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IMPACT OF RAINFALL ON CULTIVATED AREA IN KARJAT TEHSIL OF AHMEDNAGAR DISTRICT, MAHARASHTRA

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Abstract:

This paper reviews the knowledge on effects of climate change on agricultural productivity in Karjat Tehsil of Ahmednagar District (MH) and theconsequences for policy and research. Warming is expected to lead to a northward expansion of suitable croppingareas and a reduction of the growing period of determinate crops (e.g. cereals). Present study has used the annual rainfall & crop cultivation. Line graph &bar graph method is use for the study. By the analysis conclude that increase the rainfall increase the crop cultivation & decrease the rainfall decrease the cultivation.

INTRODUCTION

Agriculture is the largest employer in the world and the most weather dependent, of all the human activities. Simultaneously agricultural is the most vulnerable to weather and climate risks. At present 40% of the earth's land surface is managed for crop land and pasture (Foley et al.2005). In developing countries, around 70% of total population dependent on agriculture. Of total annual crop losses in the world agriculture are mainly due to direct weather impacts *viz.* droughts, floods, untimely rain, frost, hail, heat (Hay, 2007)One third of the world's land area is used for food production and agricultural ecosystems can be found in almost every part of the world. As such, the impacts of climate change on agricultural biodiversity will be extensive and varied.

AIMS & OBJECTIVE

1. To find out impact of climate on agriculture of study region.
2. To see the relationship of rainfall & crop production.
3. To find changing cropping pattern due to rainfall variability from year to year

STUDY AREA

Karjat Tehsil is situated in southern Ahmednagar district. This is drought prone Tehsil , lies between18°33'04''N to18°82'96''N latitude and 74°91'95'' to 75°21'83'' E longitude. It has an area 1503.61 sq.kms, and average height from mean sea level is 594 mts. The climate of Karjat Tehsil is hot and dry in general. The maximum temperature recorded in the month of May rises to

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about 40° C while the lowest temperature recorded in the month of January goes down to about 12°C. The district is one of the drought prone districts of the state due to uncertain and uneven distribution of rainfall. It receives an annual average rainfall of about 700 mm. during monsoon rainy season with summer and winter season.

According to 2001 census this Tehsil has population of 205,585. Agriculture is the main occupation of the people in this region. This Tehsil is having 76.32% arable land, which was under cultivation. Both Kharif, Rabbi and summer season in this area.

DATA SOURCE

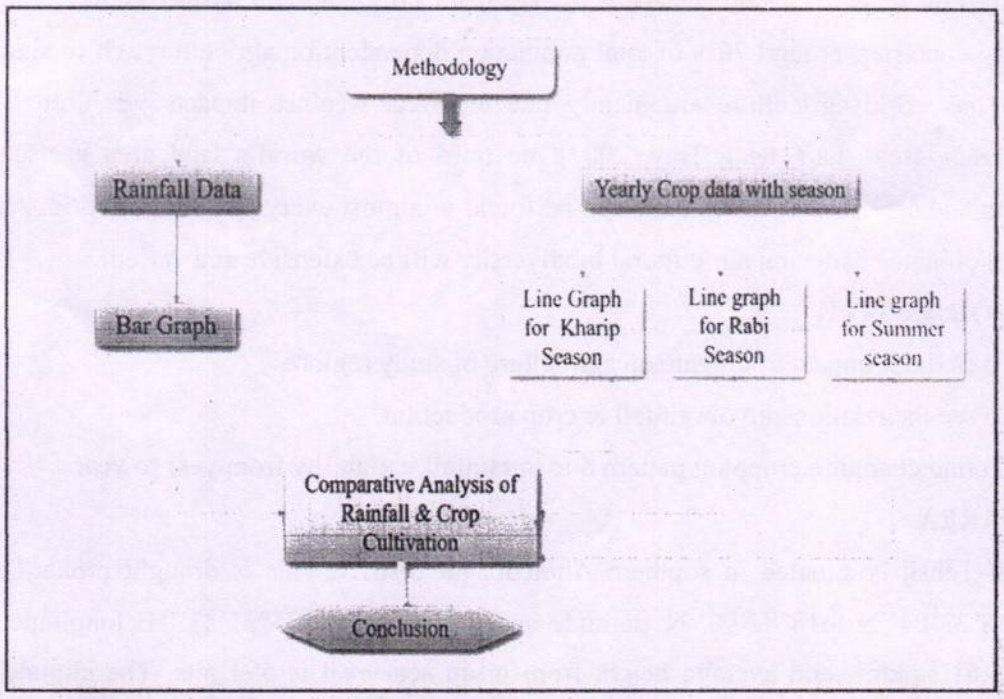
1. Present study uses the annual rainfall in Karjat & substations.
2. Crop cultivation Data with season in Karjat Tehsil.
3. Data related to concern department.
4. Boundary map of Karjat Tehsil with reference to Maharashtra, India.

METHODOLOGY

Secondary data used for present study.

Rainfall & Crop data has use to make line & bar graph.

By the comparative analysis has done by line & bar graph.



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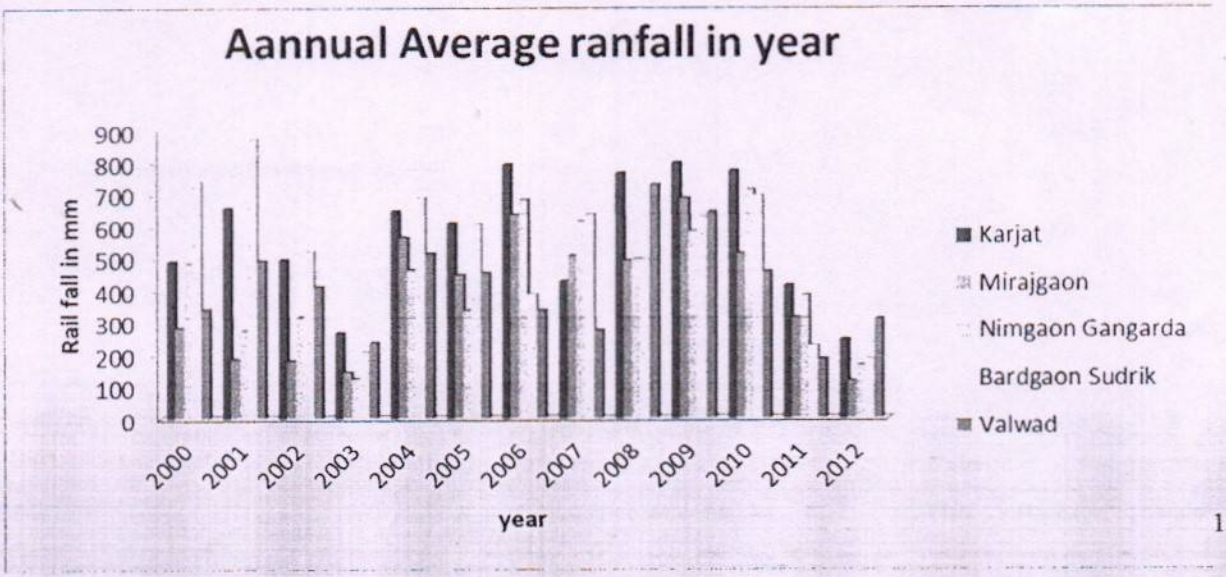
ANNUAL RAINFALL IN KARJAT TEHSIL

	Rainfall measurement Substations					
Year	Karjat	Mirajgaon	Nimgaon Gangarda	Bardgaon Sudrik	Valwad	Average in mm
2000	487	281	482	737	339	465.2
2001	653	185	273	869	489	493.8
2002	492	180	316	518	410	383.2
2003	266	145	124	206	236	195.4
2004	644	562	461	686	512	573
2005	605	446	336	602	452	488.2
2006	790	632	680	386	336	564.8
2007	426	505	611	634	273	489.8
2008	762	489	495	494	726	593.2
2009	795	684	581	625	642	665.4
2010	770	511	711	693	456	628.2
2011	413	314	383	225	184	303.8
2012	245	117	166	184	308	204

Table-1. Annual Average Rainfall in Karjat Tehsil



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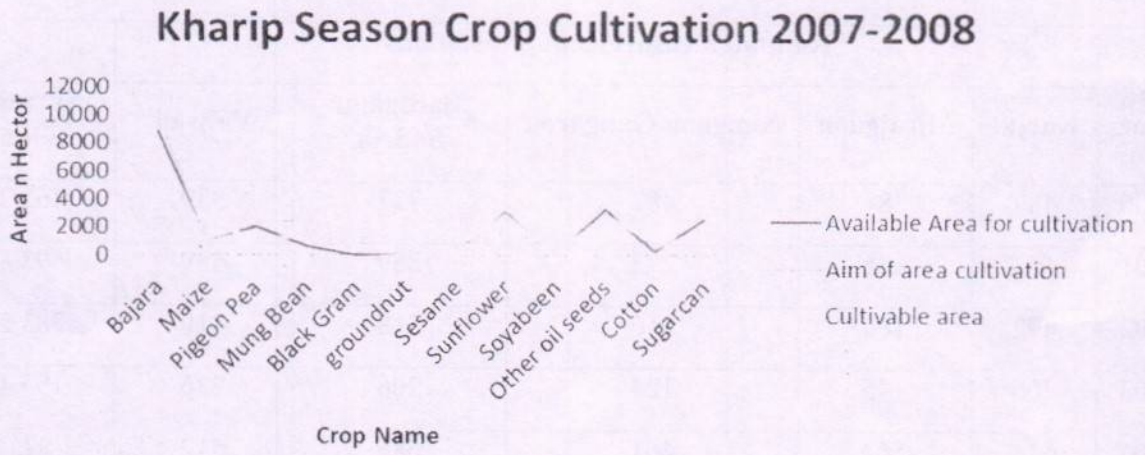
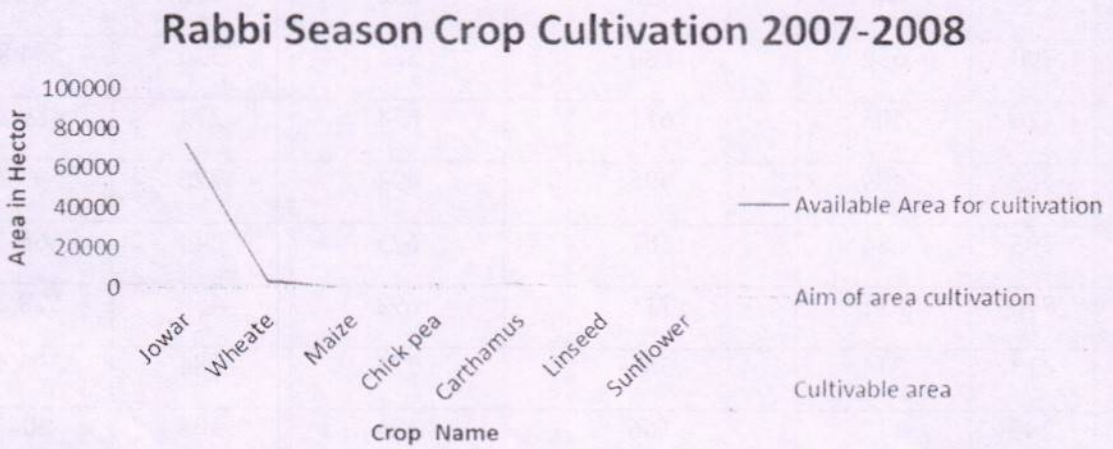
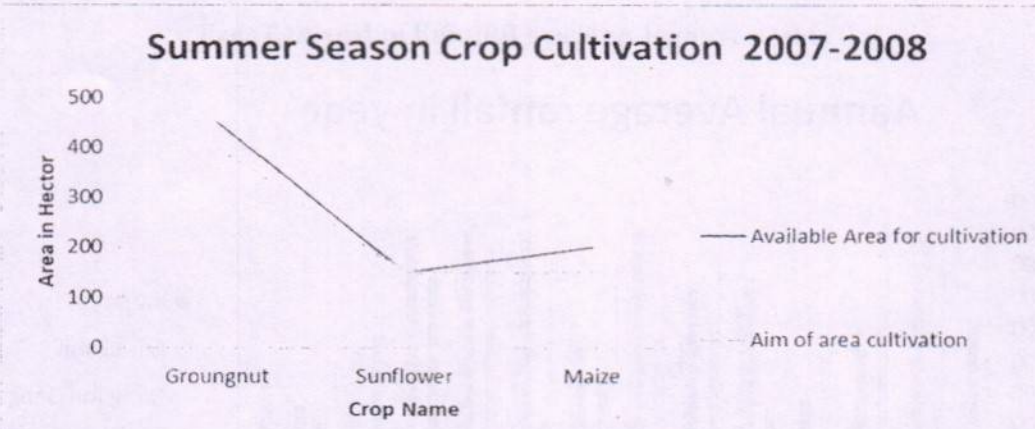
Area under Crop cultivation 2007-08







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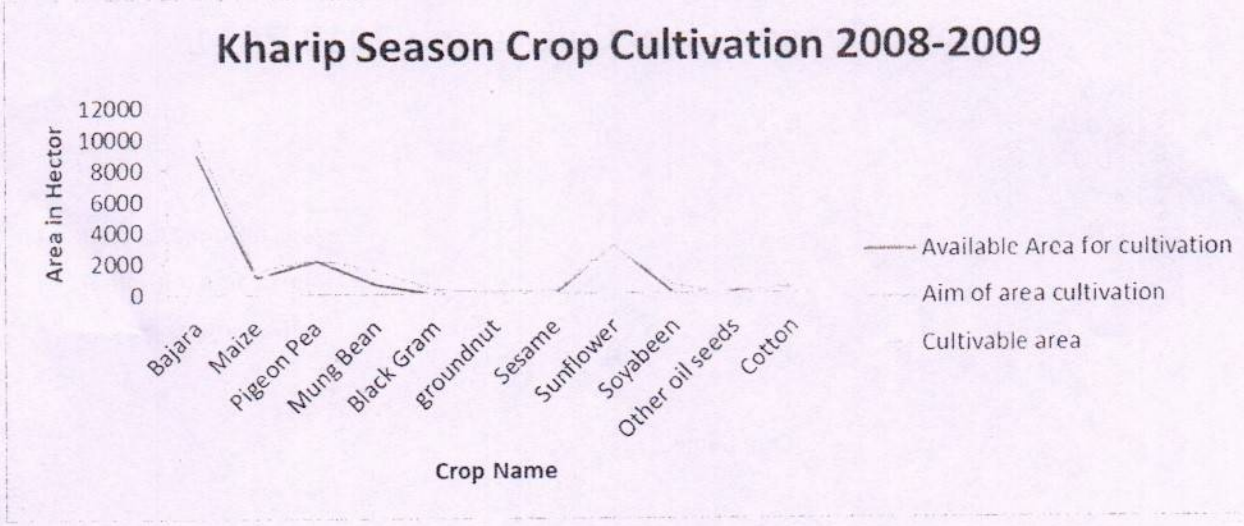
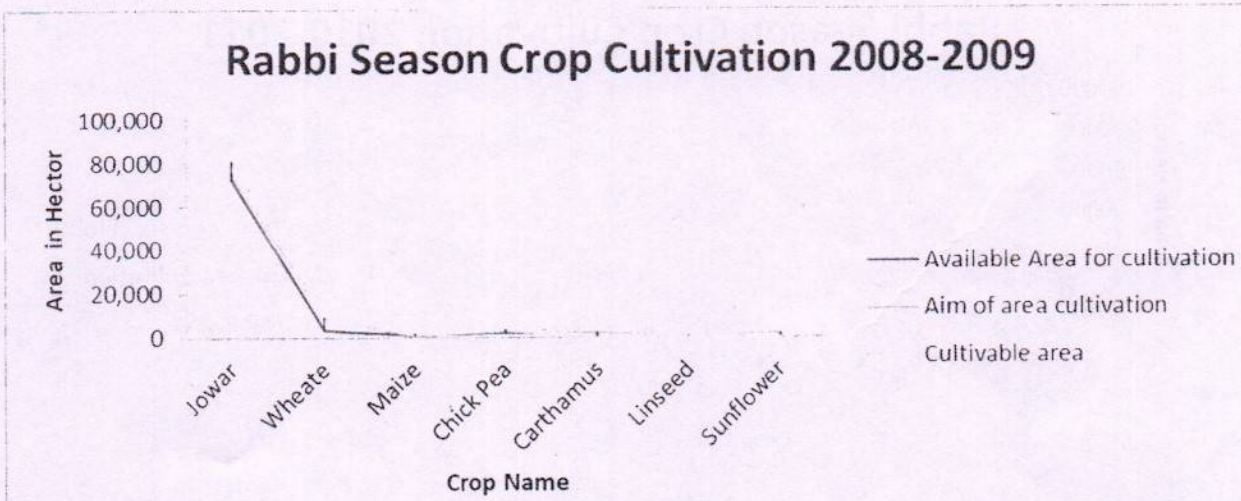
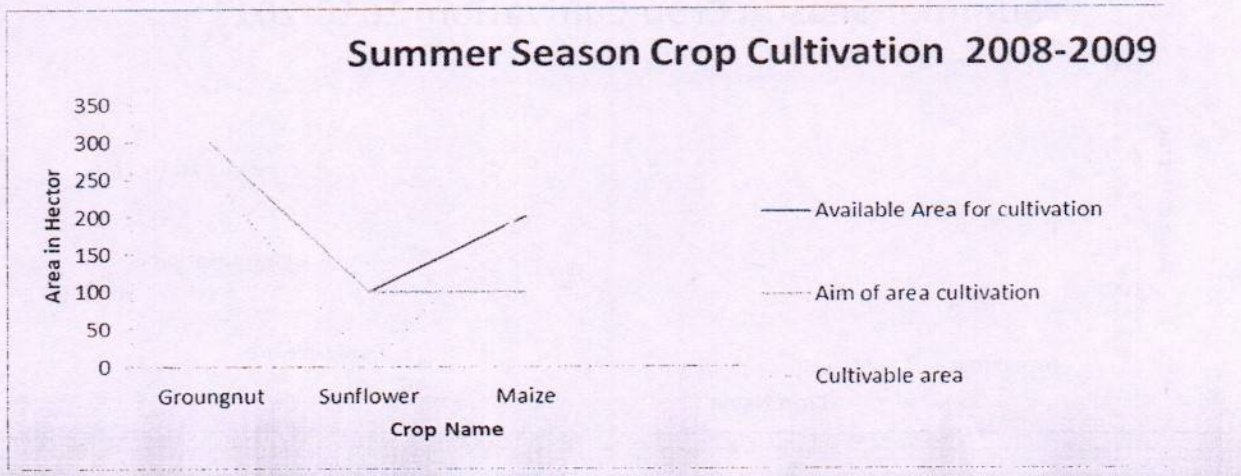
Area under cultivation 2008-09







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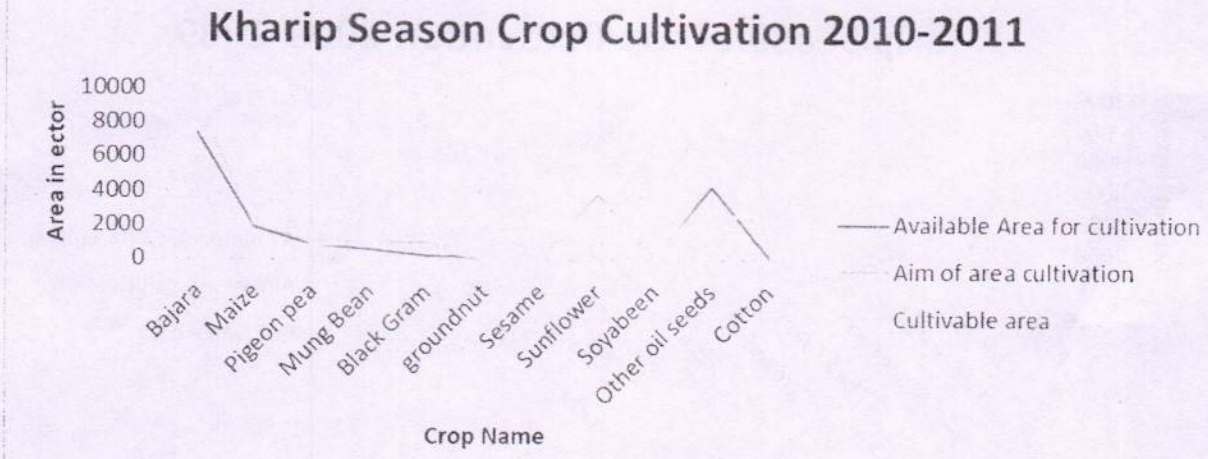
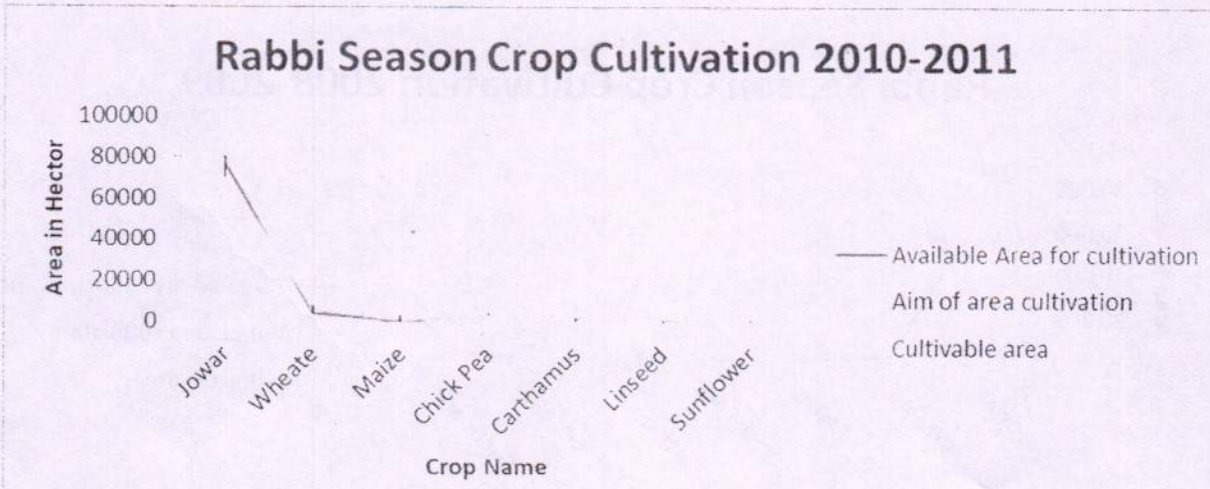
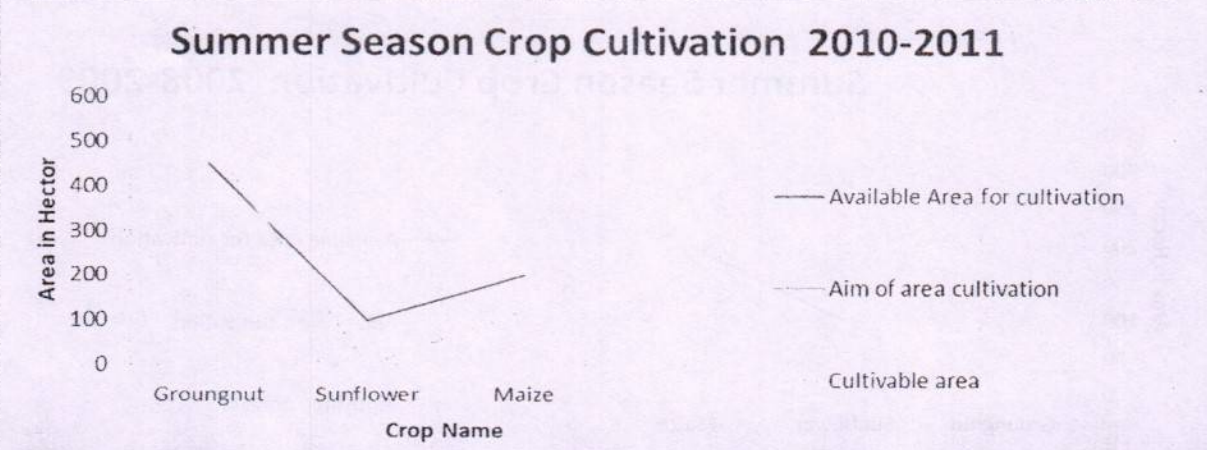
Area under Crop cultivation 2010-11







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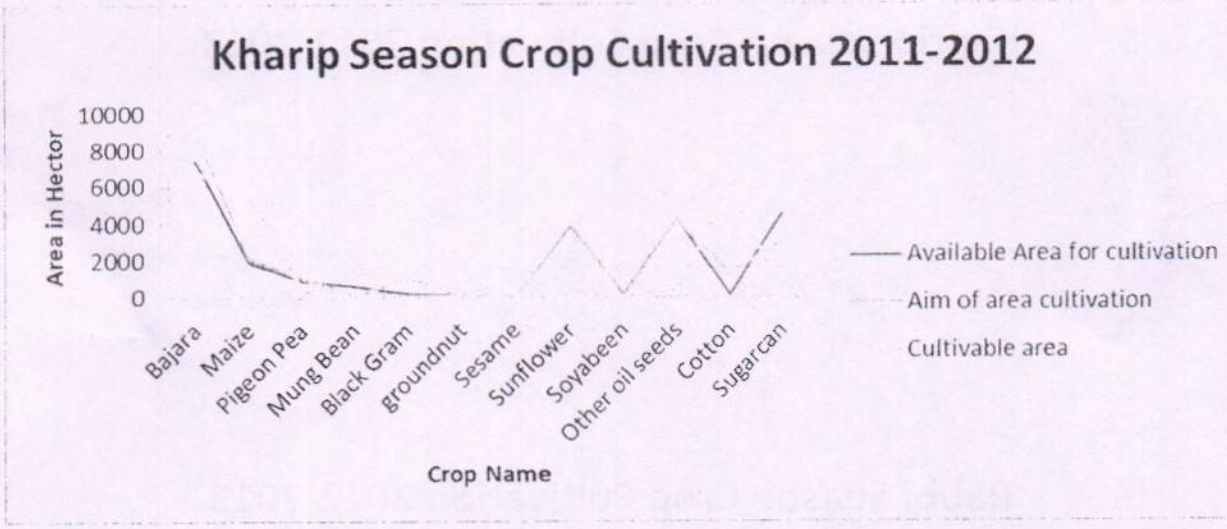
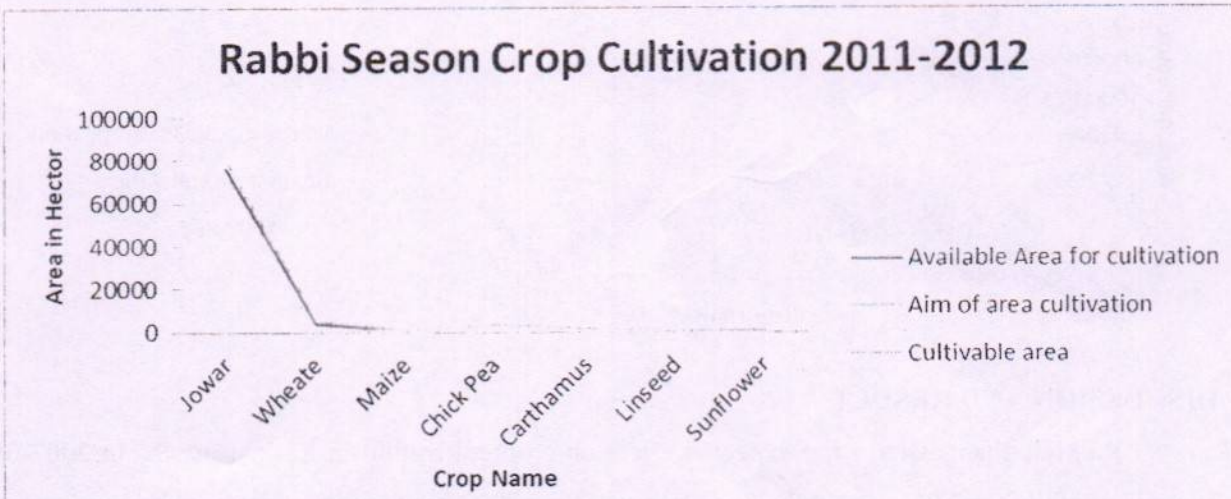
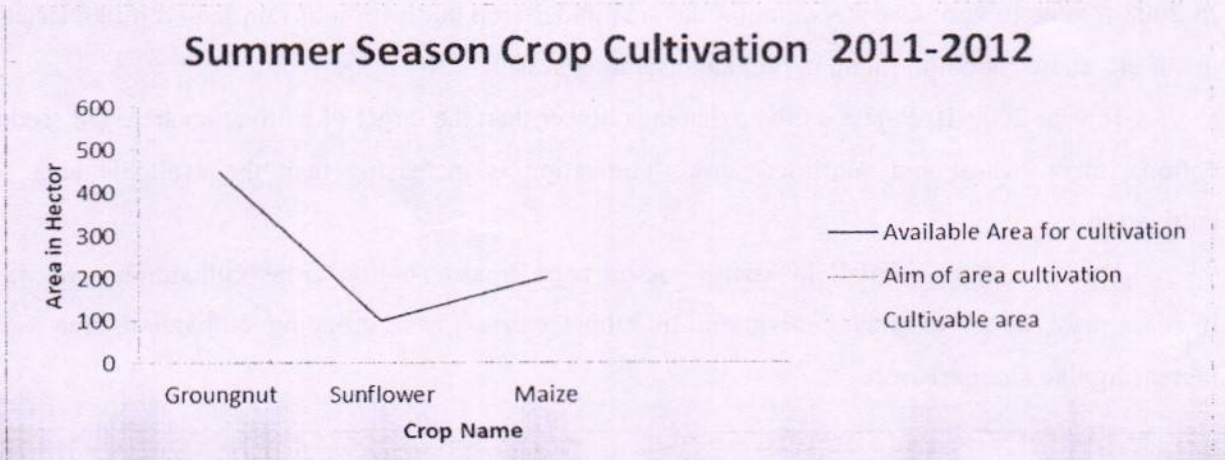
Area under Crop cultivation 2011-12







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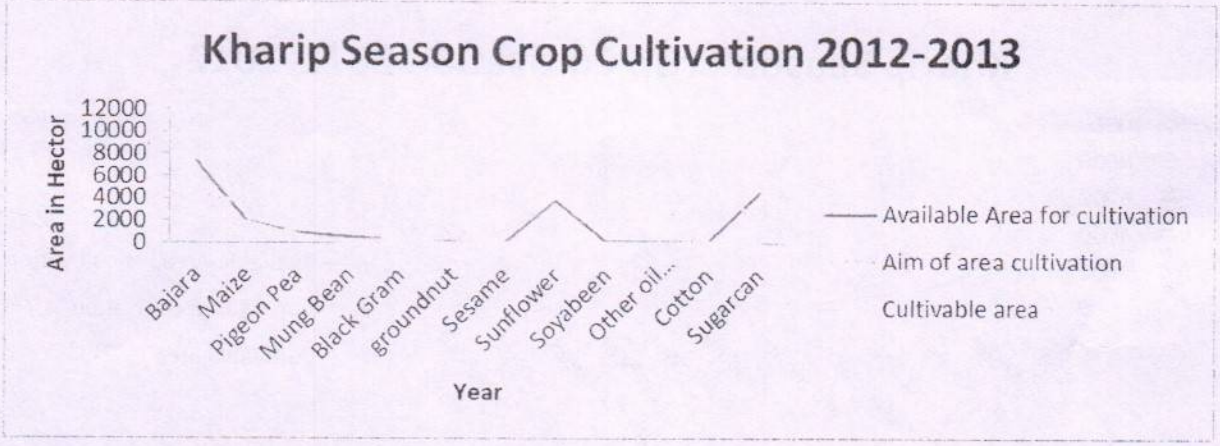
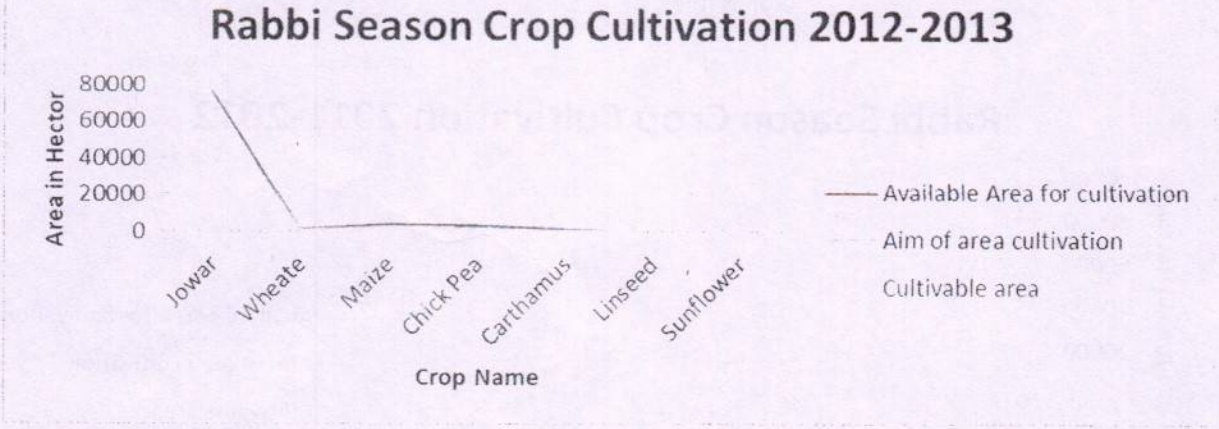
Area under Crop cultivation 2012-13





DISCUSSION AND RESULT

Rainfall changes have the expected effect on crop cultivation in KarjatTehasil. In 2007-08 average rainfall found 541mm. In this year Bajara, Mung Bean crop are increasing in kharip season. In 2008-09 due to very low precipitation the area under crop cultivation of rain fed crop like Bajara jowar etc. same condition found in rabbi and summer season.

In year 2009-10 Bajara cultivated area is higher than the target of cultivation area. Oil seeds, cotton, jowor, wheat and sunflower crops cultivation is increasing than the available area of cultivation.

Due to enough rainfall in kharip season bajra, maize, cotton crops cultivation area was increase than target of area cultivation. In rabbi season jowar cropping cultivation area was increasing like kharip season.

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In year 2011-12 due to low precipitation found crop cultivated area is less than target of cultivated area. In 2012-13 having excessive drought in Maharashtra so in this study area found very less cultivation in this time.

CONCLUSION

Karjat is one of drought prone area in rain shadow zone of Ahmednagar District; hence water scarcity is main problem in this area. Economic development of Karjat is totally depending on agriculture. Because of uncertain rainfall agriculture production is also change.

According to line graph of crop cultivation. Rainfall is reduced in 2006 to 2007 cultivation of crop is also reduce. Rainfall is increase in 2008-09 has increase with increasing crop cultivation.

Cultivation of the crop is very less in year 2012-13. This was great drought in India. Its shows that crop cultivation is purely depending on rainfall in region. Hence, the main conclusion that emerges from this area impact of rainfall change has the cultivation of agriculture is also change. The present evidence suggest that this region may be more likely to suffer by rainfall (dry drought) and losses in crop cultivation.

Researcher found many aspects regarding crop cultivation as well as selected crops and area under cultivation. In present farmers are aware about drought conditions and its effect so they were having used modern techniques of irrigation systems.

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