

Table: 2.3
Yield Rate of Principal Agricultural Crops (kg/ hectare)

Year	Autumn Rice	Winter Rice	Summer Rice	Total Pulses	Total Oilseeds (excluding coconut)
2004-05	667	1598	1959	569	529
2005-06	1016	1543	1780	550	465
2006-07	899	1321	2017	547	491
2007-08	999	1380	2267	596	525
2008-09	1084	1641	2133	545	549
2009-10	982	1894	2180	558	529
2010-11	1155	1993	2577	572	580
2011-12	1242	1785	2744	560	563
2012-13	1317	1998	2965	597	610

Source: Directorate of Economics and Statistics, Assam.

The table reveals that the yield rate of autumn rice showed fluctuation, it was 667 kg/hectare in 2004-05 which rose to 1016 kg/hectare in 2005-06. It declined to 899 kg/hectare in 2006-07. However, since 2009-10, the yield rate has been increasing. The yield rate of winter rice also shows fluctuations. On the whole, yield rate of winter rice increased by 400 kg/hectare during the period from 2004-05 to 2012-13. The yield rate of summer rice shows an improvement by more than 1000 kg/hectare during the same period. Its yield rate continued to maintain an increasing trend except for the year 2005-06. The yield rate of pulses and oilseeds show much fluctuation during the period from 2004-05 to 2009-10.

Land Use:

In Assam the major portion of population i.e. 89.0 per cent are living in rural areas and in an agrarian and such rural economy the vital importance and priority must be given to the development of rural areas basically the agricultural sector. According to 2011 Census about 98.4 per cent of total land mass of Assam is rural. As per the land utilization statistics in 2010-11 of Assam was 78.50 lakh hectares. In Assam in the year 2010-2011 the net sown area constitutes 35.80 percent i.e. 28.11 lakh hectares, the area under forest was 23.61 per cent, 33.45 percent of total reporting area was land not available for cultivation, other uncultivable area was 5.5 per cent i.e. 4.32 lakh hectares, fallow land in the state constitutes 1.63 per cent of the total reporting area and area under social forestry was only 0.16 percent of the total reporting area in the state.

In the year 2010-2011 the Gross Cropped Area in Assam increased to 41.6 lakh hectares from 39.99 lakh hectares in the year 2008-2009. Thus

the Gross Cropped Area in Assam has increased by 8.36 percent during the year 2008-09 to 2010-11. The pattern of land utilization in Assam is diversified. As per the pattern of land utilization, total area of the Assam may be divided into the following categories:

1. Forest
2. Land not available for cultivation
3. Other uncultivated land excluding fallow land
4. Fallow land, and
5. Cropped land.

The table below shows the pattern of land use in Assam-

Table: 2.4

Pattern of Land Use in Assam

Description of Land	1950-51 (in lakh hectares)	1980-81 (in lakh hectares)	1990-91 (in lakh hectares)
Geographical Area	88.20	78.52	78.52
Forest	28.20	19.84	19.84
Land not Available for Cultivation	30.85	19.76	19.72
Total Fallow Land	4.65	1.77	1.72
Land under Cultivation	23.01	29.80	29.82
Uncultivated Areas	60.31	48.72	48.70
Cultivable Waste Lands	3.80	1.07	1.04
Total Cropped Area	NA	27.06	27.06

Source: Statistical Handbook of Assam and C.M.I.E., India's Agricultural Sector.

It is observed in the table reveals that total land area under cultivation in Assam has increased from 23.01 lakh hectares to 29.82 lakh hectares 1990-91. The land under cultivation has also increased from 26.0 per cent in 1950-51 to 38.0 per cent in 1990-91. Thus due to huge amount land not available for cultivation, the net shown area in the state constitutes only 34.4 per cent as compared to that of all India average of 46.6 per cent.

Agricultural Holdings in Assam:

According to the Agricultural Census, 2010-2011 in Assam there were 27.2 lakh operational holdings covering an operated area of 29.99 lakh hectares which was against 27.5 lakh operational holdings covering an operated area of 30.49 lakh hectares in the year 2005-2006 and 27.1 lakh operational holdings covering an operated area of 31.1 lakh hectares in 2000-2001. Thus showing a fall in agricultural operated area in Assam by

3.69 percent over the year 2000-2001 to 2010-2011 which is mainly due to increasing urbanization and industrialization, soil erosion, expansion of road-ways, ever increasing population etc in the state.

The following table shows the trend of number of holdings and area between the Agricultural censuses:

Table: 2.5
Agricultural Censuses 2000-01, 2005-06 and 2010-11

Size Class (in hectare)	Number of Holdings			Area operated (in hectare)		
	2000-01	2005-06	2010-11	2000-01	2005-06	2010-11
Marginal (Below 1.0)	1699107	1752989	1831115	662780	760145	774796
Small (1.0-2.0)	561039	591431	496574	730513	718383	687156
Semi-medium (2.0-4.0)	351521	317859	303528	957959	846006	817982
Medium (4.0-10.0)	95500	82933	84869	498797	425403	437372
Large (10.0 & above)	4970	4902	4137	263529	298606	271763
Total	2712137	2750114	2720223	3113578	3048543	2999070

Source: Directorate of Economics and Statistics, Assam.

The table reveals that 27.2 lakh operational holdings covered an operated area of 29.99 lakh hectares in 2010-11 against the corresponding figures of 27.5 lakh and 30.49 lakh hectares in 2005-06. In 2000-01, 27.1 lakh hectares of operational holdings covered an operated area of 31.1 lakh hectares. The table also reflects that large holdings are insignificant as they constituted 0.15 per cent of the total number of holdings and 9.1 percent of the total operated area in 2010-11. On the other hand, marginal holdings with less than 1 hectare of land constituted 67.3 per cent of land holdings and 25.8 percent of the total operated area in the state in 2010-11. The table shows the trend of agricultural holdings and operated area in Assam from 1990-91 to 2010-11.

Table: 2.6
Agricultural Holdings and Operated Area in Assam
(As per Agricultural Census)

Agricultural Census Year	Number of holdings (in '000)	Total operated area (in thousand hectares)	Average size of Holdings (in hectare)
1990-91	2523.38	3205	1.27
1995-96	2683.00	3138	1.17
2000-01	2712.14	3114	1.15
2005-06	2750.11	3049	1.11
2010-11	2720.22	2999	1.10

Source: Directorate of Economics and Statistics, Assam.

The table reveals that average size of holdings has declined over the years. It was 1.47 hectares in 1970-71 which declined to 1.27 hectare in 1990-91 and then further declined to 1.15 hectare in 2000-01. The figure stood at 1.10 hectare in 2010-11.

Cropping Pattern in Assam:

The cropping pattern refers to the proportion of area under different crops at a definite point of time. It is an important indicator to show the development in agriculture. Cropping pattern in a region may change with the changes in proportion of area under different crops. Initially about 90 per cent of the total cultivable land in Assam was put under food crop and the remaining 10 per cent was put under non-food crops.

But in the year 1958-59 there was a change in the cropping pattern in Assam along with other states of the country. Accordingly excluding plantation crops, area under food crops come down to 84 per cent and the area under non-food crops slightly increased to 16 per cent. Then changes in the cropping pattern mainly occurred due to increase in the prices of the non-food grains or cash crops. On the basis of average areas under different crops during the period of 1947-48 to 1949-50, the relative importance of the principal crops in Assam were; rice 64.8 per cent, tea 6.2 per cent, rape and mustard 5 per cent, jute 3.7 per cent, sugarcane 1 per cent, others 19.3 per cent. Compare with all India average, under different crops Assam accounted for; rice 6.1 per cent, sugarcane 1.6 per cent, tobacco 2.2 per cent, rape and mustard 14.5 per cent, jute 26.1 per cent and tea 48.9 per cent.

The following are some of the important factors responsible for determining cropping pattern of Assam-

1. **Physical Factors:** Physical factors such as soil content, weather, climate, rainfall etc. determine the pattern of cropping in a region. These factors play a vital role in determining the cropping pattern in Assam.
2. **Technical Factors:** Technical factors such as nature and capacity of irrigation facilities, fertilizers etc. play a very important role in determining the cropping pattern in Assam.
3. **Economic Factors:** Economic factors influencing cropping pattern includes remuneration and steady price of crops and income maximization aspect i.e. farm size, availability of farm inputs, seeds, fertilizers, irrigation water etc.
4. **Administrative Factors:** Government action undertaken in the form of administrative and legislative measures also plays a pivotal role in the cropping pattern of a state like Assam.