

# Adoption of conservation Agriculture Practices on Agricultural Productivity in Jhunjhunu Distt. Rajasthan

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## ABSTRACT

Climate change on the earth is partially takes place by the natural cycles of earth however currently human activities are still major source of climate change increasing level of greenhouse gases including carbon dioxide bring more heat to the earth as they have ability to absorb and emit heat in the atmosphere and thus keep earth. Agriculture sector is the back bone of the country's developmental and life line for 70 percent of the population is still dependent on agriculture for their live. Agriculture provides food to the millions of people and raw material to our industries. The development of agriculture seems to hold the key progress to our economy as a whole. Agriculture is the major sector of all economic sectors which has relevance by water scarcity agriculture accounts 70% of global freshwater withdrawals. Water is crucial component for food production. Since the biomass production requires huge amount of water to be transpired it will not be incorrect if we say that agriculture is both cause and victim of water scarcity. Growing demand with population growth has lead to large environment cost. There is a certain impacts climate change on water resources and water demand and similarly impact of climate change after hydrological regimes and the availability of fresh water with impact on rain fall and irrigated agriculture. Some of the dangerous human activities such as burning fossil fuels. Continued emissions of greenhouse gases will lead to further climate change. Future changes are expected to include a warmer atmosphere, a warmer and more acidic ocean, higher sea levels, and larger changes in precipitation patterns. The future of climate change is depend on us. What we do now to reduce greenhouse gas emissions. The more we emit, the larger future change will be. First times in world, mammals species goes extinct due to global warming. Crocodiles and Palm trees in the Arctic ocean is the example of the global warming.. this global warming is very dangerous for great barrier reef. This change is moving in the north pole. Change is very worst for the world all frost are melting. This climate change give effect on our health also. People suffering from allergies due to this climate change. Climate change conference are failed in front of this global warming and climate change.

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## INTRODUCTION

There is very low water use efficiency in the state and the quality and quantity of water is deteriorating making the state more water deficit. The changing longterm climate variables like precipitation, temperature and evapo-transpiration, will impact the surface water resources directly and groundwater resources as well but in a complicated manner. Change in the volume and distribution of groundwater recharge depicts the direct effect of climate change on it. With the scarcity of surface water is rising, the existing ground water resources are put under more pressure. This high and increasing dependency has resulted in its over-exploitation and hence nearly 80% of ground water witnessing depletion in the state. Climate changing scenario will further increase ground water extraction as it will negatively affect the availability of surface water. This situation will further lead to deteriorate ground water quality and have serious implications for health of the dependent population. Rajasthan is water scarce state with nearly 61% of the total area as desert. The state is also vulnerable to the maximum probability of occurrence of droughts in the country. A recent study has predicted that due to climate change the desert area over India may increase significantly in the next 100 years having potentially disproportionate impact of global warming on both human and natural systems (Bandyopadhyay, et.al. 2009). The great challenge for the coming decades will be the task of increasing food production with less water, particularly in countries with limited water and land resources. Conservation of available water resources for agricultural water use is the overall

aim of Govt. of Rajasthan. Crop Water Management is a key area to optimize crop production with limited and dwindling water supplies. The main challenge confronting water management in agriculture is to improve water use efficiency and its sustainability. This can be achieved through an increase in crop water productivity (an increased in marketable crop yield per unit of water transpired) through irrigation, a decrease in water losses through soil evaporation that could otherwise be used by plants for their growth, and an increase in soil water storage within the plant rooting zone through better soil and water management practices at farm and area-wide (catchment) scales.

To achieve stability and sustainability in the agriculture sector, the most important factor is a sustainable production of crops, particularly food crops. This has been the practice since long as food crops like wheat, rice, jowar, maize, bajra, ragi and pulses formed those food grains which were essential to feed the population. Commercial and industrial crops were not considered essentials. As time changed, the needs for the people expanded use of, technology yielded results. Commercialization of agriculture was also considered important to enhance farmers' income and improve his purchasing power. Today food production is not just a production of food grains but "Food" includes food grains, milk, fruits, meat, poultry, fish, etc. in a basket. Along with meeting the food requirements, it is also important to consider nutritional requirements under "Food & Nutritional" security for the people. Economic, environmental and social considerations are playing an increasing role in agricultural production. Careful and effective water management will form part of these considerations, as well as helping the farmer to continue producing profitable production. Farmers aim to guarantee that the safety and quality of the water which they use will satisfy the highest expectations of the food industry and consumers.

Deforestation and industrial emissions result to an increase greenhouse gases around earth's atmosphere. These greenhouse gases traps and absorbs atmospheric heat and ultimately cause global warming in the earth. Continental drift, Volcanoes, the earth tilt, and ocean currents, human causes and Greenhouse gases play main role in climate change. Causes are below:

- Carbon emission from burning gasoline for transportation
- Methane emission from animals, agriculture and rice paddy
- Deforestation wood in tropical area
- Increase in usage of chemical fertilizers on croplands

## REVIEW OF LITERATURE

**Bhaskar S. (2008)** observed that majority of the farmers were found to be favourably disposed in their attitude towards dryland agricultural technologies.

**Anirudh P.K. (2008)** in his study found that the yield per hectare in a watershed in the Shivalik Hills increased by adopting conservation practices from 68.5 per cent in the base year, 2005 to 85 per cent in the post project period 2009.

**Sharma S.K.(2008)** in his study on Alwar district reported that 15 per cent of the farmers had large land holdings, whereas 44.00 per cent of each had medium and small land holdings.

**Pandey M.P. and Ghosh A. (2008)** in the article on „Challenges to the Future of Agriculture-Global Perspective“ pointed out that water is becoming a looming crisis. By 2025 scarcity of water world threaten 30 per cent of the human population as 70 per cent of water withdrawals are used in irrigated agriculture globally. Africa and Asia have experienced an increasing shortage in per caput water availability.

### Study Area

Despite all visible effects of CA its adoption in many parts of Rajasthan like Jodhpur, Udaipur, Banswara, Chittaurgarh is generally low. Besides there are little empirical studies on adoption of Conservation Agriculture and factors that influence farmers to adopt CA practices in the region and their Impact on Agricultural Productivity in Jhunjhunu district, Rajasthan. Therefore this study intended to investigate factors influencing adoption of CA in Jhunjhunu district, Rajasthan. The study will be important for policy makers, extension officers, individual farmers and for will provide supplement information to those who may wish to conduct similar studies. Jhunjhunu District Jhunjhunu district is located in the extreme north eastern part (bordering Haryana state) of Rajasthan State and lies between 27°38' & 28°31' north latitudes and 75°02' & 76°06' east longitudes. It is surrounded by Churu district on the northwestern side Hissar and Mahendragarh district of Haryana State in the northeastern part and by Sikar district in the west, south and south eastern part. . The socio-economic conditions of the people are influenced by the availability of water for their demands. An integrated water resources development approach is essential for sustainable development of any country. Improper selection of cropping pattern and conjunctive use practice at field/regional level without giving due considerations to climate, groundwater quality, groundwater withdrawal, topography, selection of irrigation system and its management will deteriorate the soil and water 21 quality over a period.

Overexploitation of groundwater is becoming a significant problem in groundwater-irrigated areas, while water logging and irrigation induced Salinization/alkalization in irrigation commands are becoming bottlenecks in the sustainability of irrigated agriculture. These problems have overshadowed the planned benefits from irrigation projects. The need for conservation of water and land is much more relevant when they are becoming scarce.

### **Objectives of the Study**

- To examine the level of adoption of CA among farmers in Jhunjhunu District,
- To investigate the livelihood contributions of conservation agriculture to smallholder farmers in Rajasthan especially Jhunjhunu district.
- To analyze the actual practices of CA by smallholder farmers in Jhunjhunu district relative to the three recommended theoretical principles of CA.
- To determine the contribution of CA on agricultural productivity among farmers in Jhunjhunu District, and
- To evaluate socio-economic factors and institution factors that affect adoption CA in Jhunjhunu District.
- The main objective of promoting CA in Jhunjhunu district is to contribute to food security, improve profitability of agriculture and enhance the economic wellbeing of communities dependent on agriculture.

### **DATA BASE AND METHODS**

Further, a stratified random sampling survey has been conducted using structured questionnaire to analyse the farmers' response on the crop water stress adoption of agriculture conservation practices and techniques for water resource management in Jhunjhunu district of Rajasthan. The present research work following methods has been using during research work. The present research work is based on primary and secondary sources of data. The primary data has been collecting through, intensive field work with the help of schedules, interviews and discussions with the farmers, other relevant persons and authorities.

The secondary data has been collecting through Tehsil office & circle office etc. A schedule has been preparing to collect data and information regarding agricultural technology like irrigation of seeds, improved implements, fertilizer and pesticide consumption etc. The period of present investigation is considered from 2010 to 2015. The collected data from different sources has been processing and representing by employing different statistical and quantitative techniques like intensity; composite index and impact analysis have been made wherever necessary. The details regarding the various methods and techniques have been discussing at appropriate place in the present research work.

The stratified random sampling method (10 per cent sampling) is adopted for the selection of the villages besides this, to make the study precise and meaningful, the investigator carried out micro level analysis. The investigator has been attempting frequent discussions with the farmers and relevant authorities. This method too, proved the best in strengthening and confirming the collected information. 24 Data collection Interviews has been conducting in a conversation manner with Ministry of Agriculture and Livestock extension officers, as they play a vital role in the promotion of Conservation Agriculture. It is one of the ways in which information could be gathered. The semi structured interviews are important in gathering information from individual extension officers through probing. A list of questions has been preparing in advance and predetermined.

The list of guiding questions has been pretesting before the interviews has been conducting. Secondary Data Source The secondary data has been collecting from the Special Conservation Agricultural project reports, quarterly and annual Jhunjhunu district reports generated by the Ministry of Agriculture and Livestock. Sampling The participants that has been selecting for interviews are carefully sampled based on experience in the implementation of Conservation Agriculture within Jhunjhunu district. The focus of having, extension officers as part of the key respondents has been motivating by the focus of the study,

### **RESULTS**

Furthermore gender affect farmers to adopt CA, the study results showed that female farmers who adopted CA were few compared to male although there was a slightly different between male and female who adopted CA. The results from the secondary data showed that female who were using CA were few compared to male. Other factors such as education, household size, extension services, and age did not significantly influence adoption of CA. Also the government should establish rural financial institutions to address farmers' credit needs on loan terms with low interest rate. Recommendation to policy makers i. There is a need to have a clear policy framework to support CA in Jhunjhunu District so as to conserve environment around the mountains.



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