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Changing Trends Of Agricultural Practices And Their Sustainability: Its Impact On Socio-Economic Status Of Rural Assam.

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Abstract

Agriculture is the back bone of Economy of Assam as well as the country as a whole . National income of our country and the state income of our native Assam is mostly dependable on agricultural sector. It is mostly peasant agriculture, contributes 47% of the state's total income and engage 56 % of the total work force of the state. But now days agricultural practice changes due to increase in population and high demand of food grain . So to meet the excess demand ,use of chemical fertilizer , pesticides ,insecticides ,fungicides and high yielding varieties seeds are necessary to increase the agricultural productivity. But the excess use of chemical fertilizer destroys soil health of the state, will results again low productivity and food crisis in near future. Hence sustainable development in agricultural sector is highly essential today. The key to sustainable agricultural growth is more efficient use of land ,labor and other inputs through technological progress ,social innovation and new business models . Climate-smart agriculture aims at sustainably increasing food security and incomes, and adapting and building resilience to climate change, while capturing potential mitigation co-benefits.

The aim of the study is to discover the basic problem faced by farmer in Jamadarhat Development Block area, to increase agricultural productivity without hampering soil health, Eco-friendly cultivation, use of organic fertilizer and Vermicompost etc. Also try to find the solution to overcome the problems which helps to improve socio economic status of rural Assam.

Keywords : Agriculture , Soil health , Sustainability , climate , organic .

1.Introduction :

Agriculture is the main occupation since the beginning of our civilization . At that time population of our planet was a few and the method of agriculture was organic and self sufficient , called peasant agriculture which was absence of all modern tools like use of chemical fertilizer ,mechanization , irrigation etc. As the time passes population of world increases , demand for food grains also increases , method of agriculture

changes to increase its productivity to meet excessive demand for it. Chemical fertilizer invented , mechanization of agriculture starts and peasant agriculture transformed to today's modern agro - industry .Now due to the use of much chemical fertilizer , non degradable pesticides on land and on the crop ,only to increase its productivity and products to be lucrative. As a result , Soil health and quality of foods destroyed in such a way that near future is not far way to population pandemic . Hence the big question of sustainability in agricultural practice and organic methods of agriculture arises to all over the world today .Similarly , our country as well as our state Assam is also on the same thereat , so sustainability in agricultural practice through organic method of agriculture is highly essential to improve socio –economic status of rural Assam .

Therefore in order to explore the major constraints and problem of sustainable agricultural practice as well as prospect of organic farming in rural Assam , a case study is being carried out in Jamadarhat Development Block area, which is completely agrarian area characterized by subsistence nature of farming system .

2. Objectives : Following are the main objectives of study

- I) This paper aims to explore the main constraint and problems of sustainable agricultural practices .
- II) To find out the prospect of organic farming through the use of naturally fertile soil of river bank (Char land) of the area under study.
- III) To find the way how to intact soil health of the area under study so land left useable for future generation .
- IV) To make an awareness among the farmers to avoid use of Toxic chemical fertilizer which disrupts soil health .
- V) To make sure, how to improve socio economic status of rural Assam through organic farming.
- VI) To improve wellness of the common people of the area understudy through the use of natural less toxic food items .
- VII) Try to sustain ecology , bio- diversity , eco- friendly agriculture , and pollution free environment of the area under study .

3. STUDY AREA :

The area under study is Jamdarhat Block Development area under District Dhubri (Assam) is confined between 90.12 E to 90.70 E longitude and 25.97 N to 25.99 N latitude and 25 metres Altitude . Jamadarhat Development Block located under Dhubri Sub division of Dhubri District covers geographical area of 145 sq. km. It consist of total population 55129 person out of which 27880 male and 27249 female .Total number of household is 12253 according to 2011 census .There are 9 Gram Panchayat having 90 G.P units comprising one Zila Parisad constituency, in 39 Jaleswar L.A.C under Dhubri parliamentary constituency , the area stands in the south bank of mighty Brahmaputra river . Most of cultivated land area under study in this location is flood affected and highly thread full to river erosion but more fertile .

4. Methodology: A. Data Source :

Present study is based on both primary as well as secondary data . Primary data is collected based on sampling method, purposively investigated from 90 G.P units of the area under study. From each G.P unit one farmer is selected randomly and related data collected from the farmer. The secondary data is collected from District census data ,statistical handbook of Assam , census 2011.

B. Line of Analysis :

- i) To fulfill the objectives of the study percentage , Tabulation , Graphs has been used .
- ii) In some cases to fulfill qualitative objectives , such as wellness of the common people , awareness among the farmer regarding use of vermicompost , qualitative description method is used.

c. Sampling Design:- Three stages of sampling design has been followed for the present study to achieve the goals and findings .

Stage -1: The whole geographical area of ,Jamadarhat Development Block area of Dhubri district has been chosen for the study.

Stage -2: All 9 (nine) Gram Panchayat (G.P) namely Airkata G.P , Sundarpara G.P , Tarangajhar G.P , Jamadarhat G.P , Chirakuti G.P , Medortary G.P , Beldubi G.P, Nichinpur G.P and Dingdinga parowa G.P has been selected for the present study .

Stage -3 : Ten samples has been collected from each G.P area , one from each G.P unit area through random sampling method and thus total 90 samples has been collected from farmers under study . All the primary data relating to agriculture is collected through questioner method . The sample of Questioner is given below .

Data collection Form

serial no :.....

A. Land holders Description

- 1.Name of the Farmer :..... Age :..... Date of Birth :
2. Religion : Sex :.....
3. Name of G.P :..... Unit :..... Village :.....
4. Educational status :..... whether in Govt. Service : Yes / No
5. Marital status : Married / Not Married / widow (please tick on the answer)
6. Number of person in the family :..... Male : Female :
- 7.Number of person < 6 years age : Male : Female :
8. Number of person < 18 years age : Male : Female:.....
9. Number of person < 60 years age : Male : Female:.....
10. Number of person > 60 years age : Male : Female:.....

B. Land holding & cultivation Description

11. Land occupied : (area in Acre)
- 12.Land used for Cultivation : (area in Acre)
- 13 . Type of crops :..... (cash crops / food crops)

- 14 . vegetable : (seasonal / all weather)
 15. Paddy cultivation : (HYV / Traditional)
 16 . Others :

C. Chemical fertilizer use Description

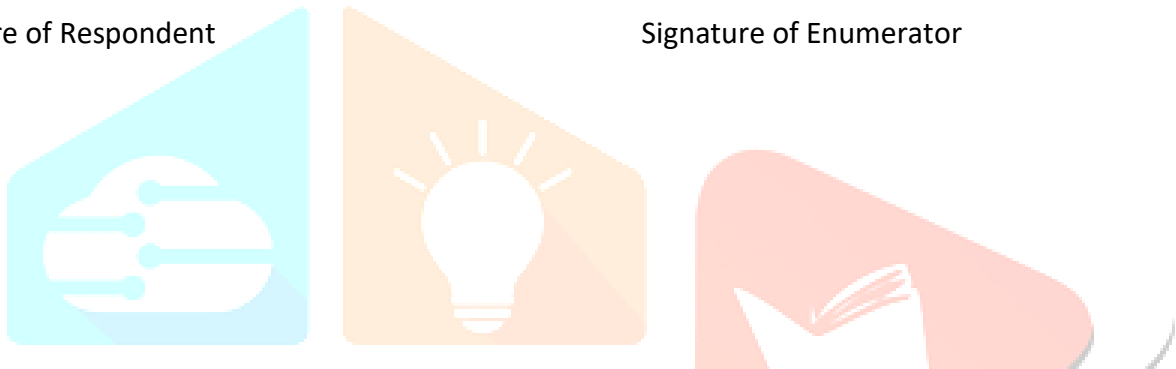
17. Nitrogen (Urea) used per Acre) : (Below / Above as advised by
 Agriculture field officer)
 18. MOP & Super Phosphate used per Acre :
 (Below / Above as advised by Agriculture field officer)
 19. Pesticides : (Harmful / Non harmful)
 20. other chemicals : (Bio –degradable / non bio-degradable)

D. USE OF ORGANIC FERTILISER

- 21 . Organic fertilizer used : (Yes /No) , % of land where used :
 22. Eco – friendly chemical used : (Yes /No) , % of land where used :

Signature of Respondent

Signature of Enumerator



Land Use :- On the basis of above questioner primary data is collected from 90 household of the area . using statistical tools like arithmetic mean and average percentage the following outcome is found regarding the use and possession of agricultural land as shown in below table:

Family having own agricultural land (in %)	Number of family who is cultivator but land less (In %)	Family having own agricultural land less than 6 Acre (in %)	Family having own agricultural land more than 6 Acre (in %)
54%	46%	85%	15%

Cropping Pattern :- Type of crops cultivated in this area are mostly depends on weather condition and seasonal. Food crops are the main crop here , cash crops also produced in few land . Paddy is the main food crop , both traditional as well as high yielding variety (HYV) of paddy cultivated here . The HYV are sonali , Lalpan etc cultivated during February to June and traditional varieties are Sali , jhoha (scented rice) etc. cultivated during June to October month of the year. Famers cultivate paddy here mostly for their subsistence only not for commercial purpose . Cash crops like oil seed , pulse , are also produced in fertile char area in huge percentage during October to December , at the same period wheat also cultivated in few land of river bank area, other cash crop like jute cultivated during April to August. Vegetables like potato , tomato, cauliflower , cabbage , chilly , radish , carrot etc. also produced in large percentage but only to meet local market demand . Fish culture and horticulture practices in few

area , Banana is the main horticultural product here . On the basis of the 90 nos of sample , in terms of preference given in percentage , cropping pattern of this area is, shown in below table :

Food crop (Paddy both seasonal & Traditional)	Cash Crop (oil seeds , Pulse etc)	Vegetable (potato, tomato and others)	others (Banana and others)
60%	25%	10%	5%

Agricultural Productivity:- Productivity of different crop is shown in below table which is not satisfactory :

Paddy (Seasonal)(Quintal per Acre)	Paddy (HYV) (Quintal per Acre)	Mustard seed(Quintal per Acre)	Potato (Quintal per Acre)	Jute(Quintal per Acre)	Chilly (Quintal per Acre)
7	21	3	50	6	15

Chemical Fertilizer Use :-After analysis of the collected data , it is seen that both harmful and non harmful chemical fertilizer used in huge percentage which is much higher than official ratio of agro-nutrient . Most common chemical fertilizer uses in this area are urea (nitrogen) ,MOP (Murat of potash), Super phosphate , Zinc , D.A .P etc. Following table shows a comparative study the use of official ratio of chemical fertilizer per acre of land and what the farmers actually uses

Use of Urea & Phosphate in KG per acre .

Urea			Phosphate		
Official Ratio	Actual use	Excess use	Official Ratio	Actual use	Excess use
15 kg	50 kg	3 times	20 kg	60 kg	3 times

Use Potash & D.A.P in KG per acre .

Potash			D.A.P		
Official Ratio	Actual use	Excess use	Official Ratio	Actual use	Excess use
8 kg	24 kg	3 times	10 kg	30 kg	3 times

Use of Pesticides :-Pesticides are sub divided into two categories such as insecticides and Fungicides .Different kind of Pesticides uses in this area all are harmful and non eco friendly in nature . Due to continuous use of such high power pesticides natural pest control power of nature reduces day by day. Some internationally banned pesticides like Rogar, Superkiller , Forate (these are trade names) are also uses in this area in huge percentage .

Use of organic fertilizer :- A negligible percentage of farmer uses organic fertilizer in few land to meet their own family needs . Only some selected vegetables produces in their kitchen garden where uses vermicompost . Most important ingredients of vermicompost is cow dung , which founds available in this area but used as fuel. These are the actual scenario of agricultural practice of the area under study.

Sustainability of agricultural practice through organic farming :- The concept of sustainable agriculture can be described as a system of ecological farming practices , which is based on scientific innovations . It is possible to produce healthy foods with respect for the land ,air ,water ,and farmer's health and rights through organic farming . Now let us discuss , what is organic farming ? Organic farming is an agricultural approach that advocates healthy products free from components that may harm human and nature . It involve care for field employees , and aim at maintaining the harmonious balance in the environment keeping it as alive and productive as possible. Expanding the common saying to agriculture , we can state that healthy soil produces healthy crops and healthy crops foster a sound mind in a sound body – with good immunity ,regeneration properties , and no disease suffered .

Prospect of organic Farming :- Now a days prospect of organic farming is very high in every corner of the world only to avoid life style diseases .Every one desire to have organic agricultural products but only few farmers produces a few products using this methods. Form the analysis of collected data it is found that , in this area also demand for organic products is high in relation to its supply . As a result , prices of such product as well as profit from it also high . Hence , if farmer of this area employ themselves in organic farming , commercially they will benefited and socio economic status of the area under study will develop , which will add fuel to the economic development of rural Assam. On the other hand , this changing trends of agricultural practice through organic farming , will intact soil health of the area and improve human health of present as well as future generation . Organic agriculture supports the ecosystem balance spares natural resources . This approach ensure the availability and productivity of land in the future . It boosted soil quality ,recycled natural wastes for manure ,protect environment , improve product taste and nutritional value , ensure food quality and certification , finally refused health threatening chemicals .

Findings :- From the study some crucial results found regarding the prevailing agricultural practice of this river bank naturally fertile area, are considered

below :

1. Maximum farmers are marginal farmer and lack of proper knowledge regarding modern agro based farm economy .
2. The farmer suffers a lot from Poor marketing system and lack of cold storage facility to store perishable commodity .
3. Lack of co-ordination between farmer and Government .No proper guidance is done from Govt. Agriculture Department .
4. They uses only toxic chemical fertilizer and harmful pesticides.
5. No soil test facility to detect soil health and lack of branded high yielding variety (HYV) at reasonable price .
6. Uses harmful chemical to produce lucrative vegetable only to earn money and not caring human health .
7. Uses excess chemical fertilizer due to ignorance to produce more and neglects soil health.
8. Lack of training regarding organic farming .
9. Lack of awareness regarding threat to future generation .
10. Mostly depends on nature and lack awareness regarding crop insurance to avoid unforeseen loses due to natural calamities.

Policy implication :-Government of India as well as Govt. of Assam both introduces a number of policies to improve farmers socio economic condition but due to improper implementation of those scheme , the poor and marginal farmers are yet to benefited from the scheme in this area under study. Sometimes benefits of the scheme goes to non farmers pocket instead of original farmer .For example – through Proadhan Mantri Kissan Sanman yojana (PMKSY) non farmers are mostly benefited in this area . Hence proper implication of Govt. scheme is highly necessary here.

Conclusion :- In the present study , it is observe that farmers of this area are socio economically backward . Most of the paddy producer have no own land , they take land from other on lease. **Prime Minister Narendra Modi says** , “ we have to prove two things . First , our farmers have to feed the nation and the world and , secondly , our agriculture should be able to provide financial sustainability to farmers.”

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