

Heavy Rains in Solapur District Caused Extensive Damage to Farmers and Agriculture Area: June to September 2025

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Article Info	ABSTRACT
Article History: Received: 18th Sep 2025 Accepted: 02nd Oct 2025 Published: 17th Oct 2025 Keywords: total rainfall, affected farmers, affected agriculture area in Hect	Heavy rainfall significantly impacts agriculture by damaging agriculture area and causing substantial economic losses. In Solapur District, heavy rainfall during June to September the monsoon season in 2025. This study analyzed both ground-level rainfall measurements and affected farmers to understand the effects of heavy rainfall on affected agriculture area. To determine the frequency of heavy rainfall events, a detailed analysis was conducted based on the standards set by the India Meteorological Department (IMD). Taluka wise showing increasing rainfall trends and a higher frequency of heavy rainfall events were classified as vulnerable. A detailed analysis of rainfall from June to September with average percentage and affected farmers, affected agriculture area most affected by heavy rainfall events. Farmers were also encouraged to conduct a cause-and-effect analysis. This bottom-up approach raised awareness among farmers and provided practical solutions to reduce crop losses and mitigate the effects of heavy rainfall.

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Introduction:-

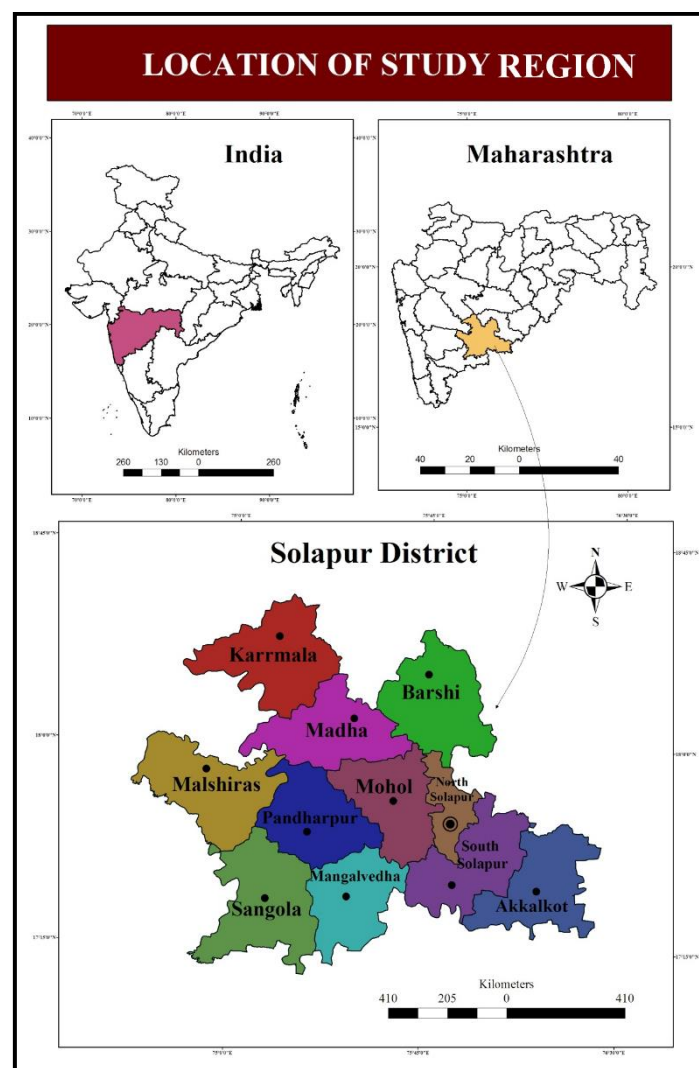
The unseasonal rains in Solapur, which has been extremely hot this summer, have further changed the atmosphere. 38.5 millimeters of rain was recorded in the city and its surroundings at night. While heavy rain was seen in almost all parts of the district. This summer, the temperature in Solapur had already risen above 40 degrees. On May 2, the temperature had reached 45 degrees. However, fortunately, the weather has changed since then and the temperature has been gradually decreasing. The rise in the occurrence of extreme weather conditions, particularly extended periods of drought, is adversely affecting crop productivity, with rainfed crops being most vulnerable (Bal et al., 2022). These extreme events are becoming more frequent and lasting longer, leading to significant yield losses in major crops within rainfed areas due to shifting climate patterns (Thimmegowda et al., 2022).

Droughts, characterized by prolonged and significant deficiencies in rainfall, are altering crop calendars and imposing additional economic burdens to achieve equivalent levels of crop production. Such declines in productivity and increased cultivation expenses are increasingly threatening both regional and national food security (Sagar et al., 2022).

In the month of August, five Taluka in North Solapur taluka, two in South Solapur and one in Akkalkot taluka of the district received heavy rainfall. Along with this, crops were also damaged due to flooding in the Bhima and Sina Rivers due to continuous rainfall. The District Collector had ordered a joint assessment of crop damage. Demand of Rs. 59 crore 79 lakh 16 thousand 125 has been made for assistance to the affected 59 thousand 110 farmers. Rainfed regions are crucial, accounting for 82 percent of the world's cultivated land, yet drought significantly restricts 40 percent of global food production, as reported by the (FAO in 2020). In these areas, while drought is the primary challenge for agriculture, floods have emerged as a serious threat due to changes in rainfall patterns, including altered distribution and heightened intensity. Research on future climate scenarios and climate change evaluations underscores the growing likelihood of droughts and floods caused by irregular rainfall patterns, both geographically and over time, as noted by (Ramachandrappa and colleagues in 2018).

Study Region: -

Solapur district, located in the western region of Maharashtra, India, spans from 17°10' to 18°32' North latitude and 74°42' to 76°15' East longitude. It is bordered by Pune and Satara districts to the west, Osmanabad district to the east, Sangli district and the state of Karnataka to the south, and Ahmednagar district to the north. The district covers a total area of 14,895 square kilometers and, according to the 2011 census, has a population of approximately 4.316 million, comprising 2.234 million males and 2.082 million females. The climate varies with a maximum temperature of 40.1°C and a minimum of 16.1°C, accompanied by an average annual rainfall of 561.47 mm. (Map No.1.1)



Objectives:-

The present study is undertaken with the specific objectives of the investigation as follows;

1. To assess the effect of heavy rainfall on the Affected farmers and Agriculture Area in month of June to September in the study region.

Methodology: -

An informative study has been conducted on effected farmers and agriculture area in the Solapur district. This research utilizes secondary data. To complement the secondary information is sourced from a variety of established references, including the Daily News Paper, IMD (Indian Metrological Department), and statistical abstracts of the Solapur district, among others. Additional insights were extracted from socio-economic reviews. This comprehensive approach aims to provide a thorough understanding of the region's agricultural dynamics.

Review of Literature:-

1. Agricultural Statistics at a Glance, 2022, publish report on, Rainfall variability greatly influences Indian agriculture, with extreme weather events, especially heavy rainfall, causing considerable economic damage, estimated at INR 50,000 crores annually.

2. Tabari, H.,2020, conclude that, Floods due to intense rainfall are major contributors to crop failures, diminishing agricultural yields and financially burdening farmers. Research indicates that such adverse weather conditions can slash farmer incomes by up to 80% in impacted areas.
3. Global Climate Risk Index,2021, report declare that, this situation is particularly alarming in states such as Uttar Pradesh, Bihar, and Assam, where nearly 40% of farmland is vulnerable to flooding.
4. Khan, R.; Israili, S.H.; Ahmad, H.; Mohan, A.,2005 conclude that, the region experiences predominantly cyclonic precipitation due to low-pressure systems originating over the Bay of Bengal. The average annual rainfall measures 1369 mm, primarily occurring during the northeast monsoon, with a lesser amount during the southwest monsoon.

Analysis of heavy rainfall: -

Table No1.1 shows that, In North Solapur taluka, the average rainfall was 66.10 mm in July, 93 mm in August, 217.90 mm in January and 128.40 mm in September, which is 126.90% of the average rainfall in this taluka. In South Solapur taluka, the average rainfall was 90.70 mm in June, 158 mm in July, 270 mm in August and 106.50 mm in September, which was 139.30% of the average. In Mohol taluka, the average rainfall was 56 mm in June, 86.30 mm in July, 182.30 mm in August and 52.90 mm in September, which was 101.80% of the average. In Akkalkot taluka, the average rainfall was 74.90 mm in June, 144 mm in July and 1 in August. The average rainfall in the month of September was 116 millimeters, which is 128.90% of the average. The lowest average is in Karmala taluka, with 43.80 millimeters in June, 45.70 millimeters in July, 92 millimeters in August, and 14.70 millimeters in September, which is 54.60% of the average. (Map No.1.2)

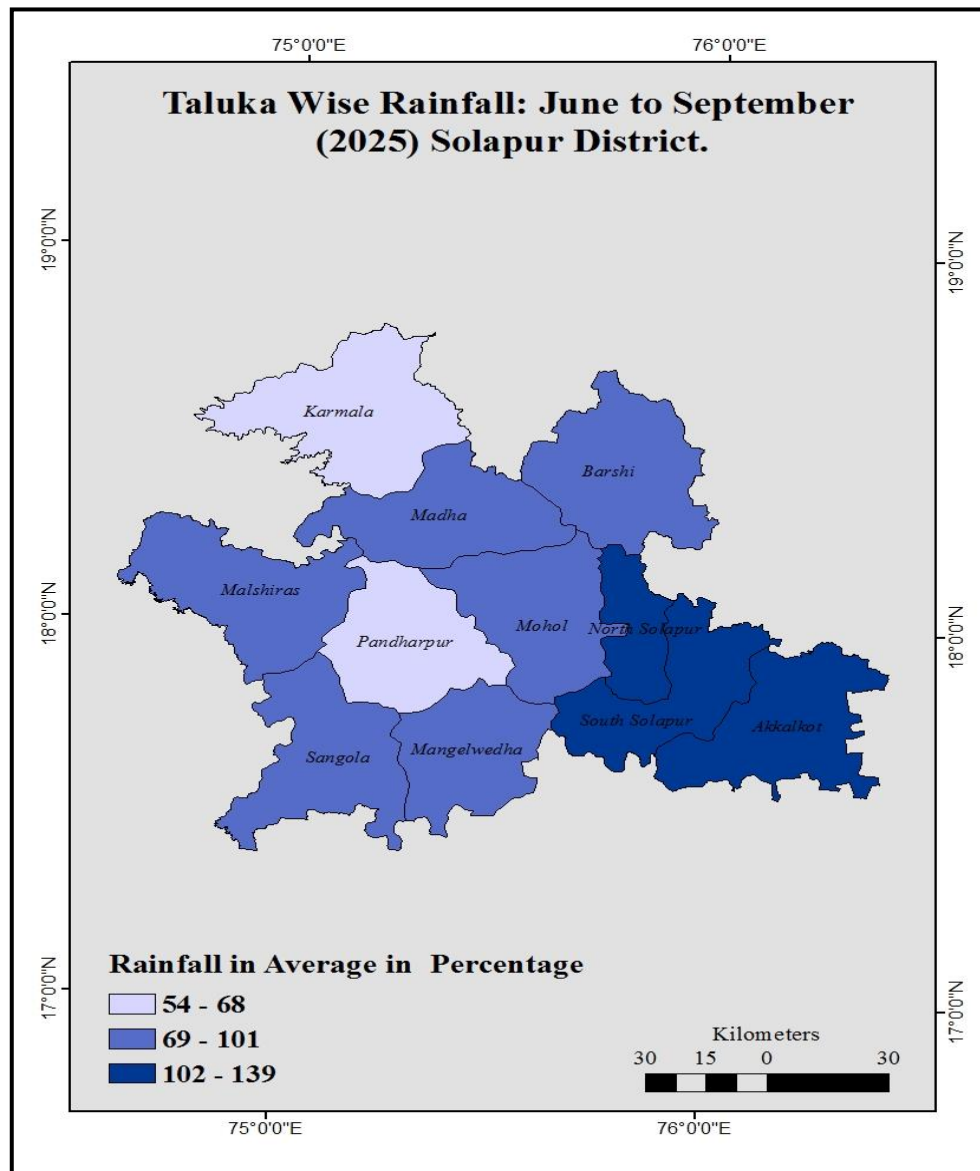
Table No. 1.1 Taluka Wise Rainfall Month of June to September 2025: Solapur District.

Sr. No.	Tehsils	Month (2025)				Total Rainfall in mm	Percentage
		June	July	August	September		
1	North Solapur	66.10	93	217.90	128.40	572.20	126.90
2	South Solapur	90.70	158	270	106.50	603.30	139.30
3	Mohol	56	86.30	182.30	52.90	364.70	101.80
4	Barshi	77.50	83.30	214	19.70	390	90.60
5	Madha	52.50	78.70	163.60	25.90	320.70	85.20
6	Sangola	66.90	51.30	147.70	33.20	299.10	84
7	Pandharpur	35.50	74.80	129.10	22.30	261.70	68.40
8	Mangelwedha	79.80	69.60	128.20	23.10	300.70	90.80
9	Malshiras	75.10	47.80	124.30	26	273.20	80.90
10	Akkalkot	74.90	144	237	116	573.40	128.90
11	Karmala	43.80	45.70	92	14.70	196.20	54.60

(Source:- Daily New Paper in 'Sakal', Dated on 14th Sept.2025(Page No.8)

While June and July saw less than average rainfall, the average rainfall in August brought the figure close to 96%. In August, all the talukas of the district received more than 150 percent of the average rainfall. In the first and second weeks of September, all the talukas received heavy rainfall, while rivers flooded due to heavy rainfall in South Solapur, North Solapur and Akkalkot talukas, disrupting normal life in the city.

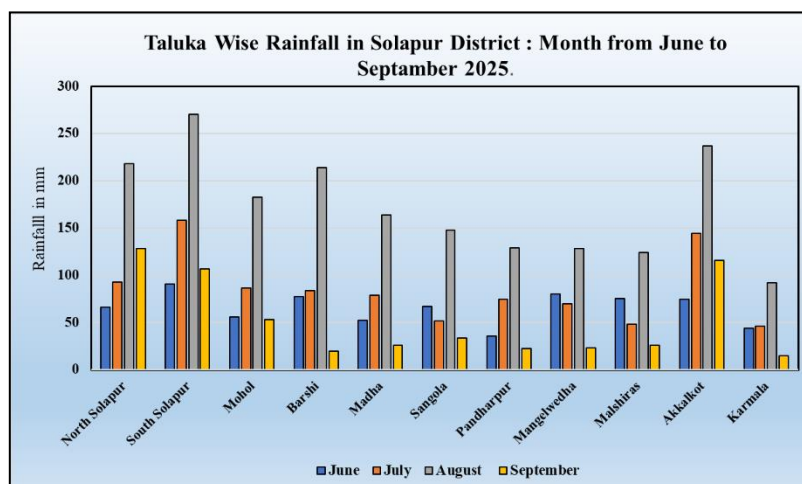
Map No.1.2



In the last three months of June to August, 304.8 mm of rainfall was expected, but 324.20 mm was actually recorded. In the 11 days of September, 39.40 mm of rainfall was actually recorded, while the expected rainfall was 76.40 mm. Except Akkalkot, South Solapur and North Solapur, 30 to 50 km of rainfall was recorded in other talukas. In September, 116 mm of rainfall was recorded in Akkalkot taluka, 106 mm in South Solapur taluka and 128 mm of rainfall was recorded in North Solapur taluka. North Solapur and its surrounding taluka have been receiving heavy rainfall for the past three months. However, Karmala taluka has not received heavy rainfall

in the last two months. For the last fifteen days, there has been only cloudy weather and drizzle. Therefore, pictures and statistics have been found that Karmala taluka is awaiting heavy rainfall. For the last two days, there has been cloudy weather in Karmala taluka. Farmers have expressed their hope that there should be no heavy rainfall. The drains and canals should be filled, but this is being done in a busy manner.

Graph No.1.1



Normal rainfall is expected in many places in Karmala taluka, but drizzle is being received in other parts of the taluka. In other Villages of the taluka, Anjangaon, Umar, Umardjare, Jeur and Kem, some drizzle is continuing in month of July. This rain will be useful for sowing in the Rabi season. There is satisfaction among the farmers as the rains have started before the Rabi season. Due to timely rains in the beginning of the monsoon this year, farmers sowed large quantities of Tur and Maize crops. After this, due to the heavy rains, the crops are being affected. The Kharif season has been a complete waste for the farmers. Now the farmers are hoping that they will be able to get properly in the Rabi season. The statistics show that Karmala taluka is waiting for heavy rains.

In Mangalwadha taluka, this year's Kharif season, Millet, Tur, Maize, Onion, Sunflower, Urad dal have been sown. This year, the area of maize has increased significantly, while the area of millet has decreased. First, farmers sowed Urad dal, but due to the rains, Urad dal did not yield the expected price, so the farmers who sowed Urad dal did not get the income they needed. Currently, the crops that some farmers had harvested cannot be broken due to the rains. The onion crop has also been damaged.

The weather is currently good due to the return of rains in Madha taluka. Heavy rains have been witnessed in all parts of the taluka. This rain will be useful for sowing for the Rabi season. Due to this heavy rain before the Rabi season, the farmers have become completely satisfied. Due to heavy unseasonal rains in May, farmers have suffered a large amount of losses in the Kharif sowing season. However, due to the rains that fell in June and July, it has been found that there is a large amount of water shortage and crop losses. Some of the crops that came into

hand were ready for harvesting, but due to heavy rains in August, the crops that were harvested were also lost, so it seems that the farmers are in a double crisis. A large amount of sowing has been done in Madha taluka during the Kharif season and has been wasted. Now, on the eve of the Rabi season, heavy rains have started again. Although the hopes of the farmers have been dashed due to this rain, the money that was harvested in the Kharif season has been wasted, so the farmers will have to deposit money again for the sowing of the Rabi season. Barshi taluka are observing heavy rains accompanied by thunder. Onion cultivation is underway in the taluka and sugarcane and banana crops will not be affected by this rain, but soybeans were harvested for harvesting. Farmers have expressed fear that if it rains for two to three consecutive days, soybeans will be damaged. As the rains started in the city, the market was feeling dry, while water was accumulating in the entire area. If water accumulates in the fields due to two to three consecutive rains, the farmers expressed the opinion that harvesting soybeans could be affected.

Pandharpur taluka has received heavy rains. Due to this rain, there has been a large increase in the incidence of pests and diseases in Grapes, Pomegranates and other Orchards. In particular, there has been a large incidence, which has led to a large increase in the cost of crop production for farmers.

Akkalkot taluka has been receiving heavy rains for the June and August months, due to which farmers are visibly upset. Farmers have expressed their opinion that their crops have been lost due to the accumulation of large amounts of rainwater in the fields.

Even though the month of September has come in Sangola taluka, there has been no heavy rain yet. Although there are occasional light showers, the expectations of the farmers are still unfulfilled. So far, 33.2 millimeters of rain has been recorded in just three days. Earlier, the pre-monsoon rains had given relief to the farmers. With this rain, the Kharif season has been completed on more than 29 thousand hectares out of the 300648 hectares of the taluka.

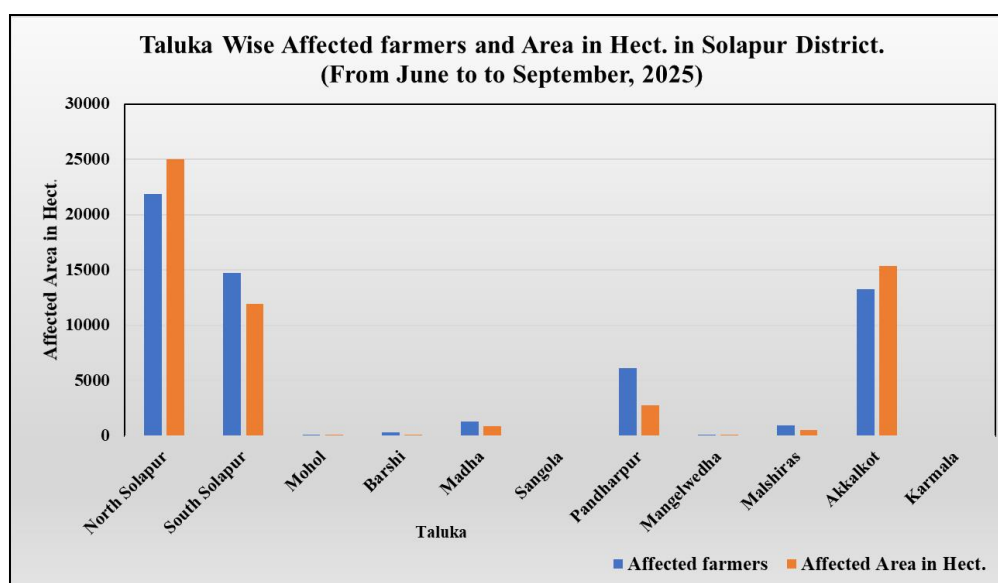
**Table No.1.2 Taluka Wise Affected farmers and Affected Agriculture Area;
Solapur District. 2025**

Sr. No.	Tehsils	2025	
		Affected farmers	Affected Area in Hect.
1	North	21856	25036
2	South Solapur	14703	11915
3	Mohol	130	102.83
4	Barshi	309	95.10
5	Madha	1311	911.40
6	Sangola	N.A.	N.A.
7	Pandharpur	6101	2785.54
8	Mangelwedha	156	102.42
9	Malshiras	971	512.22
10	Akkalkot	13289	15352.64
11	Karmala	N.A.	N.A.

(Source:- Daily New Paper in 'Sakal', Dated on 12th Sept.2025(Page No.7)

The table shows that from June to September, an average of 21856 farmers were affected by rain in North Solapur and an area of 25 thousand 36 hectares was affected in this taluka. 14703 farmers were affected in South Solapur taluka. An area of 11 thousand 915 hectares was affected in this taluka. 6101 farmers were affected in Pandharpur taluka. An average of 2785.54 hectares was affected in Pandharpur taluka. An average of 13289 farmers were affected in Akkalkot taluka. An average of 15352.64 hectares was affected in Akkalkot taluka.

Graph No. 1.2



Conclusion:-

The research paper concluded that although Solapur district is drought-prone, unseasonal rains started this year in May, but during the period from June to September, mainly in the talukas of North Solapur, South Solapur, Akkalkot, Pandharpur, Madha, Mangalwedha, Malshiras, Mohol, Barshi, the rainfall was found to be above average. The lowest rainfall was found in Karmala taluka, that is, much less than average rainfall was found in this place. This conclusion proves that although the area is drought-prone, the rainfall is also changing according to the changing weather patterns of nature. The impact of climate change on the global level is mainly on the drought-prone regions and this is being seen on agriculture. For the past few years, unseasonal and the highest rainfall has been observed in some talukas in Solapur district.

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