



## **Cropping System in Indian Agricultural** (A study of Post Reform Period)

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Article Information	Abstract
<p><b>Article history:</b> Received: 10.02.2014 Revised: 20.03.2014 Accepted: 25.03.2014</p> <p><i>cropping, agriculture, land use, crops, soil</i></p>	<p>This paper attempts to focus on the Indian cropping system &amp; its role in development of Indian agriculture. It also highlights on land use pattern in India and also on the quality and accessibility of cropping pattern through the use of crop diversification. In the age of globalization the emphasis should be given on to adopt new technology and innovation in cropping system for the development of Indian agriculture.</p>

### **Introduction:**

Cropping systems of a region are decided by and large by a number of soils and climatic parameters which determine overall agro-ecological setting for nourishment and appropriateness of a crop or set of crops for cultivation, nevertheless, at farmers' level, potential productivity and monetary benefits act as guiding principles while opting for a particular crop system. These decisions with respect to choice of crops and cropping systems are further narrowed down under influence of several other forces related to infrastructure facilities, socio-economic factors and technological developments, all operating interactively at micro-level.

Cropping pattern is defined as the yearly sequence and spatial arrangement of crops or of crops and fallow on a given area. Growing two, three or four crops in a year is defined as double, triple and multiple cropping. The repetitive cultivation of an ordered succession of crops (or crop and fallow) on the same land is defined as crop rotation. One cycle may take

one or more years to complete. It defines crop intensification in time dimension. The succeeding crop is planted after the preceding crop is harvested.

Land use classification based on different type of uses shows that of a total land mass of 328.73 million ha in the country; the reported area for land utilization has been 306 million ha. This includes 141 million ha (about 46 per cent of the reported area) net sown area, 70 million ha (23 per cent) under forest, 26 million ha under non-agricultural uses, 25 million ha fallow land, 17 million ha barren and unculturable land, 13 million ha culturable waste land, 10 million ha under permanent pasture and other grazing land, and 3 million ha under miscellaneous tree crops and groves.

Over the years there has been a gradual increase in area put to non-agricultural uses. During the last forty years (1970-71 to 2008-09) the net sown area has remained, by and large, constant at 141 million ha. Area under non-agricultural uses has increased from 16 million ha to 26 million ha, while the area under barren

and un-culturable land has come down from 28 million ha in 1970-71 to 17 million ha in 2008-09. However, the gross cropped area has increased from 166 million ha. in 1970-71 to 195 million ha in 2008-09. As a normal process of urbanization and development, the area under non-agricultural uses is increasing, but due to efforts of the government, land has been reclaimed for cultivation from barren and culturable waste land category.

The cropping intensity has increased from 118 per cent to 138 per cent during the same period. Owing to a burgeoning population, it is estimated that per capita total land availability which was 0.32 ha in 2001 against the world average of 2.19 ha will decrease to 0.23 ha in 2025 and 0.19 ha in 2050. Further, it is reported that about 120 million ha land is degraded in India, and about 5334 million tonnes of soil is lost annually through soil erosion. Out of 120 million ha degraded area, water erosion accounts for 68 per cent, chemical degradation 21 per cent, wind erosion 10 per cent and the rest physical degradation. Effective land management policies are required to address these issues in addition to other concerns such as small size and fragmented holdings, tenancy, ceiling limits, acquisition and diversion of productive land, land records and inventories, climate change and land use change. (SIA, 2011)

Multiplicity of cropping systems has been one of the main features of Indian agriculture. This may be attributed to following two major factors:

- Rainfed agriculture still accounts for over 92.8 million hectare or 65 per cent of cropped area. A large diversity of cropping systems exists under rainfed and dry land areas with an overriding practice of intercropping, due to greater risks involved in cultivating larger area under a particular crop.

- Due to prevailing socio-economic situations, improving household food security has been an issue of supreme importance to many million farmers of India, who constitute 56.15 million marginal (<1.0 hectare), 17.92 million small (1.0-2.0 hectare) and 13.25 million semi-medium (2.0-4.0 hectare) farm holdings, making together 90 per cent of 97.15 million operational holdings.

An important consequence of this has been that crop production in India remained to be considered, by and large, a subsistence rather than commercial activity. One of the typical characteristics of subsistence farming is that most of the farmers resort to grow a number of crops on their farm holdings, primarily to fulfill their household needs and follow the practice of rotating a particular crop combination over a period of 3-4 years interchangeably on different farm fields.

India has a geographical area of 328.73 million hectares; of which reported area for land use is 306.04 million hectares. The net area cultivated is about 142.60 million hectares i.e. about 46.6 per cent of the total reported area. Since nearly 50 million hectares of area is sown more than once, the cropping intensity works out to 135.1. Forests account for about 68.97 million hectares i.e. 22.5 per cent of the total reported land area.

Also nearly 13.97 million hectares are cultivable wastelands and 9.91 million hectares are fallow lands. Only about 30 per cent of the total cropped area is irrigated and the remaining area is rain fed. The available statistics further shows that only about 66 per cent of the gross cropped area is under food crops and nearly 34 per cent area under nonfood crops. Cereals and pulses account for nearly 52.93 per cent and 12.64 per cent of the total area respectively. Fruits and vegetables occupy nearly 4.24 per cent of area. (Haque 1998)

Crop diversification in India is generally viewed as a shift from traditionally grown less remunerative crops to more remunerative crops. The crop shift (diversification) also takes place due to governmental policies and thrust on some crops over a given time, for example creation of the Technology Mission on Oilseeds (TMO) to give thrust on oilseeds production as a national need for the country's requirement for less dependency on imports.

Market infrastructure development and certain other price related supports also induce crop shift. Often low volume high-value crops like spices also aid in crop diversification. Crop diversification and also the growing of large number of crops are practiced in rain fed lands to reduce the risk factor of crop failures due to drought or less rains. Crop substitution and shift are also taking place in the areas with distinct soil problems.

In the age of globalization, cash cropping has been become more important rather than subsistence farming and in this regard crop diversification plays vital role in the development of agriculture.

#### References:

- Secretariat for Industrial Assistance, 2011-12:21  
 Haque (1998) "Regional Trends, Pattern and determinants of agricultural wages in India" the Indian journal of Labour Economics volume 41 no.4, 1998.  
*Directorate of Economics & Statistics, Ministry of Agriculture, 2009-10.*

**Table: 1**  
**Land use pattern in India**  
 (In Thousand hectares)  
**Geographical Area- 328726**

Year	Agri. Land/ Cultivable land/ Culturable Land/ Arable Land	Area under non- agricultural uses	Barren and unculturable land	Culturable waste land	Total cropped area
1980-81	185156	19596	19958	16744	172630
1984-85	185222	20458	20239	15882	176330
1988-89	185142	21299	19916	15167	182277
1992-93	184875	21771	19122	14559	185615
1996-97	184121	22554	17964	14021	189502
2000-01	183506	23889	17590	13630	185340
2004-05	183007	24890	17578	13271	191546
2008-09	182385	26308	17017	12762	195104

**Source:** *Directorate of Economics & Statistics, Ministry of Agriculture, 2009-10.*

**Table: 2**  
**Agricultural Land by use in India**

(Million Hectares)

S. No.	Classification	1970-71	1990-91	2003-04	2008-09
I.	Geographical Area	328.73	328.73	328.73	328.73
II.	Reporting Area	303.75	304.86	305.56	305.69
1.	Forest	63.83	67.81	69.65	69.63
	Percentage to the Reported Area.	21.01	22.24	22.80	22.78
2.	Not Available for Cultivation	44.61	40.48	42.23	43.32
3.	Other Uncultivated land excluding Fallow Land	35.13	30.22	27.11	26.51
4.	Fallow Lands	19.33	23.37	25.81	24.86
5.	Total Cropped Area (Gross Cropped Area)	165.79	185.74	190.08	195.10
6.	Area Sown more than once	24.93	42.74	49.32	53.74
7.	Net Area Sown	140.86	143.00	140.76	141.36
8.	Cropping Intensity	117.70	129.89	135.04	138.01
III.	Net Irrigated Area	31.10	48.02	56.96	63.20
IV.	Gross Irrigated Area	38.20	63.20	78.15	88.42

**Source:** Directorate of Economics & Statistics, Ministry of Agriculture, 2009-10.