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Changing Scenario of Agricultural Production in Madurai District of Tamil Nadu

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Abstract
India has a lengthy history of agriculture that dates back ten thousand years. Indian agriculture was developed about 9000 BC as a result of early plant domestication and crop and animal domestication. With the advancement of agricultural tools and methods, life quickly began. Indian economy was renowned for centuries for self-contained village communities prior to the introduction of British Rule. Agriculturists, cottage industrialists, village craftsmen, artisan professions, unskilled labourers, and village administrators made up village communities.
In addition to supplying the requirements of the village economy, these communities were able to create and export a variety of goods to other nations. Agriculture was a way of life at the time, and farmers only produced for their own consumption. Food crops like wheat and rice were the most significant ones. People began to revere and respect plants and animals since they were seen as necessary to their survival.
In India, farmers often cultivate crops on a small plot of land with the help of their families. The farmer and his family consume the majority of the crops produced by this method; there is very little extra to be sold on the market. For more than 700 years, this kind of agriculture has dominated the nation and continues to do so in many regions of India.
Keywords: Agriculture, Crop Production, Adaptation, Livelihood

Introduction

India has a lengthy history of agriculture that dates back ten thousand years. Early plant cultivation and the domestication of plants and animals led to the emergence of Indian agriculture around 9000 BC (Gupta, page 54; Wikipedia). The beginning of settled life coincided with the development of agricultural tools and methods (Harris and Gosden, Lal R., Wikipedia). Before British rule was established, India's economy was renowned for its independent village communities. Agriculturists, cottage industrialists, artisan professions, unskilled labourers, and village administrators made up village communities. In addition to supplying the requirements of the village economy, these communities were able to create and export a variety of goods to other nations. Agriculture was a way of life back then, and farmers only produced for their own sustenance. Food crops like rice and wheat were the most significant crops. People began to revere and respect plants and animals since they were seen as necessary to their life (Gupta, page 57, Wikipedia). Nearly two thirds of the population receive gainful employment through agriculture, which also generates roughly 30% of the nation's income. This industry helps generate foreign exchange while supplying raw materials to numerous agro-based sectors. India currently comes in second place globally for farm output.

According to some historians, it was women who domesticated the first crop plants, launching the art and science of farming in the process. Women began collecting seeds from the local flora and starting planting those that were valuable for food, feed, fodder, fibre, and fuel while males went out hunting for food (Prasad and Singh 1992). Therefore, it will not be feasible to popularise alternative land management techniques to shifting agriculture, stop gene and soil erosion, and promote the care of the soil and the health of commercial plants and farm animals without the full intellectual and physical engagement of women. There is no doubt that women's roles in agriculture vary significantly from region to region and even within a region, depending on the farming practises used, as well as caste, class, and socioeconomic standing.

The Indian farmer receives just 10 percent to 23percent of the price the Indian consumer pays for exactly the same produce, the difference going to losses, inefficiencies and middlemen. Farmers in developed economies of Europe and the United States receive 64 percent to 81 percent.

Problems

Rural roads in India are extremely bad, which delays the timely transfer of agriculture outputs and inputs. Due to insufficient irrigation infrastructure, crops in some regions of the country fail due to a shortage of water. Regional floods in other areas, subpar seed quality and ineffective farming methods, a lack of cold storage and harvest spoilage, lack of organised retail and rival buyers, and other factors limit Indian farmers' ability to sell surplus and commercial crops.

The World Bank's Priorities for Agriculture and Rural Development report claims that India's substantial agricultural subsidies are impeding investment aimed at increasing productivity. Agriculture has become overregulated, which has raised expenses, pricing risks, and unpredictability. The government meddles in the employment, real estate, and finance sectors. India's infrastructure and services are subpar. The World Bank claims that the distribution of water is also unfair, inefficient, and unsustainable. Infrastructure for irrigation is deteriorating. Overpumping aquifers, which lose one foot of groundwater annually, is covering the overuse of water but is a finite resource. According to a report by the Intergovernmental Panel on Climate Change, food security in the region may become a significant issue beyond 2030.

Objectives

1. To analyze the growth of food grain production of Taluk wise in Madurai district.
2. To identify the causes of reduction of food grain production in Madurai district.

Methods and Materials

The study is mainly based on secondary sources of the information. The secondary data was collected from the G-Returns of Madurai district for the period of 2011 to 2016. For analysis, simple percentages were used in this paper.

Results and Discussion

Table 1: Cereals Production in 2011-12 to 2015-16

Taluk	2011-12	2012-13	2013-14	2014-15	2015-16
Madurai East	924.081 (1.03)	730.455 (1.93)%	4935.945 (8.48)%	6058.455 (7.61)%	8364.45 (9)%
Madurai West	717.050 (0.80)%	999.375 (2.65)%	160.830 (0.28)%	470.095 (0.60)%	589.600 (0.63)%
Madurai North	14676.825 (16.37)%	1729.830 (4.58)%	4206.215 (7.23)%	4922.730 (6.24)%	6423.360 (6.91)%
Madurai South	3374.850 (3.76)%	1136.040 (3.01)%	819.925 (1.41)%	181.410 (0.23)%	914.680 (0.98)
Melur	17254.495 (19.24)%	3164.060 (8.37)%	7424.900 (12.76)%	13301.610 (16.87)%	12138.515 (13.06)%
Peraiyur	17312.165 (19.31)%	13358.380 (35.36)%	15711.565 (27)%	19584.130 (24.84)%	19214.215 (20.67)%

Thirumangalam	9033.450 (10.08)%	6997.716 (18.52)%	316.055 (0.54)%	678 0.86)%	9575.835 (10.30)%
Thiruparangunram	816.716 (0.91)%	1136.040 (3.01)%	8509.385 (14.62)%	12601.005 (15.98)%	11743.810 (12.63)%
Usilampatti	15576.920 (17.37)%	6540.835 (17.31)%	8509.385 (14.62)%	12601.005 (15.98)%	11743.810 (12.63)%
Vadipatti	9974.985 (11.13)%	1987.595 (5.26)%	7605.320 (13.07)%	8433.220 (10.70)%	12265 (13.19)%
Total	**89661.54 (100)%**	**37780.33 (100)%**	**58199.53 (100)%**	**78831.66 (100)%**	**92973.28 (100)%**

. **Source:** G – Returns of Madurai district

The above (1) table illustrates with Taluk wise total Cereals produced in Madurai District from 2011 to 2016. In the year of 2015-16 Cereals production is high level. The year of 2011-12 for Cereals production is second place. But, the production of vegetables and fruits has declined significantly from 2012 to 14. Similarly, the most of cereals were produced in Peraiyur Taluk than looking for other Taluks.

Table 2: Pulses Production in 2011-12 to 2015-16

Taluk	2011-12	2012-13	2013-14	2014-15	2015-16
Madurai East	6.075 (0.11)%	12.755 (0.20)%	4 (0.07)%	7.620 (0.11)%	2.770 (0.03)%
Madurai West	3.600 (0.06)%	3 (0.05)%	3.470 (0.06)%	7.890 (0.11)%	2.930 (0.03)%
Madurai North	4 (0.07)%	15.755 (0.24)%	5.385 (0.10)%	3.055 (0.04)%	13.580 (0.12)%
Madurai South	139.625 (2.49)%	110.980 (1.72)%	54.115 (0.99)%	22.555 (0.32)%	25.320 (0.23)%
Melur	223.045 (3.97)%	160.870 (2.49)%	204.855 (3.74)%	396.375 (5.57)%	200.985 (1.84)%
Peraiyur	459.120 (8.18)%	2205.935 (34.17)%	3048.455 (55.65)%	3522.105 (49.53)%	3966.675 (36.39)%
Thirumangalam	2449.475 (43.65)%	1949.355 (30.17)%	177.860 (3.25)%	149.275 (2.10)%	3352.865 (30.76)%
Thirupparangunram	124.110 (2.21)%	110.980 (1.72)%	177.860 (3.25)%	149.275 (2.10)%	141.758 (1.30)%
Usilampatti	1830.835 (32.63)%	1578.315 (24.43)%	1593.175 (29.08)%	2305.795 (32.42)%	2833.430 (25.99)%
Vadipatti	371.380 (6.62)%	313.480 (4.85)%	208.965 (3.81)%	547.290 (7.70)%	503.170 (4.62)%
Total	**5611.265 (100)%**	**6461.425 (100)%**	**5478.14 (100)%**	**7111.235 (100)%**	**10901.73 (100)%**

Source: G – Returns of Madurai district

Above the table (2) explained at the total Pulses of production from during the year 2011-16. This table illustrate the Pulses Production is high level in the year of 2015-16. But, in year 2013-14 Pulses Production has declined. As per the seeing yearly wise, the Pulses Production is very high in Thirumangalam Taluk during the year of 2011-12. But, in other than 4 years (2012-16), Pulsas production has been high yield in Peraiyur Taluk. Then, Very low level Pulses have been produced in the Madurai North, East and West Taluks, during the year 2011 to 2016.

Table 3: Sugar Crops Production in 2011-12 to 2015-16

Taluk	2011-12	2012-13	2013-14	2014-15	2015-16
Madurai East	136.205 (2.88)%	160.495 (3.00)%	158.925 (3.91)%	129.205 (4.50)%	142.080 (4.56)%
Madurai West	21.545 (0.46)%	55.905 (1.04)%	8.910 (0.22)%	7.980 (0.28)%	8.545 (0.27)%
Madurai North	340.060 (7.19)%	416.400 (7.78)%	220.990 (5.44)%	183.970 (6.41)%	190.645 (6.12)%
Madurai South	49.310 (1.04)%	33.670 (0.63)%	17.940 (0.44)%	12.545 (0.44)%	16.605 (0.53)%
Melur	1367.465 (28.93)%	1195.175 (22.33)%	1205.895 (29.67)%	859.895 (29.95)%	906.605 (29.09)%
Peraiyur	1173.930 (24.83)%	1486.695 (27.78)%	1117.840 (27.50)%	603.315 (21.01)%	720.775 (23.13)%
Thirumangalam	224.410 (4.75)%	300.060 (5.61)%	1.865 (0.05)%	0.360 (0.01)%	110.060 (3.53)%
Thirupparangunram	4.001 (0.08)%	3.670 (0.07)%	1.865 (0.05)%	0.360 (0.01)%	0.395 (0.01)%
Usilampatti	842.805 (17.83)%	1044.620 (19.52)%	685.735 (16.87)%	522.610 (18.20)%	521.875 (16.75)%
Vadipatti	567.780 (12.01)%	655.535 (12.25)%	645.025 (15.87)%	550.895 (19.19)%	498.460 (16.00)%
Total	**4727.511 (100)%**	**5352.225 (100)%**	**4064.99 (100)%**	**2871.135 (100)%**	**3116.045 (100)%**

Source: G – Returns of Madurai district

Table (3) shows the table illustrate the total Production of Sugar Crops from Taluk wise in Madurai District. The year of 2012-13 with Sugar Crops Production is high. Than year of 2011-12 and 2013-14 is second and third place in Sugar Crops production. However, the Sugar Crop has been produced in the lowest level in 2014-15. In Melur and Peraiyur Taluk is Sugar Crops has been produced in large quantities. But, Madurai West and Thirupparangunram Taluk is Sugar Crops has been produced in least level.

Table 4: Vegetable and fruits Production in 2011-12 to 2015-16

Taluk	2011-12	2012-13	2013-14	2014-15	2015-16
Madurai East	341.305 (4.30)%	367.34 (4.95)%	352.735 (5.79)%	353.12 (5.83)%	352.27 (5.29)%
Madurai West	493.33 (6.22)%	491.835 (6.63)%	521.875 (8.57)%	389.45 (6.43)%	436.135 (6.55)%
Madurai North	784.285 (9.89)%	977.906 (13.18)%	497.550 (8.17)%	486.765 (8.03)%	570.061 (8.56)%
Madurai South	977.906 (12.33)%	1010.961 (13.62)%	161.63 (2.65)%	176.495 (2.91)%	570.61 (8.56)%
Melur	3458.04 (43.61)%	3515.845 (47.37)%	3278.02 (53.82)%	3210.715 (52.97)%	3267.705 (49.05)%
Peraiyur	1874.62 (23.64)%	1058.425 (14.26)%	1278.435 (20.99)%	1444.445 (23.83)%	1465.465 (22)%

Thirumangalam	791.635 (9.98)%	810.53 (10.92)%	312.145 (5.13)%	288.72 (4.76)%	1093.755 (16.42)%
Thirupparangunram	341.987 (4.31)%	1009.941 (13.61)%	312.145 (5.13)%	288.72 (4.76)%	337.305 (5.06)%
Usilampatti	1192.11 (15.03)%	1327.775 (17.89)%	1167.315 (19.17)%	1175.935 (19.40)%	1274.645 (19.13)%
Vadipatti	5106.375 (64.40)%	5047.408 (68.00)%	4952.825 (81.32)%	4978.565 (82.14)%	5016.54 (75.30)%
Total	**7929.486 (100)%**	**7422.312 (100)%**	**6090.245 (100)%**	**6060.99 (100)%**	**6662.246 (100)%**

Source: G – Returns of Madurai district

Above the (4) table explanation in quantity of Vegetables and Fruits produced in Madurai district during the year of 2011-16. In 2011- 12, Vegetable and Fruits were produced in large quantities. Most of the Vegetables and Fruits have been produced in the years 2011 to 13. But, the production of vegetables and fruits has declined significantly from 2013 to 2016. In Vadipatti and Melur Taluk is Vegetables and Fruits has been produced in large quantities. But, Madurai East, West, North and Thirupparangunram Taluk the production of vegetables and fruits have declined significantly.

Table 5: Oil Seed Crops Production in 2011-12 to 2015-16

Taluk	2011-12	2012-13	2013-14	2014-15	2015-16
Madurai East	307.090 (1.79)%	333.060 (2.14)%	338.205 (2.48)%	304.520 (2.15)%	317.275 (2.16)%
Madurai West	471.845 (2.75)%	481.365 (3.09)%	495.135 (3.64)%	487.845 (3.45)%	462.090 (3.15)%
Madurai North	813.220 (4.75)%	814.425 (5.22)%	456.905 (3.36)%	498.340 (3.52)%	498.760 (3.40)%
Madurai South	1266.865 (7.39)%	1133.230 (7.26)%	433.195 (3.18)%	396.8 (2.80)%	393.4 (2.68)%
Melur	5049.030 (29.46)%	4857.450 (31.14)%	4655.505 (34.20)%	4842.675 (34.23)%	4978.920 (33.91)%
Peraiyur	2295.155 (13.39)%	1808.710 (11.60)%	1804.420 (13.26)%	2304.910 (16.29)%	1837.170 (12.51)%
Thirumangalam	1329.214 (7.76)%	1005.255 (6.44)%	246.330 (1.81)%	220.195 (1.56)%	1072.430 (7.30)%
Thirupparangunram	236.991 (1.38)%	233.230 (1.50)%	246.330 (1.81)%	220.195 (1.56)%	231.595 (1.58)%
Usilampatti	1281.655 (7.48)%	945.600 (6.06)%	948.475 (6.97)%	1012.460 (7.16)%	1038.735 (7.07)%
Vadipatti	4087.175 (23.85)%	3986.625 (25.56)%	3988.295 (29.30)%	3859.975 (27.28)%	3854.035 (26.25)%
Total	**17138.24 (100)%**	**15598.95 (100)%**	**13612.8 (100)%**	**14147.92 (100)%**	**14684.41 (100)%**

Source: G – Returns of Madurai district

According to the description of above (5) the table, the production of Oil Seed Crops is high during the year 2011-12. Similarly, in the year of 2012 - 13 Oil Seed Crops Production has been slightly decreased. But, in 2013-14, the production of Oil Seed Crops has declined. In Madurai East, West, North and Thirupparangunram Taluk Oil Seed Crops production is Less than a thousand acres.

Conclusion

In the majority of nations, including India, farming is the foundation of the economy. Since many years ago, humans have improved crop yields using various approaches. But given today's ever-increasing food demand, traditional farming methods are not entirely successful because they have numerous problems, such as managing illnesses and pests, which makes them less profitable economically.

Application of an appropriate agricultural production function in which agro-ecological and technological factors are to be implicitly integrated for the analysis of observing the effects of these factors in the emerging a really-differentiated system may provide an answer to the questions regarding the application of "appropriate" technology in humid tropical areas of the country like Madurai District where subsistence-peasant agriculture is prevalent.

Given that the majority of India's population depends on rural employment for a living, slow agricultural expansion is a cause for concern. India's agricultural yields for several commodities are low, and current agricultural practises are neither commercially viable nor environmentally sustainable. Among the causes include poorly maintained irrigation systems and an almost universal lack of effective extension services. Poor roads, inadequate market infrastructure, and excessive regulation restrict farmers' access to markets.

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