-81 to 1989-90), **early economic reforms** (1990-91 to 1999- 00) &**economic reforms** (2000-01 to 2007-08). The study uses three years average of different variables to even out the inter-year fluctuation(in contrast to two year averages used above) The Paper may be seen at http://www.isec.ac.in.)

**Recent Trends, Initiatives& Challenges Decreasing size of operational holdings**
The average size of holdings for all operational classes (small & marginal, medium and large) have declined over the years and the same for all classes put together has come down to 1.16 hectare in 2010-11 from 2.82 hectare in 1970-71.

**Increasing pressure on agricultural and** increasing demand for industrialization, urbanization, housing and infrastructure is forcing conversion of agricultural and ton on–agricultural uses; the scope for expansion of the area available for cultivation is limited. This is reflected in decrease in net sown area from 143 million hectares in 1990-91 to 141.6 million hectares in 2010-11. However, the gross cropped area has gone up by 6 million hectare, from 186 to 199 million hectare during the same period due to increase in the cropping intensity from130 to 140 per cent.

**Diversification &Commercialization of Agriculture**
Departing from the traditional subsistence nature of agriculture, the farmers, in the post green revolution scenario, are increasingly growing crops with an eye on the market. Non remunerative or low yield crops are being replaced by non-food crops that fetch higher remunerative prices and the farmers are increasingly resorting to horticulture, floriculture, sericulture, viniculture, apiculture and other similar activities. As a result of which area under food crops is declining in some areas, specially in case of coarse grains. **Organic farming** is also picking up due to increase in demands for healthy products.

**Shift towards HighValue Agriculture**
Structural **shift in consumption pattern** away from cereals to high value agricultural commodities, both in rural and urban areas, has been observed in the last two decades. This relatively strong and growing **domestic demand** for livestock products and fruits and vegetables in both rural and urban areas and **increased trade**in these commodities has spurred a shift towards production of high value commodities in agriculture. During the 2000s, the growth rate in value of exports of rice, sugar,marine products, tea, etc. declined, while high-value exports (fruits and vegetables, floriculture, meat, processed fruit juices) grew by about 18 percent annually.

**March towards ICTR evolution**
Since Independence, India has witnessed significant increase in foodgrain production (**green revolution**), oilseeds (**yellow revolution**), milk (**white revolution**), fish (**blue revolution**), and fruits and vegetables (**golden revolution**). Now, India is marching towards what is called as **ICT Revolution** in agriculture. Most of the earlier revolutions were with the single objective of increasing production. The extensions activity was limited to providing physical inputs viz. fertilizers, seed, and pesticides, among others. However all this is undergoing a change. The extension efforts are now directed towards providing farmers with the knowledge of the market conditions, so as to enable them to decide what to produce, how and , how much to produce, when and where to sell. Farmers can now also avail information regarding the weather conditions and decide their farm operations. The use of GIS is also being promoted in a big way.

**GrowthinArea,productionandyield**
During 2011-12, there was record production of food grains at 259.32 million tonnes,ofwhich131.27million tonnes was during Kharif season and128.05 million

tonnes during the Rabi season. Of the total food grains production, production of cereals was 242.23 million tonnes and pulses 17.09 million tonnes.

As per Final Estimates for 2012-13, total production of rice in the country is estimated at 105.24 million tonnes which is lower by 0.06 million tonnes than record production of riceduring2011-12.Productionof wheatestimatedat93.51milliontonnes is lower than its record production of 94.88 million tonnes during 2011-12. The production of Coarse Cereals is estimated at 40.04 million tonnes which is lower than the production of Coarse Cereals during 2011-12. Total food grains production estimated at 257.13 million tonnes is lower by 2.16 million tonnes than the record production of 259.32 million tonnes achieved during 2011-12.However, total production of pulses and oilseeds estimated at 18.34 million tonnes and 30.94 million tonnes respectively are higher than their production levels during 2011-12. Production of sugarcane estimated at 341.20 million tonnes is lower by 19.83 million tonnes than its record production of 361.04 million tonnes during 2011-12. Production of cotton is estimated at 34.22 million bales (of 170 kg each) which is marginally lower than its production of 35.20 million bales during 2011-12. .

As per fourth advance estimate , in 2013-14 production of food grains is expected to grow by 2.3% as compared to decline of 0.8% in the previous agricultural year as India is likely to produce 264.8 million tons of food grains , an increase of more than 7 million tons in a year. Record production is expected in case of rice, wheat , tur and all pulses put together , besides cotton.

**Production of major crops during the recent years (milliontonnes/bales)**

| Crop | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 Final Estimates | 2013-14 4th Adv Est. |
|---|---|---|---|---|---|---|---|
| Rice | 96.69 | 99.18 | 89.10 | 95.98 | 105.31 | 105.24 | 106.54 |
| Wheat | 78.57 | 80.68 | 80.80 | 86.87 | 94.88 | 93.51 | 95.91 |
| Coarse Cereals | 40.75 | 40.03 | 33.55 | 43.40 | 42.04 | 40.04 | 43.05 |
| total Cereals | 216.01 | 219.90 | 203.45 | 226.25 | 242.23 | 238.79 | 245.5 |
| Pulses | 14.76 | 14.57 | 14.66 | 18.24 | 17.09 | 18.34 | 19.27 |
| oilseeds | 29.75 | 27.72 | 24.88 | 32.48 | 29.80 | 30.94 | 32.88 |
| Sugarcane | 348.19 | 285.03 | 292.30 | 342.38 | 361.04 | 341.20 | 350.02 |
| Cotton* | 25.88 | 22.28 | 24.02 | 33.00 | 35.20 | 34.22 | 36.59 |
| Jute &Mesta** | 11.21 | 10.37 | 11.82 | 10.62 | 11.40 | 10.93 | 11.58 |
| *(millionbalesof170kgeach),**(millionbalesof180kgeach) | | | | | | | |

During the 11th Plan, the area under jowar, bajra, small millets, ground nuts, rapeseed and mustard, sunflower and mesta has witnessed a negative growth while the yields of all the major

crops have recorded positive growth. Impressive rates of growth (more than 4 percent per annum) in production were observed in the case of wheat, bajra, maize, coarse cereals, gram, tur, total pulses, groundnut, sesamum, soyabean, total oilseeds and cotton. The increases in production in the case of wheat, bajra,maize, groundnut and total oilseeds can mainly be attributed to increase in yields, whereas the growth in production in the case of gram, tur, total pulses, soyabean and cotton was driven by a combination of both expansion in area and increase in productivity/yield. A perusal of the rates of growth in yield reveals that most of the crops have recorded higher growth during the 11th Plan than that during the 10th Plan. However, sugarcane, and rapeseed & mustard, soybean and cotton recorded lower rates of growth in yield during the 11th plan than that of the 10th Plan. Growth in yields of sugarcane and rapeseed & mustard suggest that their yields seem to have attained the plateau and need renewed research to boost their productivity levels.

**All India Average Annual Growth Rates of Area, Production and Yield of Principal Crops**

| **Crops** | **Average Annual Growth(%)** | | | **Average Annual Growth(%)** | | |
|---|---|---|---|---|---|---|
| | **10thPlan(2002-03to2006-07)** | | | **11thPlan(2007-08to2011-12)** | | |
| | **Area** | **Production** | **Yield** | **Area** | **Production** | **Yield** |
| Rice | -0.39 | 1.25 | 1.17 | 0.18 | 2.69 | 2.41 |
| Wheat | 1.30 | 1.11 | -0.32 | 1.31 | 4.64 | 3.29 |
| CoarseCereals | -0.26 | 2.55 | 1.75 | -1.59 | 5.68 | 7.27 |
| **TotalCereals** | **0.07** | **1.21** | **0.74** | **-0.03** | **3.79** | **3.76** |
| **TotalPulses** | **1.31** | **2.66** | **0.65** | **1.36** | **4.28** | **2.78** |
| Sugarcane | 3.98 | 4.90 | 0.66 | 0.04 | 0.99 | 0.87 |
| Groundnut | -1.65 | 3.61 | 4.32 | -0.86 | 15.82 | 13.91 |
| **TotalNine Oilseeds** | **3.55** | **7.99** | **3.53** | **-0.07** | **5.54** | **5.32** |
| **Cotton** | **0.57** | **20.01** | **19.40** | **5.97** | **10.46** | **3.93** |

**Government Initiatives**

Acknowledging the importance of growth in agriculture , the **outlay** for agriculture& allied activities has been increased from 4.4 per cent ( realized, Rs 163105 Cr at current prices) during eleventh Plan (2007-12 )to 4.7 per cent (projected, Rs 363273 Cr at current prices ) in twelfth plan (2012-17).The schemes in vogue during eleventh Plan have been suitably modified/strengthened .

**Agricultural Credit**

The target of doubling of the flow of agricultural credit in three years with base year as 2004-05 was achieved in two years. Agricultural credit flow has increased consistently and it reached Rs. 5,11,029 crore during 2011-12 forming108%ofthetargetandin2012-13atRs.6,07,375crore(provisional)against target of Rs.5,75,000 crore forming 106% of the target. Against the target Rs.7,00,000 crore during 2013-14, achievement is Rs.4,33,341 crore upto 31st December, 2013.

**Rashtriya Krishi Vikas Yojana (RKVY):** Rashtriya Krishi Vikas Yojana (RKVY) was launched in the XIth Plan against a backdrop of faltering agriculture growth in the previous decades. It was designed as a State Plan Scheme with complete flexibility to the States to choose projects specifically tailored to their conditions for generating growth in agriculture and allied sectors. In the XI Five year Plan, Rs 27447 crores were sanctioned under RKVY for taking up 5768 projects across various sectors. In the XII Plan, the entire RKVY budget is proposed to be divided in three streams viz. Production Growth, Infrastructure & Assets, and Special schemes of national importance in the ratio of 40:40:20. RKVY model has received tremendous response from the States and for the XII Plan period, an allocation of Rs.63246 crore has been made for RKVY which is nearly 50% of the total allocation of Department of Agriculture.

**Macro Management of Agriculture (MMA) :**The Macro Management of Agriculture (MMA) Scheme, a Centrally Sponsored Scheme, was formulated in 2000-01 with the objective to propagate specific interventions for uniform development of agriculture in the States. Initially, MMA consisted of 27 Centrally Sponsored Schemes covering Cooperatives, Crop Production, Watershed Development, Horticulture, Fertilizers, Mechanization and Seeds Production Programmes. At present, the revised MMA scheme comprises 11 sub-schemes relating to crop production and natural resource management. In the XI Plan under Macro Management Scheme 12.07 lakh ha in watershed areas, 10.25 lakh ha in river valleys and flood prone rivers, and 0.79 lakh ha of alkali/acidic soils were developed and 15.17 lakh agricultural implements were distributed. The scheme is proposed to be merged with RKVY during XII Five Year Plan.

**Minimum Support Prices (MSPs):** MSPs are instruments introduced by government for providing protection to farmers in the event of adverse market conditions. These are based on recommendations of **Commission for Agricultural Cost and Prices (CACP)** which in turn uses **Cost of Cultivation studies** (initiated during the year 1970-71 as a 100% Central Sector Plan Scheme) undertaken through16 Agricultural/General Universities/Colleges, besides special study on VFC tobacco in the State of Andhra Pradesh undertaken by Directorate of Tobacco Development. Over the years, the scope of these studies has been increased from two (wheat&bajra) to 27 crops presently , for which estimates of cost of cultivation and production are generated.

**National Agricultural Insurance Scheme:** National Agricultural Insurance Scheme (NAIS) has been introduced in the country from Rabi 1999-2000 seasons. Under the scheme, at present, 10% subsidy in premium is available to small & marginal farmers which is shared by the Central and respective State Government on 50 : 50 basis along with claims for normal sum insured & indemnity level for food and oilseed crops. To improve further and make the NAIS easier & more farmer friendly, Modified National Agricultural Insurance Scheme (MNAIS) has been implemented on pilot basis in 50 districts from Rabi 2010-11 season. Besides the NAIS and MNAIS, Pilot Weather Based Crop Insurance Scheme (WBCIS) and Pilot Coconut Palm Insurance Scheme (CPIS) are being implemented by the government. Despite the various schemes launched by the government from time to time, agriculture insurance coverage in terms of area, number of farmers and value of agricultural output insured is very small as compared to the total number of holdings/farmers (137.8 million as per agriculture census 2010-11), the total cultivated area (159.2 million hectares) and the value of agricultural output.

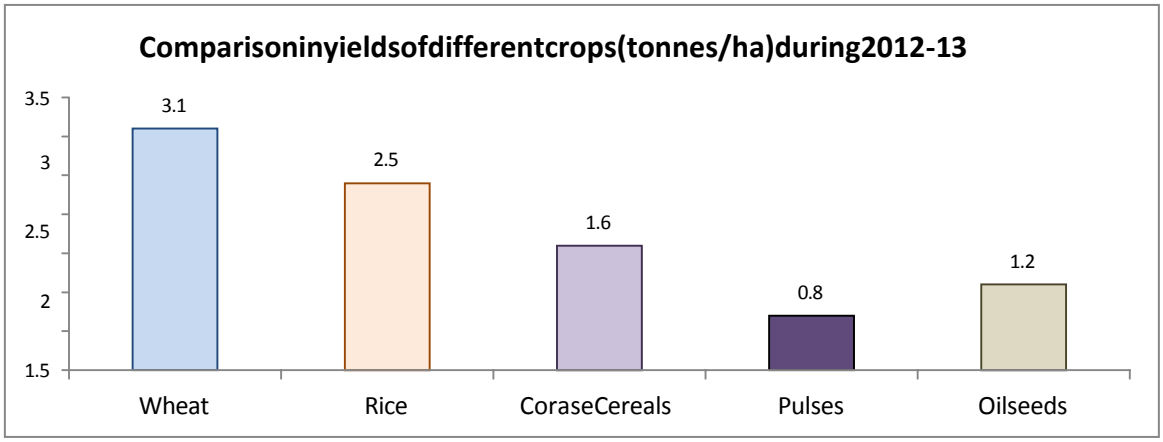
**Accelerated Irrigation Benefit Programme (AIBP):** Accelerated Irrigation Benefits Programme (AIBP)was launched by MoWR, Government of Indiaduring1996- 97 to provide financial assistance to State Governments for accelerating the pace of irrigation development in the country. So far Irrigation potential created from major/medium projects and minor irrigation schemes is about 8 million hectare.

**Command Area Development Programme (CADP):** the Centrally Sponsored Command Area Development (CAD) Programme was launched in 1974-75 by MoWR for development of adequate delivery system of irrigation water up to farmers' field with an objective to bridge the gap between potential created and utilised and to enhance water use efficiency and production and productivity of crops per unit of land and water for improving socio-economic condition of farmers. So far 314 projects with a CCA of 28.95 Million ha have been included under the programme.

A range of area specific and crop specific interventions to boost productivity have been introduced by the government. Some of them are listed as under:

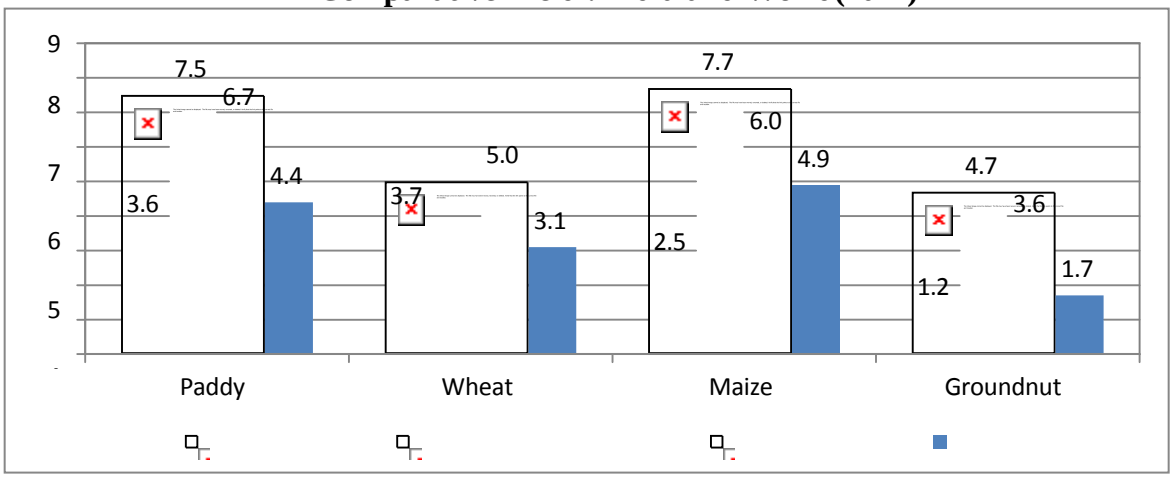
- **National Food Security Mission:** The National Food Security Mission is presently under implementation in 482 Districts of 19 States of the country with a view to enhance the production of **Rice, Wheat and Pulses** through area expansion and productivity enhancement; restoring soil fertility and productivity; creating employment opportunities; and enhancing farm level economy to restore confidence of farmers. During the **12th Plan**, it is proposed to include **coarse cereals** as well in the Mission.
- **Initiative for Nutritional Security through Intensive Millet Promotion (INSIMP)**
- **Bringing Green Revolution in Eastern India (BGREI)**under operation in seven states of UP, Jharkhand, Bihar, West Bengal, Assam, orissa and Chhattisgarh
- **Accelerated Pulses Production Programme (A3P), Sugarcane Based Cropping Systems (SUBACS), Jute Technology Mission (JTM), Technology Mission on Cotton (TMC), Integrated Scheme of Oilseeds, Pulses, Oilpalm and Maize (ISOPOM), Oil Palm Development Programme (OPDP) etc.**

**Challenges*:*** The declining land-base for agricultural operations, diminishing water tables, shortage of farm-labour, increasing costs of inputs and uncertainties associated withprices/realisationwhichimpacttheviabilityoffarmingaresomeoftheformidable Challenges the agriculture sector faces. Resource use efficiency to improve factor productivity and ensuring natural resources sustainability are necessary to reconcile the conflicting demands of farmers and consumer. While the country is presently self- sufficient in cereals, it meets its domestic requirements for pulses and edible oils through imports. The working group for the 12th Five Year Plan has also projected that the deficit between the domestic demand and supply in the cases of pulses and edible oils would continue even by the end of the 12th Plan. Despite the various efforts being made, there is no technological breakthrough in pulses, the yields are still hovering around 600-700 Kg per hectare. Pulses continue to be grown by small and marginal farmers on marginal lands under rain fed conditions. Even though substantial increases have been made in the MSP, due to weak procurement/price support mechanism, farmers' response in terms of increase in acreage under pulses is lukewarm. Nearly half of our domestic requirement of edible oils is met through imports. Developing oil palm, which have high oil contents, on large track of lands suitable for its cultivation, can bridge the gap between demand and supply of edible oils.




Leaving aside the lower productivity of some crops as compared to others, the agricultural productivity in India in general is lower than some other countries like USA& China and it is even below the world average in some cases.

**Comparative Yield : India and World(2012)**




The food safety net for each and every of the over a billion citizens - a number that is growing - requires enhanced agricultural production and productivity in the form of a Second Green Revolution. Further, special attention is required for achieving higher production and productivity levels in pulses, oilseeds, fruits, and vegetables, which had remained untouched in the First Green Revolution but are essential for nutritional security. In this regard, achieving high production of poultry, meat and fisheries is also essential.

**Data Source**

**Directorate of Economics & Statistics (DES)** in the **Department of Agriculture & Cooperation**, **Ministry of Agriculture** brings out various publications like State of Indian Agriculture, Agriculture Statistics at a Glance, Agricultural Prices in India, Land Use Statistics at a Glance, Agricultural wages in India, Cost of cultivation of Principal Crops etc. The website of the directorate (http://eands.dacnet.nic.in) hosts a lot of cross sectional & time series data on variety of items. However, the agriculture statistics system in India is a decentralized one where the State Governments – **State Agricultural Statistics Authorities (SASAs)** to be more specific, play a major role in collection and compilation of agriculture statistics at the State level & DES, M/0 Agriculture is the pivotal agency for such a compilation at All India Level. The other data gathering

agencies involved are **National Sample Survey Office (NSSO )**&**State DESs**. The estimates of crop production are based on area through field estimation and yield rate through crop cutting experiments.

**Crop Area Statistics: From** the point of view of crop area statistics, the States and Union Territories can be classified into three broad groups:

(a) States and Union Territories (18 in number) which have been cadastral surveyed and where area and land use statistics form a part of the land records maintained by the revenue agency (referred to as "**temporarily settled States**")

(b) Kerala, Orissa and West Bengal known as "**permanently settled**" States, where there is no land revenue agency at the village level and crop area andland use statistics are collected through a scheme of sample surveys.

(c) Part of Assam (hill districts), Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura, and the two Union Territories of Andaman and Nicobar Islands and Lakshadweep, for which only "conventional" estimates are available.

Statistics of crop area are compiled with the help of the village revenue agency (commonly known as ***patwari*** agency) in the temporarily settled parts of the country and by specially appointed field staff in the permanently settled States under a scheme known as "**Establishment of an Agency for Reporting Agricultural Statistics (EARAS)**". Conventional crop estimates for the states in third category are based on personal assessment of the village chowkidars. The three categories of States and Union Territories account for eighty-six, nine and five per cent, respectively of the total reporting area whereas about 7 per cent of total geographical area is not reported upon.

In the States that have a*patwari* agency, a complete enumeration of all fields (survey numbers) called *girdawari*is made in every village during each crop season to compile land use, irrigation and crop area statistics.In the States covered by EARAS, the *girdawari*is limited to a random sample of 20 per cent villages of the State, which are selected in such a way that during a period of five years, the entire State is covered. However in view of increasing range of functions assigned to patwaris in temporary settled states , in order to improve the timeliness and qualityof crop area statistics, two schemes are in operation since early seventies namely, the **Timely Reporting Scheme (TRS)** and the scheme for **Improvement of Crop Statistics(ICS).**

Under the TRS,the *patwari*is required to complete the *girdawari*on a priority basis in a 20 per cent random sample of villages (in such a way that the entire temporarily settled parts of the country are covered over a period of five years) and to submit the village crop statements to higher authorities by a stipulated date for the preparation of advance estimates of the area under major crops. Under the ICS scheme, an independent agency of supervisors carries out a physical verification of the *patwari's girdawari*in a sub-sample of the TRS sample villages & in asub-sample of EARAS sample villages. The National Sample Survey Organisation is responsible for the planning and operations of the ICS and employs full-time staff for field supervision. It shares the fieldwork with the designated State agencies, which carry out the field supervision in about half the number of sample villages.

**Crop Production Statistics:** Estimates of crop production are obtained by multiplying the area under crop and the yield rate. The yield rate estimates are based on scientifically designed crop cutting experiments conducted under the **General Crop Estimation Survey (GCES).** The Improvement of Crop Statistics (ICS) scheme carries out a quality check on the field operations of GCES under which around 30,000 experiments are supervised by the ICS staff at the harvesting stage, one half by the Assistant Superintendents of the Field Operations Division (FOD)of NSSO and the remaining half by the staff of the State Agricultural Statistics Authority (SASA).

**Terms & Definitions**

**Classification of Land**: Data are taken from latest Forestry Statistics Publication, Agriculture Census or are estimated based on latest available year data received from the States/Uts respectively.

**The Nine-fold classification and uses areas under**

1. **Forest Area**: This includes all land classified either as forest under any legal enactment, or administered as forest, whether State-owned or pr ivate, and whether wooded or maintained as potential forest land. The area of crops rose in the forest and grazing lands or areas open for grazing within the forests remain included under the ‘‘forest area’’.**Area under Non-agricultural Uses:** This includes all land occupied by buildings, roads and railways or under water, e.g. rivers and canals, and other land put to uses other than agriculture.
2. **Barren and Unculturable Land:** This includes all land covered by mountains, deserts, etc. Land, which cannot be brought under cultivation except at an exorbitant cost is classified as unculturable whether such land is in isolated blocks or within cultivated holdings.
3. **Permanent Pasture and other Grazing Land:** This includes all grazing land whether it is permanent pasture/meadows or not. Village common grazing land is included under this category.
4. **Land under Miscellaneous Tree Crops, etc.:**This includes all cultivable land, which is not included in 'Net area sown'but is put to some agricultural use. Land under casurina trees, thatching grasses, bamboo bushes and other groves for fuel, etc. which are not included under 'Orchards' are classified under this category.
5. **Culturable Waste Land:** This includes land available for cultivation, whether taken up or not taken up for cultivation once, but not cultivated during the last five years or more in succession including the current year for some reason or the other. Such land may be either fallow or covered with shrubs and jungles, which are not put to any use. They may be accessible or inaccessible and may lie in isolated blocks or within cultivated holdings.
6. **Fallow Lands other than Current Fallows:** This includes all land, which was taken up for cultivation but is temporarily out of cultivation for a period of not less than one year and not more than five years. "Fallow land" has been split up into (i) "**current fallow land**"; and (ii) "**other fallow land**". Land lying fallow for a period of one year, are included under "current fallows", those lying fallow for more than one year but less than five years, are included under "other fallow land" while those fallow beyond a period of five years, are included under "culturable wastes" or under "miscellaneous tree crops and groves" (not included under net area sown) as the case may be.
7. **Current Fallows:** This represents cropped area, which are kept fallow during the current year. For example, if any seeding area is not cropped against the same year it may be treated as current fallow.

8. **Net Area Sown:** This represents the total area sown with crops and orchards. Area sowed more than once in the same year is counted only once.

**Conclusion**

**Area under Crops** The figures related to Total Cropped Area are either estimated based on the latest available data received from States/UTs or are based on advance/forecast estimates received from the States/UTs.

**Gross Cropped Area** This represents the total area sown once and/or more than once in a particular year, i.e. the area is counted as many times as there are sowings in year. This total area is also known as total cropped area or total area sown.

**Area Sown more than once** This represents the areas on which crops cultivated more than once during the agricultural year. This is obtained by deducting Net Area Sown from Gross Cropped Area.

**Irrigated Area:** The figures used in this chapter related to irrigate area are either estimated based on the data for the latest available year received from the States/UTs or are estimated/taken from Agriculture Census. The area is assumed to be irrigated for cultivation through such sources as canals (Govt. & Private), tanks, tube-wells, other wells and other sources. It is divided into two categories as (a) Net Irrigated Area: It is the area irrigated through any source once in a year for a particular crop. (b) Total Net Un-irrigated Area: It is the area arrived at by deducting the net irrigated area from net sown area.**Gross Irrigated Are** It is the total area under crops, irrigated once and/or more thanonceinayear.Itiscountedasmanytimesasthenumberoftimestheareasare cropped and irrigated in a year **Total/Gross Un-Irrigated Area:** It is the area arrived at by deducting the gross irrigated area from the gross sown area. **Average Yield of Crops** Average yields per hectare of principal crops have been obtained by dividing the total production by the corresponding total area under each crop. All India and State average yield per hectare has generally been calculated on the basis of area and production figures rounded up to hundreds. In the case of tea, rubber and minor crops, average yield has been calculated on the basis of area and production figures upto the unit place. In the case of coffee, yields per hectare relate to sowing or plucked area and in the case of rubber to tapped area.

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