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**Micro level problems and management of agricultural activities Jagadishnagar village,
Magrahat Block -1, South 24 Parganas, West Bengal, India**

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Abstract

West Bengal is an agriculture based state of India as its economy is highly dependent on agricultural production. Being situated in the active delta part of Ganga still, there are some problems to cultivate food crop mainly-paddy as kharif and winter crop in some parts of the State. This Paper aims to find out agricultural problems in Jagadishnagar village, PS-Usthi, Magrahat Block -1 in West Bengal by a micro level case study and by household questionnaire survey. The total geographical area of Jagadishnagar village area is 211 hectare and out of which 70% is agricultural land and paddy being the dominant food crop. The village is characterized by presence of 127 households with a population 558 according to 2011 census. The entire study area has divided into four parts- northeastern, northwestern, southeastern and southwestern parts where Amon paddy alone holds 85% of the total agricultural land followed by vegetables production and it is found that the southeastern and southwestern parts of the village are better in agricultural productivity than the rest of the parts of the village. A comparative analysis between them has been done with the help of different statistical analysis which depicts that there are large variations in irrigation practices, economic condition, and family size, application of modern machineries and Government Policies and practice of crop rotation in these four segments. The finding of the research is that agricultural production does not take place much in winter season in the village due to lack of irrigation practice and practice of crop rotation and low income of the villagers and their economic condition become worse. The research suggests some suitable measures for the development of agricultural activities throughout the year to sustain the economy in future.

Keywords: Active delta, crop rotation, irrigation practice, kharif crop.

Introduction

West Bengal is an agriculture based state of India as its economy is highly dependent on agricultural production (NABARD, WB Report, 2010). Being situated in the active delta part of Ganga, still there are some problems to cultivate food crops mainly-paddy as kharif

and as winter or Rabi crop in some parts of the State (Bagchi, 1944). This Paper aims to find out agricultural problems and prospects in Jagadishnagar village, PS-Usthi, Magrahat block-1 in West Bengal by a micro level case study. Jagadishnagar is mainly agricultural

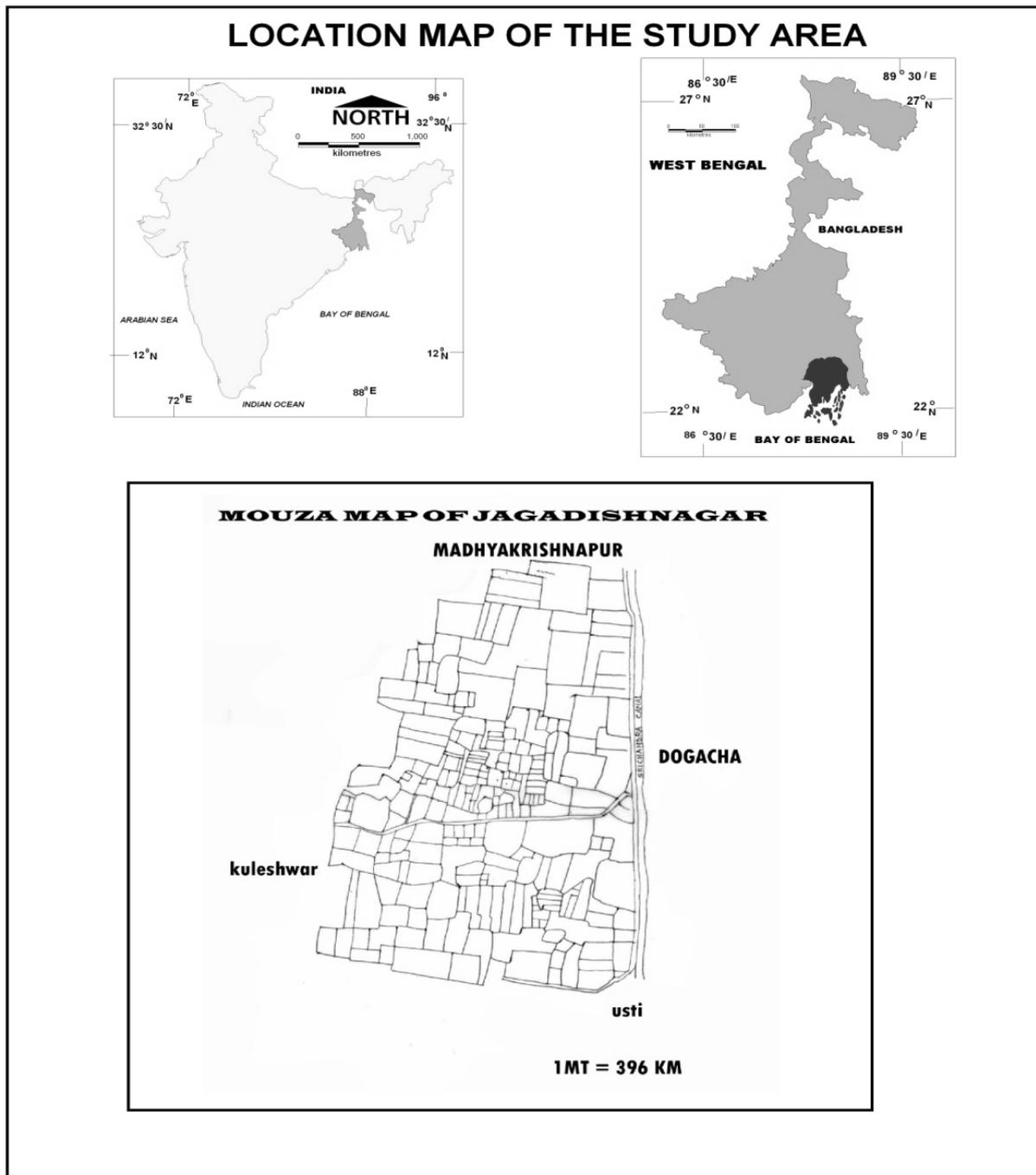


Fig.1. Location of study area

village where 60 to 70 percent of population engaged in agricultural activities but there are some wide variations in agricultural development throughout the area which hamper the economic development of the village.

The total geographical area of Jagadishnagar village area is 211 hectare and out of which 70% is agricultural land and paddy being the dominant food crop. The village is characterized by presence of 127 households with a population 558 according to 2011 census (Census, 2011) (Figure 1).

In the study area maximum family is nuclear family so the areas of agricultural lands are divided into small to smallest part. The farmers cannot afford to use high power machines to increase productivity due to low income and the agriculture is very subsistence type.

The irrigation system is very poor in the entire village. There are some ponds and only one canal which pass through the southern part of this village. So the southern part is more developed in agricultural activities than the northern part. In the northern part agricultural activity is less due to less availability of water for cultivation of paddy. Thus maximum number of farmers depends on the rainwater. Therefore, delays of monsoon, late monsoon creates the various problems to carry out agriculture in rainy season especially in the northern part. Thus the paper aims to highlight the micro level variations of agricultural activities within Jagadishnagar village and suggestions which can help to overcome the problems and make the village agriculturally developed.

Objective and Methodology

The present research work is based on the application of modern as well as conventional methodology with intensive fieldwork. This study is basically descriptive in nature and based on secondary and primary information. Both qualitative and quantitative methods have been applied to this research. The entire work may be divided into three parts- (i) Pre-field work (ii) Field work (iii) Post-field work. Pre-Field includes collection of block maps from Panchayat, geological information from geological survey of India, soil information from NBSS & LUP & AISLUS (ICAR), and the related literature from different sources.

Field work includes ground truth verification, collection of data on the basis of field survey, data from Irrigation Department, land use information from farmer's interview. A structured questionnaire based on an interview was conducted to study the research problems in and around the area. Collections of primary data from the research area through questionnaire, in-depth interviews with women, Focus Group Discussions (FGD), Participatory Rural Appraisal (PRA) are the important part of the research. The nature of the present research work is explorative and the whole work has been done by descriptive as well as analytical methods. Post-field work includes analysis of samples and data procured using the appropriate techniques of tabulation, statistical interpretation and final map preparation.

Results and Discussions

In Jagadishnagar village agricultural activity is the main occupation of the people and rice is the dominant crop but production of food crops vary from place to place. In the study area 46% water supply is obtained from rain water, 42% water supply from canal, which is flowing beside the village and the rest 12% of water supply from various ponds and other water bodies (District Census Hand Book, 2001). The canal supplies water with the help of mini pump in the agricultural field. So, large scale production of rice and vegetable production are not possible due to water scarcity in the village. As most of agricultural production depends on rainwater and irregular rainfall may be responsible for lower production in different parts. So, agricultural activities partly depend on irrigation system.

The comparative analysis between southeastern and southwestern and north eastern and north western parts reveal a wide

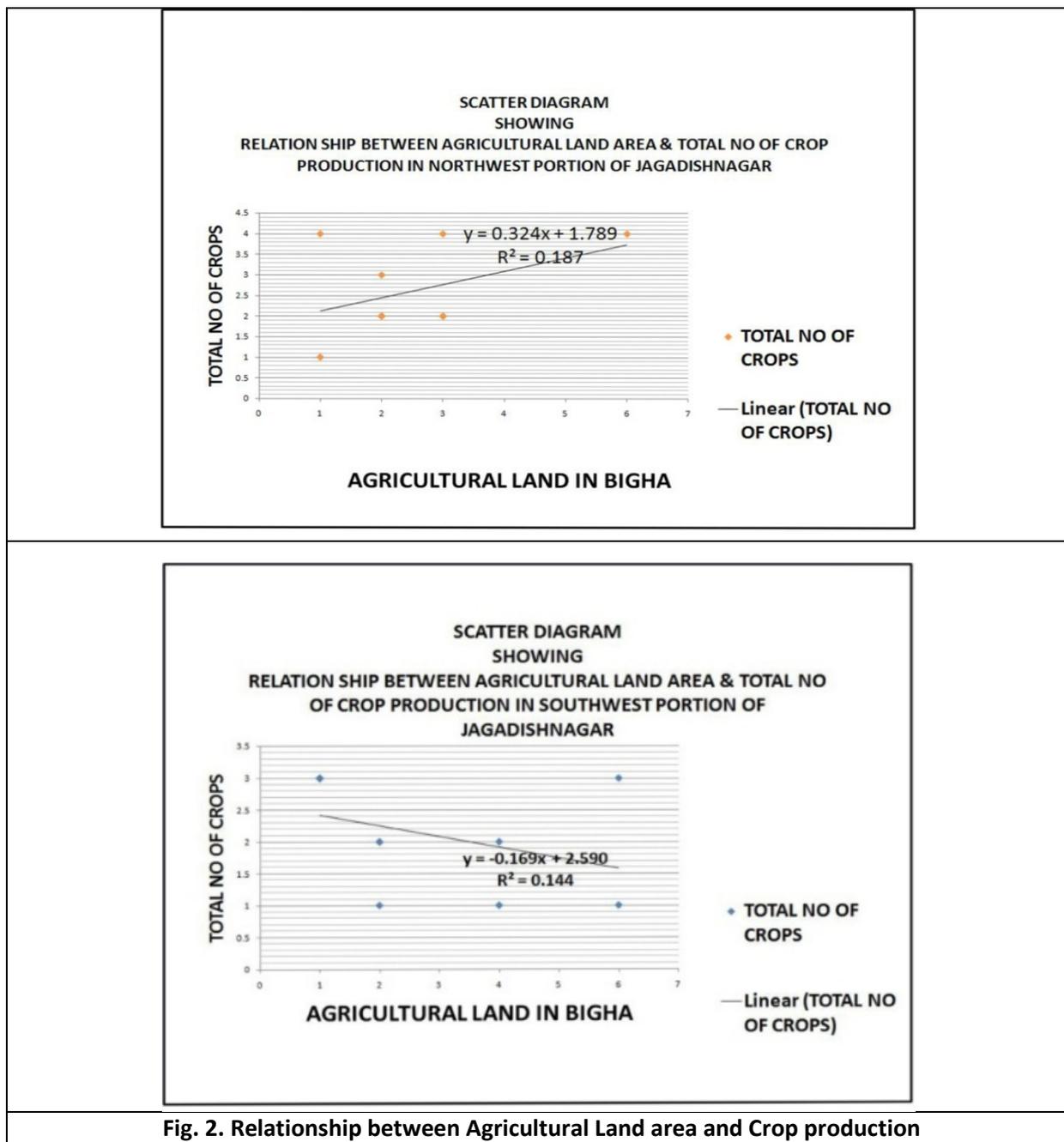


Fig. 2. Relationship between Agricultural Land area and Crop production

variation of cultivation of crops in the village based on the primary data collected in the field. In the south west part and south eastern part of the village, maximum land occupied by rice production is highest in the village. In the southwestern part maximum land occupied by rice is 46% followed by vegetable production 42%, cereal production 10% and oilseed production i.e., 2%. In the south east part of

the village maximum land occupied by rice i.e 54% and followed by vegetable production i.e., 38% and 6% for oil seed and 2% for other cereals. These are four crop regions. Food crop production is high due to availability of water and fertility of the land in this part of the village. The Maximum produced crops are rice and vegetables (83%).

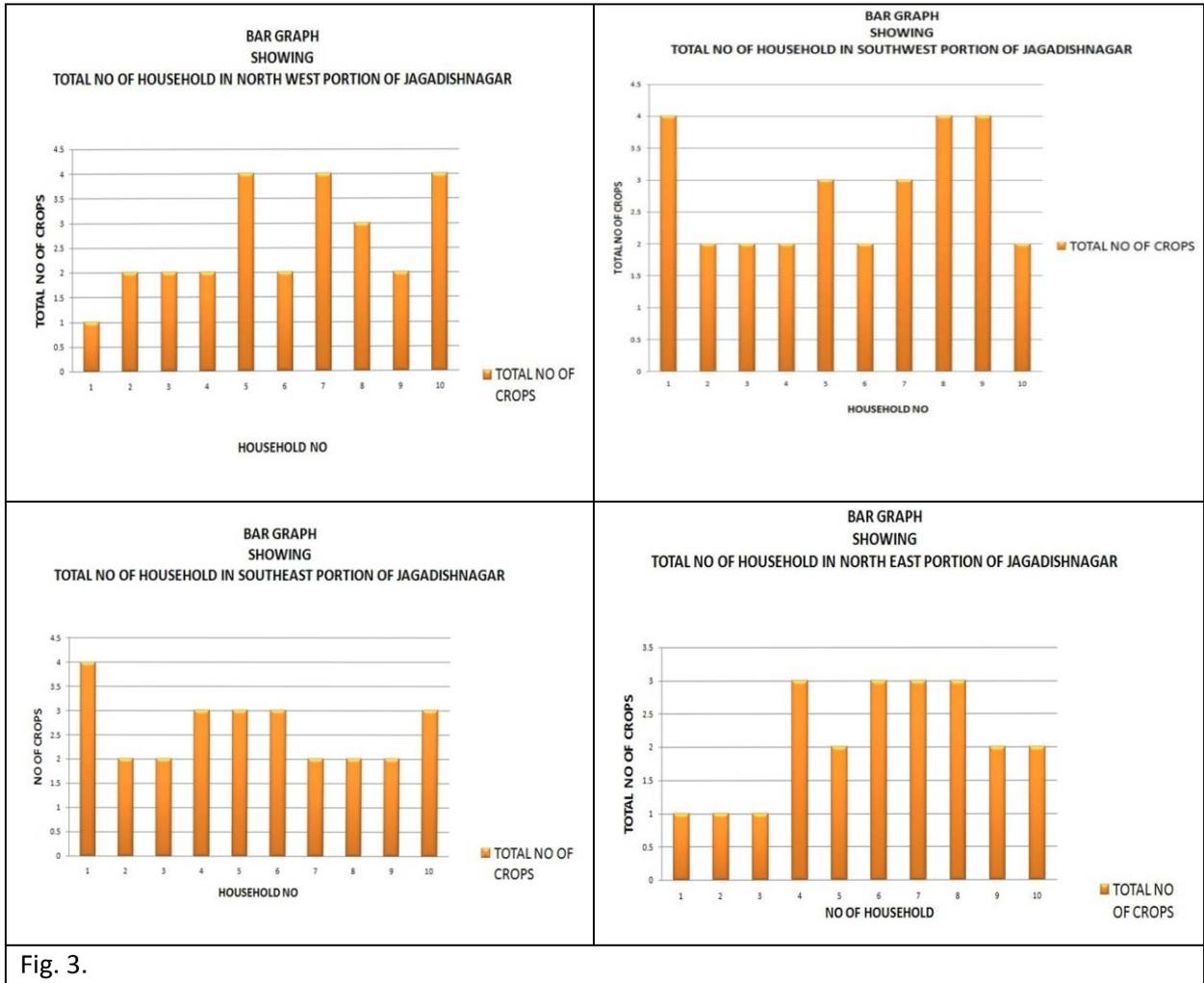


Fig. 3.

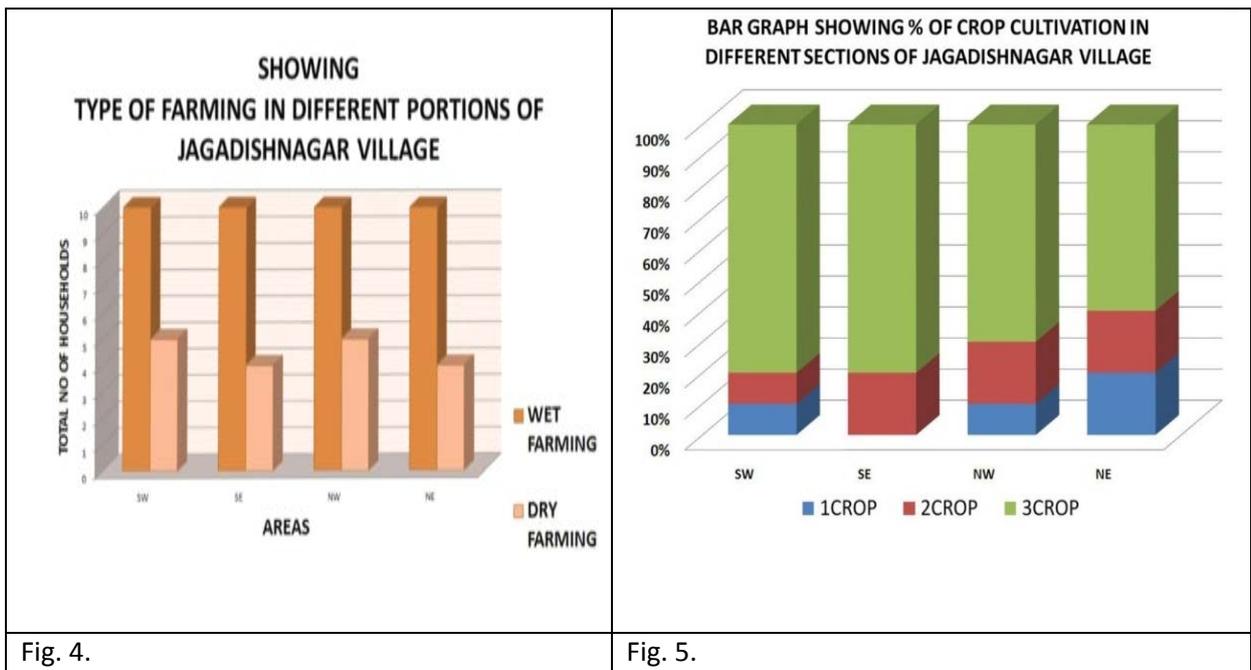


Fig. 4.

Fig. 5.

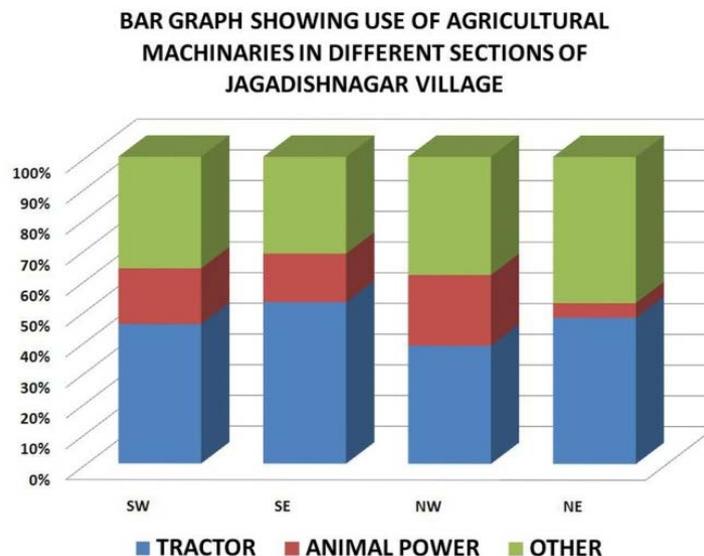


Fig. 6.

Whereas in the northeastern part and northwestern part of the village where maximum land occupied by vegetable production are highest i.e., 49% followed by rice production i.e., 33% and oil seed production 17% of the total agricultural land. In the North-West part highest land is occupied by vegetable production i.e., 53%, 34% by rice and only 13% for oil seed production. In these parts there are no land occupied in cereal production and oilseed production is more than that of the northern part of the village.

To show the relationship between agricultural land area and total number of crop production primary data were collected with the help of a proper questionnaire schedule. A moderately positive relationship between these two variables is found in the north east and north western part (Figure 2). In this case highest number of crop variation characterizes the largest land area. Where lowest number of crop variation characterizes lowest land area. In this part of the village the land under agricultural activity is very high i.e.,

near above 90% and the rest of the part is characterized by settlement areas and few percentages have seen for other uses. Whereas in the southwestern and south eastern part a negative relation is found between land area and crop production. In this part the total land area is near about 800 kathas where agricultural land is near about 80% and rest of the part is characterized by settlement areas.

This cartographic analysis represented the relationship between total no. of households and total number of crops in Jagadishnagar village. Here house hold number measure by 'X' axis and number of crops measure by 'Y' axis. It is found in the north eastern part and north western part of the village 60% family cultivated one crops. This one crop is rice. 30% family cultivated two crops. These two crops will be rice, cereals etc. and only 10% family cultivates 3 crops to 4 crops. But this number is very less in this part of the village due to the quality of the agricultural lands is not so high and most of the lands are wasteland or bad land. But in contrast the

south west part and south eastern part of Jagadishnagar Village 10% family cultivated one crop. This one crop is rice. 30% family cultivated two crops. These two crops will be rice, cereals etc. In addition, 20% family cultivates 3 crops and 40% family lead in 4 crops because in this part land quality is high and farmers use various machineries to cultivate the crops (Figure 3).

There are two type of farming practiced in the village i.e. wet farming and dry framing. In the south west part of the village wet farming is very popular but there is also 40-55% farmer cultivated the crop and vegetables in Dry season, where the technology is good. But in the northern part of the village, though the maximum farmer cultivated the crop in wet season but only 30% to 45% farmer cultivated the crop in dry season (Figure 4). There are three types cultivated land area in Jagadishnagar village. In south western part and south eastern part maximum agricultural lands are 3 crops i.e., near about 80% and two crop cultivated area is near about 20%. But in the north eastern and north western part three crop lands is near about 40 to 50%. So, we can say that the maximum number of farmer are using high technology in the southern part than the northern part of the study area (Figure 5).

In southwestern part and south eastern part near about 60% to 65%, villagers use tractors, harvesters, minipumps etc and 40% villagers use animal power and other traditional system. So, technological improvements are moderately good. In Northern part near about 50%, villagers use tractor, harvester, minipump etc. Nevertheless, 40% villagers use animal power and other traditional system, so there technological improvement moderately good (Figure 6).

Conclusions and suggestions

Above analysis show that in Jagadishnagar Village southeastern and southwestern part is better in position in agricultural activities than northeastern and northwestern parts of the village. In the south agricultural production is high because of availabilities of good quality lands and nearness to canal which help farmer to grow crops even in dry season. But in the northern part the large number of lands are wastes lands, wetlands, or badlands which are very much unproductive. Maximum number of farmers use inorganic fertilizers. But they do not know the negative impact of inorganic fertilizers used for crop cultivation for a longer time period. They get some government help but the banking help like loan system is very poor. Here 'NABARD' try to help to farmer by the banking system. But the process is very slow (NABARD, WB Report, 2010). They take loan with high interest from non-governmental source.

In Jagadishnagar village, the source of financial helps are three types, e.g., Government, Bank and other sectors. Here 50% of help come from govt. The govt. help come through panchayat office, B.D.O. and other sector. But the banking help only 32% and other help is 18%. Here banking help is lower than the govt. help. So banking help should be increased like financial loans with low interest. Farmers have lack of knowledge of various government schemes related to agriculture under five year planning e.g., IRDP, NREP, and RLEGP etc. Here 15% family earns below 5000 rupees from their agricultural activities, 31% family earns 5000 to 10000 rupees, and 35% family earns 10000 to 20000 and only 19% family income 20000 above. Here we see the 35% family income 10000 to 20000, which is very low income of present market price. The level of income is also proportional to the amount of crop

production. The type of agriculture in the study area is very intensive by character. So very small amount of production are used for trading to the local market. So, for future there should be some suggestions for betterment of agricultural activities in the entire village.

- The area of agriculture land should be large
- Use high technology and increase the application of green revolution process.
- Co-operative agricultural system should be started.
- Active participation of govt. and non govt. sector to agricultural development.
- Control the irrigation system by panchayat with positive view.
- Active connection into farmer and agricultural specialized man.
- Harvesting or save water should be under in tax.
- The use of ground water should be under in taxation.
- Follow the crop rotation system and inter culture system.
- Increase the bank loan with low interest.
- A farmer should be informed about the various techniques and other information like govt. help, weather forecasting, water table etc.
- Various govt. policies may use like Integrated Rural development programme (IRDP), National Rural Employment Programme (NREP), Rural Landless Employment Guarantee Programme (RLEGP) etc.

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